

**SURVEY AND ANALYSIS OF LOCAL FORESTRY-RELATED
ORDINANCES IN THE NORTHEAST, MID-WEST, AND WESTERN
UNITED STATES**

by

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(Abstract)

In the United States, federal, state, and local forest policies affect many aspects of the forest industry. Regulations from all levels dictate how resource professionals manage the forest resources of the country. This study examines state and local regulatory relationships with a primary focus on local regulations in the Northeast, Mid-West, and western regions of the United States.

A total of 388 local forestry ordinances were identified among the 35 states of the Northeast, Mid-West, and western regions of the United States. The Northeast contains the majority of local forest ordinances with 351. These ordinances are distributed among 8 states and many small local government types. The Mid-West currently embraces fewer local forest regulations with 16 ordinances across 4 states. In the West, 21 local forestry ordinances were found of which most are fostered by comprehensive forest practice acts. The primary objective of most local regulations in all regions is to regulate timber harvesting to some degree. The scope of the remaining local regulations; however, varied by region.

The presence of local regulations has existed for over 30 years, and there are indications that they will have an even greater impact on forest management in the future. In addition, local regulations are steadily becoming more comprehensive in scope, which makes it difficult to determine their impacts. The cumulative impact of local regulation

rests not only in the number of ordinances, but also in the area they govern, stringency of provisions, local resource conditions, and degree of enforcement.

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Table of Contents

Chapter 1. Introduction	1
United States' Forest Resource.....	1
Problem Description.....	2
Forest Regulation.....	5
Local Forestry-Related Ordinances.....	7
Study Objectives.....	8
Chapter 2. Literature Review	10
Federal Environmental Regulation.....	10
State vs. Local Forestry Regulation.....	12
Local Government Authority.....	14
Local Forestry Regulation.....	15
Chapter 3. Methods and Procedures	19
Survey of Local Forestry-Related Ordinances.....	19
Local Forestry-Related Ordinance Analysis.....	20
Local Regulation Categories.....	22
Timber Harvesting Ordinances.....	22
Public Property and Safety Ordinances.....	22
Tree Protection Ordinances.....	23
Environmental Protection Ordinances.....	24
Special Feature Protection Ordinances.....	24
Study Limitations.....	24
Chapter 4. State Forest Practice Acts	26
Northeast Region.....	29
Connecticut.....	30
Maine.....	32
Massachusetts.....	35
Mid-West Region.....	38
Western Region.....	38
California.....	39
Idaho.....	43
New Mexico.....	45
Nevada.....	48
Oregon.....	51
Utah.....	54
Washington.....	56
Chapter Conclusions.....	59
Chapter 5. Survey Results of Local Forestry-Related Ordinances by State	63
Northeast Region.....	63
Connecticut.....	63
Maine.....	68
Maryland.....	70
Massachusetts.....	73
New Hampshire.....	74

New Jersey	76
New York	80
Pennsylvania.....	84
Rhode Island.....	88
Mid-West Region	89
Indiana	89
Minnesota	93
Ohio	96
Western Region	97
California.....	98
Nevada.....	101
Oregon.....	101
Utah	104
Washington.....	105
Chapter Conclusions.....	107
Chapter 6. Regional Analysis of Local Forestry-Related Ordinances.....	112
Northeast Region	112
Summary of Local Ordinances	112
Regulatory Categories	115
General Provisions of Local Forestry-Related Ordinances.....	118
Enactment Dates and Government Types.....	120
Region Summary	124
Mid-West Region	125
Summary of Local Ordinances	125
Regulatory Categories	128
General Provisions of Local Forestry-Related Ordinances.....	130
Enactment Dates and Government Types.....	132
Region Summary	135
Western Region	135
Summary of Local Ordinances	136
Regulatory Categories	139
General Provisions of Local Forestry-Related Ordinances.....	141
Enactment Dates and Government Types.....	142
Region Summary	146
Chapter 7. Project Summary	147
Study Conclusions	149
Areas of Further Research	151
Literature Cited	153
Appendix A. Survey Request Letter	157
Vita.....	158

List of Tables and Figures

<i>Table 4.1. Constitutional provisions of state government showing relationships with forest practice acts and local forestry-related ordinances for the Northeast, Mid-West, and western United States.</i>	27
<i>Table 4.2. The legal framework of forest practice acts relating to local forest regulation.</i>	28
<i>Figure 4.1. States with forest practice acts in the Northeast, Mid-West, and western United States, shown by cross-hatching.</i>	29
<i>Table 4.3. Relationship of forest practice acts to local forestry-related ordinances shown by regulatory category for the Northeast, Mid-West, and western United States.</i>	60
<i>Figure 5.1. States of the Northeast that have local forestry-related ordinances, shown by cross-hatching.</i>	65
<i>Figure 5.2. States of the Mid-West that have local forestry-related ordinances, shown by cross-hatching.</i>	90
<i>Figure 5.3. States of the West that have local forestry-related ordinances, shown by cross-hatching.</i>	98
<i>Table 5.1. Numbers of local ordinances detected by state and regulatory category for the Northeast, Mid-West, and West.</i>	108
<i>Table 5.2. General cost and penalty provisions addressed for states with local ordinances in the Northeast, Mid-West, and West.</i>	109
<i>Figure 6.1. The number of local forestry-related ordinances detected in the Northeast by state, shown by cross-hatching.</i>	113
<i>Table 6.1. Number of local ordinances detected in the northeast region by state and category.</i>	115
<i>Figure 6.2. Local ordinance percentage by regulatory category for the Northeast.</i>	116
<i>Table 6.2. The percentages of local ordinances in the Northeast by state and regulatory category.</i>	117
<i>Figure 6.3.¹ Percentages of northeast ordinance enactment dates by period.</i>	121
<i>Figure 6.4.¹ Percentages of northeast ordinances by year range and regulatory category.</i>	122
<i>Figure 6.5. Government types that enacted local ordinances in the Northeast, by percent.</i>	124
<i>Figure 6.6. The number of local forestry-related ordinances detected in the Mid-West by state, shown by cross-hatching.</i>	126
<i>Table 6.3. Number of local ordinances detected in the mid-west region by state and category.</i>	127
<i>Figure 6.7. Local ordinance percentage by regulatory category for the Mid-West.</i>	129
<i>Table 6.4. The percentages of local ordinances in the Mid-West by state and regulatory category.</i>	130
<i>Figure 6.8.¹ Percentages of mid-west ordinance enactment dates by period.</i>	133
<i>Figure 6.9.¹ Percentages of Mid-West ordinances by year range and regulatory category.</i>	134
<i>Figure 6.10. Government types that enacted local ordinance in the Mid-West, by percent.</i>	134

<i>Figure 6.11. The number of local forestry-related ordinances detected in the West by state, shown by cross-hatching.....</i>	136
<i>Table 6.5. The number of local ordinances detected in the western region by state and category.....</i>	137
<i>Figure 6.12. Local ordinance percentage by regulatory category for the West.....</i>	140
<i>Table 6.6. The percentages of ordinances in the West by state and regulatory category.....</i>	140
<i>Figure 6.13.¹ Percentages of western ordinances enactment dates by period.</i>	143
<i>Figure 6.14.¹ Percentages of western ordinances by year range and regulatory category.....</i>	144
<i>Figure 6.15. Government types that enacted local ordinances in the West, by percent.</i>	145

Chapter 1. Introduction

United States' Forest Resource

The United States, as a developed nation, relies heavily upon the contributions of its natural resources for economic prosperity. Natural resources found in the United States include water, air, natural gas, petroleum, coal, other subsurface minerals, timber, and wildlife. Only the renewable resources of timber, fish, wildlife, and forage are managed for long-term sustainability.

A review of United States' history shows that forest industry has contributed greatly to the development of the nation. Forest products supplied early settlers with construction materials for homes as well as fuel. Over time, timber resources provided industrial materials for mine construction timbers, railroad ties, and communication and electricity utility poles. The nation's inland and coastal waterways depended heavily on the forest resource for the materials to establish ports, harbors, and docks. The conversion of the United States' timber resource provided the infrastructure for transportation, communication, and government services, which are essential for economic growth and stability. Currently, the United States' forest products industry employs approximately 1.5 million people whose output is valued at 230 billion dollars annually. The industry contributes an additional 23 billion dollars in exports to the United States economy (Smith 2002).

Presently, United States' forests represent 33% of the total land area of the nation (747 million acres). Sixty-seven percent (504 million acres) of the 747 million acres of forestland is classified as commercial timberland, which is capable of producing at least 20 cubic feet of wood volume per year. Fifty-two million acres (7%) of the total forested

area is utilized for non-timber objectives such as parks and wilderness areas. Another 191 million acres of forest (26% of total forested area) is incapable of producing 20 cubic feet of wood volume per year. These areas provide watershed protection, wildlife habitat, and recreational opportunities for the public (Smith et al. 2001).

The United States' forest resources vary in ownership. In 1997, private landowners owned the majority of the nation's timberland, 71 percent (Smith et al. 2001). More than 80% of this private land is classified as non-industrial private forestland. The federal and various state governments own the remaining timberland in the United States at 22% and 7%, respectively (Alig et al. 2002).

Problem Description

Since the advent of the environmental movement during 1960's and 1970's, developed countries have become more attuned to issues regarding the environment. Areas of increasing sensitivity include air and water pollution, global climate change, tropical deforestation, and endangered species protection. Indications of increased global awareness include the international agreements developed by the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer and the 1997 Kyoto Protocol (United Nations Framework Convention on Global Climate Change).

The citizen constituency consists of a wide range of stakeholders including forest industry, commodity, and environmentally focused groups that influence forest and natural resource policy in the United States. It seems that because of its size and population diversity, the United States is a major leader of the global conservation and environmental movements. Within the United States the federal government first addresses its concern for the environment. Legislation such as the Federal Water

Pollution Control Act of 1948 (Clean Water Act), the Endangered Species Act (ESA) of 1973, and the National Forest Management Act of 1976 set the minimum standard for future regulation. In conjunction with federal regulation, state governments enact laws that pertain to specific conservation and environmental issues within their boundaries. Subsequently, local governments initiate ordinances that protect the environment, aesthetics, and public safety. Such regulations affect all facets of the forest products industry, especially operations conducted on private land.

During this period, a demographic change in the United States is affecting the cultural values attached to land. Increases in the total American population, population density, and urban expansion put larger demands on a limited resource base. Alig states that by 2050 the United States' population will increase by 126 million people (2002). Over this period, total timberland acreage is projected to decrease by 3% (15 million acres) due to urban area growth and other land use related issues associated with population increases. The population's increase and timberland's decrease indicate that per capita acreage will decrease from 1.8 to 1.2 acres per person from 1997 to 2050 (Alig et al. 2002). If these trends continue as projected, they will place immense developmental pressure on forested areas throughout the United States, affecting timber production and other outputs from forestland. This will require increased production from a shrinking acreage of timberland. Furthermore, such trends will modify forest management methods on this smaller, more fragmented land base.

In conjunction with population trends, technological advances eliminate the need for modern workers to live near urban occupational centers. The advent of recent technological advances (e.g., fax machine, internet, cellular phone) allows many workers

to distance themselves from corporate headquarters. Similarly, commuters continue to live further from their jobs because of good roads and inexpensive fuels. This puts more pressure on a wider radius of land surrounding urban areas. These tendencies permit workers to leave urban and suburban communities for the pristine appeal afforded by rural settings. The ex-urbanites frequently have very different attitudes, needs, and values from that of long-term rural residents (Egan and Luloff 2000).

Initially, it was believed that moving from a rural work force to urban jobs weakened the bonds amongst workers and natural resources. Now, however, the ex-urbanites have discovered an appreciation for the abundance of natural resources in rural areas (e.g., forests, wildlife, recreation opportunities, etc.). Many of these people lack a full appreciation for the land to be a working environment, which is necessary to preserve their new found values. This is balanced by families who have owned farms and forests for many years and derive a substantial amount of their livelihood from them.

The growing economic prosperity throughout the United States may have further weakened the bonds between ex-urbanites and natural resource systems. Most people reared in an urban culture lack knowledge and familiarity with traditional forest management practices. Such activities include mechanical site preparation, planting, timber harvesting, pesticide use, and prescribed burning. The lack of exposure to these practices causes ex-urbanites to perceive forestry activities as a threat to their newly acquired “rural quality of life.” In an attempt to curtail such silvicultural activities ex-urbanites lobby for legislation that controls traditional forest management practices without obtaining information or an understanding of forestry’s benefits to society. Regulation of this nature is of great concern to rural communities that depend on resource

extraction, including timber harvesting, for economic viability (Egan and Luloff 2000).

Research in forest policy during the 1980's by Cabbage and Raney (1987) and Cabbage and Siegel (1988) projected a rapid growth of local forestry-related regulation in all regions of the United States. In 1992, Martus confirmed the projections, finding that nationwide enactments of forestry regulations had increased four-fold in the preceding 10 years, from 116 in 1983 to 527 in 1992 (Martus 1992, Martus et al. 1995).

Of the 527 ordinances identified by Martus (1992) that were passed by local governments, 367 were located in the North, 141 were found in the South, and 19 in the West. A recent survey conducted by Spink (2000) found that local regulation in the South has continued to increase rapidly. Spink (2000) identified 346 regulations in 10 of the 13 southern states. This is more than twice that of Martus' (1992) study. Many of these regulations were enacted pursuant to state mandated legislation. Some of these differences may be due to survey methods discussed below.

Forest Regulation

Forest policy in the United States has undergone a historical evolution between the settling of the country and the industrial revolution. Forests were a surplus commodity in the way of agriculture, with a wholesale policy of clearing, use as fuel, and a lack of reforestation. Over time, resource policy addressed issues of sustainability, public safety, economic stability, and environmental protection. As a distinct subset of forest policy, forest regulation is a means of land use control by which public policies are implemented.

The regulation of forest resources is incorporated into the various levels of

government. Federal, state, and local governments influence forest resource policy through implementation of various mechanisms, called land use controls. Governmental entities utilize taxation, subsidization, zoning, and formal legislation to accomplish policy objectives. The most controversial regulatory approach has been direct regulation by legislation (Martus 1992).

Most forest regulation begins with broad based policies introduced at the federal level. The federal government's responsibilities include policies that govern activities on federal and public lands. Typically, federal regulations encompass substantial numbers of generalized objectives. Moreover, federal regulation usually necessitates that state governments model similar regulation to conform and enforce federal policies.

Forest regulation at the state level occurs in a variety forms. The most noticeable regulation involves legislation that focus directly on forest practices. These enactments require landowners' compliance to standards imposed by forest regulations. The most inclusive state regulation appears in the form of comprehensive statewide forest practice acts. These acts mandate specific criteria for which forest practices must adhere while prohibiting, restricting, limiting, or promoting the regulatory authority of local government entities. Some states choose to allow local municipalities to enact ordinances that regulate forestry activities performed by its constituents. Other forest regulation emerges circuitously from laws that primarily intend to protect environmental quality, public safety and property, and public transportation systems (Ellefson 1995). In Chapter 4, these comprehensive state forest practice acts are addressed in detail regarding their specific provisions and relationship to local forestry ordinances.

Local governmental regulation of forest practices is presently increasing in

importance. Local governments include counties, townships, cities, villages, towns, parishes or boroughs. Local governments enact legislation that directly affects forest practices for a defined area. Local regulations' objectives can vary widely, but generally impose restrictions on timber harvesting, while others promote protection of public safety and property, trees, the environment, and special features.

All regulations ratified by either the federal, state, or local government comprise benefits and costs to society. Forestry regulatory programs have numerous implications and affect private forestry practices (Ellefson 1995). Moreover, many of these regulations represent an intrusion on private property rights (Haney and Cleaves 1992). Local level regulations are usually more restrictive because many of them must exceed state guidelines. Local regulations not only curb environmental degradation, but also attempt to sustain aesthetic values preferred by affluent ex-urbanites who are often unfamiliar with forestry practices.

Local Forestry-Related Ordinances

For the scope of this study, local forestry-related ordinances represent regulations enacted by various types of government below the federal and state level. Local municipalities include counties, townships, cities, villages, towns, parishes, and boroughs with the authority to pass laws that govern a distinct group of citizens. Local ordinances are defined as any type of law, ordinance, zoning regulation, or enactment that restricts the management, harvest, or hauling of forest products. Ordinances that directly affect land disturbance activities and those that circuitously place restrictions on forestry are analyzed. Situations where states enable, encourage, or supercede local regulation are

addressed in Chapter 4.

Study Objectives

The purpose of the study is to survey the local forest-related regulations in the 35 states across the Northeast, Mid-West, and western geographic regions of the United States. Following identification and location, regulations are appropriately categorized as an ordinance that affects timber harvesting, public safety and property, tree protection, environmental protection, or special feature protection. Regulations are examined for instances of interaction with federal and state laws that mandate enactment of local ordinances, or that supersede or preempt local regulations. Further, the regulations are used to characterize the current status of local forestry-related regulation that exists in the Northeast, Mid-West, and western United States.

The characterization of local forestry-related regulation, in the defined regions of the United States, is based on the analysis of individual local ordinances identified in the study survey. This characterization consists of the interpretation of results as local ordinances are examined by state for each region. These analyses contain discussions on the distribution of ordinances, their placement in regulatory categories, general provisions, adoption dates, and enacting government types. The analysis' purpose is to determine the current extent and role of local forestry regulation in the Northeast, Mid-West, and western United States. The characterization outlines where certain local ordinances are located and how local regulations affect forest management. Most importantly, this study will give state and local governments, regulatory agencies, and resource professionals an idea as to the extent which local regulation affects forest

management.

Chapter 2. Literature Review

Forest policy in the United States has for decades influenced forest management. Regulation exists at the federal, state, and local municipal level. These government entities enact, repeal, and revise statutes as public attitudes towards natural resource management change over time. The processes by which regulation affects forest operations differs widely depending upon the enacting level of government, the policy mechanism, and a policy's regulatory intent. Although some regulation circuitously controls forest practices, those that directly impose restrictions on forest industry are the most controversial.

Federal Environmental Regulation

Throughout the United States' history natural resource protection has been an important issue. The establishment of the national forests and increased dependency of the nation on natural resources for economic stability heightened awareness for resource protection policies. Although few federal environmental laws specifically control forestry, many contain elements that govern planning or conduct of forestry activities (Cubbage 1993). Such federal environmental laws include the National Environmental Policy Act (NEPA) of 1969, Federal Water Pollution Control Act of 1972 (Clean Water Act), Endangered Species Act of 1973, Clear Air Act of 1970, and the Federal Environmental Pesticide Control Act of 1972 (Cubbage 1993).

The National Environmental Policy Act of 1969 stated that the federal government should work in cooperation with state, public, and private organizations to sustain the environment for future generations. In practice, NEPA established the process

of using Environmental Impact Statements to measure land use impacts of federal government projects.

The Federal Water Pollution Control Act of 1972, referred to as the Clean Water Act, directly affects forest management. Provisions of the act mandate the control of non-point source pollution from various land disturbing activities including forestry. In 1974, the Environmental Protection Agency proposed that the enactment of state forest practice acts would function as a means to curb non-point source pollution associated with forestry activities. Although some states accepted the charge, those in the South developed voluntary Best Management Practices (BMP) guidelines to meet the act's standards without mandatory compliance (Cubbage 1993).

The Endangered Species Act of 1973 calls for the protection of threatened and endangered plant and animal species. The purpose of the act is to prevent extinction and ultimately increase and sustain endangered species populations. Under the Act one cannot "take" a listed species which means to harvest, kill, or alter critical habitat. Therefore, forestry operations on land with identified threatened or endangered species must be either stopped or conducted in a manner that avoids a taking regardless of ownership.

With regards to forestry, the Clean Air Act of 1970 and the Federal Environmental Pesticide Control Act of 1972 circuitously affect specific forest management activities. The Clean Air Act was passed to curb increasing air pollution that would be harmful to humans, animals, and plants. The Act mandates that the EPA establish quantifiable guidelines regarding air pollution, which regulates prescribed burning. The Federal Environmental Pesticide Control Act of 1972, however, established

regulations on pesticide and herbicide usage. The Act states that all pesticides be registered, dictate who and where individuals can use certain pesticides, and deems misuse unlawful. Therefore, forestry managers must be continually educated as to what pesticides are available and appropriate for application to lawfully perform management decisions.

The above federal laws were enacted to correct a multitude of environmental problems that prevailed by the 1960's and 1970's (Cubbage 1993). While these laws are designed to protect public health, welfare, and safety they impose costs and controls on forest management. However, most authority for regulating forest practices has been assumed by state and local governments (Ellefson et al. 1997).

State vs. Local Forestry Regulation

State and local government are the primary regulators of forest practices in the United States. Studies over the past couple decades have examined the provisions, enforcement, and relevant trends exhibited in both state and local forest practices regulation. Importantly, forest practices regulation is one means of implementing forest policy on private, and in some cases public land (Cubbage and Siegel 1988).

At the state level there are various programs used by forestry agencies to influence private forest management. Six major categories defined by Ellefson et al. (1995) are 1) educational programs, 2) technical assistance, 3) voluntary guidelines, 4) tax incentives, 5) fiscal incentives, and 6) regulatory programs. Most states use a variety of the above programs to achieve land use goals. The least restrictive are those utilizing education and technical assistance. Tax and fiscal incentives give landowners financial motivation for adhering to state guidelines. Voluntary programs in most states are

implemented to curtail regulatory action at the state level; however, some states enforce fines and criminal penalties for non-compliance. Regulatory programs are the most restrictive of the categories since they are imbedded in state or local legislation. These are of the greatest interest because they restrict private forest management practices and affect private property rights the most.

The first major wave of state forest practice regulation that focused on private forest lands began in the 1940's (Ellefson and Cabbage 1980). These early regulations were mainly seed tree regulations that ensured adequate regeneration following harvest to eliminate the perceived threat of timber shortages (Cabbage and Siegel 1988). A more modern type of state forest regulation exists as comprehensive forest practices acts that are implemented by a state's forestry agency. The early forest practice laws stressed erosion control and regeneration standards whereas new laws govern cutting and harvesting methods, road construction, stream crossings, and herbicide application activities (Cabbage and Siegel 1985). Between 1971 and 1974, the western states of California, Nevada, Oregon, Idaho, and Washington implemented this policy model (Ellefson et al. 1997). In addition to the above states, New Mexico and Utah of the West and Connecticut, Maine, and Massachusetts of the Northeast now have comprehensive forest practice acts. These acts are discussed in Chapter 4 with regard to their provisions and relationship to local ordinances.

In cooperation with and in lieu of comprehensive regulatory policies, some states have chosen to allow local governments to regulate forest practices. States such as California, Oregon, Connecticut, and Maine currently allow local municipalities to implement local regulations when they are more stringent than state standards. Also,

many states without forest practice acts allow local governments to directly and indirectly regulate forestry activities.

In the debate over which type of regulation achieves the best results are advocates of both state and local regulatory control. Those that prefer state control believe that local decision-making is too politicized and that local governments lack forestry expertise (Salazaar and Cabbage 1990). Those that prefer local regulation, however, believe that local governments are closer to the people; state regulators are insensitive to local logging problems; and that local planners need a voice in regulating forest practices (Salazaar and Cabbage 1990). The fundamental difference between the comprehensive and fragmented policy approaches is whether states share forest practice regulatory authority with local government (Salazaar and Cabbage 1990).

Local Government Authority

Local governments in the United States are solely provided regulatory authority by the state in which they reside. In determining a local government's power to enact regulation the state-local government relationship must be examined. Two general relationships exist between state and local government. The first, Dillon's rule, applies to states that want to limit local authority. The rule expresses that local governments have only powers that are specially granted to them by the state (Grant and Omdahl 1989). Second, the Home rule, affords local government's authority free from the control of the state. The home rule has generally taken two forms: statutory and constitutional amendment (Martus 1992). Local governments are given statutory authority through some type of legislative action at the state level. Constitutional home rule, however, grants local governments authority through an amendment to the state's constitution.

Generally, constitutional discretionary authority is stronger and gives local governments more power and flexibility (Maddox and Fuquay 1975). Interestingly, most states grant authority through home rule provisions, with constitutional amendment followed by statutory authority, respectively. State-local government relationships defined under the Dillon rule represent the smallest number of states (Martus 1992). These relationships are discussed for each state in Chapter 4.

Local Forestry Regulation

Over the past two decades there have been several studies that examined local forestry ordinances. Early examples include Youell's study of municipal regulation of timber harvesting in Connecticut (1985) and Cabbage and Raney's study of Georgia's county level logging and hauling ordinances (1987). Hickman and Martus (1991) performed the first comprehensive national analysis of local forestry regulations. Martus (1992) further analyzed the national local forestry regulatory situation in his masters thesis, which examined the distribution and objectives of local forestry-related ordinances in the United States. Greene and Siegel (1994) produced the status and impact of state and local regulation on private timber supply that analyzed forest practice regulations effects on current and long-term timber supply. In 1996, Floyd performed a study that examined the local regulation of forest practices in New York, which used an empirical analysis to determine factors associated with the adoption of local forestry ordinances in the state. Most recently, Spink (2000) conducted the survey of local forestry-related ordinances and regulations in the South that analyzed ordinance proliferation in the 13 southern states.

The purpose of this section is to provide a brief overview of the distribution,

vastness, and the scope of local forestry regulation. Local ordinances both new and old, which regulate forestry activities, are constantly being adopted, amended, and revised to accommodate changes in public opinion, forest management, and technology. These reasons have led to the increase of local forestry ordinances across all regions of the United States. Focus is placed on literature regarding the Northeast, Mid-West, and western United States for relevance to this particular study.

Cubbage and Raney (1987) and Cubbage and Siegel (1988) projected a rapid growth of local forestry-related regulation in all regions of the United States. In 1992, Martus confirmed the projections, finding that nationwide enactments of forestry regulations had increased four-fold in the preceding 10 years, from 116 in 1983 to 527 in 1992 (Martus 1992, Martus et al. 1995).

Martus (1992) Greene and Siegel (1994) identified 527 ordinances that were passed by local governments, 367 were located in the north, 141 were found in the south, and 19 in the west. Spink (2000) found that local regulation in the South has continued to increase. Spink (2000) identified 346 regulations in 10 of the 13 southern states, which is twice that found by Martus (1992). The greatest proliferation of local forestry ordinances occurred in Georgia (75 additional ordinances) and Virginia (32 additional ordinances). Other notable increases were identified in Louisiana (27 additional ordinances), Florida (19 additional ordinances), and North Carolina (15 additional ordinances). States with newly enacted ordinances were identified in Alabama, South Carolina, and Texas (Spink et al. 2000). Most of these regulations were enacted pursuant to state mandated legislation.

The purpose and scope of each ordinance identified in the above studies were all

categorized into the same five categories. Public property protection, tree protection, special feature protection, environmental protection, and timber harvesting represent the categories of regulatory intent. The categories were defined to allow analyses of ordinance provisions to determine trends prevalent in local forest policy. The definitions of these categories are discussed in Chapter 3.

In the Northeast, local regulation of forest practices appears most prevalent. The laws are generally enacted by small units of government such as townships, villages, cities, and boroughs (Martus et al. 1995). These regulations were prompted primarily by concerns about logging and its effects on water quality, wildlife, and aesthetics (Cubbage and Siegel 1988). Of the 367 local ordinances identified in the North by Greene and Siegel (1994) all regulatory categories were represented. Greene and Siegel (1994) categorized the ordinances as follows: timber harvesting-187, environmental protection-66, special feature protection-64, tree protection-49, and public property protection-4. On a percentage basis timber harvesting represented 51%, environmental protection 18%, special feature protection 17%, tree protection 13%, and public protection ordinances at 1%.

The mid-western region of the United States, in contrast to the Northeast, appeared to have the least number of local forestry regulations. Martus (1992) found a total of only 8 ordinances. Michigan had the largest number for any state with 5 in which 3 were categorized as timber harvesting while 1 ordinance each represented the environmental and tree protection categories. Ohio and Minnesota had 1 ordinance each in the timber harvesting category while Indiana's single ordinance focused on public safety (Martus 1992).

The states of the western region have generally exhibited few local ordinances because of the limits which forestry practice acts place on local authority. However, Martus (1992) identified 19 local forestry regulations in the region. Oregon had over half of the ordinances with a total of 10. Five regulations were categorized as timber harvesting, 3 as environmental protection, and 1 each for the tree protection and public safety category. California had 6 ordinances that pertained to timber harvesting. Martus also found 1 ordinance each in Nevada, Idaho, and Colorado. The regulatory intent of these laws was to regulate timber harvesting, protect special features, and administer environmental protection, respectively (Martus 1992).

Chapter 3. Methods and Procedures

Forest policy in the United States is regulated at 3 levels. The federal government establishes policy concerning national lands. These federal laws are enforced by federal bureaus but also through mandates imposed on state agencies. Further, state governments also regulate forestry through legislation, comprehensive forest practice acts, and model ordinances to be enacted at the local level. Third, local municipal governments in some states have the authority to introduce further restrictions on forest practices. The purpose of this study is to survey and analyze local forestry-related ordinances located in the Northeast, Mid-West, and western United States.

Survey of Local Forestry-Related Ordinances

The first objective of the study is to locate and obtain copies of local forestry-related ordinances across the Northeast, Mid-west, and western United States. The ordinance survey serves as the foundation for this study. The basis for analysis is the individual local forestry ordinances identified within each state.

Local ordinances are identified using a branching or boundary spanning approach due to the large number of municipal governments located in the three regions of the United States surveyed (Martus 1992). The survey was conducted by contacting various state foresters, state forestry agencies, university faculty, extension foresters, industrial foresters, consulting foresters, state governments, local governments, and local governmental associations. These professionals are the primary source of information, which were surveyed through electronic mail, telephone, and regular mail. Electronic

mail and telephone correspondence were the primary means for initial contact because of the speed and flexibility they offer.

Contacts were asked to provide names and contact information of local governments that had enacted ordinances pertaining to forest practices. When possible, copies of these regulations were obtained through initial contacts. Moreover, those contacted initially usually made referrals to other professionals more familiar with forest policies within any particular state. In many instances, the contact information of local governmental officials was supplied. These officials mailed, faxed, or made reference to online codification resources where copies of ordinances could be obtained. All referrals and references provided during the survey were then exhausted to complete the survey. Exceptions are noted for the states of New Jersey, New York, and Pennsylvania where enumeration of the overwhelming number of local ordinances was beyond the scope and resource limitations of this study.

In performing the study, a 100 % tally of the ordinances located in the Northeast, Mid-West, and western United States would have provided statistical validity and study reproducibility. An attempt to survey every county, city, town, township, village, and borough located in these regions of the United States; however, would have been an overwhelmingly arduous task. Nevertheless, personal communication with those that enacted, implemented, studied, or enforced the local regulations identified generated invaluable insight, which was used to analyze the ordinances.

Local Forestry-Related Ordinance Analysis

The primary objective of the ordinance analysis is to determine the extent that local forestry regulations affect forest management in the Northeast, Mid-West, and

western United States. Each ordinance identified is first categorized based on its purpose into 1 of 5 regulatory categories. The categories are timber harvesting, public property and safety, tree protection, environmental protection, and special feature protection, which are defined later in the chapter. Once categorized, local ordinances in each category are analyzed based on their characteristics and provisions.

The local ordinance analysis examines criteria specific to each regulation. To determine local regulatory trends, government type (i.e., county, town, township, city, etc.), the date of adoption, regulatory scope (i.e., ordinance categories), and specific provisions (i.e., permit, performance bond, mandatory buffers, weight limits) in each ordinance are examined for either contrast or consistencies. These similarities and differences allow identification of how municipalities within a state and region control forest practices.

The characterization of the current local ordinance status for each state and region is supported by the individual ordinance analysis. Characterizations are based on all analysis criteria, but used mainly to determine whether ordinances in the present tend to affect traditional forest management activities (i.e., regeneration, water quality, slash disposal) or non-traditional values (i.e., aesthetic buffers). All data is combined to analyze each region.

The regional analyses consist of compiling state specific data for each region. Results summarize the numbers of local ordinances, and discuss the regulatory categories, general provisions, adoption dates, and enacting government types. These analyses characterize the regulatory tendencies among and between the Northeast, Mid-West, and western regions of the United States.

Local Regulation Categories

Local regulations identified in the study are divided among 5 categories based on their intent. The intent of the regulations varies widely depending upon the purpose and motivation that led to the ordinance's enactment. The five categories of ordinances pertain to timber harvesting, public property and safety, tree protection, environmental protection, and special feature protection. The categories used were first defined in a previous study performed by Martus (1992), *The Distribution and Objectives of Local Forestry-Related Ordinances of the United States*. These definitions are used for this study so that the same criteria are used when making conclusions regarding the change of local forestry ordinances over the past decade.

Timber Harvesting Ordinances

Timber harvesting ordinances are enacted for the purpose of restricting various forestry and silvicultural activities. These ordinances regulate timber harvest, forest road construction; define acceptable harvesting methods, equipment use, or any other silvicultural operation. The general purposes of these ordinances are to limit the environmental impacts associated with commercial forestry operations. Primary goals of these regulations are to protect environmental resources, aesthetic values, and wildlife habitat. Requirements for timber harvesting ordinances include harvest permits, management plans, and buffer zones. Other restrictions involve mandates on silvicultural methods and requirements for forest road construction.

Public Property and Safety Ordinances

Public property and safety ordinances are adopted to accomplish an array of

objectives. Laws of this type protect public investments in roads, bridges, ditches, and right-of-ways. Secondary objectives protect motorists from potentially hazardous road conditions. Such hazards include damaged roads, bridges, mud and logging debris on or near public roads which may interfere with traffic flow. These ordinances usually regulate the transport and loading of harvested material on or near public roads and structures. Most public property and safety ordinances include provisions that require the following: the removal of mud and debris from public roads; the use of gravel or mats at road entrances; transportation time restrictions; and weather provisions regarding the hauling of in-woods forest products.

Tree Protection Ordinances

Most local forestry ordinances identified in the study pertain to the preservation of wooded plots in urban areas. For inclusion into this study, an ordinance had to apply to the removal of trees from commercial timberland. These ordinances are not to be confused with shade tree or municipal tree ordinances that refer to the removal and protection of individual or small groups of trees.

To differentiate tree protection ordinances from timber harvesting ordinances, tree protection ordinances do not restrict commercial forestry operations. For the most part these ordinances are adopted to regulate tree removal associated with land clearing and development activities. General provisions in the ordinances vary from restricting tree removals for aesthetics, noise reduction, and water and air quality purposes; to prohibiting tree removals for any reason.

Environmental Protection Ordinances

Primarily, the goal of environmental protection ordinances is to protect environmental features from “land disturbing activities.” These regulations emphasize that tree removal, site preparation, or road construction are land disturbing activities. These laws commonly address soil erosion, sedimentation, storm-water flows, wetland protection, or zoning codes that encompass forestry practices. Regulatory provisions include harvest permits, erosion control plans, buffer zones, and harvest method restrictions. The control of prescribed fire or forest herbicide use is also classified in the environmental protection category.

Special Feature Protection Ordinances

Special feature ordinances are regulations that protect a specific area because of its scenic or environmental value. These ordinances rarely encompass an entire local government’s jurisdiction unlike timber harvesting, public safety, tree protection, or environmental protection laws. Special feature ordinances usually apply only to environmentally fragile or sensitive areas with unique attributes. Examples of zones that receive protection are scenic river corridors, recreational districts, aesthetic viewsheds, and habitats of endangered species. With respect to forest operations these regulations include provisions that require harvest permits, management plans, buffer zones, limit volumes removed, or that totally prohibits forestry practices within a protected areas.

Study Limitations

Limitations of the study survey are noted because of the methods utilized to obtain data and present results. The survey aspired to enumerate all local ordinances

across the regions studied; however, it became apparent that the large numbers in some states were beyond the scope and resources of the study. Although the methods used were adequate for many states, several have multitudes of local regulations, which could not be obtained through the above mentioned methodology (i.e., NJ, NY, PA). The analysis of the data lacks the ability to be statistically validated for use with prediction models or direct comparisons with previous studies. The interpretation of the purposes of the local regulations was necessarily somewhat subjective, and some information may be obscured due to the lack of specificity among the regulatory categories. Nevertheless, there is a wealth of useful information reported below that should provide insights into the attempts to influence forestry activities at the local level.

Chapter 4. State Forest Practice Acts

At the state level there are several legal mechanisms that can affect forestry. The most intrusive are the presence of comprehensive forest practice acts. Indirectly, states can have generalized laws that regulate forestry, other natural resources, and the environment. These acts set forth standards by which all forestry activities must adhere within a state. Further, states through their constitutions can grant authority to local municipalities, which can also regulate forestry.

Local government authority is generally granted in two forms, the Dillon rule and Home rule. The Dillon rule applies to states that wish to limit local authority, which are limited in number in the regions studied. Home rule generally allows local governments to operate autonomously from state control as long as state statutes are observed. Most states share this relationship with local governments, and importantly, these relationships define a localities power to adopt ordinances. The comparisons of states with Dillon and Home rule, those which have forest practice acts, and those with local forestry ordinances is shown in *Table 4.1*.

In the Northeast, Mid-West, and West most local governments operate under Home rule provisions. Three states in the northeast region have forest practice acts and local ordinances are included under this category. In the Mid-West no states have forest practice acts, and only 4 states have local forestry ordinances. In the western region six of the seven states with forest practice acts operate under Home rule. Most of these states also have local forestry ordinances.

The importance of understanding these relationships is to acknowledge which

Table 4.1. Constitutional provisions of state government showing relationships with forest practice acts and local forestry-related ordinances for the Northeast, Mid-West, and western United States.

	Dillon rule	Home rule	Forest practice acts	Local ordinances
NORTHEAST				
Connecticut		X	X	X
Delaware		X		
Maine		X	X	X
Maryland		X		X
Massachusetts		X	X	X
New Hampshire		X		X
New Jersey		X		X
New York		X		X
Pennsylvania		X		X
Rhode Island		X		
Vermont	X			
West Virginia		X		
MID-WEST				
Illinois		X		
Indiana	X			X
Iowa		X		
Kansas		X		
Michigan		X		X
Minnesota		X		X
Missouri		X		
Nebraska		X		
North Dakota		X		
Ohio		X		X
South Dakota	X			
Wisconsin		X		
WEST				
Arizona		X		
California		X	X	X
Colorado		X		
Idaho		X	X	
Montana		X		
Nevada	X		X	X
New Mexico		X	X	
Oregon		X	X	X
Utah		X	X	X
Washington		X	X	X
Wyoming		X		

states allow local governments activities through their state constitutions. Although there are exceptions to these general rules, because of state uniqueness, such information can be used to determine the probability of future local forestry ordinances occurring within particular states. Additionally, forest practice acts have the dual power to grant or limit a local government’s ability to regulate forestry.

Forest practice acts are an integral part of forest regulation in the United States. Within the Northeast and western continental United States there are currently 10 states that have comprehensive forest regulatory programs. In the Northeast, Connecticut, Maine, and Massachusetts have enacted comprehensive forest practice acts. In the western states California, Idaho, New Mexico, Nevada, Oregon, Utah, and Washington have forest regulatory programs. Each of these states has crafted its own unique act depending upon the scope, purpose, and reason for such legislation. With regards to local forestry ordinances some forest practice acts permit, require, preempt, or are silent as to whether local governments have the authority to regulate forest practices. These relationships are shown in *Table 4.2*.

Table 4.2. The legal framework of forest practice acts relating to local forest regulation.

State	Permit	Require	Prohibit	Silent
California	X			
Connecticut	X			
Idaho			X	
Maine	X			
Massachusetts				X
New Mexico				X
Nevada				X
Oregon	X			
Utah				X
Washington		X		

The purpose of this chapter is to provide a broad overview of state forest practice acts, which examines their content and structure in order to better understand how each relates to local forest regulation. These acts are covered to provide the framework in which local forestry ordinances are enforced. In the surveyed regions, the location of states with forest practice acts is shown in *Figure 4.1*.

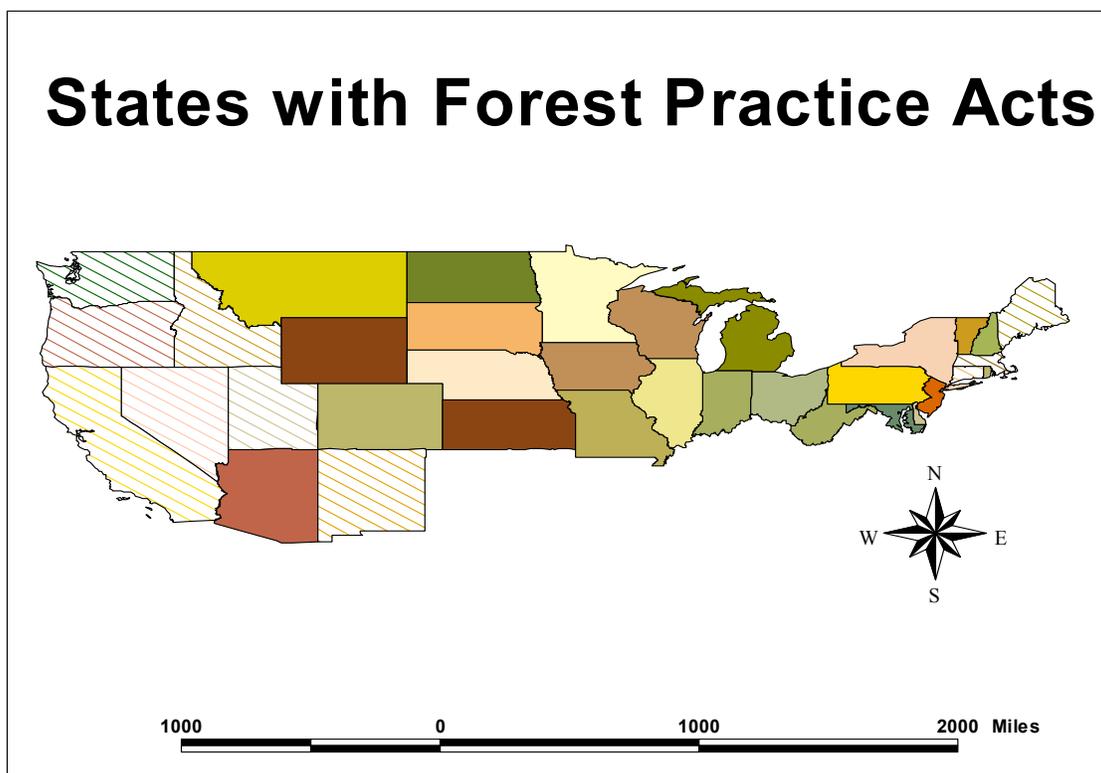


Figure 4.1. States with forest practice acts in the Northeast, Mid-West, and western United States, shown by cross-hatching.

Northeast Region

In the Northeast, forest practice acts are located in three states. These states are

Connecticut, Maine, and Massachusetts. These forest practice acts establish minimum guidelines for which forest practices must adhere. Although provisions of each act are unique, they all strive to protect natural resources and the environment while promoting public welfare. Importantly, all three states permit local forest-practice regulation.

Connecticut

Connecticut first established its forest practices act in 1991. The purpose of the act was to establish a comprehensive state-wide system of laws and forest practices to protect and enhance natural resources and environmental values while considering ownership goals and public interest (Ellefson 1995). The act, which outlines minimum standards by which all forest practices must adhere, applies to all private and state owned land.

The forest practice act established a forest practices advisory board whose membership consists of the state forester and nine other citizens. Six of the citizens are appointed by various Senate House of Representatives delegates and three by Connecticut's governor. The appointed members must include a private professional forester, forest products industry representative, environmental organization officer concerned primarily with forestry, environmental organization officer not affiliated with forestry, a natural resources professor, private landowner (10-250 acre holding), and a member of an inland wetlands agency. Each members serves a four year terms in which he/she reviews forest practices regulations, issues recommendations, and reviews certification standards.

Another pertinent provision of the forest practice act deals with forest practitioner certification. The act outlines three classifications of forest practitioner which are

forester, supervising forest products harvester, and forest products harvester. A forester's certification allows him/her to engage in forest management planning, commercial harvest operations, and to act as a landowner's agent. Supervising forest products harvester's duties include executing timber purchase contracts and harvesting supervision. Forest products harvesters are required to obtain certification to conduct harvesting operations. All three types of certification entail proficiency and knowledge of forest management techniques, harvesting, and minimizing environmental impacts upon examination.

Forest practices regulations in the forest practice act are vague regarding specific provisions. The act does, however, outline the intent of all adopted regulations. The legislation seeks to protect environmental quality, sustain forest resources, promote recovery of threatened and endangered species, respect aesthetic values, and meet public interest goals. All regulations presumably represent minimum standards and establish a means by which commercial timber harvests are authorized. The forest practice act also requires that quantitative reports be submitted annually regarding all forest practice activities conducted in the state.

Enforcement of forest practices regulation in Connecticut is shared between two regulatory bodies. The department of environmental protection has the authority to enforce state forest practice act regulations. In a municipality in which there is an inland wetlands agency; however, they have the authority to enforce both state and local regulations enacted by municipalities. If a violation is identified the enforcement agency can issue an order of compliance, injunction, and impose civil penalties. Certified forest practitioners who are found in violation can have their license denied, suspended, or even

revoked.

Local regulation of forest practices in Connecticut is permitted by the forest practice act. Moreover, the amended act carefully explains how municipal governments can regulate forestry. It states the names of towns that have enacted ordinances regarding forest practices. It also states that any municipality not named may apply for approval to adopt an ordinance if the ordinance existed prior to January 1, 1998. The wording of the forest practice act; however, does not hinder municipalities from creating their own ordinances long as they are approved by the Commissioner of Environmental Protection. The only criteria for local ordinances are that they meet or exceed the minimum standards set forth by the state. In case a municipality intends to abandon its regulatory authority or has failed to perform its duties, the municipality can have its municipal authority revoked¹. As of 2003, 34 local ordinances are identified, which are discussed in Chapter 5.

Maine

The state of Maine established a comprehensive forest practices act in 1989, which was revised and updated in 1999. The Maine forest practices act is a detailed document that defines the minimum standards required for forestry activities. The rules govern all state, local government, and private forests. Federal and research forests lands are excluded from the provisions of the act. The purpose of the act is to establish procedures for notifying the Department of Conservation and Bureau of Forestry of commercial timber harvesting activities and to set standards for harvesting and proper forest regeneration. The applicability of the act extends to all harvesting activities that

¹ Conn. Gen. Stat. § 23-65f

have the primary intention of selling the timber for processing into forest products.

Notification requirements of the forest practices act require that initiation of all forest operations be submitted in writing prior to any harvesting activity. Each notification must contain the names and signatures of the landowner or designated agent, forester, and harvester. Although there is no stated time requirement, additional provisions apply to Category 3 clearcuts, which are larger than 75 acres. All notifications, once approved, must be posted in a conspicuous location near the principle loading deck or main property entrance for the duration of the harvesting operation.

Regeneration standards set forth by the act are enforced to ensure the sustainability of the state's forest resource. In the case of overstory removals, the harvested area must contain a minimum of 450 well-distributed trees per acre of acceptable growing stock. On clearcut harvests these same standards must be met within five years of harvest completion. A licensed professional forester measures compliance of the standards and determines if requirements have been met. If it is determined that inadequate regeneration exists, a landowner must prepare a mitigation plan certified by a licensed professional forester. Exceptions to the regeneration requirements applies to landowners who own less than 100 acres of land statewide, landowners whose forests have succumbed to a natural disaster (e.g., fire, disease, insect infestation, hurricane, etc.), or when there is a land use conversion.

The forest practices act continues with a set of clearcut standards. First, the standards mandate that no clearcut can be larger than 250 acres. Second, the act categorizes clearcuts based on size. Category 1 clearcuts are larger than 5 but no larger than 20 acres. Category 2 clearcuts are between 20 and 75 acres. Category 3 clearcuts

are larger than 75 acres but cannot exceed 250 acres. All categories of clearcuts are subject to separation zone standards.

Separation zone standards vary between Category 1 clearcuts and the others classified as Category 2 and 3. Category 1 clearcuts must be separated by a zone of at least 250 feet from other clearcuts unless the clearcut is adjacent to a property line shared by two or more landowners. Separation zones must also be maintained to standards which closely resemble those regarding regeneration. Category 2 and 3 clearcuts standards include additional standards that define separation zone acreage, stocking levels, and species requirements for acceptable growing stock.

Along with separation zones, Category 2 and 3 clearcuts must be accompanied by a forest harvest plan. The minimum standards for the forest harvest plan include information regarding the landowner, harvest schedule, certifications (e.g., licensed professional forester and certified wildlife professional), various assessments (e.g., reason for clearcut, soil erosion, separation zone windfirmness, and regeneration potential), and maps of the harvest area. Category 2 clearcut harvest plans must be kept on file by the landowner and be readily available on site to Bureau of Forestry personnel until regeneration standards are achieved. Category 3 clearcut harvest plans are filed with the Bureau of Forestry and are subject to an on-site harvest plan review. Harvest plans can be readily approved or noted for inadequacies that must be addressed before harvest can begin.²

With regard to local regulation, the Maine forest practices act does not preempt or supercede forestry ordinances imposed by local municipalities if they are more restrictive than the forest practices act. Local ordinances that restrict timber harvesting can only be

² Code Me. R. § 20. (1999)

developed if they follow certain guidelines outlined by the forest practices act. The provisions of the forest practice act also state that no ordinance can be unreasonable, arbitrary, or capricious; and they must promote the protection of public health, safety, and welfare.³ Presently, approximately 45 of Maine's 450 municipalities have enacted local ordinances that pertain to timber harvesting (Bourassa 2002). The provisions of these local ordinances are examined in Chapter 5.

Massachusetts

Massachusetts enacted the Massachusetts Forest Cutting Practices Act in 1983. The purpose of the act is to ensure that harvest areas remain in a state that satisfies public interest. The act addresses promotion of public welfare through the "rehabilitation, maintenance, and protection of forestlands for the purposes of conserving water, preventing floods and soil erosion, improving the conditions for wildlife and recreation, and ensuring a continuous supply of wood products."⁴ Interestingly, the act does not prohibit local municipalities from placing additional restrictions on landowners.

Implementation of the forest cutting practices act is applicable to both public and private forestland. The act regulates practices on commercial harvests that remove over 25 thousand board feet (MBF) or 50 cords from a single parcel at any particular time. Before harvest can begin, a landowner or his/her agent must submit a notice of proposed cutting for approval at least 10 days prior to harvest. Logging plans must include at least two maps; a detailed pre-harvest plan map and a location map with tract boundaries outlined. Other maps may be required when harvests occur near wetlands or other

³ Me. Rev. Stat. Ann. tit. 12, § 805. (West 1999)

⁴ Mass. Gen. Laws. Ch 132 § 40-46 (1983)

critical areas. Landowners must also prepare a notice of intent to abutters form that is used to notify surrounding landowners whose boundaries are within 200 feet of the harvest operation. Upon plan approval an issued certificate of harvest must be posted at the major tract access point for the length of the harvest. Failure to submit a notice of intent or follow the provisions of the plan may lead to fines of up to \$100 per acre.

The act further details a set of minimum harvest standards regarding tree cutting, forest engineering and logging, and volume measurement. The purpose of the standards is to guarantee resource sustainability after harvest completion.

Tree cutting under the act requires that landowners describe the harvest type as either a regeneration or intermediate cut. In any case, a harvest must be adequately restocked with healthy trees within 5 years. Under tree cutting provisions, an owner or operator must promote visual quality by leaving buffer strips of 50 feet and 100 feet for publicly maintained highways and designated scenic roads, respectively. In the buffer strips, no more than 50% of the existing basal area can be harvested if residual trees are healthy and uniformly spaced. Landowners must wait a minimum of 5 years before performing subsequent harvests. Streamside management zones (filter strips) are mandated in the act to promote water quality. Zone width must be at least 50 feet in general and at least 100 feet for terrain with slopes greater than 30%. Harvest standards within streamside management zones are the same as for visual buffers.

Forest engineering and logging standards are designed to curtail soil erosion and sedimentation. Road and skid trail layout, construction, maintenance, and stabilization must adhere to principles outlined in the Massachusetts Forestry Best Management Practices Manual. Loggers are required to use all necessary means to minimize erosion

and sedimentation (e.g., culverts, ditches, water bars, and road, skid trail and deck stabilization). Temporary stream crossing establishment must follow BMP manual guidelines unless within 1,000 feet of a public water supply reservoir, whereas a temporary bridge should be used. Equipment cannot operate within 50 feet of any waterbody except at designated stream crossings. After harvest loggers must remove all trash and distribute residual slash in a visually pleasing manner that promotes rapid decay. Seeding of decks, roads, and skid trails after harvest is required if soil stabilization is necessary.

The volume measurement standards covered in the act are used to classify harvests and settle disputes regarding exemptions under the forest cutting practices act. The volume standards require that board foot values be evaluated using the Form Class 78 International 1/4- Inch Log Rule. Cord volumes must be computed using a conversion factor of 80 cubic feet of solid wood per cord. All mensuration techniques and specifications are detailed within the body of the act.

Administration of the act is the duty of the Department of Environmental Management Service Foresters. They supervise harvesting operations and have the authority to postpone a harvest with a stop order if the provisions of the law are violated. If problems are corrected satisfactorily, harvest may resume; however, failure to comply could lead to the timber harvester's license revocation.

In conclusion, the Massachusetts Forest Cutting Practices Act permits local regulation of forest practices. Currently, 9 municipalities have adopted environmental protection ordinances; however, more are likely to exist. A study performed by the Massachusetts Wood Industries Council identified 35 towns that have enacted some form

of local ordinance; however, copies of the ordinances or the study are unavailable. Provisions of the unidentified ordinances vary in effect from requiring additional permits to mandating that logging equipment be stored in an enclosure not visible from zoning districts or aesthetic corridors (Kitterbridge 2002). Details of these provisions are covered in Chapter 5.

Mid-West Region

In the survey of state forest practice acts, all states in the Mid-Western United States lacked such regulatory programs. In recent decades the states of the Northeast and western United States have adopted policies of enacting forest practice acts; however, the states of the Mid-West resisted following this a trend. Although there is no concrete explanation for this phenomenon the answer may be found in the relatively small amount of industrial and private timberland located in the Mid-West region as compared to the remainder of United States. For instance, only 3% of the land located in Kansas is classified as forest (Atchison 2002). Furthermore, Iowa's total amount of forestland accounts for only 6% of the state's land area (Walkowiak 2002). Therefore, there may be a correlation between percentage land area and forest and the presence of statewide forest regulatory programs.

Western Region

In the western region of the United States 7 states have forest practice acts. These states include California, Idaho, New Mexico, Nevada, Oregon, Utah, and Washington. These comprehensive state forestry regulations have existed in the region for over 30

years. The intent of the acts are to ensure sustainable timber production and protect the environment while dictating minimum guidelines for conducting forest practices.

Depending on the state these acts permit, promote, require, or prohibit local regulation of forest practices. The provisions of these acts and their relationships are examined below.

California

In 1973, California established the Z'berg-Nejedly Forest Practice Act. The intent of the act is to create an effective and comprehensive system of regulation that would apply to all timberland in the state. The purpose of the act is to ensure the productivity of timberlands while maximizing production of timber products, protecting other resource values (i.e., recreation, water quality, wildlife, aesthetics), and economic viability.⁵ Currently, the act is the most detailed state-wide comprehensive forest practice regulation plan in the nation.

The provisions of the Z'berg-Nejedly forest practice act regulate a multitude of activities. The act first establishes responsibilities of the forestry board, boundaries of resource districts, and defines board member qualifications. The act increases detail when it outlines resource conservations standards, the harvester licensing program, timber harvest plan requirements, and non-industrial timber management plans. The act concludes discussing violations and enforcement of the regulatory program.

For purposes of the forest practice act, the state of California is divided into at least three districts at any given time. Each district is governed by a committee consisting of nine members that represent the general public interest. The committee is comprised of five general public citizens, three forest products industry professionals,

⁵ Pub. Res. § 4511-4513.

and one range livestock industry representative. Each member serves a four year term in which their responsibilities include establishing and revising district forest practice rules when necessary. The committees prepare a sustained yield plan for their district that is effective no longer than a single ten-year period without revision. Any enacted rules and regulations apply to all imaginable timber operations which are defined at length, in the act.

The forest practice act continues by establishing resource conservation standards for timber operations. The purpose of the standards is to ensure that sufficient commercial species cover is maintained or established following any timber operation. The act defines minimum acceptable stocking levels based on site specific classifications for even and uneven-aged management regimes. Additional silvicultural regulations pertain to fire prevention and suppression, minimization of soil erosion, and to ensure high water quality.

Licensing of timber operations contractors in the state is another important provision found in the act. The act states that no person shall engage in timber operations without an approved license issued by the forestry board. First time applicants for licensing must provide the board with proof that they have either completed a state timber operations educational program, had over 3,000 hours work experience in timber operations, or is a sole proprietor and owns land in which all operations will occur. Before license issuance an operator must provide proof of insurance for a minimum of \$1,000,000 dollars. Licenses are valid for two years and may be subsequently renewed. Any license can be denied or revoked if the operator is found in violation of the act's mandates.

The most detailed section of the forest practice act deals exclusively with timber harvesting plans. Within the state no timber operations can be performed without an approved timber harvesting plan prepared by a registered professional forester. Timber harvesting plans must include personal information on the timberland owner and timber operator, detailed maps of the site, silvicultural prescriptions, equipment used, and dates of commencement and completion. Once filed with the forestry department, the timber harvesting plan is placed on file for public inspection and copies are submitted to the department of fish and game, a regional water quality control board, the county planning agency, and the Tahoe Regional Planning Agency (where applicable) for review. After the plan is submitted to the aforementioned parties a public comment hearing and site inspection is conducted before the plan can be approved. Once approved, timber harvesting plans are effective for up to three years.

Upon receiving plan approval timber operations may commence on the designated property; however, there are additional provisions that relate to post-operation inspections. A work completion report must be submitted to the board within one month of timber harvesting completion. After filing the completion report an inspection is conducted to determine if timber operations actually conformed to the harvesting plan and all operations abided by forest practice act provisions. In cases of compliance a report of satisfactory completion is issued. Finally, a stocking report must be filed with the department within five years of harvest completion so it can be determined if on-site stocking meets all resource conservation standards.

Non-industrial private landowners in California have the option of submitting a non-industrial timber management plan. The objective of the program is to increase

timber production and productivity of private timberland under prudent resource management across the state. Landowners who intend to become a tree farmer with the long-term goal of sustaining yield through uneven-aged forest management may submit a plan. The procedural requirements of these plans very closely mimic those of the timber harvesting plan.

The forest practice act is rigorously enforced in California. If a violation of the act is noticed during an inspection a stop order is issued. The stop order is a preliminary action that attempts to correct identified violations. Commencement of operations following a stop order usually entails mitigation and repair of necessary damages incurred. However, if violations continue or are neglected the department may choose to pursue civil court action. Anyone found guilty of a violation is charged with a misdemeanor punishable by a fine up to \$1,000.00 and/or imprisonment up to six months for each offense.

With regard to local ordinances the forest practice act clearly states that every municipality has the right to declare, prohibit, and abate nuisances. The act also indicates that individual counties may not otherwise regulate timber operations unless authorized by the state forestry board. Presently, the counties of Marin, Monterey, San Mateo, Santa Clara, and Santa Cruz along with the California Tahoe Regional Planning Agency have the authority to adopt, enact, and enforce localized forest practice regulation. To date, all of these regulatory entities have some form of local ordinance that pertains to timber harvesting operations. Additionally, the county of Napa has an environmental protection ordinance. The provisions of these local regulations are covered in Chapter 5.

Idaho

The state of Idaho's forest practice act was passed in 1974. The act's purpose is to "assure the continuous growing and harvesting of forest trees and to maintain forest soil, air, water, vegetation, wildlife, and aquatic habitat" (Hamilton 1998). Requirements of the act mandate that state and private lands be managed to protect, maintain, and enhance the state's natural resources. Forest management on federal lands in Idaho must meet or exceed the statutes of the state forest practice act.

Provisions of the forest practice act first established an advisory board of landowners, operators, informed citizens, environmental and fisheries experts to recommend rules to the state land board. In the case of a violation, the act gives authority to the Idaho Department of Lands to take the necessary enforcement actions against the responsible operator. The act established forest practice advisors who provide technical assistance to timberland owners and operators who want to learn about forest practice act compliance (Hamilton 1998).

Since the enactment of the forest practice act in 1975, operators have to notify the Idaho Department of Lands about proposed forest practices. By notification, operators secure a slash compliance or "brush number" and forest practice notice. The notices are required for 6 varying forms of forest operations. The categories are as follows: 1) timber harvesting and related road construction; 2) road construction and reconstruction away from the harvesting area but associated with harvesting; 3) reforestation; 4) use of pesticides, fertilizers, and petroleum products for forest management purposes; 5) management of slash resulting from harvest; management or improvement of forest tree species or the use of prescribed fire; and 6) the conversion of commercially harvested

forest land to another use. All notifications can be made at local Idaho Department of Lands offices by filling out a certificate of slash compliance/notification of forest practice form. Under the forest practice act, no plan or permit is required before an operation begins. Forest practices can only begin; however, when the Idaho Department of Lands accepts the notification. Copies of all notifications are sent to the landowner, timber owner, and operator. Notifications are valid for two years and must be renewed within 30 days by the person who initially filed the original notification. In the case of emergency forest practices due to fire, flood, windthrow, or earthquake notifications can be made up to 48 hours after practices are started (Hamilton 1998).

Exemption from notification applies only to noncommercial small-scale forestry operations. No notification is required when one performs routine road maintenance, recreational activities, allows domestic livestock to graze, cone picking, culture, harvest of Christmas trees, or harvesting of other minor forest products. Non-commercial cutting or harvest of trees for personal use is exempt from the notification requirement.

Non-resident operators not owning property in the state of Idaho must provide a performance bond to the Idaho Department of Lands before starting a forest practice. The required bond amount is \$200 per acre with a minimum of \$5,000 and a maximum of \$15,000. Bonds can be made by cash payment, security bond, or through a certificate of deposit.

Violations of the forest practice act are classified as misdemeanors. The Idaho Department of Lands can make repairs if an operator does not perform corrective measures that mitigate resource damage. The lands department can subsequently take civil action against an operator to recover repair and legal costs. Operators that fail to

complete required repair requests will be denied for future forest practice notifications. Additionally, habitual and repeat offenders may be required to provide an operator's bond (Hamilton 1998).

In 1995, the forest practice act was amended to preempt the proliferation of local forestry ordinances. The act clearly states that "no unit of local government shall enact any ordinance, rule or resolution which purports to regulate forest practices on the forest land in this state and which conflicts with any provision of this chapter"⁶ The change in the regulation provides a uniform and consistent single agency approach to regulating forest management practices in the state. The amendment was strongly supported by private landowners, loggers, and the forest products industry. These entities believe that this approach is superior to dealing with a conglomerate of varying regulations, requirements, and enforcement standards (Colla 2002). Thus, Idaho has no regulatory forestry ordinances below the state level.

New Mexico

New Mexico established its Forest Conservation Act, which is the state's forest practice regulatory program in 1989. The purpose of the act is to "provide minimum standards for the treatment of slash, utilization of felled trees, and stabilization of roads and skid trails" (New Mexico Energy, Minerals and Natural Resources Department Website 2002). With the implementation of the statute the state hopes to reduce hazards associated with wildfire, insects, soil erosion, stream sedimentation while ensuring forest sustainability. The structure of the forest conservation act contains provisions that

⁶ Idaho Code § 38-1302(3). (1974)

require landowners to obtain a harvest permit, propose a forest harvest practice plan, and conform to required harvesting practices.

A landowner must file an application for a harvest permit with the forestry division at least 30 days prior to harvest commencement if he/she intends to harvest more than 25 acres within one calendar year. Information required on the harvest permit application includes the following: 1) names and addresses of the property owner and timber purchaser; 2) legal description of the timber stand; 3) method of harvesting; 4) time schedule for harvest, and 5) a forest harvest practice plan.

The forest harvest practice plan is located within the harvest permit application. The plan requires details regarding the current stand conditions (e.g., species description, any insects or disease present, estimate of trees per acre, and an estimate of average tree diameter). An owner must state his (her) land management goals and objectives regarding, not only timber production, but also explaining how harvesting will affect wildlife habitat improvement, thwart insect and disease infestation, or denote a land type conversion. The act further requires a topographic map in which tract boundaries, road and skid trail locations, watercourses, and areas of excessive slope are delineated. A harvest description section must be included with descriptions of harvest method (e.g., seed tree, shelterwood, single tree, group selection, or clearcut), harvest equipment, residual stand conditions, regeneration method, sediment control measures, streamside management zones, slash disposal, fire control measures, and forest practice standards on excessive slopes. In a case where any of these provisions are unidentified, misleading, or excluded, harvest permits will be denied until sufficient revisions are made.

Upon issuance of a permit, harvesting activities can commence; however, there

are several harvest practice standards set forth in the forest conservation act. First, no harvesting can occur in a third cutting unit of a multiple cutting operation unless all harvest practices standards have been met in a previous cutting. Second, the forestry division can require the landowner to mark boundary lines and leave trees. Third, erosion control measures detail the proper standards for construction of haul roads, skid trails, decks, and water bar intervals based on slope percent. Fourth, the act requires a minimum of 50 foot buffers on all watercourses from the ordinary high water mark. Additional provisions outline tree utilization specifications, slash disposal (e.g., no slash can stand more than 3 feet above ground level), and various cable yarding standards. If a landowner chooses to use practices other than those defined above, they must obtain an alternative practices approval from the forestry division.

Direct violations of the forest conservation act, or the approved harvest permit are taken very seriously in New Mexico. Once violations are identified a notice of deficient condition is issued to the operator. The operator must then take corrective measures immediately to avoid the revocation of the harvest permit. If a harvest permit is revoked an operator can be charged with a misdemeanor punishable by a fine or up to \$1,000 and (or) imprisonment in the county jail not to exceed one year for each offense.⁷

With regard to local regulation the act does not specifically restrict local regulation of forest practices. Through the act's implementation; however, the New Mexico Forestry Division seeks to protect the rights of citizens at large and the private property rights of non-industrial private forest landowners with this comprehensive statute (New Mexico Energy, Minerals and Natural Resources Department Website 2002). Thus, there are no local forestry ordinances in New Mexico.

⁷ 19.20.4 NMAC

Nevada

The state of Nevada enacted its Forest Practices Act in 1955. The statute was revised in 1971, 1973, and lastly in 1979. The forest practices act establishes minimum standards of forest practice, requires all timberland owners to promote sustained productivity of the forests in Nevada, and requires the preservation the natural water supply to ensure economic viability. Provisions outlined by the act pertaining to forest management operations cover logging permits, cutting practices, erosion control, and fire suppression.

Logging permits are required by the forest practices act for all harvesting operations. To obtain a permit an operator must submit a logging plan to a state forester firewarden. The plan must include pre-harvest topographic map with an outline of the harvest boundary, roads, property entrances, and landings. Logging plans should provide an accurate estimate of volume removed, duration of harvesting operation, and composition of residual stand. Further plan requirements include a revegetation, slash disposal, and clean-up plans. If new logging roads are constructed to perform a harvest, the specifications and erosion control measures are included in the logging plan. Because of fire risk, a plan must include fire prevention and protection plans that outline available tools, equipment, and personnel available to fight fire if necessary. The final requirement of the logging plan includes a performance bond based on the contract price or value of timber removed. Any proposed variances of the logging plan must be submitted to the state forester fire warden. Permits can be denied for inaccurate information, misrepresentation, non-compliance with the forest practices act, potential of significant

erosion, failure to correct previous permit violations, or insufficient performance bond. All issued permits may be renewed if harvesting extends one year past the date of issuance.

The cutting practices of the forest practices act pertain mostly to the reserve of seed trees after harvest. The act states in for old-growth, young-growth, and prior-cut timber stands that all trees 18 inches DBH or less shall remain uncut with an average of at least 10 satisfactorily located seed trees 18 inches DBH or greater left per acre. Seed trees left after harvest must be approved by the state forester firewarden. The only exception to the above provisions applies to young-growth and prior-cut timber stands. In these stands trees regardless of size may be harvested if they contain dead tops, butt burns, lightning scars, insects, disease, excessive crookedness, injury from harvest. Suppressed trees with less than a 25 percent crown may also be removed.

Other cutting restrictions deal with the certain activities located near bodies of water. The forest practices act states that no felling, skidding, rigging, construction of roads and landings, or operation of vehicles can be performed within 200 feet (measured on slope) of the high water marks on lakes, reservoirs, and streams. There is also a provision that prohibits harvesting equipment from operating on saturated soils. Under special circumstances; however, a variance to these regulations can be obtained from a committee composed of the state forester firewarden, administrator of the division of wildlife, and the state engineer.

Erosion control measures regulated by the forest practices act pertain to the construction and maintenance of skid trails, roads, landings, and firebreaks. All must be constructed so that they do not diminish soil productivity, elicit erosion, or decrease

water quality. On roads, skid trails, and fire breaks the use of water breaks and culverts are mandated and must meet interval distance guidelines based on slope percent of the terrain. In lieu of water breaks or culverts, operators may utilize outsloped drainage structures to abate erosion when applicable. To retard surface waterflow slash may be used to cover firebreaks and skid trails. Following harvest completion, contractors shall seed skid trails, roads, and landings with an approved grass type depending upon soil characteristics.

Fire suppression guidelines in the act are purposely mandated to prevent and suppress the devastating affects of a wildfire. The act requires certain practices year round and additional suppression provisions during fire season. During any harvesting operation an operator must remove snags greater than 20 feet in height when the trees are 16 inches or greater in DBH. The number of snags removed must not exceed an average of 4 per acre; however, unused portions of trees within 100 feet of a main logging or public road must be lopped and scattered uniformly across the tract during regular harvesting operations. If a landowner chooses to pile and burn slash, he (she) must do so in an area that will not damage residual trees or future regeneration.

In fire season, additional requirements are placed upon logging contractors to minimize the risks of wildfire. Before harvest commencement an operator must notify the state forester firewarden of his (her) intent to harvest, and fill out a fire plan approved by the state forester firewarden. The plan shall detail the names of all available personnel for fire fighting, number and type of tools reserved for use on fires, and a legal description of the harvest area. Permits for blasting must be obtained prior to any blasting operation, in which one member of the logging crew shall remain on the tract at

least one hour following such operations. Loading activities, machine services, and welding shall be performed over open ground with at least a 10-foot buffer on all sides extending from the harvesting operation.⁸

The issue of local government authority is not mentioned in the forest practice act. The legislation fails to address whether local governments can or cannot enact regulations that affect forest operations within their jurisdiction. At the present, only one local ordinance, which is enforced by the Tahoe Regional Planning Agency, was detected in Nevada. The provisions of this regulation are addressed in Chapter 5.

Oregon

Oregon enacted its initial forest practice act in 1971. The purpose of the act is to protect forest resources, soil, water, fish, and wildlife habitat. The act first specifies guidelines that pertain to forest practices across the state. Second, it contains site specific provisions that apply to seven different geographic regions. These regulations are in the forest practice act because of the various forest and site conditions that exist in Oregon.

Oregon's statewide forest practice rules require prior notification before commencing with certain activities. At least 15 days before any timber harvesting, road construction, site preparation, chemical applications, land clearing, slash treatment, pre-commercial thinning or surface mining an operator must notify the Oregon Department of Forestry. All notifications must contain a legal description, maps, and the names of parties involved. When applying any chemical to forestland an operator may be required to notify the local authority governing the local water supply. In these cases the Oregon Department of Water Resources and the Oregon Department of Fish and Wildlife

⁸ 1979 Nev. Stat. 528

as well.

The forest practices act details specific provisions regarding various forest operations. During chemical applications operators need an Oregon applicators license and should apply buffer strips on waterways, water bodies, and dwellings. Slash reduction techniques should decrease slash in a manner that reduces erosion and sedimentation. If burning is necessary an operator must obtain a burning permit and construct a written plan that outlines resource protection techniques when burning near a riparian area. Regarding clearcuts, no harvest can exceed 120 acres. Subsequent clearcuts under the same ownership are not allowed within 300 feet until the first clearcut meets certain reforestation requirements. All harvests greater than 25 acres that reduce stocking below specific limits must leave two snags or green trees and two logs per acre above a minimum size for wildlife habitat.

As noted above, the forest practices act contains site specific provisions that apply to seven distinct geographical regions of the state, which contain six categories of special regulations. First, reforestation requirements apply to land productive enough to support a forest crop. Within a year of harvest 100-200 well distributed seedlings of marketable species must occupy the stand. Second, correct construction and maintenance for forest roads is regulated by the act. To avoid erosion and sedimentation problems associated with forest roads an operator must follow regional guidelines set forth by the Oregon Department of Forestry. When building stream crossings, structures cannot retard fish movement and must be designed to withstand a “50 year” peak flow rate. Any ground disturbance incurred during road construction or maintenance must be appropriately stabilized. Third, timber harvesting requirements mandate that an operator minimize

residual stand damage, minimize erosion, and sustain land productivity. When cable yarding, uphill is preferred to downhill yarding unless full suspension of at least one end of the log is provided. Under timber harvesting provisions the construction of skid trails, landings, and fire trails are specified. The fourth section of site specific regulations pertains to streamside areas, which underwent major revisions in 1994. The act focuses on vegetation retention, water resource protection, fish habitat sustainment and specify buffer widths (20-100 feet) for “riparian management areas” depending upon stream size and fish and/or domestic use. Although no harvesting can occur in most streamside management zones exceptions are granted when plans that enhance habitat are approved. Fifth, site specific regulations are concerned with the protection of sensitive wildlife. In areas that house nests, roots, or watering sites preventative measure may be required to protect the viability of certain bird species (i.e., bald eagle, northern spotted owl, great blue heron, osprey). Lastly, provisions for scenic highways are incorporated into the forest practice act. On designated state and federal highways aesthetic buffers of 150 feet are required. Harvesting may occur in these areas when 50 large trees per acre are retained until understory trees reach 10 feet in height.

Enforcement of Oregon’s forest practice act is the responsibility of the Oregon Department of Forestry. Foresters working under the department review notifications, make onsite inspections, and issue written notice of an act violation. If corrective action is not taken to correct resource damage a civil penalty of \$100 to \$5,000 per violation. A court can assess additional penalties if criminal intent materializes (Adams 1996).

With regard to local ordinances the Oregon forest practice act was amended in 2001 stating the following:

“no unit of local government shall adopt any rules, regulations or ordinances or take any other actions that prohibit, limit, regulate, subject to approval or in any other way affect forest practices on forestlands located outside of an acknowledged urban growth boundary”⁹

Local legislation of forest practices is permitted if such ordinances were enacted prior to July 1, 1991, or pertains to an urban growth area. Currently, 8 local ordinances are identified. The provisions of these local regulations are discussed in Chapter 5.

Utah

In 2001, Utah passed the Utah Forest Practices Act.¹⁰ The purpose of the act is to establish forest operator registration and a notification system for environmental protection. The act first defines activities that are considered forest practices. Second, it outlines operator registration and notification guidelines. In conclusion, the act enables the Utah Division of Forestry to provide technical assistance to landowners and operators.

As defined by the forest practices act, forest practices include timber harvesting, road construction for timber harvesting or timber access, site preparation, reforestation, and slash management activities. The act also defines practices which are not classified as forest practices. Activities excluded from the forest practices act include nursery or Christmas tree farm operations and the cutting of trees for private non-commercial use when there is less than 10 contiguous acres of forestland are harvested.

Operator registration in the state of Utah is administered by the Division of Forestry. To conduct forest practices operators must supply the division with the company's name, name of state where the company is incorporated, and the names,

⁹ ORS 527. 722

¹⁰ Utah Code Ann. § 65A-8a-101 (2001)

telephone numbers, and addresses of a company official or on ground supervisor. With respect to industry representatives, the division may establish minimum operator registration guidelines. The act contains a provision that provides a list of registered operators for landowners.

Notifications in Utah pertain to any defined forest practice. All notifications of intent to conduct forest practices must be submitted at least 30 days prior to practice commencement. A notification includes the following items: 1) the operator's name and address; 2) the landowner's name and address; 3) a legal description of the area; and 4) a description of the proposed forest practice and the number of acres affected. Within 10 days of notification receipt the Division of Forestry mails the operator and landowner an acknowledgement letter. The letter includes information on Utah's Forest Water Quality Guidelines and any additional information that the division believes will assist the landowner or operator in conducting the proposed forest practice.

The promotion of the forest water quality guidelines is conducted by the Division of Forestry, which applies before, during, and after all forest practices. The purpose of the guidelines is to protect environmental quality while providing for sustainable timber production. Specifically, the guidelines refer to preserving water quality and soil stability, prevention of fire and insect infestation, minimization of timber waste, and to protect the regenerative and productive capacity of state forests. The forest water quality guidelines grant authority to the Division of Forestry to provide technical assistance to landowners and operators entailing many useful services. If requested, the division must assist landowners and operators with developing forest stewardship plans, forest management plans, and provide information of tax and federal cost-share incentives. The

Division of Forestry also implements public education and awareness programs to inform citizens of stewardship plan benefits.

With regard to local forestry ordinances, the Utah Forest Practices Act is silent on local forest regulation. Carbon County of Utah enacted a timber harvesting ordinance in 2000; however, which is the only local forestry ordinance of its type identified in the state. The provisions of this ordinance are covered in Chapter 5.

Washington

The state of Washington enacted its forest practice act in 1974. The purpose of this very detailed act is to protect, promote, and encourage timber growth within the state. To achieve this goal, the act states that it will utilize soil capacity to grow timber profitably while simultaneously protecting soil and water resources through sustainable forest practices. The forest practices act provides for interagency cooperation between governmental and tribal officials, resource managers, and forest landowners. It is in the public interest to encourage landowners to reduce impacts associated with mass earth movements and fluvial processes.

Forest practices in the act are defined as:

“any activity conducted on or directly pertaining to forest land and relating to growing, harvesting, or processing timber included but not limited to: a) road and trail construction; b) harvesting, final and intermediate; c) pre-commercial thinning; d) reforestation; e) fertilization; f) prevention and suppression of diseases and insects; g) salvage of trees; and h) brush control.”¹¹

Primary provisions of the initial act included the establishment of a forest practices board, forest practice rules, and establishment of forest practice classes.

The forest practices board is a state agency that consists of various public officials

¹¹ Wash. Rev. Code. §76.09 (1997)

such as the public lands commissioner, directors of community, agriculture, ecology, fish and wildlife departments, a governor appointed county legislator, and six state citizens. One of the six general public members must be a forest landowner with less than 500 acres and, one must be an independent logging contractor. Service terms for committee members vary from two to four years.

The legislative mandate of the forest practices rules section sets forth the duties of the forest practices board. The board shall devise regulations that establish minimum standards for forest practices, provide procedures for voluntary development of resource management plans, set forth administrative provisions, establish fee collection and administration, and allow development of watershed analyses. Under these provisions the board must prepare regulations that achieve the act's goals while satisfying reviews of other county and state departments (i.e., fish and wildlife and ecology).

Four classes of forest practices were identified. Class I forest practices pose minimal damage to public resources and can be conducted without submittal of an application or notification. Class II forest practices require written notifications five days prior to operation commencement because they are deemed as having a slightly larger impact on the environment. Class III forest practices consist of land disturbing activities that require an application be approved or disapproved at least 30 days prior to the operation. Class IV forest practices are regarded as having the largest potential to damage the environment and public resources, which deals mostly with timberland conversion. Class IV activities also require the 30 day pre-operation application. Forest practices operations can commence only after required fees have been received by the forestry department.

The notifications and applications required to perform Class II, III , and IV forest practices require great detail. Names and addresses of the landowner, timber owner, and operator must be included. Descriptions of the forest practices conducted, legal descriptions, tax parcel identification numbers, and delineated topographic maps are incorporated into any application. Descriptions of the silvicultural, harvesting, and reforestation operations must be outlined including type of equipment utilized. Soil, geologic, and hydrological information with respect to the forest practices conducted are required. Finally, an application must state expected dates of commencement and completion of forest operations specified. Application fees for Class II, III, and IV forest practices relating to commercial timber harvesting are \$50.00. However, a Class IV application that involved timberland conversion to an alternate use is \$500.00.

Another forestry related section of the forest practice act discusses reforestation requirements. Upon completion of a harvest operation, satisfactory reforestation must be completed within three years. Although the act fails to give specific silvicultural descriptions of satisfactory reforestation it outlines provisions that provide for resource sustainability. The reforestation section states that it is the obligation of the timber rights owner to reforest land. In situations where land is sold or transferred the buyer shall accept all responsibility of the reforestation requirement.

Enforcement of Washington's forest practice act is the duty of the forestry department. Stop work orders can be authorized if there are violations of forest rules, deviations from an approved application, or actions needed to curb material damage to a public resource. In cases where stop orders are unnecessary a failure to comply notice may be used to correct any potential problems. The penalty for purposefully failing to

comply with a stop order or forestland conversion without proper consent is up to \$10,000.00 per every violation.

With respect to local regulation, the forest practice act prohibited local municipalities from regulating forest practices until amendments were made effective on July 27, 1997. The amendments applied directly to local control of forest practices and mandated that by December 31, 2005 each county and city must adopt regulations that establish standards that meet or exceed standards set forth by the forest practices board for Class IV forest practices within urban growth areas (Engel 2003). Hence, local regulation in the state of Washington will increase dramatically because of this single legislative amendment to the state's forest practice act. Details are discussed in Chapter 5.

Chapter Conclusions

Forest practice acts have a major role in regulating forestry in the Northeast and western regions of the United States. In the Northeast, Connecticut, Maine, and Massachusetts utilize these comprehensive state mandates to protect natural resources and the environment while providing for public interests. In the West, California, Idaho, New Mexico, Nevada, Oregon, Utah, and Washington utilize forest practice acts to modify harvesting for protection of water, wildlife, and aesthetics. With regard to local forestry ordinances these acts can either permit, require, prohibit, or are silent on local governments' ability to regulate forestry, as discussed above. Although the purpose of these regulations is often similar each individual act is crafted to meet state specific objectives. Provisions of forest practice acts also vary by state, but generally address similar objectives. The relationships between forest practice acts and local forestry

Table 4.3. Relationship of forest practice acts to local forestry-related ordinances shown by regulatory category for the Northeast, Mid-West, and western United States.

	Environmental protection		Tree protection		Timber harvesting		Public safety		Special feature	
	FPA	Local	FPA	Local	FPA	Local	FPA	Local	FPA	Local
NORTHEAST										
Connecticut	X	X		X	X	X		X		X
Delaware										
Maine	X				X	X				
Maryland		X		X						X
Massachusetts	X	X			X					
New Hampshire		X				X				
New Jersey		X		X		X				X
New York		X		X		X				X
Pennsylvania		X				X				
Rhode Island										
Vermont										
West Virginia										
MID-WEST										
Illinois										
Indiana							X			X
Iowa										
Kansas										
Michigan		X		X		X				X
Minnesota						X				
Missouri										
Nebraska										
North Dakota										
Ohio				X		X				
South Dakota										
Wisconsin										
WEST										
Arizona										
California	X	X			X	X	X		X	
Colorado										
Idaho	X				X					
Montana										
Nevada	X				X	X				
New Mexico	X				X					
Oregon	X	X		X	X	X			X	
Utah	X				X	X				
Washington	X				X	X	X			
Wyoming										

ordinances by regulatory category are shown in *Table 4.3.*, and discussed below.

In the northeast region forest practice acts' general provisions pertain mostly to timber harvesting and environmental protection. Although the state-wide act addresses these categories explicitly in Connecticut local ordinances were classified among all five categories. In Maine, local ordinances pertained to timber harvesting, which is regulated in the forest practice act. The same development exists for Massachusetts, except for the environmental protection category. Interestingly, states without forest practice acts have local ordinances also focus on timber harvesting and environmental protection with remaining ordinances in the tree protection, special feature, and public safety categories.

The mid-west region is devoid of comprehensive forest practice acts; however, local ordinances exist in the region. The 4 states with have local ordinances addressed all categories of regulatory scope. Nevertheless, the distribution of ordinance types by category and state appear to be random.

The western region exhibits the greatest number of comprehensive forest practice regulations. Seven states in the region have forest practice acts, with provisions which focus on timber harvesting and environmental protection. Some acts contain stipulations for public safety and special feature protection. In contrast to the Northeast, the provisions of forest practice acts seems to limit the types of local ordinances enacted in particular states.

In summary, forest practice acts regulate forestry in many ways in the Northeast and western United States. In the Northeast the 3 states do not curb local regulation of forestry. In contrast, western states with forest practice acts seem to control the types, but not the numbers of local ordinances being enacted. While western forest practice acts do

limit local regulation, some foster the adoption of local forestry ordinances. The state specific and regional analyses of local regulations for the 3 study regions are addressed below.

Chapter 5. Survey Results of Local Forestry-Related Ordinances by State

The survey of ordinances serves as the foundation for this chapter. The identified local forestry-related ordinances for the Northeast, Mid-West, and West are discussed by state. Local ordinances are enumerated and examined by regulatory category, dates of adoption, and types of government units. The discussion of ordinance provisions provides information on how forest practices are regulated at a local level in certain states.

Northeast Region

The northeast region of the United States consists of 12 states. They are Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and West Virginia. A total of 351 local forestry-related ordinances are identified among the 8 states of Connecticut, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, and Pennsylvania. The location of ordinances in these states is shown in *Figure 5.1*. The quantity, regulatory intent, content, and structure of these local forestry-related ordinances are discussed further for each individual state, in this section. Further, there is ample evidence that additional local ordinances exist in northeastern states, which is addressed below.

Connecticut

In Connecticut, 34 local forestry-related ordinances are identified. All regulations

are enacted by town level governments and either control forest practices directly or circuitously. These ordinances are categorized into all five categories of regulatory intent. Timber harvesting regulations represent the largest number of regulations followed by special feature protection, environmental protection, tree protection, and public property and safety protection ordinances, respectively.

There are 20 timber harvesting ordinances detected in Connecticut. A total of 20 are found across the state. General provisions of the timber harvesting ordinances include permits, clearcutting regulations, minimum cutting standards, and buffer requirements.

All timber harvesting regulations identified require a permit to conduct harvesting operations. Although the permit structures of all towns vary, many have the same characteristic elements. Permit applications require personal information of the landowner and operator, detailed maps of the harvest operation, descriptions of the harvesting procedure, and erosion and sediment control plans. The fee structures for permits range from a \$1.00 per acre levy with a minimum of \$5.00 and maximum of \$25.00 to flat rate fees varying between \$5.00 and \$50.00. Some applications even require adjacent landowner notifications.

Of the 20 timber harvesting regulations, 5 have provisions that pertain to clearcutting. The most restrictive ordinance prohibits clearcuts larger than one-quarter acre without a special permit. Three regulations prohibit clearcuts in excess of 5 acres, one which requires a \$1,000.00 assurance bond for any size clearcut. The fifth ordinance disallows clearcutting without a permit accompanied by a \$200.00 bond.

Other provisions of the timber harvesting ordinances include cutting standards.

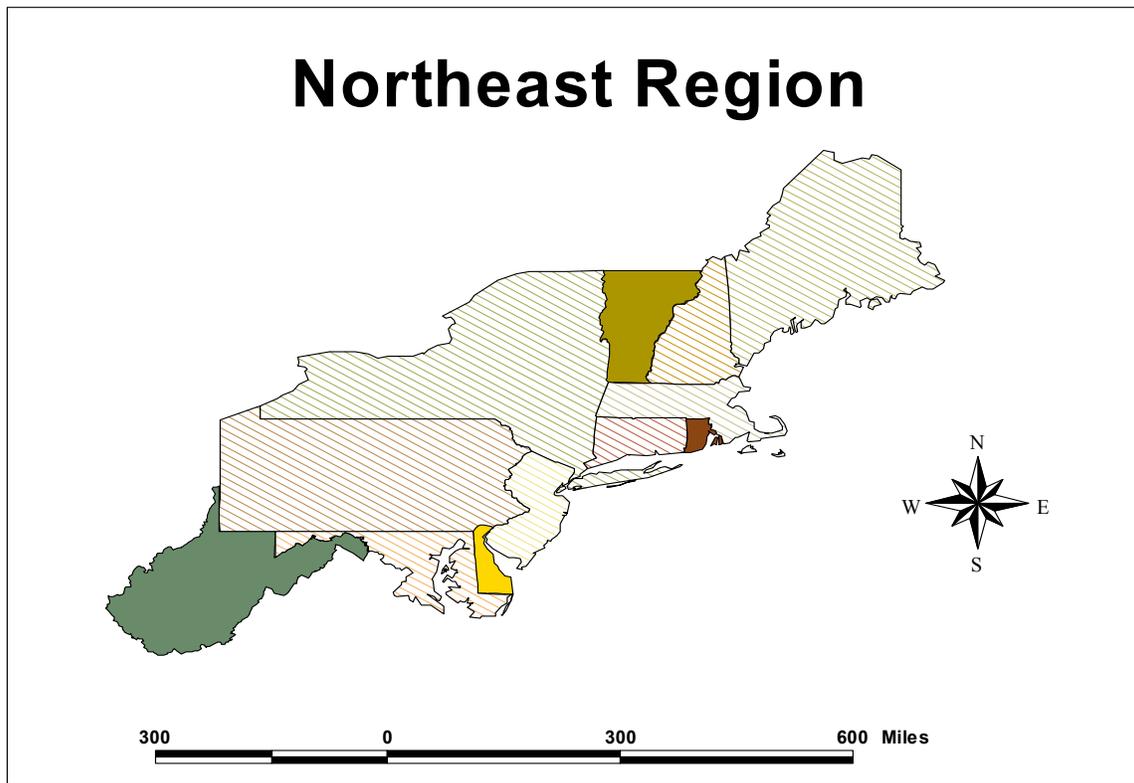


Figure 5.1. States of the Northeast that have local forestry-related ordinances, shown by cross-hatching.

Several ordinances outline harvest procedures regarding construction and use of haul roads, skid trails, stream crossings, and erosion control measures. Further, some regulations mandate streamside management zones, aesthetic buffer strips along highways, and standards for slash removal.

The special feature protection ordinances in Connecticut address 2 special conservation districts. Of the 8 ordinances identified, the Gateway River Conservation District and the Housatonic River District have 4 regulations each that protect their area. The towns of Chester, Essex, East Haddam, and Old Saybrook enforce regulations in the Gateway River Conservation District while towns Cornwall, Kent, New Milford, and

Salisbury regulate activities in the Housatonic River District. Of the 4 ordinances regulating activity in the Gateway River Conservation District, 3 prohibit commercial timber harvesting and 1 requires a special permit. Within the Housatonic River District all towns allow timber harvesting. Three towns require a harvest plan approved by the state forester prior to harvest commencement. One ordinance even prohibits the use of pesticides and herbicides. The fourth town allows timber harvesting by right (without permit) long as operations do not alter the natural character of the district.

Environmental protection ordinances identified in Connecticut are found in the towns of Ansonia, Coventry, and Sharon. The town of Ansonia enacted its ordinance in 1976, to protect wetlands and water resources within the town. The regulation requires a permit to harvest timber. The fee for the permit is \$25.00 and if a public hearing is necessary a fee of \$50.00 is additionally assessed. Second, Coventry requires a sediment and erosion control plan before conducting various land disturbing activities, which can include forestry. The last environmental protection ordinance identified is in the town of Sharon, CT. Although the town also has a timber harvesting ordinance, this particular regulation states that a permit must be obtained before conducting operations in areas zoned as rural residential and lands located in the Housatonic River Corridor.

Two ordinances in Connecticut are categorized as tree protection regulations. The regulations differ in their provisions; however, their intent is to protect trees within the towns' jurisdiction. The first ordinance is located in East Windsor, CT and has been in effect since 1977. This ordinance requires a permit for the cutting of firewood on town land. Each permit costs \$6.00 and allows one to cut a maximum of two cords of wood for personal use. If wood cut is sold, the permit fee is \$100.00. The second tree

protection ordinance is located in Brookfield, CT. This ordinance requires a permit for woodcutting the town limits. Provisions of the regulation mandate that a permit application accompany the site plan conducted by a registered engineer or surveyor. The plan should include a description of the property, list of adjacent landowners within 100 feet, existing and proposed drainage systems, and sediment and erosion control measures. The ordinance requires that all work be conducted between the hours of 7:00 am and 6:00 p.m. Monday through Friday and 7:00 am to 12:00 noon on Saturday. A permit fee is \$25.00 and a performance bond may be required if deemed necessary.

The only public property and safety protection ordinance found for the state of Connecticut is located in the town of Colebrook. The ordinance was enacted in 1983 and applies specifically to the operation of vehicles in excess of 10,000 pounds (5 tons). The regulation states that any vehicle weighing more than the aforementioned amount must apply and receive a special hauling permit to travel on town roads. To obtain a permit, the regulation requires a bond up to \$1,000.00 to mitigate damages caused by overweight vehicles. Undoubtedly, this ordinance affects the hauling of forestry equipment and forest products.

In summary, Connecticut has 34 local forestry-related ordinances. The ordinances are categorized as follows: 20 as timber harvesting, 8 as special feature protection, 3 as environmental protection, 2 as tree protection, and 1 as public property and safety protection. Most ordinances originated in the late 1970's and early 1980's (29); however, 5 timber harvesting regulations were adopted by towns between 1994 and 1996. Only 7 timber harvesting regulations have been revised since their initial adoption. These revisions occurred between 1991 and 1997 and are subtle. No revision was found

to alter the regulatory intent of any ordinance. Interestingly, the adoption of the 5 most recent timber harvesting regulations occurred after the enactment of Connecticut's forest practice act in 1991.

Maine

Several municipalities in Maine have adopted local ordinances that pertain to timber harvesting in conjunction with the state's forest practice act. Currently it is estimated that 45 out of 450 municipalities have enacted local timber harvesting ordinances (Bourassa 2001). These 45 towns are located in 14 different counties across the state. Bourassa sent copies of 5 ordinances that he felt were representative of the other regulations. These ordinances are analyzed to characterize the general provisions among the regulations. The local ordinances follow a modeled format, and they are similar in scope, structure, and content.

All local ordinances in Maine contain some form of notification requirement. Although a Bureau of Forestry notification is mandated in the forest practice act, certain towns require their own notification of harvesting operations occurring within its municipal boundaries. Some ordinances only stipulate that the town be notified of upcoming operations while others require abutter notifications of up to 15 days prior to harvest commencement. In more restrictive ordinances, towns have elected to require a permit to harvest timber.

The forest harvesting permits issued by towns are attached to direct costs suffered by the landowner and harvesting contractor. Before permit issuance, the applicant must provide an estimate of harvest volume and pay a fee of \$0.10 per cord pulpwood

harvested and \$0.18 per MBF sawtimber harvested. After harvest completion, the permit fee is adjusted based on the actual volume removed. These requirements are nothing more than a flat rate direct tax on the sale and removal of forest products.

Other provisions noted in Maine's local ordinances are conglomerates of harvesting performance standards. Certain municipalities have determined their own guidelines regarding proper forest harvesting. In some cases, municipalities state that during a shelterwood management regime one cannot remove more than a defined percentage of volume within a 10-year period except during a third cutting. Percentages for acceptable volume removal range between 33% and 40% with residual stand basal areas deviating from 50-55 square feet basal area per acre. Also, in shelterwood harvests some ordinances dictate that no single opening can be larger than 10,000 square feet. Further restrictions in some ordinances require 100-foot buffers along all public roads. Within the buffer strip only harvests up to 40% of the volume that leave a well-distributed stand of acceptable growing stock are allowed. For wildlife benefits, ordinances require 4 den trees per acre be left standing after harvest. The most stringent local ordinance provisions within Maine pertain to clearcutting. Although Maine's Forest Practices Act allows clearcuts up to 250 acres in size, some municipalities prohibit clearcutting of tracts over 25 acres. Other general standards outlined in the local ordinances require contractors to harvest in manners that minimize soil disturbance. These measures include logging on dry or frozen soil and reclaiming roads, skid trails, and decks following harvest.

The local ordinances all have enforcement standards. If found non-compliant, operators are given a 2 week grace period to correct identified problems. Violations not

corrected during this period result in a civil violation. Depending upon the ordinance, fines range from \$100.00 to \$2,500.00 per daily offense. Additional costs of ordinance violations include fees associated with lawyers, licensed professional foresters, court, and municipality administrative activities.

Although the process for implementing local ordinances is stringent under the forest practice act, 45 local forestry regulations exist in Maine. The ordinances are all enacted by town governments. Available adoption dates for three ordinances include 1992, 1996, and 1997. Currently, some 85 towns have appointed tree wardens to enforce municipal tree ordinances. These ordinances are excluded from the study because they do not affect commercial timber harvesting or timber supply.

Maryland

Eighty-seven local forestry-related ordinances are identified for Maryland. Three regulatory categories are represented by these ordinances. Sixty-two regulations provide protection for special features; 23 contain provisions regarding environmental protection; and 2 ordinances regulate tree protection. These ordinances are enacted by counties, cities, towns, and 1 village. Many ordinances contain provisions that enable them to be classified into several categories; however, the regulations are classified based on their strictest provisions. Provisions of the ordinances are examined by regulatory category.

The 62 special feature ordinances in Maryland follow the same modeled format. A copy of the model and a list of enacting municipalities was obtained and used for this analysis. These regulations proliferated because of state legislation requiring the presence of critical area ordinances that protect the Chesapeake Bay. The law, the Chesapeake Bay Protection Act, passed in 1984, requires various local government

entities to implement land use regulations that mitigate water pollution and natural resource degradation. Geographically, the critical area represents lands within 1,000 feet of the tidal waters and adjacent tidal wetlands associated with the bay. These criteria place “approximately 650,000 acres or 10% of the state’s land area” under the jurisdiction of the act (Hawks et. al. 1993). Presently, 16 counties, 9 cities, 36 towns, and 1 village have adopted the required ordinances. Although these ordinances provide a myriad of provisions, regarding a multitude of activities, only those affecting forest operations are examined.

The Chesapeake Bay Protection Act contains sections that discuss commercial timber harvesting. These guidelines provide protection for the bay while attempting to maintain and possibly increase forest cover in the critical area. Anyone planning to conduct timber harvests must submit a timber harvest plan prepared by a registered professional forester, to the respective municipality. Contents of the plan must describe all aspects of the operation, especially those measures that protect water quality and wildlife habitat. Along with timber harvest plans one must submit a sediment control plan that follows the guidelines set forth in Maryland’s Standard Erosion and Sediment Control Plan for Harvest Operations. Further mandates dictate minimum 100 foot buffers along all watercourses in the critical area.

The second most numerous type of ordinance identified in Maryland are environmental protection regulations. A total of 23 county level ordinances are found that pertain to sediment and erosion control guidelines. Similar to the special feature ordinances, the 23 sediment and erosion control regulations are mandated by state legislation. For simplicity, the provisions of the base model are discussed; however,

individual counties potentially have more stringent standards.

The sediment control plans apply to timber harvests that exceed 5,000 square feet of area, which undoubtedly includes all commercial operations. Standard plan provisions require the submission of detailed site maps, stabilization of site access points, and waterway protection standards. The waterway protection standards require that uncut buffers of various sizes be undisturbed based on adjacent slope percents. Harvesting may be permitted if an additional buffer management plan is approved. Furthermore, these ordinances contain policies regarding the construction, maintenance, and use of haul roads, skid trails, and landings.

The final category of ordinance identified in Maryland concerns tree protection. The 2 regulations are enacted by counties as required by Maryland's Forest Conservation Act, which was enacted in 1991. Although copies of only 2 ordinances were found, more likely exist. The purpose of the act and these ordinances is to minimize loss of forest resources to development. Provisions of these regulations require a forest stand delineation, which includes detailed maps and narrative of stand conditions. The second requirement is the filing of a forest conservation plan. This plan outlines how trees are conserved during development activities. Plan information includes a plat of the area, application for a grading permit, and detailed map. Other provisions of the ordinances provide afforestation and reforestation guidelines. Interestingly, these regulations do not apply to commercially harvested areas that are developed within 5 years.

In conclusion, more local forestry-related ordinances are identified in Maryland than any other state surveyed, with a total of 87. The majority of these regulations, 71.3%, protect the Chesapeake Bay, a special feature. The remaining 26.4% and 2.3%

are classified as environmental protection and tree protection ordinances, respectively. The ordinances are enacted by 23 county governments, some of which contained multiple regulations, 9 cities, 36 towns, and 1 village. In all instances, local regulations proliferated from various Maryland state laws. All dates of adoption coincide with the earliest identifiable state law and have been enacted since 1984 to the present.

Massachusetts

In Massachusetts copies of 9 local forestry related ordinances were obtained. All of the ordinances are classified as environmental protection regulations since they contain provisions regarding wetlands protection. Although these are the only ordinances specifically identified it is suspected that additional forestry-related ordinances exist in Massachusetts. Only those for which copies were obtained are discussed.

The 9 ordinances found in Massachusetts are environmental protection ordinances. These regulations follow a modeled format and provide for wetland protection. The general purpose of these ordinances is to protect wetlands, related water resources, and adjoining land areas. Provisions of these ordinances control various activities in wetlands to ensure the protection of water supplies, retard flooding, minimize erosion and sedimentation, and provide for wildlife habitat, recreation, and aesthetic values. Specific requirements of the ordinances include permits, administrative procedures for filing applications, fees, public hearings, and various penalties for violations.

In summary, 9 environmental protection ordinances regulate wetland activities in Massachusetts. The ordinances, enacted by 8 towns and 1 city government, were adopted pursuant to the state's forest practice act. The earliest ordinance was ratified in 1977,

whereas the most recent regulation was enacted in 1999. Most ordinances were enacted in the late 1980's and early 1990's. Although the ordinances directly relate to wetland alteration associated with development affect the potential to manage these highly productive sites for forestry purposes.

In addition to these ordinances, Dr. David B. Kittredge, an associate professor and extension forester for the University of Massachusetts, noted that the Massachusetts Wood Industries Council reviewed the 352 towns and cities in the state and found 35 towns with various ordinances that affect forestry. Kittredge stated that some of these ordinances require permits to cross town roads with logging equipment or equipment must be stored in an enclosure not visible from certain zoning districts or pretty boundaries. Kittredge believed that these regulations were not overly restrictive and that the forest practice act has halted the proliferation of local ordinances (2002). Nevertheless, it appears that local ordinances do not affect forest operations significantly in Massachusetts.

New Hampshire

In New Hampshire 3 local ordinances were identified. The ordinances are all enforced by town governments. Two ordinances are classified into the environmental protection category. The remaining ordinance pertains to timber harvesting. Several identified ordinances provide for environmental protection, but are excluded because they permitted forestry by right.

The 2 environmental protection ordinances identified are located in the towns of Hudson and Newbury. The Hudson ordinance defines use regulations for wetlands.

Provisions of the ordinance that address forestry mandate timber harvesting standards. Within wetlands, cutting is limited to 50% of the basal area per 10 year period. Residual trees must be healthy and well distributed. If the use of roads or skid trails are necessary they must be constructed in accordance with the Best Management Practices for Controlling Soil Erosion on Timber Harvesting Operations in New Hampshire. The second environmental protection ordinance, located in Newbury, NH simply requires a site plan review be approved prior to conducting forestry or timber harvesting operations.

The timber harvesting ordinance is identified for the Town of Exeter, New Hampshire. The purpose of the regulation is to develop minimum standards for timber harvesting. Provisions of the ordinance require a notice of intent to cut, a plan to cut prepared by a registered professional forester, and a surety bond estimated to cover the yield tax associated with the harvest. These provisions apply to harvesting operations in the town larger than 2 acres. Once the above administrative procedures are fulfilled, a cut permit for a one year duration is issued for the operation. Following harvest, a report of cut and statement of compliance is filed with the town. All foresters and loggers who operate must register with the town prior to conducting forestry activities.

In conclusion, the state of New Hampshire was found to have only 3 town ordinances that affect forestry. The 2 environmental protection ordinances were enacted in 1990 and 1994 and the timber harvesting regulation was adopted in 1987. These ordinances are not overly restrictive or burdensome and only apply to small areas within the state. A notable reason for the limited presence of local ordinances may be state statutes enforced by the state of New Hampshire that affect forestry. The state has laws that require notices of intent to cut; dredge and fill permits for operations in wetlands

causing minor impact; a wetlands forest management minimum impact notice for activities causing minimum impact; and a basal area law that requires buffers along town and state roads, streams, and water bodies (Niebling et al. 2000).

New Jersey

The state of New Jersey was found to have 81 local forestry-related ordinances. Of this total, 68 regulate timber harvesting; 10 provide for environmental protection; 2 promote the preservation of special features; and 1 ordinance pertains to tree protection. Many of the regulations contain provisions that allow ordinances to fit into several categories; however, such regulations are classified on primary intent. The 81 ordinances are enacted by 4 government types, which are towns, townships, boroughs, and cities. Although 81 regulations are directly identified likely exist in New Jersey. General provisions of these ordinances are examined by regulatory category.

Sixty-eight timber harvesting ordinances are identified in New Jersey. The majority of these regulations, 52, pertain to the states' Pinelands area. The remaining 16 regulations include both general and specific provisions regarding timber harvesting activities. These ordinances are enacted by towns, townships, boroughs, and cities.

The ordinances that govern the New Jersey Pinelands are all in effect due to state legislation. In June 1979, the state enacted the Pinelands Protection Act. Regarding local governments, the act envisioned localities implementing the Pinelands comprehensive management plan through the use of individual land use ordinances (New Jersey Pinelands Commission Website 2003). Currently, 52 of the 53 municipalities have made the necessary revisions to their local codes. For simplicity, the Pinelands management

plan regarding forestry and a list of all participating municipalities are used for analysis.

The Pinelands' ordinances are classified as timber harvesting because of their provisions. The purpose of the regulations is to encourage commercial forestry to maximize forest values and economic integrity of the area. Provisions of the ordinances mandate that a forestry permit be obtained prior to conducting forest operations. Information requirements include personal information, various maps, certifications from New Jersey state foresters, and a forest activity plan. Requirements of the forest activity plan include landowner's objectives, description of site, stand, and operation characteristics. Upon permit approval and operation commencement, operators must abide by forestry standards set forth in the ordinances. These harvesting guidelines are detailed and regulate harvesting techniques, herbicide applications, streamside management zones, roads, skid trails, stream crossings, site preparation, and reforestation. The municipalities also require surety bonds of up to \$500.00 or 10% of stumpage value removed.

The remaining 16 timber harvesting ordinances of New Jersey are further divided into 2 categories. Thirteen ordinances appear to be affiliated with the tree protection category; however, they regulate removals of any trees either on public or private land. Since timber harvesting constitutes tree removal these ordinances are classified as such. In general, the purpose of these regulations is to control the indiscriminate and excessive cutting of trees by requiring permits. The remaining 3 ordinances regulate traditional forest operations. Provisions of these ordinances vary from only requiring acquisition of a permit to submitting forest management and harvesting plans. Necessary information in these plans include surveys, maps, harvest type descriptions, reforestation proposals,

and simple tree removal standards regarding slash and residual trees. Permit fees can be as extreme as \$75.00 per acre; and fines for violation can reach \$1,500.00 and 30 days imprisonment.

Ten environmental protection ordinances are identified in New Jersey. The regulations are based on a model soil erosion and sediment control ordinance. The ordinances are enforced by 7 townships and 3 boroughs. Dates of enactment range from 1976, to as recent as 1995. The uniform intent of these ordinances is to promote public health, safety, general welfare, and most importantly high water quality. Provisions of the regulations set forth standards for acquiring land disturbance permits and operational soil erosion, sediment control, and flood prevention plans. Administrative permit procedures require the submission of personal information, operations information, and the aforementioned plans. Stipulations require detailed maps, a written report, and sediment and erosion control methods utilized during an operation. Other provisions include application review fees, escrow fees, monetary performance guarantees, and onsite inspections. Those found guilty of violating these regulations incur stiff fines and penalties.

The 2 special feature ordinances found in New Jersey were enacted by a borough in 1995 and a township in 1996. The purpose of these regulations is to identify, protect, and preserve unique and environmentally sensitive areas. Both ordinances define specific areas and protection standards for these lands. Examples of the areas preserved are certain streams, waterways, wetlands, and aesthetic views. Acreages of preserved parcels in the township ordinance vary from 7 to 587 acres with a total of 1168 acres protected. Activities regulated in these special features range from excluding development to all

perceivable recreation activities. Fines associated with violating these regulations are high as \$500.00 per day.

One tree protection ordinance is located in New Jersey. The ordinance was enacted in 2000 by a borough. The regulation's purpose is to utilize tree conservation to promote conservation of natural resources, prevent environmental degradation, minimize flood potential, and promote aesthetic values. Provisions of the ordinance require approval of a tree removal permit. Applications for the permit shall include personal information, detailed maps of site, and a tree survey indicating tree location, size, and species. After removals occur one must abide by tree replacement standards set forth in the ordinance. These guidelines are based on percent removals of the initial stand. This ordinance is excluded from the timber harvesting category because it has a special permit exemption for silvicultural activities.

In summary, New Jersey has 81 identifiable local forestry-related ordinances. The percentages of ordinances by category are 84% for timber harvesting; 12.3% for environmental protection; 2.5% for special feature protection; and 1.2% for tree protection ordinances. These ordinances are enacted by 35 towns, 23 townships, 17 boroughs, and 6 cities. The earliest adopted regulation identified was ratified in 1973 while the most recent was enacted in 2001. Excluding the Pinelands timber harvesting ordinances, in which no enactment dates are available, adoption of regulations was fairly uniform over the past 3 decades. Second to Maryland, more ordinances are identified in New Jersey than in any other state surveyed; however, it is thought that many more exist. George H. Pierson, with the New Jersey Forestry Association, stated that "There are about 545 local municipalities in New Jersey. Probably as many as half of these directly

regulate harvest by requiring an application, posting a bond, etc. (2001)” In conclusion, the presence of local forestry regulation in New Jersey is persistent and regulates many forest practices; however, landowners with forest management plans approved by the New Jersey Forest Service can circumvent many of local ordinances.

New York

In New York 76 local forestry-related ordinances are identified. Of the 5 regulatory categories 4 are represented by regulations found in the state. Forty-six ordinances pertain to environmental protection; 21 regulate timber harvesting; 5 protect special features; and 4 ordinances mandate tree protection. Several of these ordinances contain provisions that fit into different categories; however, these regulations are categorized based on their primary intent. The ordinances are enacted by 4 types of local government. In descending order by the number of regulations these governments are towns, villages, cities, and counties. Although 76 ordinances are identified more local regulations are believed to exist in New York. The provisions of these ordinances are discussed by regulatory category.

The environmental protection ordinances found in New York either pertain to wetland protection or the control of erosion and sedimentation. Of the 46 ordinances, 36 protected wetlands and the remaining 10 contain provisions regarding erosion and sediment control. By local government entity these ordinances are enacted by 32 towns, 11 villages, and 3 counties. The provisions of the ordinances are divided among those that protect wetlands and those that provide for erosion and sediment control.

The primary intent of the wetland ordinances is to protect wetlands and various

waterbody's intrinsic values from degradation associated with particular activities. By protecting wetlands these regulations hope to safeguard public health, safety, and the economic and general welfare of the communities' citizens. General provisions of these environmental protection ordinances define regulated and non-regulated activities. Regulated operations that require permits include the alteration of watercourses, wetland drainage, construction, and other activities that cause wetland pollution. Forestry applications include tree removals, clearcutting, and utilization of herbicides and pesticides. Information required to obtain a permit include detailed permit plans, maps, and surveys followed by a public hearing for final approval. With respect to forestry operations, some ordinances require upstream and downstream impact statements and others dictated hours of equipment operation. Although penalties for violations vary, the maximum penalties among the ordinances are fines up to \$3,000.00 for each offense and jail terms up to 6 months.

Ten ordinances address sediment and erosion control in New York. These regulations are classified as environmental protection ordinances. The universal legislative intent of these ordinances is to minimize environmental impacts associated with soil disturbing activities. These regulations dealt with excavation, grading, and development activities; however, timber harvesting does disturb soil, which is why these ordinances are included. Several ordinances mention forestry, directly stating that operations may be exempted if trees are harvested in selection. Clearcutting operations; however, are not exempt from the provisions of these regulations. General standards the regulations require permits prior to conducting activities that has the potential to disturb soil. Applications for the permits require descriptive operational plans, detailed contour

maps, soil classifications, and sediment and erosion control plans, which outline the utilization of control measures. All ordinances require a permit fees and some include performance bonds of determined amounts. Violators of the ordinances incur fines up to \$250.00 and sentences of up to 15 days in jail.

For New York, 21 timber harvesting ordinances were identified. These ordinances are located in 13 towns, 7 villages, and 1 city. Of these ordinances, 17 regulate trees within a local government's jurisdiction; however 4 directly address traditional timber harvesting operations. The tree ordinances are classified into the timber harvesting category because they require a permit prior to removing any tree from both public and private land. These ordinances require tree surveys including the number, sizes, and location of trees removed, detailed site maps, and plans for tree replacement. Penalties for violation of these regulations include fines up to \$500.00 and 15 days imprisonment.

Four timber harvesting ordinances directly regulate forest operations. Their purpose is to regulate logging as to prevent environmental harm, preserve rights of adjacent landowners, and protect taxpayer interest in public works. Three of these regulations require permit attainment prior to conducting timber harvests. The fourth ordinance mandates that landowners planning to harvest register with the town. Requirements universal to removal permits include a detailed site map, land area to be cut, various inventory data (i.e., trees per acre, diameter ranges, species, volume) for timber harvested, and plans for land restoration. Areas denoted on the maps should illustrate boundaries, roads, skid trails, landings, and streams. Upon obtaining a permit to sanction a harvest, the ordinances further provide timber cutting standards. These

harvesting standards mandate hours of operation, provide for stream protection, and reduce erosion and sediment control through proper construction, use, maintenance, and reclamation of haul roads, skid trails, and decks. Two ordinances give direct authority to the town highway superintendent to suspend logging because of road damage, impose weight limits, and require road repair. A different regulation provides specific provisions on how harvesting should be conducted to sustain aesthetic values of specific woodland areas. Ordinance violators can accrue fines of up to \$1,000.00 per day or 6 months imprisonment.

The 5 special feature ordinances in New York are adopted to protect nature preserves, conservation areas, and critical environmental areas. These ordinances, enacted by 3 towns and 2 villages, provide protection for areas of exceptional or unique characteristics. General provisions of the ordinances establish areas protected from any land disturbances. Stipulations then outline activities that can and cannot occur within the defined areas. Since these regulations prohibit the alteration of vegetation, forestry activities are excluded from these special features.

Four tree protection ordinances enacted by town governments exist in New York. The purpose of these regulations is to protect trees and the amenities (i.e., erosion control, water retention, reduce runoff, enhance air quality, noise reduction, habitat) they provide to communities. The ordinances provide protection for trees in areas where development activities may ensue. Three of the regulations are greatly detailed including provisions for permit applications, permit acquisition, and tree removal and replacement standards. The fourth regulation simply remarks on trees that can or cannot be removed of certain sizes, species, and location. The in depth ordinances list activities which require permits;

however, they do allow forest management activities under the state's Real Property Tax Law. Nevertheless these ordinances are included because the tax law requirements are strict and many landowners may not be able to enroll for the advalorem tax break incentive program.

In review, 76 ordinances are distributed among 4 of the 5 categories of forestry regulations in New York. Environmental protection ordinances represent 60.5% of the ordinances followed by timber harvesting at 28%, special feature at 6.5%, and tree protection with the remaining 5% for the state. These ordinances are enacted by 51 town, 19 village, 3 county, and 3 city governments. Dates of adoption range from 1970 to 2002. The majority of ordinances were enacted during both the late 1970's and from 1986 to the present.

Conclusively, New York has the third largest number of local forestry-related ordinances of all states surveyed. The presence of these local regulations undoubtedly affects forest management and timber supply. Although 76 ordinances are found in New York more are likely to exist across the state. Floyd conducted a study in 1996 in which he surveyed 932 town clerks and found 107 local ordinances in New York.

Pennsylvania

Copies of 16 local forestry-related ordinances are located in Pennsylvania. The ordinances are divided among the environmental protection and timber harvesting categories. All but 1 ordinance was enacted by a township. This remaining ordinance was adopted by a general municipality. Several ordinances contain articles or sections that address different categories; however, these regulations are categorized based on

their primary legislative intent. Although these are the only ordinances identified it is thought that many more additional forestry-related ordinances exist in Pennsylvania.

Nine of the 16 regulations identified are environmental protection ordinances. Eight of these ordinances pertain to sediment and erosion control, whereas the remaining regulations deals with general natural resource protection standards. The sediment and erosion control ordinances all follow a modeled format and have similar provisions. These provisions are examined together because of their likenesses.

The purpose of the sediment and erosion control ordinances are to regulate the modification of natural terrain, alteration of drainage, and the maintenance of artificial structures and surfaces to assure health, safety, ecology, and general welfare in the respective municipalities. Although these ordinances regulate development and grading operations they do address vegetation removal. Provisions of the ordinances mandate permit issuance prior to activity commencement. Applications for permits require property descriptions, site data, maps, utilization of soil erosion and sediment controls, various fees, and performance bonds. Upon permit issuance random site inspections are required to ensure compliance. Those guilty of violating these ordinances are fined up to \$1,000.00 and sentenced to 90 days in jail.

The remaining environmental protection ordinance deals with general natural resource protection standards. The ordinance's purpose is to protect public health, welfare, and safety by minimizing environmental impacts. Provisions of the act outline protection standards for floodplains, steep slopes, wetlands, watercourses, and riparian areas. The regulation contains provisions pertaining to woodlands, but the standards provide for tree protection when the threat of development follows timber harvesting.

The 7 timber harvesting ordinances identified in Pennsylvania regulate a multitude of forestry activities. These ordinances do not follow a modeled format and restrict forestry activities substantially. Six of the 7 regulations require either the acquisition of a logging permit, filing of a notice of intent, or the approval of a forest management plan prior to conducting a timber harvest. Necessary information for permit applications and logging plans include stand information, maps, descriptions of roads, trails, landing, stream crossings, water control measures, and the accompaniment of sediment and erosion control plans. Additional permit requirements of some ordinances include fees, performance bonds, and (or) abutter notifications. An extreme instance of a permit fee requires a minimum \$50.00 fee with an additional \$5.00 for every acre over 10 acres and a surety bond of \$500.00 for every acre harvested. Upon obtaining a permit most ordinances further mandate compliance with harvesting and reforestation guidelines.

Harvesting guidelines in the timber harvesting ordinances regulate many situations. Two ordinances clearly prohibit clearcutting and any logging on slopes greater than 25%. Several regulations set forth maximum basal area removals within interior areas of the tract, riparian buffers, public roads, and adjacent properties. Additional provisions provide guidelines for the designation of haul routes, slash disposal, stream crossings, and the reclamation of harvest roads, skid trails, and decks.

In summary, 16 local forestry-related ordinances are identified in Pennsylvania. The environmental protection and timber harvesting ordinance categories are represented by 9 and 7 regulations, respectively. Fifteen ordinances are enacted by townships, 1 by a borough, and 1 by a general municipality. Ordinances were enacted early as 1973 and as

recent as 2002. The enactment dates of these ordinances are fairly uniform in years in between. Although only copies of the 16 afore discussed ordinances are available there are undoubtedly multitudes of additional local regulations in Pennsylvania that affect forestry.

Regarding unidentified regulations research and personal responses from forestry officials offer insight on estimates of the total number of regulations in Pennsylvania. The Northwest Pennsylvania Woodland Association on its website indicated that as of 1995 at least 135 timber harvesting ordinances had been adopted by townships (2003). Many of these ordinances and possibly stemmed from the identified Pennsylvania Model Timber Harvesting Regulation that was drafted in 1994. Roy Siefert, the Pennsylvania Forestry Association President, stated that Pennsylvania has over 2500 local municipalities that have local jurisdiction and many restrict timber harvesting in some manner - especially by use of road weight restrictions. Siefert explained that Pennsylvania's home rule makes it convenient for local governments to enact ordinances but very difficult to track township ordinances (2001). Kenneth Manno, Program Manager for the Sustainable Forestry Initiative of Pennsylvania, stated that there is no accurate figure as to how many local laws regulate forestry. Manno further stated that the number would be much more that most would care to realize and that the number is staggering (2001).

In conclusion, local governments in Pennsylvania actively regulate forest practices. Recent amendments to the state's municipal planning code prohibits local governments from placing "unreasonable" restrictions on forestry through zoning classifications; however, local entities prevail in enacting regulations that affect forestry.

Although the majority of ordinances identified in the study are classified as environmental protection ordinances, which have minimal impact on forestry, there surely exist many regulations that directly impact traditional forestry activities. The identification and analysis of all forestry-related ordinances currently existing in Pennsylvania would require and warrant an individual research project.

Rhode Island

The state of Rhode Island is unique in comparison to other states in the Northeast region because of its Right to Farm Act, which was enacted in 1982. The act does not resemble a comprehensive forest practice act but provides provisions that allow agricultural operations to occur without repressive regulation. The act directly impacts local regulation of forest practices throughout the state. The act states that the policy is “to promote an environment in which agricultural operations are safeguarded against nuisance actions arising out of conflicts between agricultural operations and urban land uses”¹² The act defines agricultural operations as any commercial enterprise that has a primary intent to provide horticulture, viticulture, viniculture, floriculture, forestry, stabling of horses, dairy farming, aquaculture, or raising of livestock, furbearing animals, poultry, or bees.

The law declares that no agricultural operation can be found to be a public or private nuisance. Non-nuisances outlined in the code include odor, noise, dust, or general pesticide use common to agricultural operations. The act prohibits local governments from enacting or enforcing ordinances that attempt to regulate agricultural practices,

¹² R.I. Gen. Law § 2-23-3/ 1982.

including forestry. Therefore, Rhode Island is void of any local forestry-related ordinances that attempt regulate forest practices (Bourn 2001).

Mid-West Region

In the mid-west region of the United States 12 states are surveyed for the presence of local forestry-related ordinances. These states include Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. A total of sixteen local ordinances are found in the states of Indiana, Michigan, Minnesota, and Ohio. The location of these states is shown in *Figure 5.2*. The quantity, regulatory intent, content, and structure of the local forestry-related ordinances in these states are examined further in this section.

Indiana

Four local forestry-related ordinances are identified in Indiana. Three are categorized as public property and safety protection regulations. Although the provisions of these regulations vary, they all implement hauling weight restrictions, which affect forest products extraction. The fourth ordinance is categorized as a special feature protection regulation. County level governments enacted all identified ordinances.

In Owen County, IN there is a public property and safety ordinance that states is unlawful to operate and vehicle with trailer that exceeds 25 five tons (50,000 lbs) without obtaining a permit. An operator must apply for a permit with a disclosure statement that requires the hauler to repair all damages made to county roads. To ensure damages are mitigated an operator must show proof of \$500,000 liability insurance. Annual fees for a single permit are \$5.00 and fees for multiple vehicle permits are \$50.00 annually.

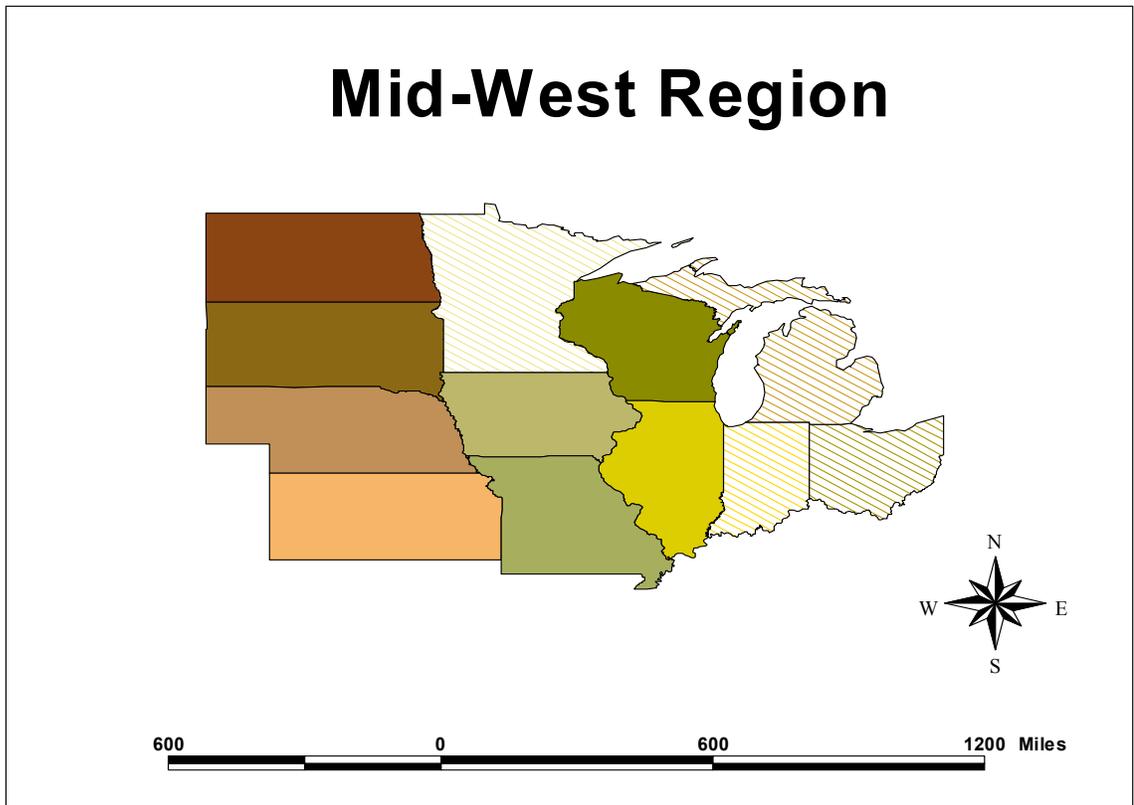


Figure 5.2. States of the Mid-West that have local forestry-related ordinances, shown by cross-hatching.

Enforcement of the ordinance is the responsibility of the Owen County Highway Department, which can specify travel routes for vehicles. Violations of the ordinance involve fines between \$100.00 and \$1,000.00 for each daily offense.

A more restrictive public property and safety ordinance is located in Crawford County, IN. The county ordinance, enacted in 1995, requires vehicles hauling in excess of 20,000 pounds (10 tons) register the vehicle and apply for a permit with the Crawford County Highway Department. First, vehicles registered obtain a registration certificate at no cost. Second, hauling permit applications should describe vehicles, highways

traveled, and estimated time frame for permit usage. The superintendent of the highway department may require a performance bond in the event of damage to county roads.

Violations of the permit process can reflect fines of \$50.00 to \$1,000.00.

Another public property and safety protection ordinance is located in Monroe County.

The greatest restriction involves a 90 vehicle weight limit. The regulation was enacted in 1969 and requires a permit to hauling goods in excess of 16,000 pounds (8 tons). The permits are attained through the County Highway Supervisor. Violations of the ordinance are classified as a class C ordinance violation.

The special feature protection ordinance is located in Franklin County. The regulation is located within the county's zoning code. The purpose of the regulation is to maintain the natural and scenic qualities of the Whitewater River Scenic District. In regards to forestry operations, the ordinance prohibits clearcutting; however, the regulation indicates that selective harvesting methods are acceptable.

In summary, 4 of Indiana's 92 counties have some form of local forestry regulation. Three ordinances only place minimal restrictions on forestry by requiring hauling permits. The fourth ordinance is the only regulation that directly affects timber harvesting by prohibiting clearcutting in a special feature area. Although these regulations affect forestry in some manner they should not complicate forest management or decrease timber supply.

Michigan

Seven local ordinances were detected in Michigan. Three regulations pertain to timber harvesting, 2 to tree protection, and 1 to both the environmental and special feature

protection categories. Five ordinances are enacted by 4 city governments, whereas the remaining 2 regulations exist for townships.

The timber harvesting ordinances in Michigan are found in 2 cities and 1 township. The cities include Novi and Wixom, whereas the remaining regulation is found in West Bloomfield Township. Copies of the city ordinances are the only obtained. These ordinances are succinct only requiring a use permit before conducting activities within woodlands. Both regulations have provisions that require the acquisition of a wetlands permit when the woodland area of question is located within a designated wetland.

Tree protection ordinances in Michigan are found in 2 cities. These cities are Farmington Hills and Southfield. Although the purpose, intent, and provisions of the regulations are closely related to the timber harvesting ordinances, these regulations regulate groups of trees. The ordinances require a permit for tree removals that include detailed maps of the site, tree surveys, and on site inspections. Further, these ordinances contain provisions regarding tree protection during construction operations, tree replacement, and penalties for violation.

The Vergennes Township has the only special feature protection ordinance identified. The ordinance concerns the Flat River, which is designated as a “natural river.” The purpose for the special zoning restriction is to preserve and enhance the area for many unique characteristics. Provisions of the regulation designates the Flat River Zoning districts as all lands 300 feet out from the ordinary high water mark of the river. The first 25 feet is the natural vegetation strip. No vegetation, including trees can be cut from the natural vegetative strip unless dead, unsafe, fallen trees or poisonous plants.

Timber harvesting may be allowed through an approval process; however, clearcutting is prohibited.

The only environmental protection ordinance is located in the City of Southfield. The ordinance pertains directly to wetlands and watercourses and contains provisions that provide for the protection, preservation, and proper use of such resources. The ordinance contains guidelines regarding wetland use permit applications, review, and approval. Although the regulation does not specifically speak on forestry operations, it does address vegetation clearing.

In summary, the state of Michigan has 7 local forestry-related ordinances. Ordinances are categorized as follows: 3 as timber harvesting; 2 as tree protection; 1 as environmental protection; and 1 as special feature protection. Five regulations are enforced by city governments and 2 by townships. Enactment dates for six regulations are identified. Interestingly, all regulations were adopted between the years of 1986 to 1989, regardless of regulatory intent.

Minnesota

Three local forestry-related ordinances are identified in Minnesota. Two ordinances are enacted by county level governments and 1 by a township. The ordinances all regulate timber harvesting. Although the ordinances are categorized in the same category they all have unique provisions.

The timber harvesting ordinance located in Winona County pertains directly to commercial harvesting operations. The regulation requires that harvesting contractors obtain a commercial timber harvesting license and permit prior to conducting operations.

Licenses are obtained by filing an application that includes personal information, related experience and educational information, and a license fee. The timber harvesting license is accompanied by a \$1,500.00 performance bond to ensure compliance. The timber harvesting permit application includes personal information, a description of the harvesting site including quantity of volume removed, and a harvesting purpose statement. This statement must include why timber is to be harvested (i.e., income, disease and insect removal, natural disaster), an intent to replant, and details regarding slash disposal and land restoration.

The second county level ordinance is identified for Goodhue County. The ordinance contains provisions that deal with vegetative cutting and intensive vegetation clearing. The vegetation cutting section details tree protection guidelines that prohibit the cutting of trees larger than four inches in diameter at breast height except for those damaged by wind, rot, disease, and insects. The bulk of the regulation indicates provisions that involve intensive vegetation clearing. Examples of intensive vegetation clearing include cuttings that produce clearcuts, patches, and strips of vegetation. The ordinance states that these clearing methods must be conducted as to blend in with the natural terrain and are prohibited from fragile environments. The ordinance further mandates clearings shall be minimal as necessary in size, and that clearcutting must be conducted between September 15th and May 15th.

Timber harvesting is defined in the Goodhue County ordinance as the removal of timber for commercial purposes from woodlands. The regulation indicates that timber harvesting requires the application and approval of a conditional use permit. Applications for the permit include legal, site, and soil type information for the area to be

harvested. Before approval an application is subject to a public hearing and abutters' notification requirement. If harvesting is planned occurs within a floodplain or shoreland area stricter provisions address acquisition of conditional use permit.

The third ordinance timber harvesting ordinance is located in the Township of Sibley. Regarding forest operations one must obtain a land use permit to manage forestland, harvest timber, and even sell firewood produced from the parcel. Before harvesting more than 10 acres a forest management plan must be approved by the Department of Natural Resources. Any harvesting occurring within the township must also adhere to timber cutting standards outlined in the ordinance.

Timber harvesting standards of this ordinance are specific and outline acceptable harvesting practices. The ordinance defines "timber screening areas" as aesthetic buffers along highways, water bodies, and adjacent property. Highway timber screening areas vary between 35 feet and 150 feet depending upon the nature of the road. The largest buffers are required next to primary highways. Water body buffers are 50 feet from a general development lake, 75 feet from a recreational development lake, and 150 feet from a natural environment lake. In agricultural, forestry, commercial, and industrial districts timber screening areas must be 50 feet from adjacent property lines where the land is zoned as residential or rural residential. Within these timber screening areas up to 25% of trees standing greater than 20 feet in height and up to 50% of the existing screening area may be harvested. Alternate procedures exist when harvests remove timber screening areas for development of cropland or for reforestation.

Timber removals for reforestation purposes require the planting of trees within 18 months of harvest completion. Planting requirements indicate that a minimum spacing of

6 feet by 8 feet shall be used when reforesting. The ordinance requires that at least 500 trees per acre of growing stock occupy the site 10 years after harvest.

The final provision of the ordinance addresses refuse disposal after timber harvesting and land clearing activities. In commercial, industrial, or residential zoning districts there are buffer requirements for refuse disposal. All refuse or slash located within 200 feet of a state right-of-way or waterbody, and 100 feet of a township road must be removed. Removals must occur within 8 months of harvest and can be disposed through a combination burning, burying, or removal.

Ohio

Local forestry-related ordinances are identified for 2 cities in Ohio. One ordinance regulates timber harvesting and the other provides for the protection of trees. These ordinances are examined separately since their regulatory intent contrasts.

The City of North Royalton adopted its timber harvesting ordinances in 1975. The ordinance directly affects the commercial cutting of trees and timber within the city's jurisdiction. The ordinance requires a harvest permit, surety bond, and silvicultural requirements. The performance bond acts as the permit fee and costs \$500.00 per acre to obtain. The bond is used to ensure that the silvicultural provisions are adhered to exactly. The ordinance mandates that no stumps shall exceed 6 inches in height; that all branches, foliage, and logging debris be removed from site; and that adequate seeding be left on site to minimize erosion potential. Penalties for violating the ordinance are a misdemeanor charge, maximum \$500.00 fine, and imprisonment for up to 60 days. Companies or corporations found in violation are fined up to \$3,000.00. All penalties are assessed on a

daily basis for each violation identified.

The tree protection ordinance is located in the City of Dublin. The ordinance is a land use regulation that has specific provisions regarding tree preservation within the city. The ordinance's purpose is to "conserve and protect to the greatest extent possible the city's existing trees."¹³ Provisions of the regulation place restrictions on landscaping and other land disturbing activities that have the potential to damage trees. Prior to development or construction a tree removal permit and tree preservation plan must be filed with the city. Requirements of the removal permit and preservation plan include detailed maps, clearing locations, replanting requirements, and certain administrative fees. Although this ordinance does not directly affect large scale forestry operations it imposes restrictions on how timber can be removed before construction and development activities.

Western Region

In the western region of the United States 11 states are surveyed for the presence of local forestry-related ordinances. These states are Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. A total of 21 ordinances are identified across 5 separate states. Those states are California, Nevada, Oregon, Utah, and Washington, which are illustrated in *Figure 5.3*. The number, regulatory intent, content, and structure of the local forestry-related ordinances found in those states are examined below.

¹³ Dublin, OH., Am. Ord. 46-97 (May 5, 1997).

California

The local ordinance survey identified 7 regulations in California. Six ordinances are categorized timber harvesting regulations. These regulations are enacted by 5 county governments and 1 special government, the Tahoe Regional Planning Agency. The remaining ordinance, adopted by another county, is categorized as an environmental protection regulation. The 5 county level timber harvesting ordinances have similar content and structure. The environmental protection ordinance and special government timber harvesting ordinance are addressed independently of the county harvesting regulations.

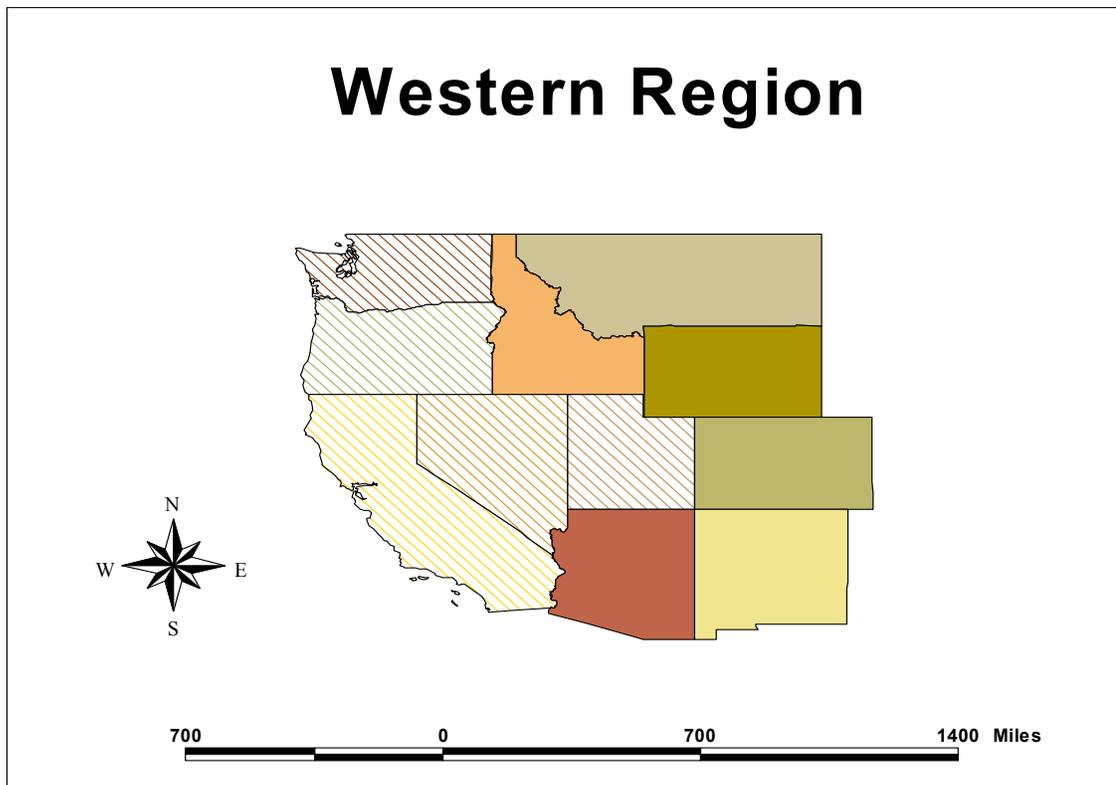


Figure 5.3. States of the West that have local forestry-related ordinances, shown by cross-hatching.

The 5 county level timber harvesting ordinances found in California are very similar. These regulations are located in the counties of Marin, Monterey, San Mateo, Santa Clara, and Santa Cruz. Although there are additional requirements by certain counties many of the same standards exist among the ordinances. All ordinances require the submittal and approval of a timber harvesting plan or notice of intent to harvest. Requirements of these plans include providing detailed information on truckloads of timber removed, detailed maps, and discussion of any cultural treatments necessary. Pre-harvest inspections and field reviews may be necessary for plan approval. The ordinances set hours of work between 7:00 am and 7:00 pm Monday through Friday. Some even prohibit harvesting and the hauling of forest products on Saturdays, Sundays, and legal holidays. Other restrictions address winter harvesting periods (October 1-April 15), erosion control measures, flagging requirements, and fuelwood cuts. Performance bonds associated with 4 ordinances require a surety bond of \$5,000.00 per mile traveled during hauling on county roads, up to a maximum of \$50,000.00.

The environmental protection ordinance is located in Napa County. The ordinance's purpose is to protect riparian habitat areas associated with intermittent and perennial streams. The regulation applies to lots contiguous with or that directly adjoin the aforementioned watercourses. In such cases, the ordinance requires a 50 foot protective buffer along streams. The buffer mandate may be increased to mitigate development of a riparian area. Before development on lots with streams, the submission of a riparian habitat management plan must be approved. The plan includes a description of the development, site soil and vegetation characteristics, and discussions on how vegetation will be reclaimed and soil erosion minimized. The ordinance states that each

plan shall be developed in cooperation with the Department of Fish and Game and the United States Army Corp of Engineers.

The timber harvesting regulation adopted by the Tahoe Regional Planning Agency was enacted in 1989. The regulation affects 501 million square miles of land around and including Lake Tahoe. The agency is a bi-state special government that cooperatively attempts to preserve, restore, and enhance the unique natural and human environment of the Lake Tahoe Region (Tahoe Regional Planning Agency Website 2003). Within the agency's regional plan lies a chapter that pertains to tree removal and timber harvesting. Although the agency governs activities on lands in both California and Nevada the provisions of the regulation are discussed here since two-thirds of the region resides in the state of California.

The chapter on tree removal in the Tahoe Regional Planning Agency's regional plan is very specific and detailed. The regulations contained in the ordinance apply to all activities that affect forest resources in the region. Provisions regarding late seral stage/old growth enhancement and protection dictate many forest management techniques within areas designated as old growth timber. Further, the regulation requires harvest plans or tree removal permits when cutting any tree greater than 6 inches in diameter at breast height. Commercial timber harvesting in the region is regulated by minimum tree removal standards. These standards detail acceptable management techniques regarding cutting, harvesting in stream environment zones, road and skid trail construction, slash removal, and restocking.

In summary, 7 local ordinances that affect forest practices were found in California. Six ordinances are enforced by counties and 1 by the Tahoe Regional

Planning Agency. Five counties and the planning agency regulate timber harvesting practices whereas 1 county ordinance addresses environmental protection. All 6 timber harvesting ordinances were adopted in either 1983(2), 1984(3), or 1989(1). The environmental protection ordinance was most recently enacted in 2002. Importantly, these ordinances place additional restrictions on private landowners and forest managers, above and beyond the scope of the nations most comprehensive forest practice act.

Nevada

In Nevada no single municipal government was found to have a local forestry-related ordinance. However, as in California, the Tahoe Regional Planning Agency, acting as a special government, does regulate the removal of trees and timber harvesting within the Lake Tahoe region. Since, one-third of the 501 million square mile region is located in Nevada one must not undermine the significance of such a regulation. Although the provisions of the ordinance are outlined above in the California summary, the fact that this regulation exists across 2 state boundaries must be reiterated and emphasized.

Oregon

Eight local forestry-related ordinances are identified for Oregon. The ordinances are enacted by 7 city governments; 1 which has 2 ordinances. The various regulations are categorized as follows: 5 as timber harvesting; 2 as tree protection; and 1 as an environmental protection ordinance.

The 5 timber harvesting ordinances are similar in content and structure. Three

ordinances were enacted by the city governments of Eugene, Springfield, and Oakridge. The city of Bay City has two ordinances that together regulate timber harvesting operations. For analysis purposes, provisions of these 2 ordinances are combined since they regulate similar forest practices.

Provisions of the timber harvesting regulations require the submission and approval of tree cutting permits. The permit applications require personal information, detailed site descriptions, discussions of harvest operations, and plans for tree replacement. One ordinance requires proof of \$50,000.00 liability insurance accompany the tree cutting permit application. Two ordinances establish harvest guidelines that prohibit clearcutting in riparian areas, on hilltops, on ridges, or required adjacent property buffers. One ordinance even prohibits the use of herbicides, pesticides, and burning to reduce slash. Another ordinance mandates harvesting can only occur between 8:00 am and 7:00 pm. Penalties for violating an ordinance are available for 2 ordinances. Penalties range from a maximum \$500.00 fine and 100 days in jail to fines of \$1,000.00 for every acre removed without an approved permit.

Identified in Oregon are 2 tree protection ordinances. Although 2 are identified a copy of only one was obtained. The copy was obtained from the City of Gresham, whereas no copy was found for the City of Sutherlin. The purpose of the 1 ordinance received is to provide for the safe removal, moving, and replacement of trees on development sites as to provide for the good stewardship of woodland and forest resources. Provisions of the ordinance require the approval of a tree removal permit prior to conducting development activities. A tree removal protection plan that explains how trees are removed and replaced must accompany the permit. Specific provisions apply to

categories of trees designated as street trees, significant trees, or regulated trees. These classes of trees may not be removed during any construction activities. Violations of the ordinance penalize a minimum of \$50.00 for each tree damaged.

The environmental protection ordinance is located in the City of Astoria contains several sections that pertain to forestry. The ordinance states that all forest practices are permitted by right as regulated through the Oregon forest practice act. The ordinance is located in the city's development code and addresses a land reserve zone. The zone, as designated by the regulation, describes lands that are unsuitable for development shall be managed for timber production. The purpose of the ordinance is to protect the city's watershed ensuring clean water for the community. Provisions of the regulation mandate that all forest practices be conducted to protect the city's water supply.

In summary, 8 local forestry-related ordinances are identified among city governments in Oregon. Five of the regulations are classified as timber harvesting regulations. The timber harvesting and tree protection ordinances require permits for tree cutting whereas the environmental protection regulation set forth forest practices rules for protecting a public resource watershed. Available enactment dates for the timber harvesting regulations are 1974 (1), 1987 (2), and 1989 (1). The 2 tree protection ordinances were enacted in 1989 and 1992 (revised 2001). Although only 1 environmental protection ordinance is identified, which was enacted in 1990; another ordinance enacted in the same year was repealed in 1991. This ordinance because of its present nonexistence was not incorporated into the results.

Utah

Local forest regulation in the state of Utah is a new development. In 2000, Carbon County enacted the state's first local timber harvesting ordinance. This ordinance is the first of its kind and no other ordinances are identified. The purpose of the ordinance is to protect the county's people and waterways from effects associated with poor logging practices (Utah State University Extension 2000). The ordinance is lengthy, at 20 pages, and outlines provisions for the creation of the office of county forester, procedures for obtaining a timber harvesting permit, numerous forest practice guidelines, and violation mitigation procedures.

The ordinance first establishes the office of county forester. Duties of the forester include the administration and enforcement of the timber harvesting ordinance. The forester reviews timber harvest permit applications, performs compliance inspections, and investigates violations. Other responsibilities include maintaining accurate reports regarding permits, violations, and making recommendations regarding amendments to the ordinance.

Prior to harvesting the acquisition of a timber harvesting permit is required. Permit applications are accompanied by an approved timber harvest plan, pre-harvest plan, and pre-submission conference between the harvest contractor, landowner, and county forester. Requirements of the timber harvest plan include harvest prescriptions, harvest systems used, and detailed maps (i.e., tract location, sensitive areas, road and skid trail layout, etc.) Following harvest, a volume report indicating tree removal and retention must be filed. The base permit fee is \$35.00 with additional charges levied depending upon volume removed. Performance bonds are required in the amount equal

to estimated site reclamation activities.

Forest practice guidelines included in the ordinance regulate many activities. The ordinance requires mandatory streamside management zones that vary in width with waterbody size. The construction, maintenance, and use of roads, skid trails, landings, and stream crossings are regulated by stringent standards. Other standards address winter operations, site preparation, regeneration, revegetation, chemical management, and prescribed fire.

Enforcement of violations is addressed in a tiered structure. Notices of correction are issued to contractors that violate the ordinance's provisions. Upon notice, the contractor has a period of 21 days to correct the violation. When violations are not corrected, a citation is issued for the contractor to appear in court. When violations exist after due process, the county has the authority to abate the violation. Costs of abatement are first assessed to the contractor, second to the posted assurance bond, and third to the landowner.

Washington

The presence of local forestry-related ordinances in Washington is a recently evolving issue. Prior to amendments of the state's forest practice act in 1997, local ordinances that regulated to forest practices were prohibited. New amendments and resource standards associated with the forest practices act now require counties and cities adopt their own local regulations. These ordinances, as mandated by the amended forest practices act, apply to operations that lead to timberland conversion. Presently there are 4 local ordinances that meet the administrative and regulatory requirements set forth by the

Washington Forest Practices Board. These ordinances have been enacted by Clark County, King County, Spokane County, and Thurston County. Each ordinance is categorized as timber harvesting regulations because of their purpose and intent.

The 4 timber harvesting ordinances in Washington address Class IV forest practices. Class IV forest practices, as defined in the Washington forest practice act, include activities that occur on lands within urban growth areas, areas platted after January 1, 1960, or on lands that converted from commercial timber production. The state chose to delegate the regulation of these activities to local municipalities since these practices have the greatest potential for land disturbance.

Among the regulations are sections that set forth guidelines for each ordinance. Due to the vast similarities and specific detail given within the different ordinances their provisions are discussed together. General provisions include timber harvesting permits, conversion option harvest plans, land clearing standards, and development moratorium criteria.

The permits associated with the ordinances in Washington include timber harvest permits and conversion option harvest plans. One ordinance requires the filing of a timber harvest permit with the county; however, the other 3 do not since it is a requirement under the forest practice act. The conversion option harvest plans are voluntary permits approved by the counties that release landowners from the standard 6 year development moratorium. Plan standards include cutting limits, types of harvest areas, road locations, and other site characteristics. An approved conversion option harvest permit affords a landowner the right to harvest timber with the option to convert land from commercial timber production in the future.

In summary, the state of Washington currently has 4 county level local ordinances that affect timber harvesting. Prior to 1997, the state prohibited local governments from regulating forest operations in the state's forest practice act that was enacted in 1974. All 4 ordinances identified have been adopted since that time. Dates of adoption include 1997, 1999, and 2001 for 3 of the 4 regulations. Under the new amendments made in 1997, all counties and cities must adopt approved regulations by December 31, 2005 (Engel 2003). Only 4 of the 39 counties in Washington have met the requirements to date. When all Washington counties and cities enact these regulations there will be hundreds of additional local regulations stimulated by a single amendment to the comprehensive forest practice act.

Chapter Conclusions

The survey of local ordinances across the Northeast, Mid-West, and western United States yielded a wealth of useful information. It was examined for each state within its respective region. Within each region local ordinances are covered by the state in which they are found, and the specific provisions of local ordinances were addressed by regulatory category. In some instances, there is a high resolution of detail used in the discussions, which affords readers direct contact with problems faced by forestry professionals.

Among the three regions a total of 388 local forestry-related ordinances were detected. In the northeast 351 were identified in 8 of the 12 states in the region. The Mid-West had the fewest local regulations with 16, which are distributed among 4 of the 12 states in the region. Twenty-one local forestry ordinances are found in the western region, which are scattered among 5 of the 11 states. The designation of local ordinances

Table 5.1. Numbers of local ordinances detected by state and regulatory category for the Northeast, Mid-West, and West.

State	Total	Environmental protection	Tree protection	Timber harvesting	Public safety	Special feature
	#	#	#	#	#	#
NORTHEAST						
Connecticut	34	3	2	20	1	8
Maine	45	0	0	45	0	0
Maryland	87	23	2	0	0	62
Massachusetts	9	9	0	0	0	0
New Hampshire	3	2	0	1	0	0
New Jersey	81	10	1	68	0	2
New York	76	46	4	21	0	5
Pennsylvania	16	9	0	7	0	0
MID-WEST						
Indiana	4	0	0	0	3	1
Michigan	7	1	2	3	0	1
Minnesota	3	0	0	3	0	0
Ohio	2	0	1	1	0	0
WEST						
California	7	1	0	6	0	0
Nevada	1	0	0	1	0	0
Oregon	8	1	2	5	0	0
Utah	1	0	0	1	0	0
Washington	4	0	0	4	0	0
Total	388	105	14	186	4	79

by state and regulatory category for all three regions is shown in *Table 5.1*.

The majority of ordinances across the regions pertain to timber harvesting. Other local regulations address environmental protection, special feature protection, tree protection, and public safety in descending order. The costs and penalties of local forestry regulations are shown by state and region in *Table 5.2*. The costs to forestry

operators are discussed below.

The categories of costs for compliance include fees, performance bonds, and proof of liability insurance. Fees are the costs generally associated with administrative procedures for reviewing harvest plans, cutting permits, wetland use permits, and sediment and erosion control plans. Performance bonds entail posting funds of a determined amount with a municipality to ensure ordinance with ordinance. If a

Table 5.2. General cost and penalty provisions addressed for states with local ordinances in the Northeast, Mid-West, and West.

State	Fees	Performance bonds	Proof of liability insurance	Stop work orders	Fines	Civil penalties	Criminal penalties
NORTHEAST							
Connecticut	X	X		X	X		
Maine	X	X		X	X	X	X
Maryland					X	X	
Massachusetts	X				X	X	X
New Hampshire	X	X		X	X	X	X
New Jersey	X	X		X	X	X	X
New York	X	X	X	X	X	X	X
Pennsylvania	X	X		X	X		X
MID-WEST							
Indiana	X	X	X		X		X
Michigan	X			X	X		X
Minnesota	X	X					
Ohio	X	X			X		X
WEST							
California		X			X	X	X
Nevada							
Oregon			X	X	X	X	X
Utah	X	X		X	X		X
Washington	X			X	X	X	X

violation occurs these funds are generally used to mitigate road and environmental damage caused by an operation. Liability insurance is necessary for any business to operate; however, some local forestry regulations require proof of insurance prior to conducting operations. Although the cost of compliance with this provision is minimal it imposes more administrative responsibility for awareness by the operator. In the Northeast and Mid-West fees and performance bonds are more prevalent than in the western region and proof of liability insurance is limited to only one state per region.

Costs associated with violating local forestry ordinances generally take the form of stop work orders, fines, civil, and criminal penalties. Stop work orders are issued when a severe violation is noticed. These orders halt operations in order to further mitigate resource damage from a violation. Fines are monetary penalties issued by a municipality to operators who fail to comply with an ordinance, or conduct operations in a malicious manner. They are levied on a per violation basis. Civil penalties are those that are sanctioned for violating an ordinance and entail revocation of operators' licenses, additional performance bond requirements for future operations, and other sanctions for restitution. Criminal penalties differ from civil penalties in that legal charges are imposed for a violation. Criminal penalties associated with local forestry ordinances include misdemeanor charges and jail sentences. Stop work orders and civil penalties are more common in the Northeast and mid-west regions. Fines and criminal penalties for violation are the most frequent mitigation measures taken in all three regions.

In summary, local forestry-related ordinances exist in all regions surveyed. Although the general purpose of these regulations can be categorized, each individual

ordinance is unique. The scope and provisions of these ordinances tend to vary by both state and region. Understanding the costs associated with forestry ordinances focuses attention on the potential impacts associated with local regulation. The regional analyses of local forestry-related ordinances are discussed in the next chapter.

Chapter 6. Regional Analysis of Local Forestry-Related Ordinances

The analyses of local forestry-related ordinances are presented by region for the Northeast, Mid-West, and West. It combines local ordinance data from individual states within a region. The analysis summarizes local ordinance data, their regulatory category, their general provisions, ordinance adoption dates, and enacting government types.

Northeast Region

The northeast region of the United States consists of 12 states. These states are Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and West Virginia. A total of 351 local forestry-related ordinances are identified among the states of Connecticut, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, and Pennsylvania. The remaining states are void of local ordinances. The numbers of ordinances detected in the Northeast are shown by state in *Figure 6.1*. A regional analysis enumerates ordinances identified, examines their regulatory intent, general provisions, adoption dates, and enacting government types.

Summary of Local Ordinances

In the Northeast, 8 states contain the 351 local ordinances identified. Four states are void of local forestry regulations. This analysis draws conclusions on both the presence and absence of ordinances across the region. The 351 regulations are unevenly distributed among 8 states in the Northeast. Maryland lists 87 ordinances (24.8% of the

total); New Jersey has 81 (23% of the total); New York has 76 (21.7% of the total); Maine lists 45 (12.8% of the total); Connecticut has 34 (9.7% of the total); Pennsylvania lists 16 (4.5% of the total); Massachusetts has 9 (2.5% of the total); and New Hampshire with 3 ordinances has the remaining 1% of the regional total. Shown in *Table 6.1* are the

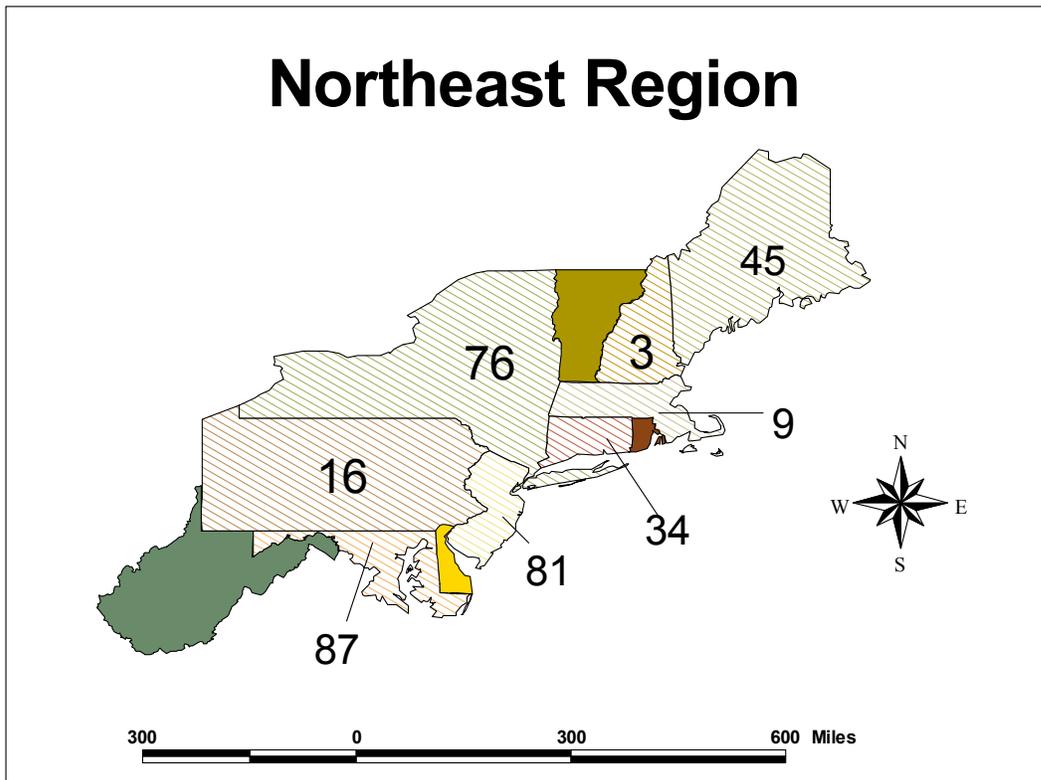


Figure 6.1. The number of local forestry-related ordinances detected in the Northeast by state, shown by cross-hatching.

numbers of local forestry regulations detected by state and regulatory category.

The 3 states of Connecticut, Maine, and Massachusetts have both local forestry ordinances and comprehensive forest practice acts. The nature of forest practice acts allow states to choose whether they want to promote, preempt, or overlook a local

governments authority to regulate forestry. These states allow local municipalities to regulate forestry; however, the practice is not mandated or promoted. In Connecticut and Maine, the state set forth requirements that local governments must meet prior to enacting forestry ordinances. Provisions include certain administrative procedures and the stipulation that local ordinances must be more stringent than the forest practice act. Massachusetts' forest practice act does not address local regulation, which allows localities to make their own decisions regarding forestry ordinances.

The states of Delaware, Rhode Island, Vermont, and West Virginia were found to have no local regulations; however, 3 have regulatory programs that affect forest practices. Reasons as to why these states do not have local ordinances comes from research, contact made with forestry professionals, and personal insight. These state programs are not to be confused with forest practices acts, which exist in Connecticut, Maine, and Massachusetts.

In Delaware, there are state regulations that address forestry. The state has laws that regulate commercial forest plantations; water quality as it relates to silvicultural systems and sediment and erosion control; and conservation and reforestation standards for pine and yellow poplar forests. Vermont in 1997, adopted the state's heavy cutting rule, which requires a notice of intent be filed when harvests larger than 40 acres leave residual growing stock below the C-line, as defined by the U.S. Department of Agriculture (Vermont Agency of Natural Resources Website 2002). Rhode Island, in 1982 enacted its Right to Farm Act. The act prohibits local governments from enacting regulations that affect agricultural activities, including forestry. No conclusions are derived for West Virginia due to lack of survey response. Nevertheless, the non-

Table 6.1. Number of local ordinances detected in the northeast region by state and category.

State	Total	Environmental protection	Tree protection	Timber harvesting	Public safety	Special feature
	#	#	#	#	#	#
Maine	45	0	0	45	0	0
Vermont	0	0	0	0	0	0
New Hampshire	3	2	0	1	0	0
Massachusetts	9	9	0	0	0	0
Connecticut	34	3	2	20	1	8
New York	76	46	4	21	0	5
New Jersey	81	10	1	68	0	2
Pennsylvania	16	9	0	7	0	0
Maryland	87	23	2	0	0	62
West Virginia	0	0	0	0	0	0
Delaware	0	0	0	0	0	0
Rhode Island	0	0	0	0	0	0
Total	351	102	9	162	1	77

existence of local regulations in the above states may be attributed to state statutes.

Regulatory Categories

Local ordinances in the Northeast focus on a variety of objectives. The 351 ordinances identified correspond to all 5 categories of regulatory intent. The allocation of ordinances in the Northeast to a single category is difficult. Many ordinances contain vague language or have provisions regarding multiple objectives. Nevertheless, timber harvesting is the most prominent type of ordinance followed by environmental protection. The remaining categories are represented by less significant amounts of regulations.

The distribution of local ordinances among the regulatory categories is unequal. The timber harvesting category contains 162 ordinances (46% of the total). One-hundred two ordinances are classified as environmental protection regulations (29% of the total).

The special feature category has 77 ordinances (22% of the total) followed by tree protection with 9 regulations (3% of the total). Although 1 public safety and property protection ordinance is identified for the Northeast, the proportion is not significant or represented on a percentage basis. Proportions of ordinances by category are shown in *Figure 6.2*.

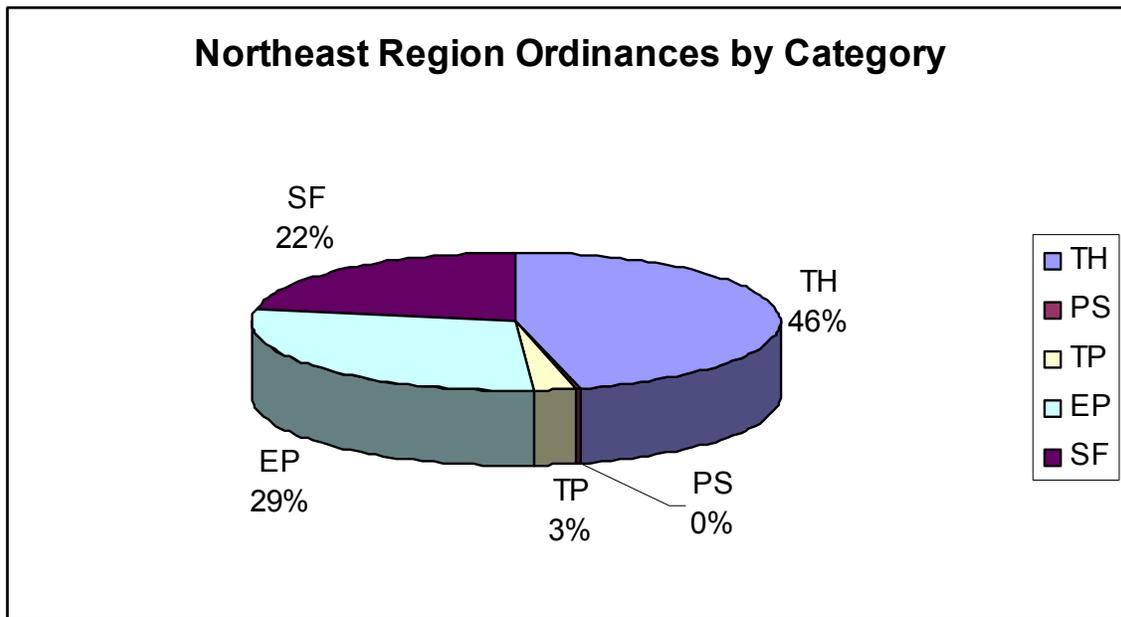


Figure 6.2. Local ordinance percentage by regulatory category for the Northeast.

Specific states with local ordinances are Connecticut, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, and Pennsylvania. The regulatory intent of regulations within in these states is examined. This analysis provides information on types of ordinances existing in certain states.

In Connecticut all regulatory categories are represented. Twenty ordinances pertain to timber harvesting, 8 to special feature protection, 3 to environmental

protection, 2 to tree protection, and 1 to public safety and property protection. Maine’s 45 local ordinances regulate timber harvesting. Maryland’s regulations are classified into the special feature (68), environmental protection (23), and tree protection (2) categories. The 9 ordinances identified in Massachusetts address environmental protection. New Hampshire has 2 environmental and 1 timber harvesting ordinance. The states of New Jersey and New York both have ordinances that span across the 4 same categories. In New Jersey 10 ordinances promote environmental protection, 68 regulate timber harvesting, 2 protect special features, and 1 regulation protects trees. In New York 46 local regulations protect the environment, 21 control timber harvesting, 5 provide special feature protection, and 4 promote tree protection. Pennsylvania’s ordinances represent the environmental protection and timber harvesting categories with 9 and 7 ordinances, respectively. The percentages of ordinances by regulatory category for the Northeast are shown in *Table 6.2*.

Table 6.2. The percentages of local ordinances in the Northeast by state and regulatory category.

	Total ordinances	Timber harvesting	Public safety	Tree protection	Environmental protection	Special feature
State	#	%	%	%	%	%
Connecticut	34	12	100	22	3	10
Maine	45	28	0	0	0	0
Maryland	87	0	0	22	22	81
Massachusetts	9	0	0	0	9	0
New Hampshire	3	1	0	0	2	0
New Jersey	81	42	0	11	10	3
New York	76	13	0	45	45	6
Pennsylvania	16	4	0	0	9	0
Total	351	100	100	100	100	100

General Provisions of Local Forestry-Related Ordinances

In the Northeast, local ordinances are divided among all 5 categories of regulatory intent. The numbers of ordinances by category are distributed unequally.

Comprehension of how these ordinances affect forestry takes specific knowledge on the requirements mandated by each ordinance. These provisions are examined by regulatory category.

There are 162 timber harvesting ordinances located across the Northeast. These regulations are located in Connecticut, Maine, New Hampshire, New Jersey, New York, and Pennsylvania. Although the ordinances have state specific elements there are commonalities among the regulations. A distinguishing feature of harvesting ordinances in the Northeast is that some directly apply to commercial harvests while others regulate the removal of any tree, which circuitously affects forestry. General provisions require timber harvesting notifications, permits, and plans. Common information among these documents include landowner's personal information, detailed maps of site, stand characteristics, and narratives of proposed harvesting operations. Many ordinances specify harvesting guidelines. These mandates address limitations and prohibitions on clearcutting; require mandatory buffer strips (i.e., riparian, adjacent property, aesthetic); and set forth guidelines for the construction, use, and maintenance of haul roads, skid trails, and log decks. Fees associated with timber harvesting ordinances address permits and performance bonds. Permit fees are either flat rate costs or levies dependent upon volume removed during harvest. Performance bonds range from flat rates charges to amounts based on acres cut. Interestingly, multiple ordinances identified within a state usually follow a modeled format.

The environmental protection category has the second largest number of ordinances, with a total of 102. These regulations are distributed within Connecticut, Maryland, Massachusetts, New Hampshire, New Jersey, New York, and Pennsylvania. Nearly all the ordinances address wetland protection or sediment and erosion control. Multiple ordinances within the above states follow a modeled format. The general purpose of these regulations is to protect municipal water supplies, mitigate flooding potential, and safeguard natural resources. Provisions of the ordinances require the acquisition of permits prior to conducting soil disturbing activities or operations near or within wetlands. These permits require information similar to timber harvesting ordinances, but additionally require watercourse data, soil surveys, and formal sediment and erosion control plans. Operation standards of these ordinances dictate harvest types require mandatory buffer strips, and on site inspections to ensure compliance. Prior to conducting activities, most ordinances require permit fees and performance bonds. Violators of these regulations incur stiff monetary penalties and jail sentences.

Special feature ordinances are located in Connecticut, Maryland, New Jersey, and New York. A total of 77 are identified for the category. The purpose of the regulations is to protect areas that are environmentally sensitive, unique, or have exceptional aesthetic value. The majority of the ordinances are located in Maryland (62), which protects the Chesapeake Bay. These ordinances follow a modeled format and contain standards that regulate a multitude of activities; however, prior to conducting forest operations a timber harvesting and sediment control plan must be approved. The remaining ordinances contain provisions that also regulate land disturbances, including timber harvesting, and even recreation in designated areas. Many of these ordinances

exclusively prohibit any land disturbing activity, including timber harvesting.

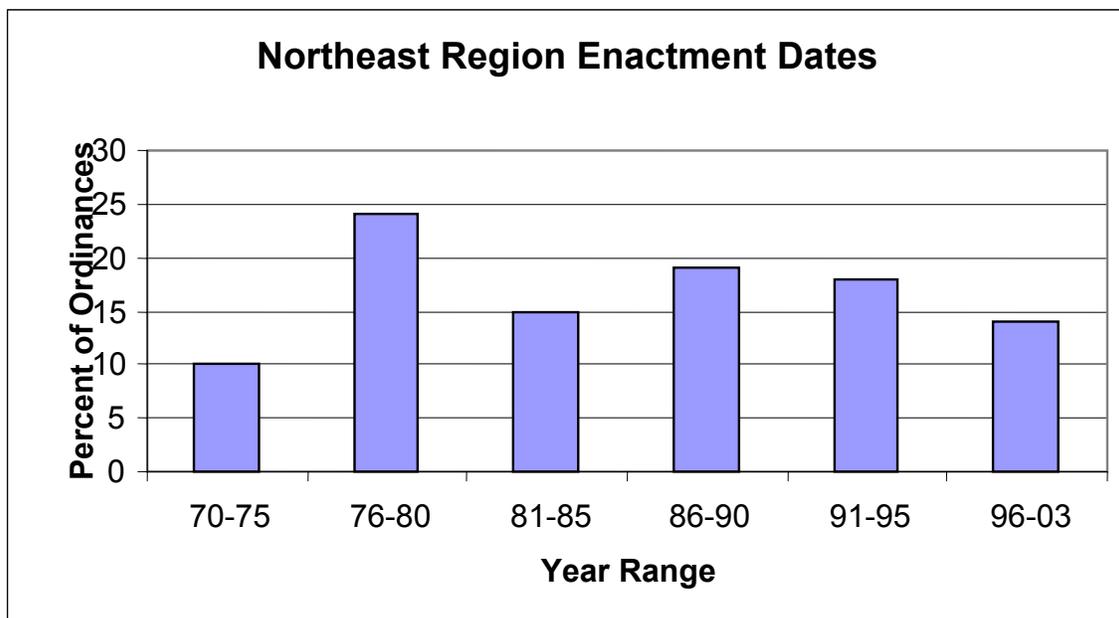
Nine tree protection ordinances are located among the states of Connecticut, Maryland, New Jersey, and New York. These regulations protect trees and minimize the loss of forest resources to commercial development. Some ordinances regulate the removal of trees on town lands, whereas others regulate removals on areas prior to construction. General provisions of the ordinances require tree removal permits. Information requirements include trees surveys, which indicate size, species, and location of trees to be removed. Two ordinances in Maryland even require stand delineations and forest conservation plans, which are discussed in Chapter 5. Most ordinances require permit fees and assess rigorous per tree penalties for violations.

The only public safety and protection ordinance for the northeast region is located in Connecticut. The regulation's purpose is to protect public investment in town roads. The ordinance requires a permit for all vehicles weighing in excess of 10,000 pounds (5 tons). Performance bonds of a maximum of \$1,000.00 are required for permit approval.

Enactment Dates and Government Types

An analysis of adoption dates and enacting government types provides valuable information as to the duration of time and area affected by a local ordinance. Adoption dates can also link ordinances to other political, cultural, or economic events. In the Northeast, there exists the greatest variability of dates and government types among all regions examined. This analysis provides information on adoption dates, types of ordinances enacted in certain time periods, and government types that utilize local authority.

Local forestry ordinances have been present in the northeast region for over 30 years. The earliest ordinance, an environmental protection regulation, was enacted in 1970. Interestingly, the enactment of local ordinances does not concentrate to a particular time frame and is wide spread over the past 3 decades. Of the total 351 ordinances, enactment dates for 164 are available. The percentage of ordinances enacted during varying time periods is shown in *Figure 6.3*.



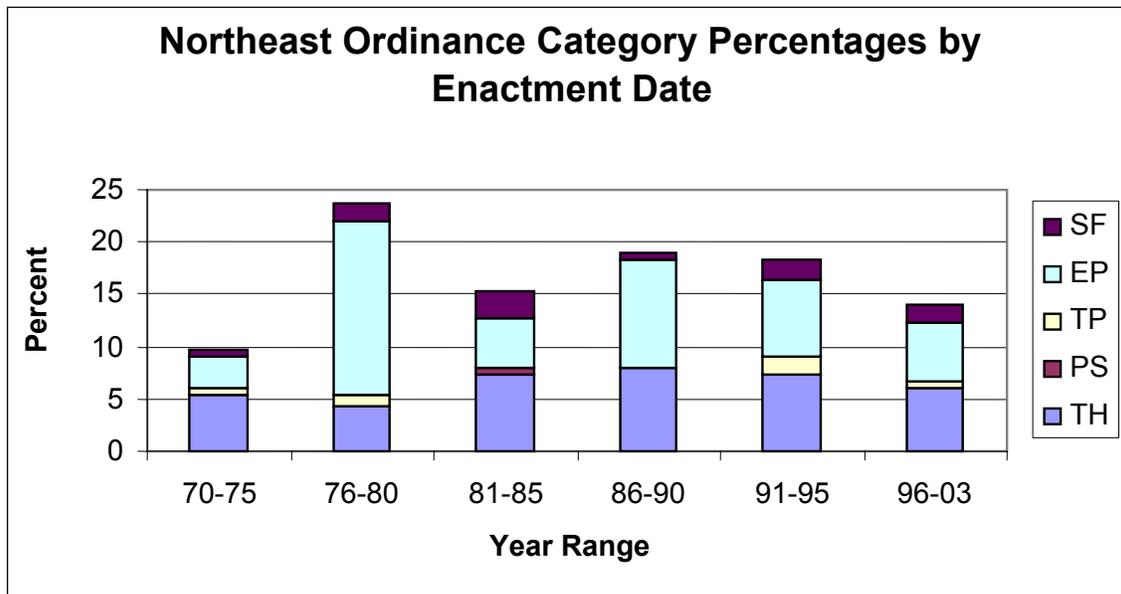
*Figure 6.3.*¹ Percentages of northeast ordinance enactment dates by period.

¹ Enactment dates for only 164 of 351 ordinances available.

As shown by *Figure 6.3*, there is little variation among ordinance adoption dates in the Northeast. The 1970-1975 period has the fewest local ordinances. The period has 16 representative ordinances for 10% of the regional total. The 1976-1980 time range contains the largest amount of regulations. With 39 ordinances, this period has 24% of the regional total. The 1981-1985 year range lists 25 local ordinances for a 15% share of

the total. Thirty-one ordinances, which represent 19% of identified ordinances, are located in the 1986-1990 period. The 1991-1995 year range lists 30 regulations for 18% of the total. The most recent period shares 14% of the total with 23 ordinances.

Further analysis combines ordinance enactment dates with regulatory intent. This analysis examines types of ordinances enacted by period as a percentage of the year range total. These proportions of ordinances, by period and regulatory category are shown in *Figure 6.4*. Although timber harvesting ordinances represent the largest number of ordinances identified for the region, more adoption dates were available for the environmental protection category, which must be noted for analysis purposes. Discussion of the analysis provides information on the types of ordinances that exist during certain time periods.



*Figure 6.4.*¹ Percentages of northeast ordinances by year range and regulatory category.

¹Enactment dates for only 164 of 351 ordinances are available.

As illustrated in *Figure 6.4*, the timber harvesting, environmental protection, and special feature categories are represented in each time period. Tree protection regulations only exist in the 1970-1975, 1976-1980, 1991-1995, and 1996-2003 year ranges. The only public safety and protection ordinance was adopted in the 1981-1985 period. In the 1970-1975 year range 9 ordinances pertain to timber harvesting, 5 to environmental protection, and 1 to both the special feature and tree protection categories. The 1976-1980 period consist of 27 environmental protection, 7 timber harvesting, 3 special feature, and 2 tree protection ordinances. Twelve timber harvesting, 8 environmental protection, 4 special feature, and 1 public safety ordinance combine to make the 1981-1985 year range. Between 1986-1990, 17 environmental protection, 13 timber harvesting, and 1 special feature ordinance are identified. In 1991-1995, 12 local regulations address both the timber harvesting and environmental protection categories, and 3 represent the special feature and tree protections categories each. The 1996-2003 period consists of 10 timber harvesting, 9 environmental protection, 3 special feature, and 1 tree protection ordinance.

Local ordinances in the Northeast are enacted by 7 government types. These governments include counties, cities, towns, villages, boroughs, townships, and general municipalities. The largest number of ordinances is enacted by towns, with a total of 212 (60%). County governments adopted 44 regulations (13%). Townships across the region enacted 37 ordinances (11%) while villages adopted 20 regulations (6%). The remaining ordinances are enacted by 19 cities (5%), 18 boroughs (5%), and 1 general municipality. The percent of ordinances enacted by these government types is shown in *Figure 6.5*.

Further analysis examines local government types that adopted ordinances within

specific states. In Connecticut (34), Maine (45), and New Hampshire (3) towns are the single enacting government type. In New Jersey 35 towns, 23 townships, 17 boroughs, and 6 cities enacted local regulations. Eight towns and 1 city adopted ordinances in Massachusetts. Pennsylvania’s regulations are enacted by 14 townships, 1 borough, and 1 general municipality. In Maryland there are 36 town, 41 county, 9 city, and 1 village enacted ordinance. New York’s regulations are enforced by 51 towns, 19 villages, 3 counties, and 3 cities.

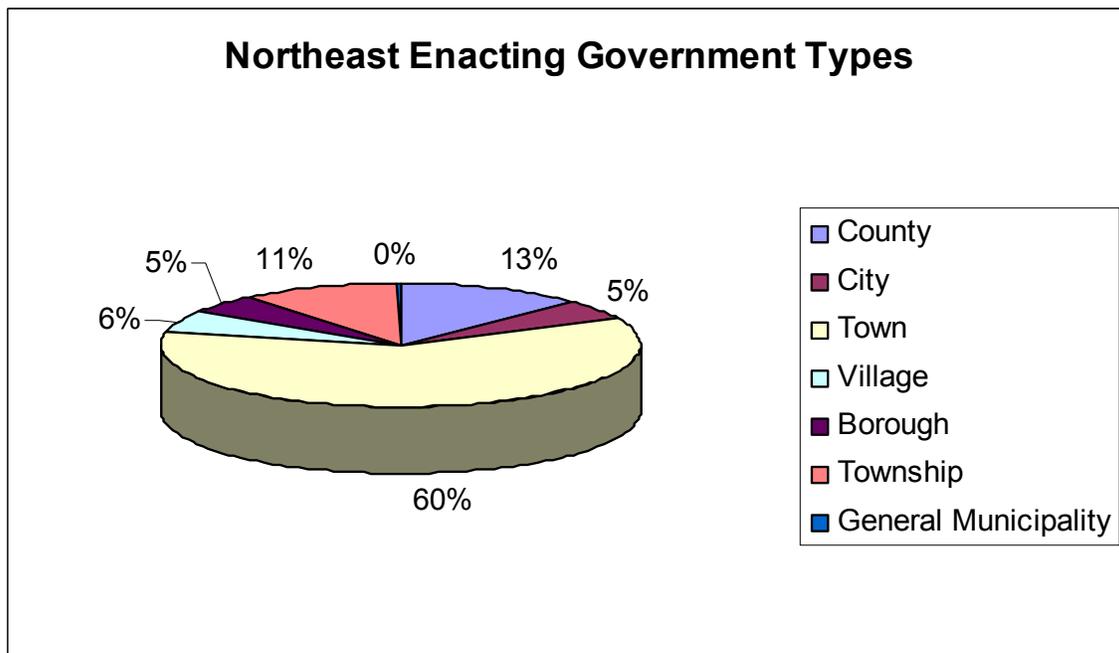


Figure 6.5. Government types that enacted local ordinances in the Northeast, by percent.

Region Summary

The northeast region of the United States dynamically utilizes local regulations to regulate forestry. A total of 351 ordinances are distributed across the 12 state region.

Local governments that enact regulations include counties, cities, towns, villages,

boroughs, townships, and general municipalities. Over the past 3 decades local forestry ordinances have steadily increased in number, and therefore the area they regulate. Many ordinances spur from language contained in forest practice acts or state legislative mandates. The majority of ordinances regulate timber harvesting directly, or through regulations that address environmental and special feature protection. Although each ordinance exists at single municipal level they have the potential to affect forest management and timber supply in the long term.

Mid-West Region

Twelve states comprised the mid-west region of the United States, which includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. Of the states surveyed, a total of only 16 local forestry-related ordinances are identified for Indiana, Michigan, Minnesota, and Ohio. The number of ordinances in the Mid-West, identified by state, is shown *Figure 6.6*. The remaining states reported none. To show how forest practices are regulated in the Mid-West a regional analysis is performed that enumerates the details of ordinances identified. Their regulatory intent, general provisions, adoption dates, and enacting government types are examined.

Summary of Local Ordinances

Four states contain the 16 ordinances that were found in the mid-western states. Eight states lacked local ordinances that regulate forest practices. Conclusions are made regarding both the presence and absence local regulations across the region. The 16 ordinances are unevenly distributed with Michigan listing 7 (43.7% of the total);

Indiana listing 4 (25% of the total); Minnesota having 3 (18.75% of the total); and Ohio listing 2 has the remaining 12.5%. The designation of the local regulations by state and

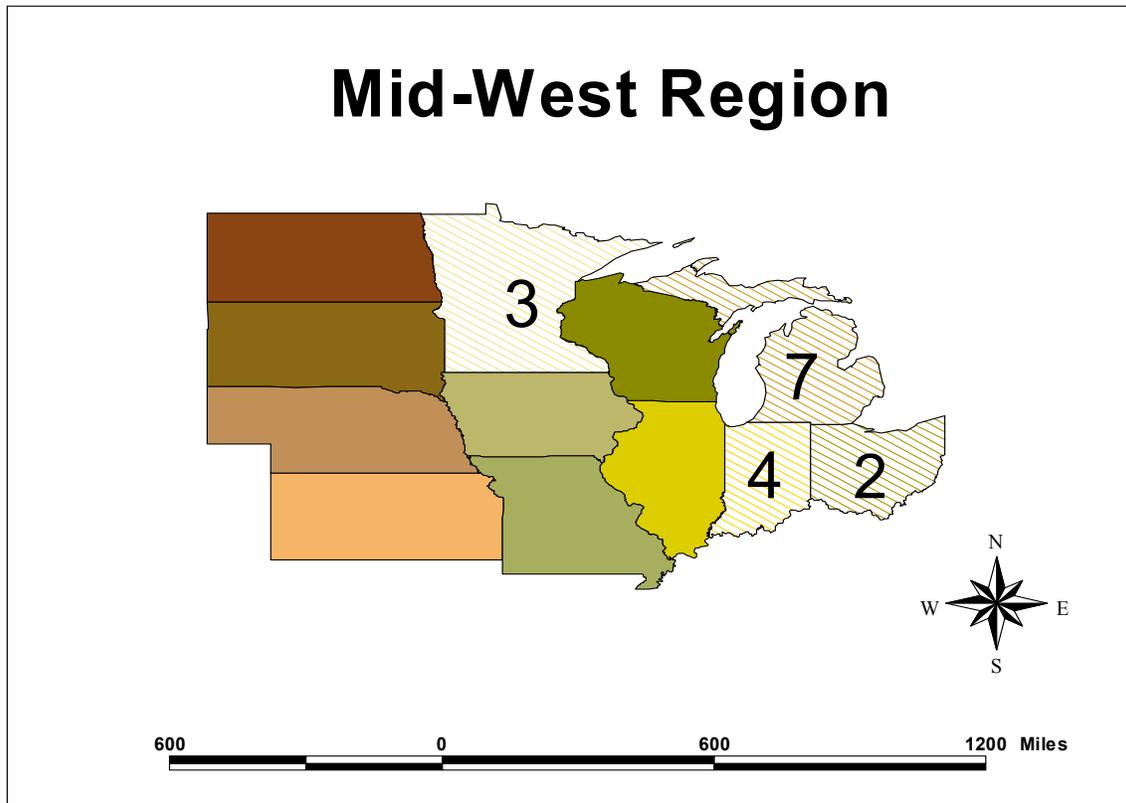


Figure 6.6. The number of local forestry-related ordinances detected in the Mid-West by state, shown by cross-hatching.

regulatory category is shown in Table 6.3.

The mid-western states of Illinois, Iowa, Kansas, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin had no identifiable local ordinances. Although these states are void of local forestry ordinances most have state statutes that regulate forest practices in their respective states. No states in the Mid-West have comprehensive regulatory programs that address forestry. Contact made with forestry and other state

administrators while conducting the study offer valuable insight on why certain state and local administered programs preclude local regulations.

Dennis Michel, a Rural Development Forester in Iowa responded with

Table 6.3. Number of local ordinances detected in the mid-west region by state and category.

State	Total	Environmental protection	Tree protection	Timber harvesting	Public safety	Special feature
	#	#	#	#	#	#
Michigan	7	1	2	3	0	1
Ohio	2	0	1	1	0	0
Minnesota	3	0	0	3	0	0
Indiana	4	0	0	0	3	1
Kansas	0	0	0	0	0	0
North Dakota	0	0	0	0	0	0
South Dakota	0	0	0	0	0	0
Nebraska	0	0	0	0	0	0
Iowa	0	0	0	0	0	0
Illinois	0	0	0	0	0	0
Wisconsin	0	0	0	0	0	0
Missouri	0	0	0	0	0	0
Total	16	1	3	7	3	2

information regarding forests and forestland ownership in the state. Michel stated that 92% of the forested area in Iowa is privately owned by just 2% of the state's population (2002). In the absence of state and local regulation Iowa implements voluntary forestry best management practices guidelines. Similarly, Robert Atchison, a Rural Forestry Coordinator, offered similar information for Kansas. Atchison stated that Kansas' land area consists of only 3% forest of which 94% is privately owned. In the mid-western

tradition the state places great importance on private property rights (2002). In contrast, Kansas has no regulations at the state level that address forestry or best management practices. In Nebraska, Gary Hergenrader indicated that the only local level regulations in the state pertain to city trees. He stated that there are 109 Tree City USA's in Nebraska (2002). These regulations are beyond the scope of this study and are excluded because of their limited potential to affect forest operations and timber supply.

Wisconsin replied with information regarding actual regulations. The state has shoreline zoning ordinances in each county. Although these local regulations can circuitously affect forestry practices the statutes are excluded from the survey since they focus on shoreline development.

Regulatory Categories

In the Mid-West there is a broad array of regulatory intent regarding local forestry regulation. Although the fewest total number of ordinances are identified for this region, all regulatory categories are represented. The purposes for enacting local regulations among the four states vary greatly.

The region as a whole has the following division of ordinances by category: 7-timber harvesting, 3-public safety and property protection, 3-tree protection, 2-special feature protection, and 1-environmental protection ordinance. Timber harvesting represents 43% of the ordinances enacted, public safety and tree protection regulations have 19% of ordinances each, and special feature and environmental protection categories represent the remaining 13% and 6% of the regional total, respectively. These proportions are shown in *Figure 6.7*.

The regulatory intent of ordinances in Indiana, Michigan, Minnesota, and Ohio

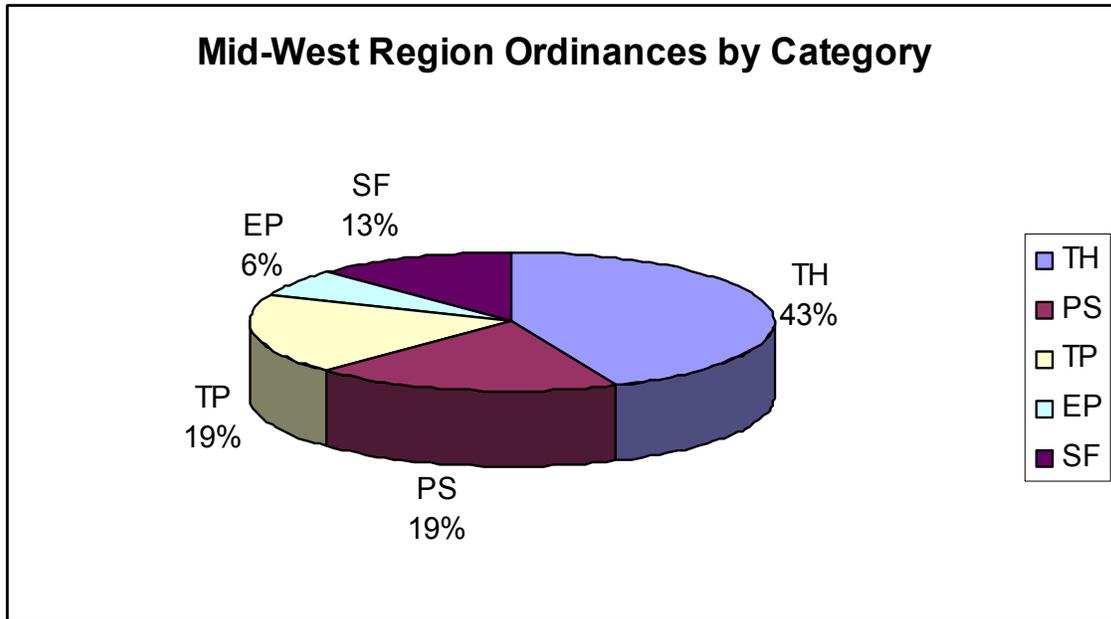


Figure 6.7. Local ordinance percentage by regulatory category for the Mid-West.

contain all categories but each state exhibits different characteristics. Specific comparisons and contrasts among these states are detailed below.

Indiana's 4 local ordinances focus on public safety and property protection, and special feature protection. The public safety category contains 3 regulations and the remaining ordinance pertains to special feature protection. Interestingly, these public safety regulations are the only ones identified for the mid-west region. Ohio's 2 local ordinances addressed timber harvesting and tree protection. Michigan's 7 ordinances are categorized into 4 different regulatory objectives. Three ordinances represent timber harvesting, 2 ordinances are categorized as tree protection ordinances, and environmental protection and special feature protection categories contain one ordinance each. Lastly, Minnesota's 3 ordinances regulate timber harvesting. The state percentages of the mid-west regions local ordinances by regulatory category are denoted in *Table 6.4*.

Table 6.4. The percentages of local ordinances in the Mid-West by state and regulatory category.

	Total ordinances	Timber harvesting	Public safety	Tree protection	Environmental protection	Special feature
State	#	%	%	%	%	%
Indiana	4	0	100	0	0	50
Michigan	7	43	0	67	100	50
Minnesota	3	43	0	0	0	0
Ohio	2	14	0	33	0	0
Total	16	100	100	100	100	100

General Provisions of Local Forestry-Related Ordinances

In the mid-west region local ordinances of each regulatory category are identified. Among the ordinances are similarities and differences that make each regulation unique. Within each ordinance there are general provisions that enable each regulation to be classified by its regulatory intent. These general provisions are discussed by regulatory category.

The timber harvesting ordinances in the Mid-West are similar in purpose while differing in scope. The least restrictive ordinances address woodlands and only require permits to perform activities on forestland. Other harvesting ordinances are more specific and detail guidelines for conducting timber harvests. As with the least restrictive regulations, the strict ordinances require harvest permits or timber harvester’s licenses. General provisions amongst these regulations are timber cutting standards, mandatory road and stream buffer strips, and slash removal criteria. Other ordinances require abutter notifications prior to applying for harvest permits.

Public safety ordinances in the Mid-West are similar in most aspects. A possible

explanation for this phenomenon is that they are all located in Indiana. The purpose of these ordinances is to protect public investment in county roads. Provisions of these ordinances include hauling permits required for vehicles weighing over a determined amount, which include log trucks and equipment haulers. Some ordinances designate haul routes, require vehicle registration with the county, and performance bonds. Fines for violating provisions of these regulations vary from a minimum of \$50.00 to a maximum of \$1,000.00.

The tree protection ordinances identified in the Mid-West protect vegetation associated with land development. General provisions include tree removal permits and tree surveys accompanied by field inspections. These ordinances are very detailed and outline specifically which species of certain sizes can be removed during an operation. The replacement of trees is mandated in some cases if necessary. Ordinance enforcement is stringent and fines are assessed on a per tree basis, which can be expensive.

The special feature protection regulations in the Mid-West apply directly to scenic river corridors. Their purposes are to protect aesthetic, biological, and ecological attributes of these natural places. The ordinances describe areas protected and guidelines for conducting activities within the features' boundaries. Regarding timber harvesting, the ordinances require permission for harvest and prohibit clearcutting.

The environmental protection regulation identified in the region pertains to wetland and watercourse protection. The ordinance is located within a zoning regulation, along with a tree protection ordinance, but is distinguished because protects resources associated with wetlands. Sections of the regulation call for protection of identified wetlands and require wetland use permits for certain activities. Other guidelines address

erosion control and wetland mitigation.

Enactment Dates and Government Types

In analyzing the local ordinances of the Mid-West enactment dates and government types that adopted them are of great importance. When an ordinance is adopted gives insight as to possibly why a local regulation exists. Enacting government types provide information on the area affected by a particular ordinance. Counties undoubtedly have the largest jurisdiction because they occupy the largest geographic area and can have regulatory authority over a combination of municipalities.

In the Mid-West local ordinances have been enacted across the region for over 30 years. Of the 16 ordinances identified enactment dates for 12 regulations are available. The earliest date of enactment was 1969, whereas the most recent ordinance adoption date obtained was adopted in 1998. The majority of the ordinances; however, were adopted in the mid to late 1980's. The percentages of ordinances by enactment period are shown in *Figure 6.8*. Numerical ordinance totals for all periods except the 1986-1990 year range all have 1 ordinance identified. These ordinances represent approximately 8.3% of the total per period. The 1986-1990 year range consists of 6 ordinances that represent 50% of the ordinances found in the Mid-West. No other apparent trend exists for the region; however, 5 of Michigan's 7 ordinances are enacted during this period.

Additional analyses examine types of ordinances by period. The same 12 enactment dates are used for this analysis as with their regulatory intent. In 1965-1970, 1981-1985, and 1991-1995 one public safety ordinance was enacted per period. Timber harvesting ordinances were adopted in the 1971-1975 and 1976-1980 year ranges and reflect 1 ordinance per period. Three timber harvesting ordinances were enacted between

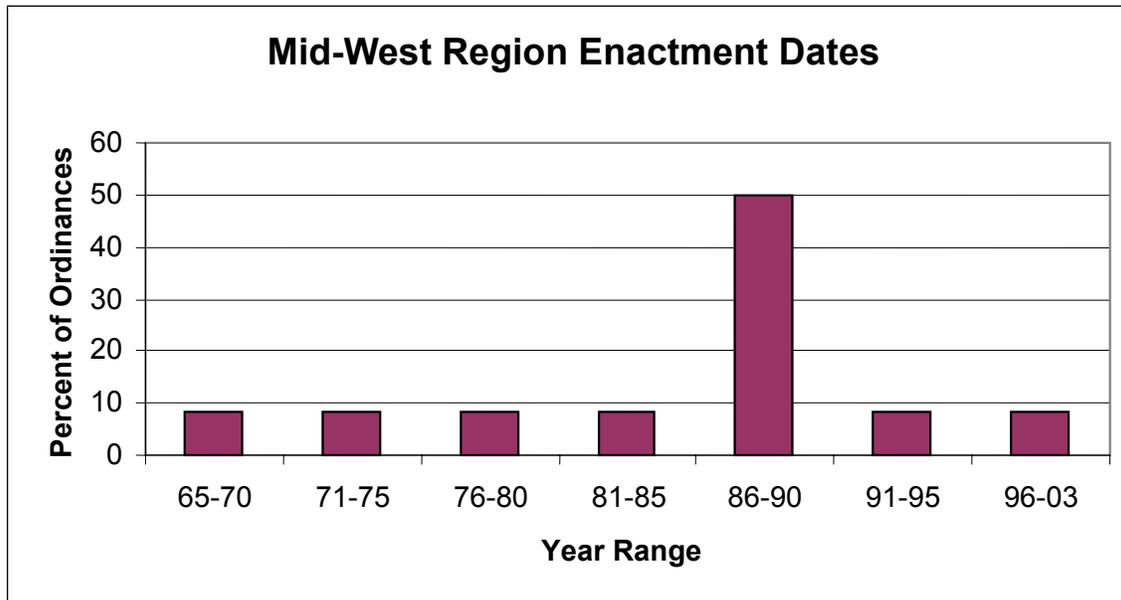


Figure 6.8.¹ Percentages of mid-west ordinance enactment dates by period.

¹ Enactment dates for only 12 of the 16 ordinances are available.

1986 and 1990. During this same period 1 environmental protection ordinance and 2 tree protection ordinances were enacted. The only other tree protection ordinance is identified for the most recent period. The percentages of ordinances by period and category are shown in *Figure 6.9*.

Enacting government types in the mid-west region vary among 3 types. These municipalities are counties, cities, and townships. The largest number of ordinances are enacted by cities, followed by counties and townships; respectively. Seven ordinances are adopted by city governments, 6 by counties, and 3 by townships. The percent of ordinances enacted by these government types is shown in *Figure 6.10*.

Further analysis is conducted to examine the types of governments that enact local ordinances by state. In Indiana counties represent the sole enacting government for the state's 4 ordinances. Minnesota's regulations are enacted by 2 counties and 1 township.

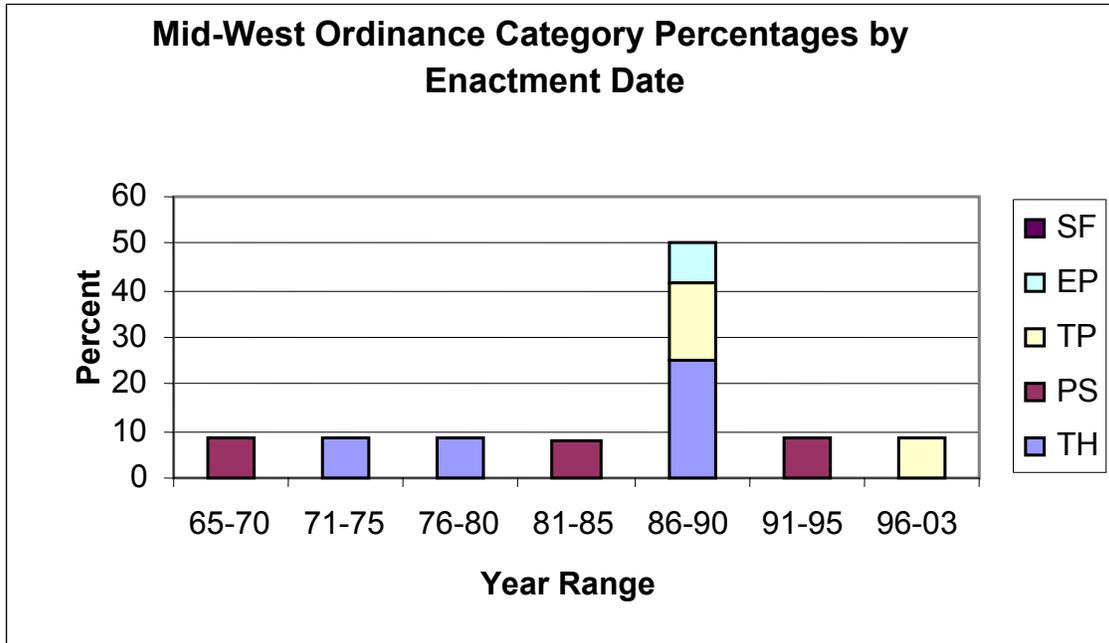


Figure 6.9.¹ Percentages of Mid-West ordinances by year range and regulatory category.

¹ Enactment dates of for only 12 of 16 ordinances are available. Although no special feature ordinances are shown, 2 exist in the region.

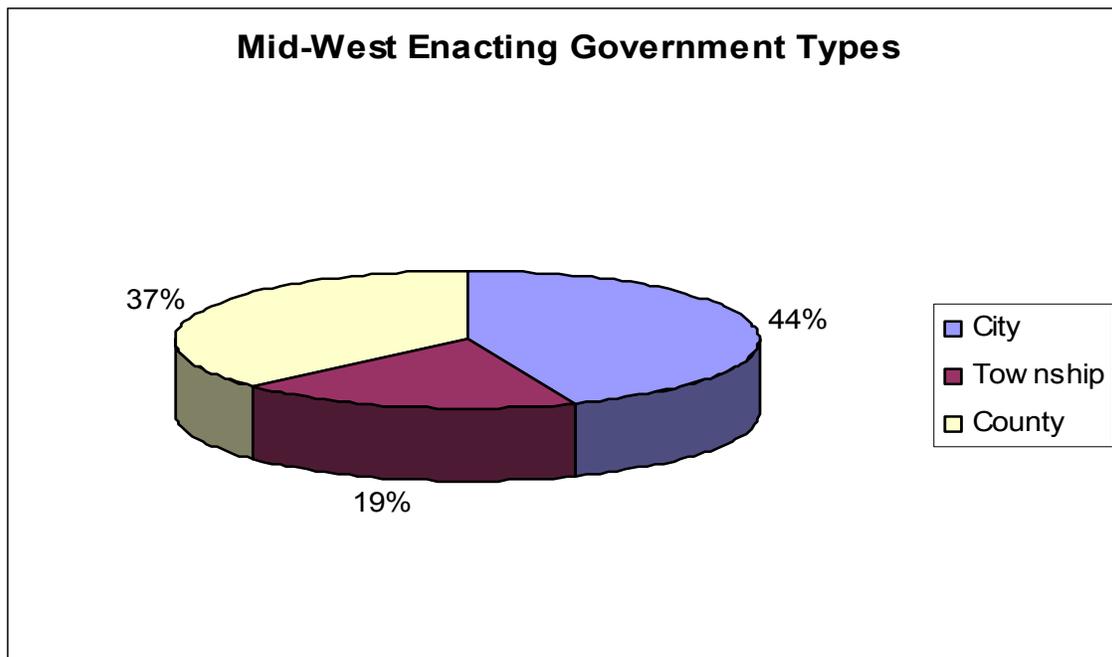


Figure 6.10. Government types that enacted local ordinance in the Mid-West, by percent.

In Michigan, 5 regulations were adopted by cities and 2 by townships. Both of Ohio's ordinances are enacted by city governments. Although more ordinances are enacted by cities than counties, counties govern larger areas and have greater potential to affect more landowners and forest resources.

Region Summary

The mid-west region of the United States seems to have a conservative idealism regarding the utilization of local governments to regulate forest practices. Across the entire 12 state region, 16 ordinances are identified that regulate forest practices. The majority of local regulations in the region are enacted by city and county governments; respectively. Although the ordinances were enacted over a lengthy timeline most were adopted in the late 1980's. Although almost half of the ordinances identified pertain to timber harvesting; however, it does not appear that these ordinances place overwhelming restrictions on traditional forest management activities.

Western Region

The western region of the United States consists of 11 states which include Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, and Wyoming. A total of 21 local forestry-related ordinances are identified among California, Nevada, Oregon, Utah, and Washington. The quantity of ordinances identified in these states is shown in *Figure 6.11*. No local regulations were found in the remaining states. The analysis performed for the region includes enumerating ordinances identified, examining their regulatory intent, general provisions, adoption dates, and enacting government types. The analysis is used to illustrate how forest practices in the

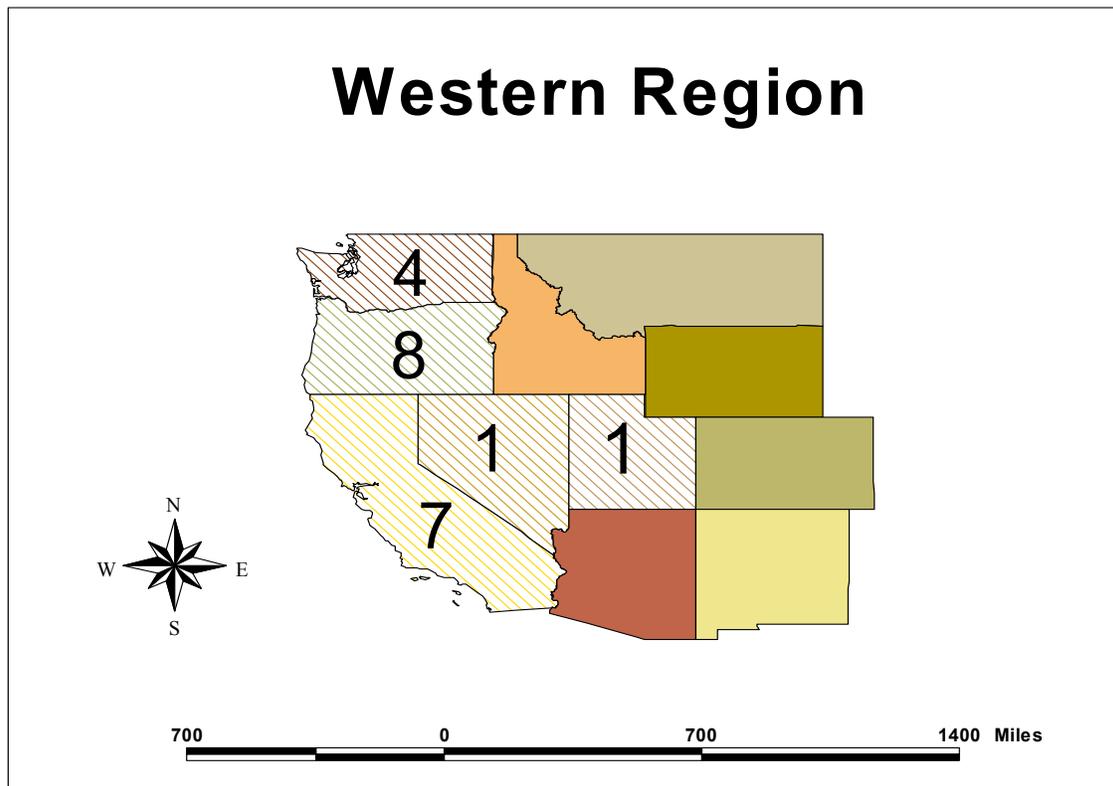


Figure 6.11. The number of local forestry-related ordinances detected in the West by state, shown by cross-hatching.

West are regulated at the local government level.

Summary of Local Ordinances

Five states in the western region contain the 21 local ordinances identified. The remaining 6 states are void of forest practices regulation at the local level. The analysis conclusions address both the presence and absence of local regulations for the region.

The 21 ordinances in the West are unequally distributed among 5 states. Oregon has 8 has ordinances (38% of the total); California lists 7 (33% of the total); Washington has 4 (19% of the total); and Nevada and Utah both have 1 ordinance which represents

the remaining 10% of ordinances for the West. Designations of regulations by state are shown in *Table 6.5*.

Table 6.5. The number of local ordinances detected in the western region by state and category.

State	Total	Environmental protection	Tree protection	Timber harvesting	Public safety	Special feature
	#	#	#	#	#	#
California	7	1	0	6	0	0
Oregon	8	1	2	5	0	0
Nevada	1	0	0	1	0	0
Idaho	0	0	0	0	0	0
Colorado	0	0	0	0	0	0
Washington	4	0	0	4	0	0
New Mexico	0	0	0	0	0	0
Utah	1	0	0	1	0	0
Montana	0	0	0	0	0	0
Wyoming	0	0	0	0	0	0
Arizona	0	0	0	0	0	0
Total	21	2	2	17	0	0

All states with local ordinances also have forest practice acts. The state legislative mandates can promote, preempt, or not comment on local government’s authority to regulate forestry. California’s forest practice act clearly that every municipality has the right to declare, prohibit, and abate nuisances. The act; however, also indicates that individual counties may not otherwise regulate timber operations unless authorized by the state forestry board. The forest practice acts of Nevada and Utah fail to comment on local regulations; however, each state was found to have 1 local ordinance. Oregon’s forest practice act preempts local regulation except inside urban

growth boundaries. This mandate attempts to keep development within urban areas while allowing for the unrestricted management of forest resources on rural lands. Lastly, until amendments made to Washington's forest practice act were adopted in 1997, the state prohibited local regulations of forestry. Now the new mandates require all counties and cities to adopt regulations.

The western states of Arizona, Colorado, Idaho, Montana, New Mexico, and Wyoming have no identifiable local forestry-related regulations. Explanations for the absence of local ordinances are analyzed using responses from forestry officials, state administrators, and personal insight.

The states of Idaho and New Mexico both have comprehensive forest practice acts. Idaho's forest practice act prohibits local governments from enacting ordinances that regulate forestry. Although the New Mexico forest practices act does not preempt local regulation it does not require or promote the practice. By regulating a small number of forest practices the state seeks to protect the rights of citizens and individual private forest landowners (New Mexico Energy, Minerals and Natural Resources Department 2002). The remaining states without local regulations and forest practice acts are Arizona, Colorado, Montana, and Wyoming. No specific conclusions were for Arizona and Montana due to a lack of survey response. In Colorado, Dr. Anthony Cheng had several comments regarding the absence of local regulation in the state. Dr. Cheng stated that much of Colorado's forest land is owned and managed by the federal government; that private land owned in Colorado is not governed by state or local policies; and that the state does not have a tradition of private forest management because of poor growing conditions and lack of forest products markets (2002). In Wyoming, the Community

Forestry Coordinator Mark Hughes commented that 32 cities currently have community tree ordinances regarding urban areas, but nothing that affects forest management activities (2002).

Regulatory Categories

Local regulations identified in the western region of the United States focus on traditional forest management practices. Of the 5 ordinance categories 3 are represented. While timber harvesting contains the most regulations no public safety or special feature ordinances were identified. Few ordinances are classified into the remaining categories.

The distribution of ordinances into the regulatory categories differs broadly. The timber harvesting category contains 17 ordinances and the tree protection and environmental protection categories each have 2 regulations. On a percentage basis, timber harvesting represents 80% of the regional total. The tree protection and environmental protection categories each signify 10%. Shown in *Figure 6.12* are the category representations in the West, by percent.

Individual states with local ordinances are California, Nevada, Oregon, Utah, and Washington. Regarding regulatory intent, each state is examined for its unique characteristic elements. Most regulations in these states focus on timber harvesting with remaining classifications scattered amongst the other categories.

Ordinances located in California are divided into two categories of regulatory intent. Six regulations are classified as timber harvesting regulations and 1 as an environmental protection ordinance. In Nevada (1), Utah (1), and Washington (4) all ordinances are classified as timber harvesting. In Oregon, the 8 ordinances are

differentiated into 3 categories. Five ordinances are classified as timber harvesting; 2 as tree protection ordinances; and 1 as an environmental protection regulation. The western region state percentage of ordinances by regulatory category is designated in *Table 6.6*.

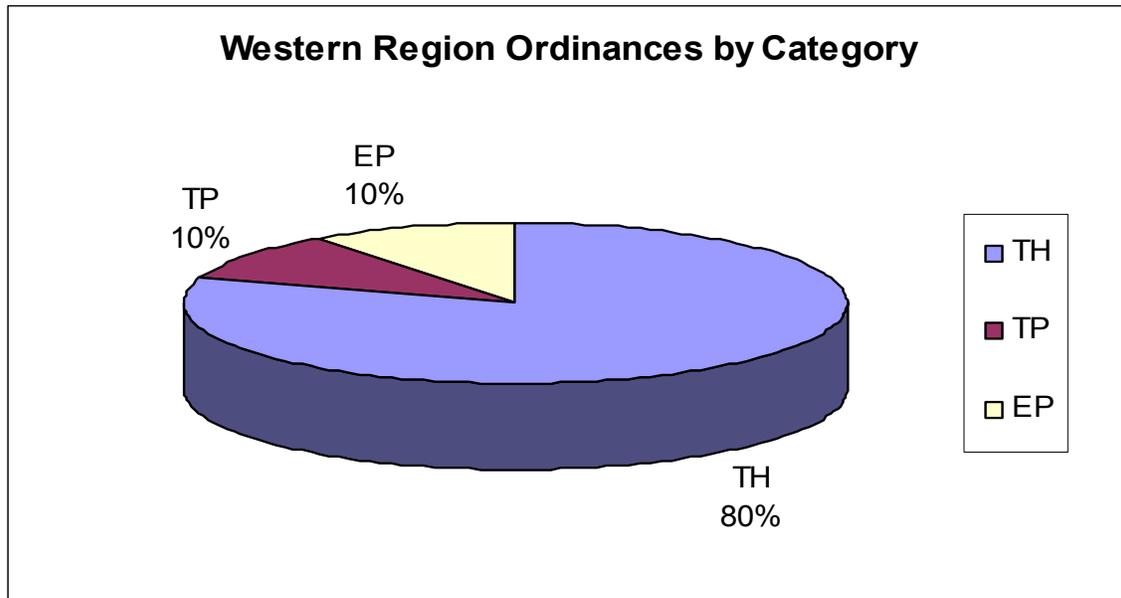


Figure 6.12. Local ordinance percentage by regulatory category for the West.

Table 6.6. The percentages of ordinances in the West by state and regulatory category.

	Total Ordinances	Timber Harvesting	Public Safety	Tree Protection	Environmental Protection	Special Feature
State	#	%	%	%	%	%
California	7	35	0	0	0	0
Nevada	1	6	0	0	0	0
Oregon	8	29	0	100	100	100
Utah	1	6	0	0	0	0
Washington	4	24	0	0	0	0
Total	21	100	0	100	100	100

General Provisions of Local Forestry-Related Ordinances

Local ordinances are classified into 3 regulatory categories in the West. These categories are timber harvesting, tree protection, and environmental protection.

Understanding the affect these regulations place on forest practices takes knowledge of the general provisions included in such regulations. Summaries of these provisions are examined by category.

The majority of ordinances in the western region regulate timber harvesting activities. All ordinances require the application and approval of some form of permit prior to harvest commencement. Along with permits, other general provisions are mandated across the region. Some ordinances require on-site inspections, dictate working and hauling hours, and stipulate performance bonding for either the harvest operation or for potential road damage. Other ordinances set forth harvesting guidelines, require streamside management zones, and even prohibit the use of herbicides, pesticides, and burning.

The purpose of the tree protection ordinances in the West are to provide for the safe removal, moving, and replacement of trees during development. The intent of the ordinances is to promote stewardship and wise use of woodland and forest resources. Provisions of the ordinances require the approval of a tree removal permit prior to conducting development activities. The tree removal plan expresses how trees are to be removed and replaced must accompany the permit. One ordinance specifies categories of trees designated as either street trees, significant trees, or regulated trees based on species, size, and location. These designated trees may not be removed during any construction activities.

Two environmental protection regulations are identified for the western region. One ordinance's purpose is to protect the city's watershed ensuring the community potable water. The ordinance states that all forest practices are permitted by right and designates a land reserve zone. The land reserve zone consists of lands that are unsuitable for development and mandates that these lands be managed for timber production. Provisions of the ordinance mandate require forest practices be conducted to protect water resources; however, no harvesting or management guidelines are dictated. The second ordinance protects riparian areas associated with intermittent and perennial streams. Provisions of the regulation mandate buffer strips and the filing of a riparian habitat management plan prior to development operations.

Enactment Dates and Government Types

The analysis of enactment dates and government types that adopt local ordinances is important for the West. Enactment dates give insight as to what forms of public opinion or state mandates spur local regulations. Enacting government types provide information on the land area an ordinance affects.

The existence of local regulation in the West has been apparent for over 25 years. The earliest ordinance identified dates back to 1974. The most recent ordinances were passed in 2001. As in the Mid-West, the majority of ordinances enacted in the West were during the mid to late 1980's. Of the 21 local ordinances, enactment dates for 19 were obtained. The percentages of ordinances enacted during various periods are shown in *Figure 6.13*.

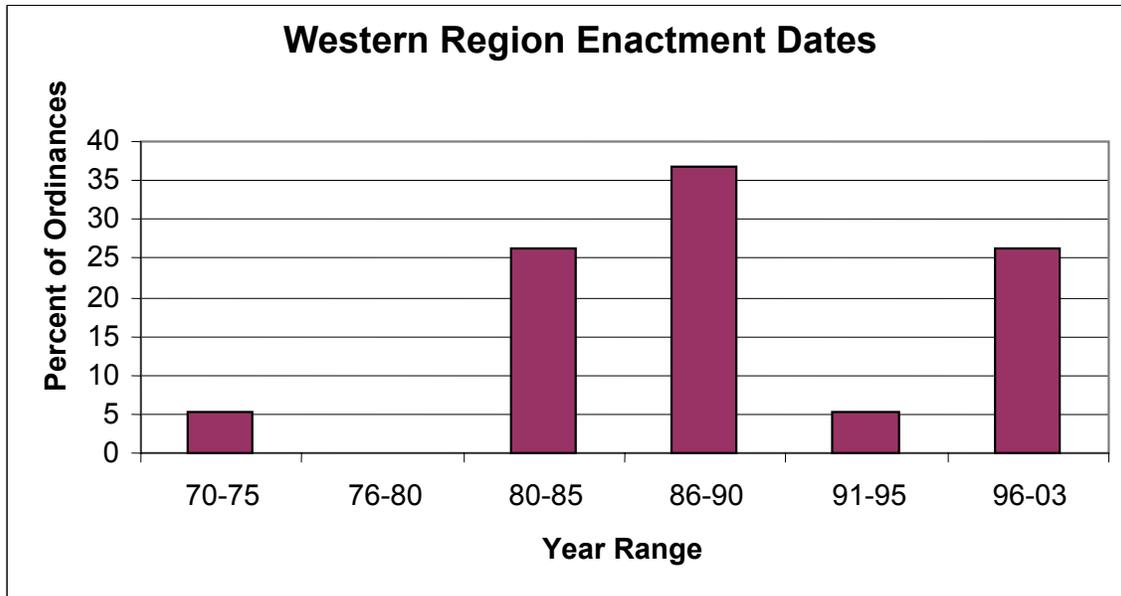


Figure 6.13.¹ Percentages of western ordinances enactment dates by period.

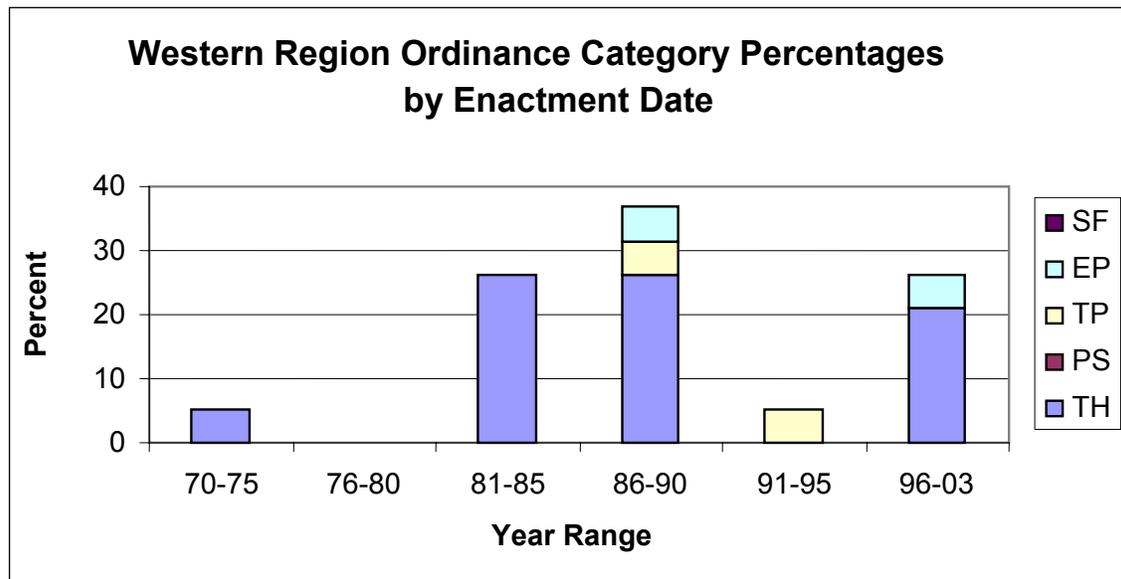
¹ Enactment dates for only 19 of 21 ordinances available. The 2 ordinances excluded pertain to timber harvesting.

In the West, there exists great variability in when local ordinances were adopted. The 1970-1975 and 1991-1995 periods both represent 1 ordinance and 5.3% of the regional total each. The analysis concludes that no ordinances were adopted in the West during the 1976-1980 period. The majority of ordinances were enacted in the 1980-1985, 1986-1990, and 1996-2003 year ranges. The largest percentage, 36.8% for the 1986-1990 year range is based on 7 ordinances. The 1980-1985 and 1996-2003 year ranges had 5 ordinances enacted in each period. These periods each contain 26.3% of the regional total percentage.

With regards to enactment dates, an analysis is performed that examines types of ordinances as a percentage of the year range total. The same 19 enactment dates are used for this analysis as with their regulatory intent. The majority of ordinances for the region address timber harvesting. The quantities of the ordinances identified by year range are

as follows: 1 for 1970-1975; 5 for 1980-1985; 5 for 1986-1990; and 4 for 1996-2003. In the year ranges 1970-1975 and 1980-1985 timber harvesting ordinances were the only enacted. The tree protection and environmental protection categories for the West were adopted in the last three year ranges. In the 1986-1990 period 1 tree protection and environmental protection ordinance was enacted. The only ordinance identified in the 1991-1995 year range pertains to tree protection. The remaining environmental protection regulation was enacted in the 1996-2003 year range. Percentage rates for these ordinances by year range and regulatory category are shown in *Figure 6.14*.

In the West local ordinances are enacted by 3 government types. These governments are counties, cities, and the Tahoe Regional Planning Agency, which is



*Figure 6.14.*¹ Percentages of western ordinances by year range and regulatory category.

¹ Enactment dates for only 19 of 21 ordinances are available. The 2 ordinances excluded pertain to timber harvesting.

classified as a special government. The largest numbers of ordinances are enacted by

counties, followed by cities and the special government, respectively. Eleven ordinances are adopted by counties, 8 by counties, and 2 by the special government. Although the special government only adopted a single ordinance its jurisdiction crosses 2 state boundaries. Therefore, allocation of the ordinance to both states is made during the analysis. The percent of ordinances enacted by these government types is shown in *Figure 6.15*.

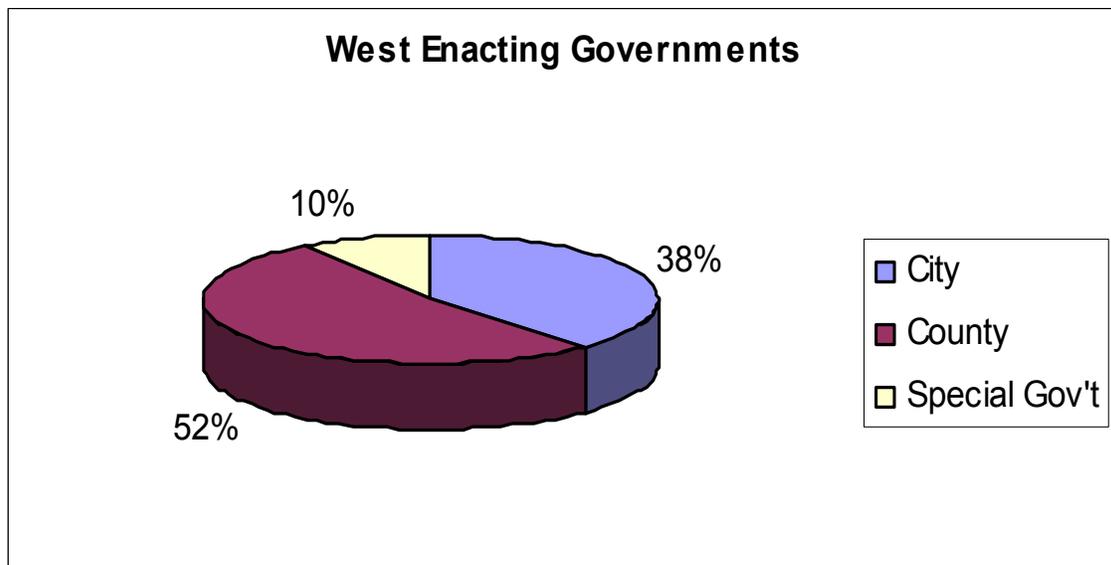


Figure 6.15. Government types that enacted local ordinances in the West, by percent.

In conjunction with the enacting government analysis, each state is examined to determine which government types adopted local ordinances. In Utah (1) and Washington (4) counties are the only government type that has enacted local ordinances. The remaining county level ordinances are located in California (6). The ordinance adopted by the special government spans across regions of both California and Nevada. For Nevada, this is the only ordinance identified. The 8 regulations enacted in Oregon

were passed by city governments.

Region Summary

The western region of the United States is active in using local ordinances to regulate forest practices. Twenty-one local forestry-related ordinances are identified among the eleven states in the region. On a municipal level, county and city governments are the only entities that enacted local ordinances. The majorities of local ordinances were adopted in the 1980's and coincide with state mandated legislation. These laws give municipal governments the authority to regulated forestry. Recent state legislation in Washington will increase the presence of local ordinances, in the West, since all counties and cities must adopt local ordinances within the next 3 years. Since 80% of the ordinances for the region regulate timber harvesting, traditional forestry activities are the greatest affected by local regulation in the West.

Across the Northeast, Mid-West, and western regions of the United States local ordinances impact forestry in different degrees. The greatest disparity among the regions exists in the numbers of local ordinances and their spatial distribution. The scope, date of adoption, and enacting government types associated with local regulations also differs, but not to the same degree across the regions. The conclusions follow in the next and last chapter.

Chapter 7. Project Summary

In the survey of 35 states in the Northeast, Mid-West, and western United States a total of 388 local forestry-related ordinances are detected. The northeast region has the largest number of local ordinances with 351. This total represents 90.5% of the ordinances identified. The mid-west region contains 16 ordinances for 4.1% of the total. The western region contributes 5.4% of the total, with 21 local regulations. The local ordinances are enacted by all local government types; however, these vary by region. In the Northeast, small local governments including towns, townships, villages, cities, and boroughs usually enact forestry-related ordinances. Mid-western ordinances are typically adopted by counties, cities, and townships. In the West, counties and cities generally enact local regulations. Logic suggests that counties and townships with larger land areas, which regulate forest management have the potential for a greater impact than local ordinances enacted by cities, towns, villages, and boroughs with small internal land areas.

The presence of local forestry-related ordinances has existed for over 30 years. Local forestry regulations are adopted to accomplish a broad range of objectives. All identified ordinances are distributed among 5 regulatory categories based on their perceived intent. These categories include timber harvesting, environmental protection, public safety and property protection, tree protection, and special feature protection. Early regulations addressed primarily timber harvesting, environmental protection, and public property and safety protection. More recent ordinances were enacted to provide protection for special features and trees, which relate to more non-traditional forestry practices. Ordinances in the Northeast generally regulate timber harvesting and provide

for environmental protection. Mid-western ordinances typically address timber harvesting, tree protection, and public safety. In the West, timber harvesting ordinances represent the overwhelming majority of local regulations.

General provisions of local ordinances exhibit similarities by category. Timber harvesting ordinances frequently require permits, plans, notifications, and harvesting guidelines. Cutting standards regulate harvest types; require mandatory buffer strips; dictate hours of operations; and have standards for the construction, maintenance, and use of haul roads, skid trails, and loading decks. Principal concerns of environmental protection ordinances are the use of wetlands, and sediment and erosion control. These ordinances typically follow a model format provided by the state and require permits for various activities. Wetland ordinances establish cutting standards that can affect forestry, while sediment and erosion control ordinances generally require plans of mitigation procedures used during or after harvest. Tree protection ordinances regulate tree removal associated with land disturbing activities through permits, tree surveys, and replacement guidelines. Special feature protection ordinances generally prohibit all land disturbing activities; however, some allow timber harvesting if conducted in accordance with stringent guidelines. Public safety and protection ordinances require permits and designate haul routes for operating vehicles weighing in excess of a determined load limits. Costs associated with local ordinances include permit fees, performance bonds, and proof of liability insurance. Penalties consist of stop work orders, fines, civil penalties, and criminal penalties for non-compliance.

The local ordinance provisions, regardless of scope, appear to be equitable in balancing the need for regulation with the autonomy of the forest industry. Each

individual regulation, standing alone, in general only requires practices that are becoming more common in the forestry profession. Dilemmas faced by owners and operators associated with local ordinances include financial costs and the task of complying with numerous regulations within a particular state or region. Compliance with multiple ordinances complicates forest management regimes and strategic planning from having to deal with various government levels, administrative procedures, and enforcement agencies which are often bureaucratically inefficient.

In conclusion, the magnitude of local forestry ordinances varies among the Northeast, Mid-West, and West. Distributions of ordinances concentrate within states that mandate regulations through state laws. Large numbers of local ordinances appear to exist in industry dependent states, which are not reliant on natural resources (i.e., CT, NY, NJ, PA). The mid-west region exhibits the least amount of local regulation. Here ordinances are limited in number and scattered throughout different states and among various government types. In the West, local forestry ordinances are concentrated among states with forest practice acts that encourage or mandate local regulation.

Study Conclusions

The number, distribution, and intent of local forestry-related ordinances differ by region. The Northeast has the largest number of local regulations distributed across many states and among several local government types. The Mid-West faces the least amount of local regulation, which is attributed to strong private property rights values and minimal amounts of forest area (Atchison 2002, Michel 2002). Local regulation in the West is both limited and yet fostered through comprehensive forest practice acts. Although most ordinances in all regions regulate timber harvesting, the scope of the

remaining regulations varies among each region.

The presence of local regulations across the Northeast, Mid-West, and West undoubtedly impact forestry. These impacts should not be measured solely on quantity of ordinances, but also by looking at other regulatory attributes. Enactment dates of ordinances offer some insight into how an area has been affected and may provide additional links to cultural, resource, and economic factors. Enacting government types also afford information on the land area and number of landowners governed by an ordinance. Impacts must also be measured by examining an ordinance's specific regulatory provisions. Furthermore, an immeasurable impact results until a local government's interpretation and readiness to enforce a local forestry regulation is known.

Local forest regulation is an important, growing, and dynamic aspect of forest policy. Local regulation appears to be increasing, especially in the Northeast. Although the study identified 388 ordinances, many more are likely to exist. These regulations complicate forest management and have the potential to affect local stumpage prices as well as long term timber supply. Although this study provides a wealth of information regarding the current role that local regulation has in forest policy future studies should consider adopting broader methods and analysis techniques.

Future studies examining local regulation of forest policy should address smaller cross-sections of the country and analyze the presence of ordinances in greater detail. Surveying a smaller area, such as an individual region or state, would afford researchers more time and resources to examine factors motivating local forestry ordinances (i.e., demographics, resource conditions, socio-economic factors). Instead of using a branching survey method, comprehensive or random sampling techniques of

governments by location and type should be considered. Further, the five regulatory categories used in this and previous studies should be expanded since recently adopted ordinances are becoming comprehensive in scope. The timber harvesting category could be divided among regulations that regulate logging, silviculture, and harvest methods. The environmental protection category should be separated into regulations that pertain to sediment and erosion control, wetland, and general natural resource protection. Tree protection regulations could be broken into sub-categories that address tree removal for any purpose, and those that protect trees during land development. The public safety category should address weight limit provisions, haul routes, and municipal water quality protection separately. Finally, the special feature protection classifications should be divided to cover prohibitions on all activities, and those regulations which allow certain operations. The impact of local ordinances is based on the combined effect of provisions in all of these regulatory categories.

In conclusion, this study presents results associated with local forestry ordinances in the Northeast, Mid-West, and western United States. Although the numbers of ordinances detected are not absolute the analysis of these regulations across three major regions of the country provides policy makers, landowners, resource professionals, and academics information as to how local level forest policy currently affects forest management. This study should also serve as a benchmark and tool for future studies that examine local forest regulation.

Areas of Further Research

Further research can be beneficially conducted on local regulation of forest practices. Local regulation is a very dynamic portion of forest policy with the potential to

regulate and complicate forest management immensely. Research should focus on comprehensive model ordinances mandated by individual states and regions; since laws are frequently adopted, amended, and repealed. Monitoring these changes is essential to comprehending current and long term affects of local forest regulation.

Research studies should analyze correlations between ordinance intent and location with socio-demographics, resource conditions, and household income. Research of this type would provide legislators, educators, and natural resource professionals information on what motivates localities to adopt local ordinances. Additional research should analyze costs and benefits of local forestry-related ordinances.

Finally, economic analyses of local forest regulation are needed. Such research should examine costs and benefits of that ordinances place upon society. Research projects could focus on how local ordinances affect private landowner decision making, stumpage prices, and timber supply.

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Appendix A. Survey Request Letter

Dear Survey Recipient:

The Department of Forestry, Virginia Tech and the Southern Research Station, U.S. Forest Service have initiated a cooperative agreement to survey and analyze all local ordinances, laws and regulations affecting forest land in the United States. The laws and regulations of interest are those that occur at the county, city, borough or other jurisdiction below state level, which pertain to timber harvesting, public property, tree protection, environmental protection and special features. They will be analyzed in accordance with demographic, cultural and natural resource conditions as well as other ongoing research.

We need your help in identifying, locating and obtaining copies of such laws and regulations in your state. Please help us by sending any lists of local ordinances, copies of local ordinances or addresses of contacts where copies of these documents may be obtained. They should be returned to William F. Johnson, 304 Cheatham Hall (0324), Virginia Tech, Blacksburg, VA 24061. I can also be reached at 540-231-9929 or wijohns3@vt.edu. Dr. Haney can be contacted at 540-231-5212 or hhaney@vt.edu.

Currently, I am a graduate research assistant in the Department of Forestry at Virginia Tech. This research will be used in my Master of Science thesis. It comprises a part of the Resource Planning Act (RPA) assessment of forest resources in the United States, which is conducted periodically by the U.S. Forest Service. Dr. Harry L. Haney, Jr., Garland Gray Professor of Forestry represents Virginia Tech as principal investigator in this project. Dr. John L. Greene, Principal Economist, Forest Resource Law and Economics, Southern Research Station represents the USDA Forest Service on this study.

If you have any questions about this project, we will be glad to supply additional information as you request. When the study is complete we will also be glad to share copies of any paper or publications that are produced by the analysis. Please so indicate on your reply. We appreciate your assistance in advancing this work.

Sincerely,

William F. Johnson
Graduate Research Assistant

Dr. Harry L. Haney, Jr.
Garland Gray Professor

cc: Dr. John L. Greene

Vita

William F. Johnson, Jr. was born on November 22, 1979 in Richmond, Virginia to Billy and Carol Johnson. He graduated from Central High School in Lunenburg County, Virginia in 1997 and entered the forest resource management program at Virginia Tech. After completing his B.S. in Forestry in May of 2001 he entered Virginia Tech's masters program in Forest Management and Economics. He completed the M.S. in Forest Economics in March, 2003.