

MAINTAINING LARGE FOREST LANDHOLDINGS IN NORTHERN
NEW ENGLAND: PROBLEMS, PERSPECTIVES AND POLICIES
IN A CHANGING ENVIRONMENT

by

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A solid black rectangular box used to redact the signature of Dr. John H. Baldwin.

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Much of the forest land in northern New England is owned in large parcels by companies in the wood products industries. Recent changes in the region's market for rural land have resulted in significant increases in the value of timberlands for non-commodity uses such as second home residential and commercial development. Such changes in regional land use may limit the continued use of the lands for back-country recreation and timber harvesting. By implementing land conservation mechanisms, these adverse consequences of land parcellation may be controlled.

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CHAPTER I

INTRODUCTION

Land use is a neutral term which, with qualification, offers a multitude of highly charged and even dangerous implications for the land's owners and residents. Among the many determinants of land use are its physical attributes such as topography, fertility and mineralogy, existing general economic conditions such as the cost of borrowing money, location and access in relation to potential users of the land and markets for commodities extracted from it, and governmental regulation. Another pervasive, yet seemingly innocuous determinant of land use is parcel size. This study is primarily concerned with the public policy implications of parcel size as a determinant of land use.

This study examines the causes, problems and opportunities associated with fragmenting large forest landholdings and reviews methods for maintaining the integrity of those holdings. It first determines whether it is in the public interest to maintain large parcels of land currently used primarily for forestry and back-country recreation. It then identifies and evaluates mechanisms

which encourage parcel sizes and land uses that are in the public interest. A system is then described to coordinate the implementation of the mechanisms offered. Finally, the land use planning system which coordinates the planning activities in the region is compared to existing planning programs in the Northern New England region. For purposes of this study, Northern New England is defined as Vermont's Northeast Kingdom which includes Caledonia, Essex and Orleans Counties, Coos County New Hampshire and the Western Maine Mountains which encompasses Franklin, Oxford, Somerset and Piscataquis Counties (see Figure 1). The total area of the region is approximately 16,000 square miles or 10.2 million acres.

Defining the Problem

As Lloyd Irland (1987), describes it, "waves of land use change" are sweeping across New England leaving in its wake a landscape which little resembles the heritage for which it is famous. The historic New England town village, pastoral countryside and forested mountains are in many areas competing with alternative land uses which may alter one of New England's major economic advantages --its quality of life. At present, much of Northern New England has remained in the same land uses since colonial times. Forestry and back-country recreation continue to be the

Figure 1. The Northern New England Region



Note: From National Survey Company, Chester, VT

dominant uses of the land and the basis of the region's economy.

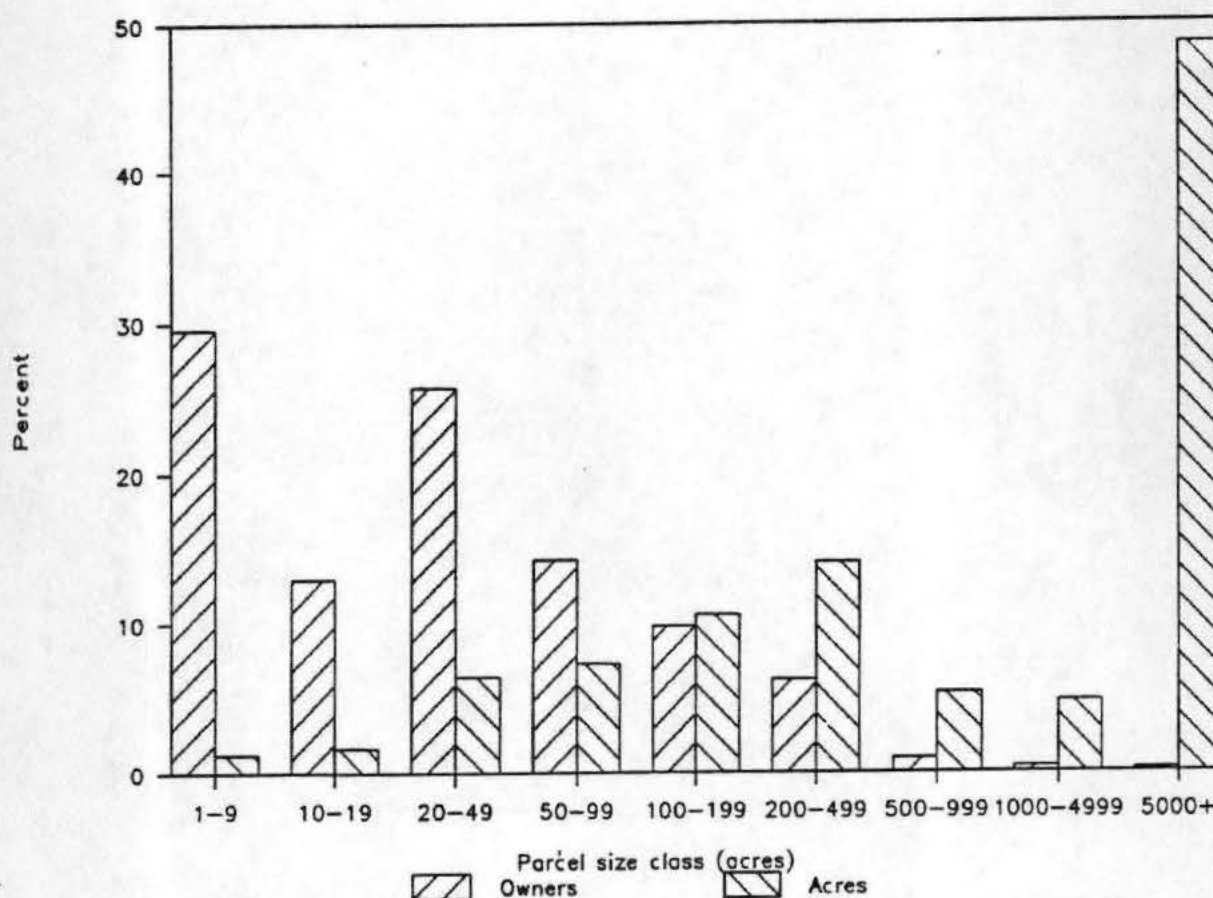
The region's traditional land uses have escaped the waves of land use change which have moved across the rest of New England. However, the relatively undeveloped lands of Northern New England are not expected to be insulated from incentives to change in the future. As the price per acre of land for uses other than forestry increases faster than the per acre price of land for forestry, the difference in the rate of change in these two variables will greatly affect when the market for timberland will no longer be able to compete with non-commodity land uses. Because the land parcels are large and rural land markets for many non-commodity uses (e.g. second home development) do not require large parcels, rural land use changes will be slow and incremental with cumulative impacts which may alter the character of the region.

The character of the region can now be defined by its dominant land uses. They are timberlands to supply the raw material needs of the region's wood products industries and free public access to most of the region's forest land for recreational uses. Thus far, the current owners of much of the region's timberlands have maintained most of their land for these uses. However, as the per acre value of certain non-commodity land uses increase, the likelihood of a land use change increases. Currently, much of the private land

in Northern New England is in large forest landholdings (see Figure 2). The figure shows that although most parcels are less than 200 acres, much of the land is still held in large parcels. For purposes of this study, large forest landholdings are defined as parcels of at least 500 acres which are capable of producing more than twenty cubic feet of industrial grade timber per acre per year. As shown in Table 1, most of these large parcels in Maine, Vermont and New Hampshire are held by only a few institutional landowners. It is the threat of fragmentation of these large forest landholdings which provide timber and land for public recreation that places these resources at risk. This thesis does not imply that large areas of land in Northern New England will be converted to intensive land uses such as second home development and supporting tourist commercial establishments. Rather, if development occurs, it is expected to occur in proximity to regions which attract such development. Such landscapes are those with mountains which provide skiing and scenic vistas and lakes and rivers which offer recreational opportunities. The consequences of major land use changes may not be in the best long-term interests of the region.

More specifically, the parcelling of large forest landholdings and scattered rural development in the region can impede the use of forest management practices necessary to sustain an economy heavily dependent on the wood products

Figure 2. Distribution of Forest Landownership in Northern New England by Parcel Size Class.



Note: The data used to construct this figure were taken from various United States Department of Agriculture, Forest Service private forest land ownership surveys. The data include land ownership for three regions in Vermont, New Hampshire and Maine which approximate the Northern New England study region. Data are for 1982 for Maine and 1983 in New Hampshire and Vermont.

Table 1
Major Private Forest Landholdings

<u>Landowner</u>	<u>Size of Ownership in Acres</u>		
	<u>Maine</u>	<u>New Hampshire</u>	<u>Vermont</u>
Boise Cascade	605,000	117,000	4,400
Champion	760,000	135,000	190,000
Diamond Occidental	571,000	67,000	23,000
Downeast Timberlands	60,000		
Dunn Heirs	200,000		
Fraser Paper	230,000		
Georgia Pacific	520,000		
Great Northern Paper	2,113,000		
International Paper	1,075,000	32,000	70,000
J.D. Irving	251,000		
James River	60,000	60,000	8,400
Prentiss & Carlisle	975,000		
Scott Paper	900,000		
Seven Islands	883,000		
Wagner Woodlands	10,000	45,000	45,000

Note. Adapted from A Challenge for New England: Changes in Large Forest Landholdings (p.19) by Perry Hagenstein, 1987, Boston: The Fund for New England.

industry. Parcelling may also result in a new type of landowner throughout the region who is unwilling to allow public access to the region's undeveloped lakes and rivers and hiking, skiing and snowmobile corridors. Major rural developments on land previously part of a paper company's timberlands which are not centered around existing development nodes can result in rapid changes in the character of the region's landscape and create a host of land use planning problems for rural townships which do not have the resources to effectively address large and rapid development.

History of Land Ownership and the Forces of Land Use Change

It is instructive to briefly review the history of the ownership and uses of the land in the region and to compare them with current influences on parcel size and use. This review provides a basis for understanding the context in which large forest landholdings were acquired and how the policies which governed land ownership and use in the past may no longer be best suited for meeting today's demand for rural lands.

The History of Acquisition and Land Use

Colonial land distributions in Northern New England

were often made through grants and sales of large blocks of land to railroad tycoons, wealthy families, or groups of investors who often purchased shares of ownership in undivided and common interest. Some chose to divide the land among the shareholders so that each person owned an identifiable parcel of land which he used as he determined it was best fit. Others held their land in common and shared revenues from the land according to their proportional interests. During the period from 1790 to 1880, millions of acres were cleared for agricultural land uses. But as the more agriculturally productive western lands became available, many New England farms returned to woodlands (Irland, 1982).

About this time, family operated saw and paper mills began to occupy the landscape and grow in economic significance in this relatively unsettled region. Although a single transfer of a large parcel of land cannot be followed from the time of the original colonial grant to its current day owner to serve as a model of the history of land ownership in Northern New England, some general patterns of land transfer do exist. In many instances, land was gifted or exchanged for cash and a promise of settlement, usually requiring the grantees to establish a certain number of people and miles of road on the land within a stipulated period of time (New Hampshire Historical Society, 1972). Some of the grantees began pulp and paper mills. Other

grantees sold large tracts of timberland to mill owners who wanted to assure themselves of an adequate fiber supply. The mill owners supplemented their landholdings through contractual agreements for timber with large forest landowners who did not have production facilities of their own (Hagenstein, 1987). The names and organizational structure of these companies changed over the years, but many of these timberlands remained with the successor companies, or were sold intact to other pulp and paper concerns. For example, realizing the production and marketing advantages of coordinated activities, twenty New England and New York companies combined their operations in 1898 to form the International Paper Company (Jones, 1975). Other current day large land owners moved into the region by purchasing existing mills and timberlands. One such company is James River Corporation. James River serves as a good example of the complexity of tracing timberland ownership. That Company's New Hampshire mill and timberlands were originally part of the Winslow Company which was founded by a railroad tycoon, Hezekiah Winslow in the 1850's. Winslow was later bought out by the Berlin Mills Company which was reorganized in 1919 as the Brown Company and eventually purchased by James River in 1981. The important message to be derived from this history is that when one timber related company left the market, it was able to find another wood products company which was willing to assume the risk of

continuing the operation. However, history may not repeat itself. Economic conditions change resulting in different land values for different land uses. Changes in the economy may result in changes in the types of predominant land owners and parcel sizes. The large parcels, which historically have been owned by wood products companies, may some day be owned by non-timber resource based companies who may manage the land for different objectives and not hold land in large parcels.

Changes in the Demand for Rural Lands

Relative to the nineteenth and early twentieth centuries when the timber industry was amassing its land holdings, certain changes in the market for rural lands are now occurring which change the way the wood products companies are meeting their fiber needs. The economics of timber supply have resulted in current timberland holdings being more intensively managed (e.g. increased use of herbicides and pesticides and thinning) rather than purchasing new tracts from which to "mine" timber. The price of timberland has steadily increased, making long term commitments of capital for the purchase of timberland less attractive relative to other investments. Some companies have even transferred part of their holdings to wholly owned subsidiaries and limited partnerships for recreational

development (Healy & Short, 1981). The Tax Reform Act of 1986 has also made timberland ownership less beneficial to wood products companies. By eliminating the preferential capital gains tax rate for the sale of timber, from a purely financial perspective, owning timberlands is not as easily justified as it once was.

According to 1980 census data, rural areas are growing at a rate greater than urban areas (Bradley, 1984). This increased demand for rural lands provides an incentive for timberland owners to re-evaluate the current uses of their lands. For example, the second home market in areas adjacent to Coos County has greatly increased over the last ten years. The factors most affecting the growth of this type of rural development are an increasingly affluent society, which at times devotes considerable amounts of their disposable income for vacation homes. Other factors include an increased amount of leisure time, an expanding highway network which provides easier access to areas which were previously inaccessible or not within an easy commute, an increased consumer demand for leisure activities, and intensified marketing programs which create and reinforce demand for second homes (American Society of Planning Officials, 1976). All of these factors are resulting in an increased demand for land of scenic and recreational value. This provides incentives for large industrial timberland holders to sell some of their lands for non-forestry uses.

In an address to the Society of American Foresters, Hank Swan (1986), the President of a New Hampshire woodlands management company offered his comments on the long term outlook for timberland ownership in Northern New England.

I think partial divestment of industrial timberland will continue. In the meantime, many lands will be harvested harder and harder to get some return for the owners. These efforts of course will make the so called timberland less attractive for sale to prospective timberland investors. If this harvesting continues for a prolonged period, there will be a substantial decrease in the inventory of sizeable tracts of desirable timberland in the Northeast that would be of interest to future investors or industries desiring to build a land base.

Such comments and observations of recent land use changes in Northern New England have prompted inquiry into the viability of holding large parcels of timberland as a raw material supply for wood products production.

Purpose and Methods

This paper has two objectives. Within the first objective, I identify the forces which I believe will change parcel sizes and land use. Predicated on changes in parcel size and land use, I evaluate the consequences of these changes. This scenario represents a no action alternative which allows market forces, restrained only by currently existing land use controls, to determine the size and uses of landholdings in the region.

The second objective of the thesis is to describe and evaluate land conservation mechanisms and a planning system to coordinate those mechanisms. The suggested planning system to those mechanisms serves as a model for designing an alternative scenario. The alternative scenario is guided by various mechanisms including market incentives and disincentives, government regulations and acquisition of certain land rights by a public or private entity.

In order to achieve these objectives, information was gathered from various sources. These include, a review of relevant literature, interviews with people in the wood products industries and government officials, and data supplied by federal, state and local government agencies.

CHAPTER II

EVALUATING THE NEED TO MAINTAIN FORESTED LANDS IN LARGE PARCELS

Land fragmentation or parcellation results when the owner of a contiguous area of land transfers ownership of the parcel to more than one new landowner. The problems associated with parcelling large tracts of forest land center around two distinct but related concerns. One concern is the effect of fragmentation on land uses which require large tracts of undivided land under similar management objectives. As the number of landowners per unit area increases, so do the number of reasons for owning land. The concern is that as the number of parcels per unit area increase, it becomes more difficult to coordinate land use among the various owners to meet the management objectives of users requiring large tracts of land. This can preclude various land uses such as forestry and agriculture which require large tracts of land in order to be operationally effective and economically sustainable. The second major concern posed by the fragmentation of large parcels of forest land regards changes in land use. Smaller parcel sizes encourage more intensive land uses which may be

incompatible with existing adjacent uses of the land. This can result in the displacement of productive land uses such as agriculture and forestry. From a regional perspective, such changes in land use may not be in the best long term interest of communities dependent on the natural resource values of the land. By dividing land into parcels which are more affordable to a single buyer, the land can be used for purposes which otherwise would have been highly unlikely because of the size and price of the parcel. For example, the price of a 100 acre parcel might be too high for an individual to construct a single family residence, but if the parcel were divided into twenty lots of five acres each, the smaller parcel size makes the land more affordable for potential homeowners. These examples illustrate some of the opportunities and constraints of parcel size on land use. Having reviewed parcel size influence on land use, preferred land uses need to be determined so that policies which influence parcel size can be implemented to influence future land uses. Determining which land uses are in the best long term interests of the region requires extensive analysis of each land use option's costs and benefits. This chapter reviews the forces behind parcel size and land use changes and the consequences of these changes for the Northern New England region.

Changing Forms and Motives of Forest Land Ownership

A review of the different types, strategies and motives for forest landownership is useful because it provides information about possible management implications for the land. Private forest landowners are classified at the most general level as industrial forest landowners or non-industrial forest landowners. The non-industrial owners can be further classified as small private landowners, often referred to as non-industrial private forest landowners (NIPFs), and land speculators.

Classes of Forest Land Ownership

Non-Industrial Private Forest Landowners

Non-industrial private forestry investments are usually made by individuals. In comparison to industrial forest land owners, they hold their investments for a shorter period of time. Non-industrial private forest landowners can be classified according to their reason for owning forest land and by the circumstances under which they acquired their holdings. James Yoho (1985) describes NIPF ownership according to the characteristics of the five classes of ownership. From the lowest to the highest level of forest management intensity they are: custodial

investors; sideline forest investors; speculators; hobby investors; and true investors.

Custodial investors in forest lands are those who acquired their holdings by default. They include undivided estates and heirs who are waiting to dispose of their holdings. Most NIPF land falls into this category on a cyclic basis. Although the holding period for this form of ownership is brief, it is a potentially active form of ownership because it often results in changes in ownership and ownership objectives. It is important to note that as forest land parcel sizes decrease, land becomes more affordable to the individual investor. When these smaller investors die, there will be an increasingly larger share of forest land which will pass into this limbo state of ownership.

Sideline forest owners are those who only incidentally have forest lands as part of their total investments and give them only nominal attention. Another characteristic of sideline investors is that their forest land is often an appendage to another part of the investment such as a farm or second home. This type of investor often does not have the time, knowledge or economic incentives to practice intensive forest management.

The next highest level of forest landowners are the speculators. These investors have some rudimentary forestry investment strategy and acquired their holdings by some

deliberate out-of-pocket expenditure. Their strategy is to minimize post acquisition cash outlays for forest management practices. Their motive is to hold the land until some anticipated increase in stumpage justifies cutting timber or selling the land. Their primary motive is to maximize profit at the time of sale resulting from anticipated changes in market conditions for timber; any additional revenues received during the holding period are considered incidental benefits of ownership.

Hobby investors are those who use forest land as a second source of income and hold forest land because they enjoy managing their investment. Some of these investors are trying to build an estate for their heirs by intensively managing their land to produce high rates of growth.

The final group of investors, referred to by Yoho as true investors, are characterized by a high degree of economic awareness of their forest lands. Likewise, they can be expected to respond to institutional changes and market incentives designed to encourage more private investment in the forestry. These investors control most of the commercial timber land among all NIPFs. Their primary motivations for managing forest land are to build an estate for their heirs and to generate current and future cash flows.

It is important to note that most of the forest land held by non-industrial forest landowners is held primarily

for reasons other than timber production. One study of New Hampshire's forest lands by Thomas Birch (1987) serves as an illustration. The study showed that in the southern half of New Hampshire's forest lands, ninety-four percent of the forest land is held by non-industrial owners. When surveyed, owners of eighty-nine percent of the forest land gave reasons other than timber production as their primary reason for owning the land. Over fifty percent of the land was held primarily for aesthetic enjoyment, purchase as part of a residence or as an investment.

Land Speculators

The second major type of non-industrial landowner is the speculator. This type of speculator differs from the forest land speculator discussed in the NIPF category. The NIPF speculator holds forest land with the expectation of a large increase in the value of the land resulting from a large increase in the price of timber on the land. The land speculator invests in forest land on the presumption that an anticipated transition in land use will occur which will significantly increase the price of the investment. The speculator's motive for land ownership is less complicated than that of a non-industrial private landowner. For the land speculator, income from use of the land as timberland is not a motive for ownership. The only reason for owning

the land is to realize a capital gain at the time of the property's disposition. Speculators seek to minimize holding costs until the time of property disposition. One of the ways this is achieved is by minimizing the holding period during which property taxes and interest on debt must be paid.

Industrial Forest Landowners

The final group of forest land owners are industrial owners. They usually own large tracts (parcels greater than 500 acres) of forest land for use in their company's production process or for management and sale on the open market for use by others. According to Ellefson and Stone (1984), there exists a hierarchy of timberland decisions in wood based companies which determines the extent and use of company timberland. The hierarchy includes three levels of corporate strategy.

The first tier strategy is the overall corporate strategy. It establishes the main purpose or mission of the company and how it will operate in order to achieve the corporation's goals. Most generally, the overall corporate strategies are classified as either high level profit and financial performance with possibility of expanding operations to other businesses or the strategy stresses expansion within wood based lines of business. Within the

framework established by the overall corporate strategy, the second tier strategy of land use is determined.

The second tier land use strategy includes four distinct land use strategies: (a) maximize the wood production capacity of the land over the long term, (b) maximize the ability of corporate land to generate revenue while being retained in forest land, (c) use the land to meet raw material requirements of production facilities and (d) develop corporate land from the financial perspective of highest and best use over the long term.

The third level of strategy concerns the strategic role of landownership within the overall corporate strategy. That is, the company must determine its rationale for owning timberland. The rationale for investing in forest land can be described in terms of the costs and benefits of ownership. The reasons for forest land ownership will vary among companies depending on the financial position and operating structure of the company.

Advantages and Disadvantages of Forest Land Ownership

By owning timberland, industrial forest landowners can insure that they will have an adequate raw material supply to meet the production needs of their highly capital intensive production facilities. Highly capital intensive production facilities must operate without periodic shut-

downs which disrupt production and increases the plant's operating costs. By not having to rely on an uncertain market for supplying their raw material needs, firms that own timberland are not at the mercy of the open market to supply them with affordable raw materials. However, most companies do not supply 100 percent of their raw material supply needs. Most get between thirty and fifty percent of their fiber from their own lands (Ellefson & Stone, 1984). Companies that have a large forest land base can adjust the percentage of timber they get from their own lands according to changes in the price of timber on the open market. That is, as the open market price for wood increases, they can increase the amount of wood they get from their own timberlands rather than pay inflated prices on the open market for raw materials.

Another reason for buying forest land may be for strategic competitive reasons. For example, although a wood based firm may not need additional timberland to meet its desired percentage of self supplied raw material, it may purchase land to prevent a competitor from acquiring forest lands needed to operate a mill in a certain region. Such was the case in the 1979 bidding war between International Paper and Weyerhaeuser Corporation for the Bodcaw Company's 335,000 acres of southern pine. In this case, International Paper was trying to prevent Weyerhaeuser from intruding into the heart of their market area (Ellefson &

Stone, 1984).

There are some purely financial reasons for owning forest land. Historically, timber has been a good hedge against inflation. Timber and land values have historically kept pace with inflation and have even posted real net gains in value after adjusting for inflation (Mills, 1988). Lending institutions also consider timber and timberland to be a good source of collateral when making loans to wood based companies. For example, the success of corporate raider Sir James Goldsmith in acquiring Diamond International and Crown Zellerbach was partly attributed to the willingness of financial institutions who backed the purchase because they saw those paper companies' underlying timberland as a good source of collateral to secure the debt issue (Irland & Howard, 1987 and Ellefson & Stone, 1984).

In forming their rationale or strategy for timberland ownership, the wood-based firm must also consider the disadvantages of ownership. The following is a discussion of some of the disadvantages or risks of forest land ownership.

The primary risk that a timberland owner assumes is the direct economic risk of declines in the price of wood on the open market. During periods of surplus timber, a company may be able to purchase wood on the open market at a price less than it costs the timberland owner to manage and cut on

their own timberlands (Ellefson & Stone, 1984). Other purely economic costs of timberland ownership include the cost of capital it incurs to purchase timberland. The total cost of capital includes the interest paid to the financing institution and the opportunity cost equal to the income which could have been earned by investing in a safe debt or equity security. Alternative passive investments such as debt and equity securities may even result in a higher return on investment than timberland and not strain the company's cash flow as much as investing in a low liquidity timberland investment. Timberlands may not produce a positive cash flow for forty to sixty years until the trees grow to maturity and are ready for harvest (Ellefson and Stone, 1984). Furthermore, the market price for timber at the time of maturity may not warrant harvesting the trees. This extends the period over which holding costs must be paid. Also, investments in forestry are long term investments and because they do not lend themselves to easy entry and exit into the market, investors may not be able to recoup their investments if they need to dispose of their timberlands (Yoho, 1985).

There are also political risks associated with forest land ownership. Political risks can ultimately result in laws which place restrictions on land use. For example, in Oregon, the State Forests Practices Act places restrictions on how timberland can be cut and requires that clear cut

lands be replanted within stipulated periods of time. Other political pressures can come from environmental organizations who keep a close eye on how timberland owners are managing their land.

Biological and environmental uncertainties must also be taken into consideration when formulating a timberland investment strategy. The recent spruce bud worm epidemic in the Northeast is an example of the devastation which can affect a forestry investment. Likewise, fire can reduce years of intensive forest management investment and forest growth into a charred landscape in a few short days.

Changes in wood products technology pose another uncertainty to the woodland investor. For example, the 1980s have witnessed such advances as the production of structural panels from wood flakes and shavings which has altered the relative values of different tree species. An investor may find that products which were once made only from species dominant on their lands can be made from a substitute species resulting in a decline in the value of their timberland (Rostow, 1985).

Changing Attitudes and Innovative Forms of Forest Land Ownership

At a 1987 Forest Products Research Society Conference entitled "A Clear Look at Timberland Investment," a leading New England forest industry policy analyst said, "It is

clear that corporate timberland ownership is under increasing scrutiny and its future has become less certain in this post-tax reform world" (Irland & Howard, 1987). Other reasons cited for decreases in desirability of forest land ownership include the rising cost of debt financing, relative decreases in stumpage prices in the early 1980s, and the ascendance of financially trained management in wood-based companies. These factors have resulted in timberlands being managed as profit centers which are required to compete with other components of a wood products company in order to justify their existence (Irland and Howard, 1987). The Tax Reform Act of 1986 has increased the burden of proof on the managers of timberland profit centers to justify timberland ownership. Prior to 1987, wood-based companies, and their subsidiaries or limited partnerships which hold their timberlands, were able to exclude sixty percent of their timber sale income from federal income taxation. However, for tax years after 1986, this tax benefit is no longer available. According to International Paper's forest economist Kenneth Freye (1987), on average, the loss of this tax preference will result in a ten percent reduction in the rate of return on timberland investments.

It is also believed that companies with large timberland holdings are attractive targets for corporate takeovers. Since most industrial lands were purchased years

ago, they are highly undervalued and attractive investments for corporate raiders. All of these disadvantages can lead to decreasing industrial investments in forest land.

Some of the disadvantages of timberland ownership have prompted some owners to dispose of their lands or seek alternative forms of ownership. One such alternative is the limited partnership (LP). Under this arrangement, one partner acts as the general partner who actively manages the timberland and has unlimited liability for the partnership's operations. For limited partnerships started by wood based industrial owners, the general partner is usually the industrial owner. Other partners' liabilities are limited to the amount of their investment in partnership units. Because limited partnerships are ultimately responsible to their unit-holders (which are analogous to corporate stockholders), it is likely that they will put greater emphasis on financial returns and less on recreation, aesthetic and watershed values than traditional industrial landowners who hold land for strategic reasons rather than purely as financial assets (Howard & Lacy, 1986).

Other large wood-based companies have formed subsidiaries who market forest land for recreational development. Forest lands near lakes and rivers are more valuable for non-forestry uses rather than as a source of timber. Industrial owners such as Boise Cascade have recognized this and converted some of their timberlands into

valuable recreational resort developments.

Some have "monetized" their investments in forest land by selling the land while retaining the rights to harvest timber on the land. Others simply secure long-term leases for timber to assure themselves of a fiber supply without being committed to large capital investments in forest land.

Non-traditional owners of large tracts of forest land have entered the market with management objectives which differ from traditional woodland owners. For example, the financial sector has begun to invest in timberland. In particular, pension funds are investing in forest land. One concern which has been raised about such investments is the need for pension funds to make large periodic pay-outs which may require periodic liquidation of their holdings (Irland & Howard, 1987).

In their work, The Market for Rural Land, Robert Healy and James Short (1981), identify three distinct changes in the market for rural land and industrial land management practices which have changed the way that industrial timberland owners approach the purchase of forest lands. First, there has been a change in motives for owning rural land. Land is no longer held only for its value as a productive resource. Rather, land is also acquired for its non-commodity values such as sites for vacation homes, recreational destination resorts and purely as speculative investments in land as a hedge against inflation.

Secondly, the economics of timber supply have resulted in companies intensifying forest land management practices which increase per acre yields of timber thereby decreasing the number of acres necessary to produce the same volume of wood. The third major market change has attracted large industrial forest landowners to put part of their land base into uses other than forestry.

The Parcelling of Land

The parcelling or fragmenting of land results when a contiguous area of land, owned by one person is divided among several owners. The following is a discussion of the forces, consequences and indicators of land parcellation.

Reasons for Changing Parcel Size of Large Forest Landholdings

Major land use changes in regions with economies heavily dependent on natural resources may signal a change in the regional economy. Changes in regional economies which are greatly dependent on natural resources, such as timber, are often accompanied by interim periods of unsuitable parcel sizes for some of the new types of land uses. For example, a 500 acre parcel may be necessary to maintain an economically viable forestry operation but it may not be the most economically efficient parcel size for

agriculture or residential land uses. In regions where there has been little settlement from the time of the original colonial land grants and sales, land has remained in relatively large parcels. Therefore, historical land use patterns and parcel sizes may no longer accommodate a changing regional economy.

Increases in the size of a region's population also affects parcel size. An increasingly populated area increases the demand for land which in turn influences the size of existing land parcels. Closely related to population influences on parcel size is the influence of the price of land on parcel size. As the per acre price of land increases, it becomes more difficult to purchase large tracts of land. Anticipated increases in the value of land encourage the purchase of land for speculative purposes rather than for actual use of the land. This type of influence breeds an investment mentality which results in buyers purchasing parcels based upon how much they can afford to buy rather than how much they need for the intended use of the land. This may result in the fragmentation of large parcels into a greater number of parcels than is currently needed to satisfy the demand for land. This practice is referred to as premature subdivision.

Of course there are purely economic reasons for parcelling land. Per acre values of land are often greater

in smaller parcel sizes than in large ones. By subdividing a 100 acre parcel into twenty five acre parcels, the value of the 100 acres can increase dramatically without any actual changes to the landscape. A case study of a sale of 90,000 acres of forest land in northern New Hampshire and Vermont serves as an illustration. In May of 1988 General Occidental, S.A. entered into an agreement to sell 90,000 acres of timberlands held by two of its wholly owned subsidiaries, Diamond International Corporation and Diamond Occidental Forestry for \$19,000,000 to a group called Rancourt Associates. This resulted in an average sales price of approximately \$212 per acre. While holding an option on the sale, Rancourt is parcelling the land for resale. The two largest parcels are approximately 45,500 acres which is being sold for \$12,750,000 and 7,700 acres which is being sold for \$1,925,000. The remaining 36,800 acres is being marketed in parcels ranging from five to 3,000 acres and at an estimated appraised price of \$11,040,000 (R. Klein and T. Maitland, personal communication August 5, 1988). This results in an average selling price of \$284 per acre and a thirty-four percent increase from the original sales price of \$212 per acre. The sale by Rancourt of approximately 53,200 of the 90,000 acres is expected to occur as soon as the sale of the land by General Occidental to Rancourt is completed. The remaining 36,800 acres is expected to be sold shortly

thereafter.

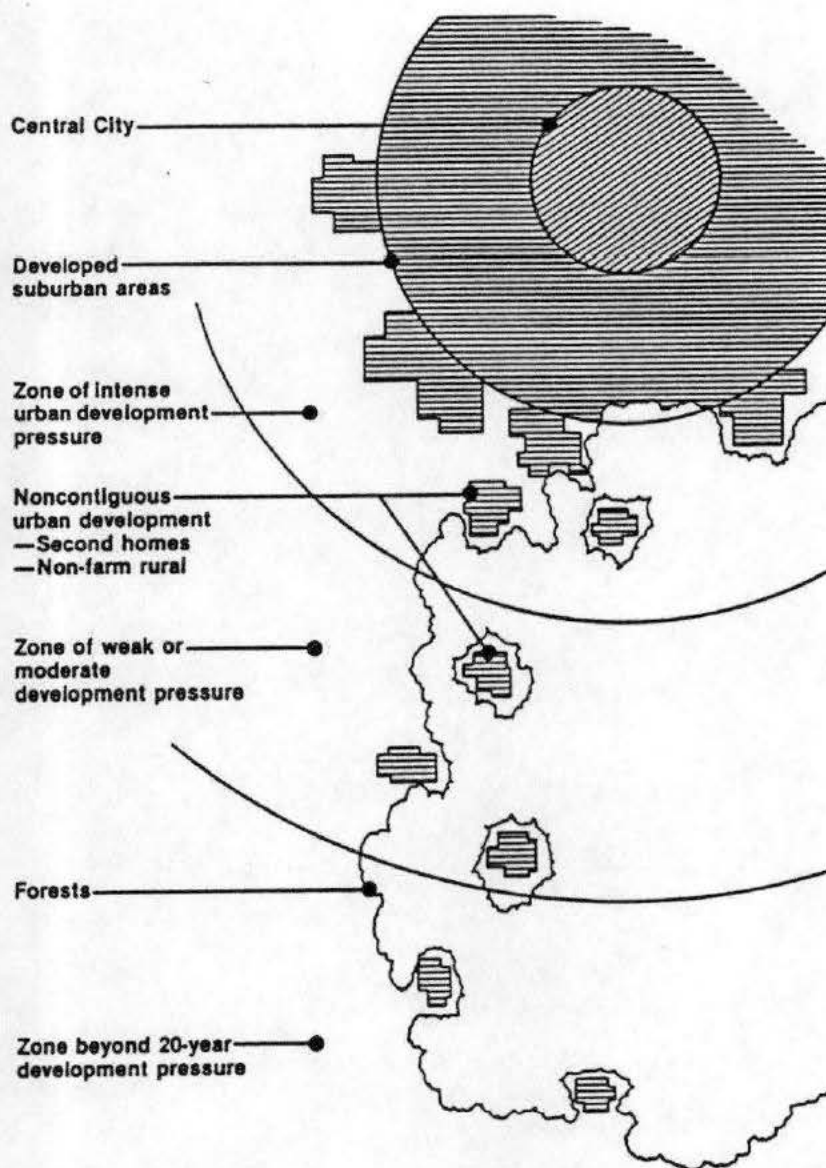
Consequences of Fragmentation

As per acre land values increase in anticipation of more intense land uses which do not require large parcel sizes, the market will respond by decreasing the number of large landholdings. However, because certain values associated with large forest landholdings (such as public recreational uses of private forest land) are not reflected in the market price of forest land, an inefficient allocation of land may result if land is allocated based only on current methods of quantifying land values.

The invisible process of forest land parcellation does not alter the physical landscape and cannot be detected by observation. However, it can permanently remove productive land from use because of the high costs of reassembling land once it is parcelled. Once the decision is made to fragment the land, certain land use options requiring large quantities of contiguous land are lost forever.

As shown in Figure 3, there is spatial variation in the parcelling and development of rural land. Parcelling and development may occur contiguous to existing urban areas, or it may occur far beyond zones of existing metropolitan growth. From a municipal finance and productive land conservation viewpoint, the former type of expansion is

Figure 3. Contiguous and Non-Contiguous Zones of Urban Development.



Note: From Land Use and Forest Resources in a Changing Environment (p.105) by Bradley, 1984, Seattle: University of Washington Press.

encouraged while non-contiguous urban growth beyond the twenty-year zone of development pressure is not recommended (Miller & Rose, 1985). When non-contiguous and scattered nodes of urbanization occur, both commodity and non-commodity values of large parcels are threatened.

Consequences of parcelling on commodity uses of the land

Efficient uses of productive resource land require parcels of sufficient size to meet the economic requirements of sustainable agriculture and forestry. For productive forestry uses of land, economies of scale are particularly important (Row, 1978). Because fixed costs of forest management increase per acre as parcel size decreases, per acre profitability of forest land is greatly affected by parcel size. Furthermore, studies have shown that the greater the size of the parcel, the greater is the intensity of forest management and propensity to harvest (Birch, 1988 and Thompson & Jones, 1981). Where tracts are small, the owner may accurately perceive that intensive management and harvesting may not be worth the effort, unless it facilitates other ownership objectives.

Fixed management costs associated with forestry include forest planning, site preparation and moving equipment on the site. As forestry becomes more capital intensive, the high costs of the equipment cannot be easily absorbed by the

owners or operators of small tracts as they can be by large owners who benefit from certain economies of scale. There are also certain logistical problems associated with moving equipment on very small sites. Non-industrial landowners who derive benefits other than timber revenue may place restrictions on how timber is to be removed from the site. This can result in difficulties such as inadequate room to move equipment on roads not designed for use by heavy equipment.

Another reason for the decline in land use for timber production on small parcels is attributed to the nominal return timberland owners receive for harvesting on small lots. Declines in stumpage, or the price per unit of wood harvested, is largely the result of moving loggers and their equipment to the site. As these costs incurred by the logging company increase, the price paid for the timber will decline (Bradley, 1984). Even if timber prices do not decline on small parcels and the owner's return on investment is competitive with other investments, the magnitude of the return is often too low for practicing good forest management to be worth the effort.

Having large tracts of readily accessible timberland near wood products mills is extremely important. The high costs of transporting logs makes readily accessible timberlands a distinct advantage for the production facility. Because mills are capital intensive, it is

uneconomical to periodically shut them down because of timber supply deficiencies. If these valuable timberlands near mills are lost, the mills may close resulting in reduced competition for timber and decrease stumpage rates which further reduce the incentive to manage land for timber production (Bradley, 1984).

Studies have shown a high correlation between parcel size and the propensity to harvest timber on forest lands. Owners of parcels of 500 acres or more are more likely to harvest trees for commercial wood products uses than those owners of smaller parcels. Regarding the decline in the number of acres of forest land in large parcel sizes in New Hampshire, one U.S. Forest Service analyst said that there may be some cause for alarm about the loss of forest land in ownership parcels of more than 500 acres (Birch, 1988a). This concern results from the fact that the primary reason for owning forest land for many small lot owners (i.e. less than 500 acres) is not for commercial timber production and sale. For example, in a 1983 survey of private forest landowners in New Hampshire, owners of seventy-nine percent of the State's private forests gave reasons other than timber production for owning forest land. Objectives other than timber production cited were improved wildlife habitat, a more aesthetically pleasing forest and for investment purposes (Birch, 1988).

Land that is parcelled and developed for residential,

commercial or industrial uses creates forest and recreation management problems beyond the property boundaries of parcelled and built landscapes. In rural areas newly inhabited by urban and suburban residents, the new residents often do not understand the land management practices necessary to cultivate and harvest commodity values from productive resource land. Rather they view land as a personal environmental amenity. Because certain adjacent land uses like residential development are incompatible with some productive land uses, such as forest management, which includes land management practices like clear-cutting, road-building and the use of herbicides and pesticides, these practices are often not welcome on land adjacent to developed lands. This can increase the difficulty and cost of using traditional forest management techniques. In effect, it results in a shadow conversion or restriction of certain land uses on forest land adjacent to urbanized lands. Similarly, land speculation can remove productive resource land from productive uses years before any actual change in land use occurs. For example, in a study of rural land use conversion in the Northeast, it was found that for every acre of land actually converted to urban uses, land speculation resulted in an additional acre of rural land being removed from productive use. (Bradley, 1984 and Plaut, 1976).

Consequences of parcelling on non-commodity land uses

The fragmentation of large parcels of forest land also has implications for recreational uses of the land. Currently, large parcels of private forest land are used by the public for recreation. If demand for recreational use of land increases in the region, as it is expected to do so nationally, there will be increasing reliance on private landowners to meet the public's demand for places to recreate. In fact, a 1962 projection of demand for overall recreational use of land for the year 2000 was reached in 1980 (President's Commission on Americans Outdoors, 1987). Considering the amount of attention being paid at most levels of government to budgetary limitations on public spending programs, it is unlikely that by itself, the public sector will be able to meet its citizens' need for places to recreate.

Many forms of recreation require large tracts of undeveloped land with easy public access. For example, cross-country skiers, hikers and snowmobilers often move across many miles of trails during a single outing. The use of prime fishing and hunting sites require access in some remote locations. By increasing the number of landowners in these areas, obtaining permission for access to favorite ski areas and hunting and fishing grounds becomes more

difficult. Access is limited when landowners post their land and when the landscapes are developed. Reasons cited for not allowing public use of private lands include a lack of skills to manage users, incompatibility with predominant land use, fears of liability from injuries, vandalism and lack of incentives to permit public use (President's Commission on Americans Outdoors, 1987).

It is important to note that built landscapes remove more than the built lands themselves from public recreational use. That is, when development patterns surround exceptional natural or recreation areas, they exclude visitors from adjacent lands because those areas become inaccessible. Generally, the quality of the back-country recreation experience is dependent on large unbroken tracts of undeveloped land under similar management objectives. The lands of the Northern New England region are unique in this sense in the Northeast.

Table 2 shows the results of Maine, Vermont and New Hampshire landowner surveys of public recreational use of private forest land. The data summarized in Table 2 are for forest landholdings in all regions of the states surveyed and is used as an approximation of conditions in the Northern New England region. The survey results indicate that as parcel size decreases, the percent of landowners and the acres they own and make available for public recreational use declines. For example, in Maine, forest

Table 2
Estimated Percent of Owners and Acres of Forest Land in Maine, 1982, and New Hampshire and Vermont, 1983, by Availability for Recreational Use and Size Class.

<u>Availability for Recreation</u>	<u>1-49 acres</u>			<u>50-499 acres</u>			<u>500+ acres</u>			<u>Total</u>
	PERCENT OWNERS									
	<u>ME</u>	<u>NH</u>	<u>VT</u>	<u>ME</u>	<u>NH</u>	<u>VT</u>	<u>ME</u>	<u>NH</u>	<u>VT</u>	
Public permitted	48	34	22	71	52	54	82	87	57	45
Not permitted and no answer	<u>52</u>	<u>66</u>	<u>78</u>	<u>29</u>	<u>48</u>	<u>46</u>	<u>18</u>	<u>13</u>	<u>43</u>	<u>55</u>
Total	100	100	100	100	100	100	100	100	100	100
	PERCENT ACRES									
	<u>ME</u>	<u>NH</u>	<u>VT</u>	<u>ME</u>	<u>NH</u>	<u>VT</u>	<u>ME</u>	<u>NH</u>	<u>VT</u>	
Public permitted	53	27	33	70	56	55	94	91	78	77
Not permitted and no answer	<u>47</u>	<u>73</u>	<u>67</u>	<u>30</u>	<u>44</u>	<u>45</u>	<u>6</u>	<u>9</u>	<u>22</u>	<u>23</u>
Total	100	100	100	100	100	100	100	100	100	100

Note. Data adapted from Birch, 1988, Widman and Birch 1987 and Birch, 1986.

landowners with parcel sizes greater than 500 acres permit public recreation on portions of ninety-four percent of their land. In contrast forest landowners of parcels less than fifty acres in New Hampshire permit public recreation on portions of only twenty-seven percent of their land. One inference which can be drawn from the data is that as the number of landowners and the amount of land they control in the smallest parcel size class increases, less forest land will be available for public recreational uses.

An example of the consequences of forest land fragmentation and the leasing of portions of large private landholdings to hunting and fishing clubs is occurring in the Rangeley Lakes region of western Maine. There, exclusive leasing arrangements and sales of land near remote lakes, is resulting in the sale of the public's right to use those lakes to the highest bidder. For example, King and Bartlett Lakes are classified by Maine statute as a Great Pond and therefore by law, the public has a right to use them. However, since a sporting club bought 40 acres of land surrounding the lake and leased more than half of the surrounding township from International Paper Company, the public has been effectively excluded from one of the Rangeley Lakes best trout ponds. Reports of enforced exclusion has resulted in public use being replaced by exclusive occupation. With the advent of clubs like the one at King and Bartlett Lakes whose members pay membership fees

of \$25,000 plus a \$5,000 annual fee, the question is raised: Will fishing on remote ponds and lakes in Northern New England become the domain of only those wealthy few who can afford access? (Nyhan, 1986). Interviews with some of Maine's major forest landowners may suggest this to be the case.

International Paper (IP) is Maine's second largest landholder. It has entered into leasing arrangements with exclusive clubs by openly soliciting leases to their land. In New York state, IP has successfully leased sixty-two percent of its 335,000 acres. That Company's supervisor of wildlife ecology and recreation for its Northeast Division said the following:

You've got to find revenue where you can because just growing and selling timber doesn't necessarily make you a profit . . . frankly the demand has increased.. . and [it's] a good business, if [there is] a demand [for recreational leases], IP will fill it (Nyhan, 1986).

The policy toward recreational land sales and leases seems to depend on each company's management philosophy and corporate goals. Boise Cascade has also moved to meet the demand for recreation land by selling land around Parmacehenee Lake a popular remote lake in Maine's Oxford County. However, a land use manager for Great Northern Paper Company, Maine's largest private landowner, commented that setting up private camps on desirable recreation land may be compromising forest management objectives (Nyhan, 1986).

Reports such as the ones described have lead the Maine legislature to commission a report on the State's publicly used private forest land. In the report, the Maine Commission on Outdoor Recreation wrote in its goals statement that Maine's large tracts of unbroken forest land is an irreplaceable asset of utmost importance to Maine's outdoor recreation resources (Maine Legislature, 1988). Statements such as these reveal how strongly people of the region feel about the public recreational value of their land.

Other consequences of land parcelling

In addition to the direct effects of parcellation on forestry and recreational uses of large forest land parcels, there are certain indirect effects of parcel fragmentation as well. For example, smaller parcel sizes decrease the price of buildable lots (although per acre prices of land increase) making home construction financially feasible on previously large and more expensive parcels. Corresponding increases in dwelling units create demand for support facilities such as roads, shopping malls, utility corridors, reservoirs, and schools which are tremendously land consumptive. In rural areas, lot sizes suitable for single family dwellings are often larger than lots near town centers. When such urban growth occurs outside of existing

development nodes, decentralized or low density development patterns result which increases cost of municipal services such as road construction and maintenance, and sewer, water and electrical extensions.

A study was conducted by the American Farmland Trust (1986) which attempted to determine the fiscal impacts of residential growth in a largely rural county in northeastern Virginia. The study showed that public expenditures exceeded public revenues for new residential developments for all densities tested ranging from one unit per five acres to four and one half units per acre. Net public costs of new development were nearly three times as large for the lowest density tested as compared to the highest density tested within this range. It was concluded that the revenue deficits would need to be balanced by increasing taxes, reducing existing public services, attracting additional commercial revenues or through some combination of these methods.

Indications of Fragmentation

Factors which affect the size of parcels and changes in land use may be evident years before actual changes in parcel size or land use occur. These harbingers of change are important to recognize because they provide the evidence which is often necessary to motivate concerned policy makers

to plan for future uses of the land.

One indicator of land conversion is the increase in the price of land beyond the value for its current use. Such market conditions exist because of land speculation. Speculation occurs when there is an anticipated change in land uses which command higher per acre prices in the rural land market. Other harbingers of parcel size, and ultimately land use change, include decreases in length of landownership tenure and decreased investment in productive land management practices.

One example of rising prices for forest land beyond its value for forestry uses is provided by the General Occidental land sale discussed earlier. Although the selling price of the 90,000 acre parcel to Rancourt was \$212 per acre and the average price which Rancourt is ultimately expected to receive is approximately \$284 per acre, the appraised timberland value of the parcel was estimated to be only between \$140 and \$160 per acre (T. Maitland, personal communication, August 5, 1988). Such variations in the value of the land signal a change in the market for rural land and changing land uses.

Because data do not exist for land ownership tenure in the Northern New England study region, data for the entire states of Maine, New Hampshire and Vermont are used as an approximation of land ownership tenure in the region. The data show that by 1984, thirty percent of the acres held in

New Hampshire and twenty-eight percent held in Vermont were acquired since 1972. In Maine, where large tracts of land were purchased prior to 1949 and continue to be held at the time of the study in 1982, twelve percent of the land has been purchased since 1970. These results show, that especially in New Hampshire and Vermont, a relatively large proportion of forest land has changed hands in the twelve years since the date of the latest study (Widdman & Birch, 1983; Birch, 1983; and Birch, 1982).

In New Hampshire, there has been a significant decrease in the number of forest land ownership parcels of greater than 500 acres. Divestiture of forest lands by corporate forest industry owners explains a large part of this trend (Birch, 1988a). This trend is also evident for an area closely approximating the boundaries of the Northern New England region as well as for all of Maine, New Hampshire and Vermont as summarized in Table 3.

Table 3 shows regional declines in the percentage of forest land held in parcels of 500 acres or more. Similarly, in a study performed by Maine's Land Use Regulation Commission and the Natural Resources Council of Maine, it was found that 35,000 acres of land in the unorganized areas of Northwestern Maine have been subdivided into lots of 40 acre or larger during the last three years (Bley, 1988). Although significant portions of forest land are still held in large parcels, a trend appears to be

Table 3

Percent of Forest Land Held in Parcels of 500 Acres or More by State and Sub-State Regions for 1983 and 1953.

<u>Geographic Unit</u>	<u>1983</u>	<u>1953</u>
New Hampshire	32	72
Vermont	26	64
Maine	70	68
Regional total	57	68
Northern New Hampshire	49	ND
Northern Vermont	29	ND
Northwest Maine	77	ND
Regional total	59	ND

Note. ND indicates that no data exists for these substate regions for 1953.

Northern New Hampshire includes Carroll, Grafton and Coos counties. Northern Vermont includes Essex, Caledonia, Orleans, Grand Isle, Franklin, Lamoille, Washington and Orange counties. Northwest Maine contains Somerset, Oxford and Franklin counties. The data in column one are adapted from Forest Landowners of New Hampshire, 1983 (p. 135) by Birch, 1983, Broomal, PA: U.S.D.A. Forest Service; Forest Landowners of Vermont-1983, (p.87) by Widmann and Birch 1983, Broomall, PA: U.S.D.A. Forest Service. The data in column two are adapted from Timber Resources for America's Future (p.22) by Josephson and McGuire, 1958.

developing which may change the character of Northern New England's forests.

Information on decreases in the level of investment in forest management in the region are more difficult to obtain. However, among large landowners in the pulp and paper industry, the degree of reliance on company forest land to meet its mill's raw material needs does provide some information about the region's rural land market. James River Corporation's Berlin, New Hampshire mill currently obtains only ten percent of their raw material needs from their own land with a capacity of seventeen percent self sufficiency on a sustained yield basis (Personal communication with Bradford Wyman, March 2, 1988).

The most direct evidence of changing forest land ownership patterns in Northern New England is also best illustrated by the sale of 90,000 acres of forest land in northern New Hampshire and Vermont by General Occidental to Rancourt Associates. Those forest lands were previously owned by a company involved in the wood products industries. Rancourt Associates, a residential and commercial real estate development firm, is not marketing these lands as productive timberlands. Rather, the land was marketed in brochures as having unique recreational and development value. Diamond also has approximately 800,000 acres of land in New York and Maine which is actively being marketed for sale.

Conclusions

The forests, mountains and undeveloped lakes and rivers of the region are a tremendous resource to the people who live there and to the people from all over the Northeast who come to visit the area. However, potentially conflicting uses of the region's resources portend serious consequences for those who rely on them for their livelihood and recreational enjoyment.

Although the Northern New England region has no single site of national significance when compared to some of the natural wonders of the west, such as the Grand Canyon, Columbia River Gorge or California Redwoods, it is a nationally significant region because of the blend of its historical, cultural as well as natural attractions. In comparison to the western United States, the Northeast contains a relative paucity of public land. Although nearly one quarter of the U.S. population lives in the nine Northeastern states, they contain less than two percent of the nation's federal public lands. The intensity of use of public lands in the Northeast is well documented. For example, The White Mountain National Forest and Acadia National Park in New Hampshire and Maine are the second most visited national forest and park in the country (Wilderness Society, 1988). Furthermore, the forests of Northern New

Hampshire are within a day's drive of 65 million people (Wilderness Society, 1988). Because of the Northeast's relative paucity of public land, the private forest lands of the region must fulfill a significant role in providing a recreational resource to a significant portion of the country's population and supply timber to many of its local communities. It may no longer be reasonable to expect private landowners to continue to provide public recreational use of their private forest land.

The economic and demographic forces which have influenced the character of the region are changing. These influences have the potential to permanently change the character of the landscape. Dynamic market forces can be left to influence the size of the land ownership parcel sizes and ultimately, the uses of the land, or action can be taken to guide the future of the region's landscape and economy. To achieve certain social goals, such as providing public recreational uses of the land and maintaining an economy heavily supported by the wood products industry, a proactive public and private sector response to changes in the region's market for rural land appears to be necessary.

CHAPTER III

IDENTIFYING AND EVALUATING MECHANISMS TO MAINTAIN LARGE FOREST LANDHOLDINGS

Having addressed the major concerns regarding changes in parcel size and uses of forest land in the study region and established a legitimate public purpose for maintaining large forest landholdings, attention is now focused on methods for achieving this goal. Public and private programs which can be used to influence parcel size and land uses can be classified into one of three groups (although some methods may have characteristics of more than one class). They include regulatory controls, market incentives and acquisition of property rights.

Regulatory Approach

A regulatory approach to land use control prescribes the allowed types and intensities of use and the ability to subdivide land. In order for the regulation to be a valid use of police power, the regulation must clearly serve a public purpose and the regulation must be reasonably related to that purpose. The public purpose must be to protect the health, safety and welfare of its citizens. If the purpose

of the regulation is simply to secure a public benefit, just compensation must be paid to the owner of the land being regulated. Proscriptions on the use and subdivision of the land have the force of law and can be enacted at the federal, state and sub-state levels of government.

Forest Zoning

One method of prescribing land use is through forest zoning. Oregon, for example requires each of its municipalities and counties to reserve areas which are not expected to be needed for urban uses (i.e commercial, industrial and residential development) over a twenty year period to be reserved for exclusive agricultural and forestry use. In Oregon, the counties have jurisdiction over most of the qualifying land. In such cases, the process begins at the county level by performing an inventory of lands which are suitable for forest uses. Forest use is broadly defined and includes more than silvicultural land uses. Other forest uses are open space buffers between conflicting land uses, watershed protection, soil erosion protection, maintenance of clean air and water, outdoor recreational activities and related support facilities compatible with these uses and grazing land for livestock. Incompatible non-forest uses on land designated as forest land are prohibited unless an exception is granted (Bureau

of Governmental Research and Service, 1986).

To implement this requirement, some counties have adopted minimum lot sizes generally ranging from 80 to 160 acres where dwellings are allowed only if accessory and necessary for forest use. Once a minimum parcel size is adopted, forest land cannot be divided into smaller than the minimum allowable lot size (Bureau of Governmental Research and Service, 1986).

As noted, exceptions to the rule do exist. In order to be granted an exception to the exclusive forest use provision, the applicant must prove that the non-conforming use or activity is dependent on resources found only at the proposed exception site or that the proposed use has some special feature or quality that necessitates its location on or near the site in question.

A 1983 amendment to the original 1973 legislation (Senate Bill 100) which adopted Oregon's land use planning law, provides another method for obtaining an exception to the forest land provision of the law. The "marginal lands" amendment provides an exception to the exclusive forest use rule if the applicant can show that the parcel in question can meet a two tier test based upon the land's capability for silviculture. Under the first tier or income test, parcels which are capable of producing an annual average gross income in excess of \$10,000 may be designated as marginal land if they meet the second tier test. The second

tier of the test requires the parcel meet the low potential productivity test or the small ownership test. To pass the productivity test, the parcel cannot be capable of producing more than a designated number of cubic feet of merchantable timber per acre per year. To pass the small ownership test, at least fifty percent of the parcels within a one-quarter mile radius of the proposed marginal land parcel must be 20 acres or less. The marginal lands provision does not have to be adopted by the county. But, if it is, the county must also adopt stricter development standards in zones designated for exclusive farm use (Bureau of Governmental Research and Service, 1986).

In California, some counties are required to establish timber production zones (TPZ) which are to be used only for growing and harvesting timber. Although a major component of this program is for tax relief, the designations are binding and cannot be immediately removed upon the request of the land owner. Appeals can be heard for removal of land from this designation, but a public hearing and a four-fifths vote of approval by the County Board of Supervisors is required. Even if approval is granted, the land must remain in forest use for ten years from the date of approval (Bradley, 1984).

In the State of Maine, a regional governing body called the Land Use Regulation Commission (LURC), has the authority to zone a major portion of the state to conserve forest land

and guide development according to its stated goals and policies. Originally created in 1971, the Commission adopted a revised land use plan in 1983 which currently guides activities within its jurisdiction. The jurisdiction includes 10.3 million acres of water and land or approximately half of the area of Maine. Ninety-five percent of the region is privately owned and is the largest predominantly undeveloped area in the eastern United States. The Commission regulates land use according to rules proscribed for the three general zoning categories. These categories are development, management and protection zones. Each of these zones is further divided into sub-districts. Land use activities in each subdistrict are either prohibited, permitted by notification according to specific standards or permitted after a permit application has been approved by LURC. Zoning in each district is resource based with allowed land use activities based upon their compatibility with the areas resources and current uses (Land Use Regulation Commission, 1983).

Although a planned unit development (PUD) is not zoning in its strict definition, it does share some of the same characteristics and provide some similar benefits to regions wishing to minimize incompatible adjacent land uses. By allowing development which does not meet traditional density, use, and setback requirements, a PUD provides density bonuses and mixed uses (e.g. residential and

commercial) to developers if the development's design provides for some other public good. For example, a developer may be granted a thirty percent density bonus on a parcel of land if the housing is clustered to leave an open space buffer zone near an adjacent lot used for commercial forestry (Land Use Regulation Commission, 1983). The PUD concept has been used in suburban areas for years and has created a rural counterpart referred to as a Rural Planned Development (RPD).

The RPD concentrates the more intense land uses on less productive land while leaving the balance of the land in open space. The distinction between the PUD and RPD is that in the latter, open space is used for productive agriculture or forestry rather than for non-commodity uses. Frankford Township in New Jersey illustrates the RPD concept. On 300 acres of rolling pasture and forest land 100 dwelling units could have been developed each with its own three acre lot. However, the developer proposed a series of clustered sites of four to eight homes in areas of the least productive forest and farm land. The best agricultural land would be leased or sold subject to a permanent prohibition of development. The land which was leased or sold was also subject to recreation easements. Upon completion, the RPD contained 140 acres of open space. Had the traditional three acre subdivision been built, the recreational and productive open space would not have been possible. A

slight derivative of this approach is called the fixed area base allocation. Under this method, the number of units allowed is proportional to the size of total ownership. That is, the intensity of the development is not determined by the number of allowable subdivisions but by the total number of acres owned. For example, an ordinance may allow one dwelling unit for every ten acres of ownership. In this case, a developer with 120 acres can construct twelve units without regard to where they are constructed on the 120 acres. Certain incentives would be provided to encourage the developer to cluster the units. Under this method, instead of requiring a minimum lot size of ten acres, which, by definition, would ensure a highly consumptive use of land, the builder was given the option to site the units wherever he chose. Almost invariably, a less consumptive pattern of development will result (Healy and Short, 1981).

Minimum Lot Sizes

The regulation of minimum lot or parcel sizes is a common method of discouraging certain land uses. By limiting the minimum size to which a parcel of land can be subdivided, the governing body attempts to discourage incompatible land uses through the pricing mechanism. For example, by restricting the size of a parcel to forty acres, it becomes economically infeasible for most people to

purchase a lot for a single family residence. When minimum lot sizes are used to encourage farming and forestry, their size is determined by the minimum size of an economically productive resource based operation. For example, if an economically sustainable grass seed farm requires at least forty acres of tillable land in order to be competitive, a forty acre minimum lot size would be required in agricultural zones. To distinguish from zoning, which restricts allowed land uses, the minimum lot size encourages certain types of use by limiting competition for productive resource lands by establishing a minimum lot size.

Urban Growth Boundaries

By redirecting urban growth from rural areas to existing towns and villages, there will be less competition for forest and agricultural lands for non-commodity uses. Less competition for rural lands stabilizes its average price per acre while increasing the price of land near urban centers and reducing the costs of public services associated with urban expansion. Such were the objectives of Oregon's land use planning system which requires each of its cities to establish urban growth boundaries around their urban centers. The urban growth boundary, or UGB, is a line drawn around each incorporated city separating existing urban areas and land necessary to meet future urban growth over a

twenty year period from rural lands not needed for urban expansion. Based upon a twenty year population growth projection, the cities estimate the amount of land they expect to need to accommodate demand for residential, commercial and industrial structures and infrastructure. All land within the UGB is available for urban development. To ensure that urban expansion beyond the UGB is not encouraged, there is also a requirement that public facilities and services such as water supply, sewage disposal, transportation and solid waste disposal are not extended beyond the UGB (Bureau of Governmental Research and Service, 1986). Controls that effectively constrain where and when urban growth will occur can reduce the uncertainty about the timing and location of urban development and thereby reduce the potential for speculation and its attendant rises in land prices and parcellation on lands not designated for urban expansion (Brown et. al., 1981).

Evaluating the Regulatory Approach

Some general principles of land use regulation should be applied when evaluating a land use regulatory framework. Bradley (1984) suggests that an effective and workable program should incorporate the following:

1. A high degree of predictability and consistency in procedural actions should be sought.

2. To the extent they are not in conflict with public goals, free market principles should be used to effect the desired result within the regulatory framework.

3. Decisions regarding land use of non-regional impact should be made at the lowest appropriate level of government.

4. The regulations should be flexible enough to meet unexpected changes in the manner in which businesses operate and affect individuals and firms evenly.

5. Permit procedures should be centralized to avoid delays.

6. It should be recognized that certain periods during each forest rotation will not allow some areas to serve all uses (Bradley, 1984).

From a forestry perspective, land use regulations can serve as a tool to abate nuisances from competing uses of the land which impede the use of productive forest management techniques. As such, legal restrictions on non-forest uses of productive forest land facilitates good forest management practices.

From a public recreation perspective, a regulatory approach to land management is desirable because it is the least expensive way to protect the public's interests in the region's natural resources. However, there are political costs which result from the use of a regulatory approach. Those landowners whose land use options are limited by

ordinance or regulation will oppose them. If these landowners interpret the regulatory approach as a threat to the exercise of their property rights, and effectively organize their opposition to the regulations, they may be able to impede the use of a regulatory approach to accomplish the goals of land use planning.

If the regulations are promulgated at other than the local level, there will be opposition from those advocating strong home rule. Such concerns can be allayed by involving local legislators in the promulgations of the regulations as long as the regulations are consistent with the purposes of the laws. In rural areas where regulatory programs are proposed, counties must have zoning authority for regional land use program to be possible.

Market Incentives and Disincentives

Certain public benefits provided by forest land can be achieved through policies which appeal to the self interests of landowners. Similarly, certain land practices which detract from the public benefits offered by private land can be discouraged through market disincentives.

Tax Incentives and Disincentives

Current use tax policies encourage landowners to keep

their land in open space for recreational or productive uses such as agriculture or forestry. By taxing property at its value for use as a productive resource or non-productive open space, rather than at its value for development, financial incentives are provided to keep the land in its current use. Current use property tax laws often include provisions which state that upon conversion of the land to uses other than those allowed under the preferential tax law, any tax benefits realized over a stipulated period of time are forfeited and must be returned. An additional incentive for landowners to keep their land in open space may include a provision for an additional reduction in tax liability if landowners allow public access to land qualifying for current use taxation. Similarly, forestry districts offer preferential tax treatment for productive forest land and are allowed exemptions from special assessments for utility districts (Bradley, 1984).

Tax policy which discourages rapid turnover of undeveloped land has also been suggested to maintain land prices at levels affordable to local residents. Such a tax, often referred to as a land speculation tax, applies to gains on sales of land exclusive of buildings or other improvements to the land. The amount of the tax is determined on a progressive scale which is based upon the length of ownership and amount of profit realized from the sale. Other exemptions to the tax would apply to non-

profit organizations and sales to persons constructing a primary residence within a certain period from the date of sale. The State of Vermont used such a tax which it called a lands gain tax, the schedule for which is shown in Table 4.

It should be noted, decreasing property taxes without providing other incentives will be insufficient to convince landowners to maintain forest land in productive uses when property values for alternative uses are escalating. That is, per acre decreases in taxes will be unable to offset increases in per acre land values for non-commodity uses of the land. Furthermore, decreases in property tax revenue in one segment of the taxable land base will increase pressure to increase taxes on non-qualifying lands or result in a decrease in the provision of some public services.

Therefore, it should be noted that preferential tax programs would be a part of larger program to provide incentives to large landholders not to fragment their holdings.

Capital gain or speculative land taxes are most appropriate when the holding period for investments in land is short. The results of one study on the effect of Vermont's lands gains tax revealed what appears to be a significant increase in the proportion of property being bought by land owners for their own use rather than purchase for resale. (Healy & Short, 1981). Where the land is purchased and held for longer periods, a speculation tax on a progressive scale would do little to discourage

Table 4

Vermont Land Gains Tax Rates

<u>Years held</u>	<u>Gains as a Percentage of Tax Cost</u>		
	<u>0%-99%</u>	<u>100%-199%</u>	<u>200% or Greater</u>
Less than one year	30%	45%	60%
One to two years	25%	37.5%	50%
Two to three years	20%	30%	40%
Three to four years	15%	22.5%	30%
Four to five years	10%	15%	20%
Five to six years	5%	7.5%	10%
Greater than six years	0%	0%	0%

Note. From "How Land Speculators Avoid a Big Tax Bite" by R.N. Daniels and T.L. Daniels, Vermont Environmental Report, p. 13. Fall 1986, Vermont Natural Resources Council.

parcellation (Healy & Short, 1981 and Brown et. al., 1981).

Transfer of Development Rights

Another land use planning tool which can be employed through the real estate market are transferable development rights (TDR). A development right is defined as the difference between the existing use of a parcel of land and its potential use as permitted by law (Pizor, 1986). By transferring this right from an area where a developed landscape is not publicly desirable (sending districts), to a region where development is encouraged (receiving districts), public policy is partly determined by market conditions. A second purpose of TDR is to temper the impact of permanent low zoning classification or the down-zoning of property (Freilich, 1986). That is, by selling development rights to land restricted by zoning, the landowner can be compensated for the cost of development restrictions on his land.

Once the land is restrictively zoned, the number of development rights or credits is determined and granted to the owner of the land. The number of dwelling units per acre (or ten acres, or twenty acres, etc.) for each development right or credit is also determined. Each right or credit could then be sold and used in receiving districts or growth centers to increase the permitted density of

dwelling units. Where no market currently exists for density bonuses, an institution can be created to purchase the development rights. These rights would then be sold when they are needed. Such an institution could be a unit of government or a non-profit TDR bank.

The number of TDR granted to a landowner can be determined by a formula based on the suitability of various classes of land for development. Regions which are highly suitable and attractive for development are granted more rights or credits per acre than less suitable land. For example, in the New Jersey Pinelands National Reserve, owners of land with high development value such as farmland were granted two development credits per thirty-nine acres while owners of wetlands were given 0.2 credits per acre (Pizor, 1986).

Through TDR, farmers or foresters can obtain compensation for their development rights without resorting to sales of parts of their land base to raise capital for continuing or intensifying operations. Where the demand for housing is strong, additional units can be developed through the use of TDR thereby addressing urban problems as well as obtaining rural public benefits. However, there must be a market for density bonuses for the TDR to work. If there is no demand for dwelling units beyond that already allowed, the success of a transferable development rights system will be unlikely. However, certain institutional incentives

such as low interest business loans and special mortgage arrangements could be set up to increase demand for development in receiving areas. Furthermore, towns which do not wish to grow will oppose the idea of density bonuses and those areas served only by septic systems may not be capable of exceeding predetermined development densities.

New Forms of Land Ownership

Some of the more creative mechanisms to maintain the integrity of large forest landholdings involve changes in traditional forms of land ownership. One such method is undivided land ownership. This method of land ownership is not new. In fact, some of the original colonial land grants were made to groups of investors in undivided interests and some large landholdings in New England still exist in this form of common ownership. Through such an arrangement, each individual does not own an identifiable parcel of land. Rather, each owns a percent interest in the larger holding and shares in the revenues and expenses of operating and maintaining the land.

Conversely, a land trust permits individual use without individual ownership. Under this arrangement, a land trust owns the land and members of the trust lease portions of the land. In this case, the leaseholders benefit from using the land just like landowners, but title is held by the land

trust rather than with each individual. The most serious problem faced by such trusts is attracting sufficient capital to purchase the land. It may be possible to subsidize forestry and agricultural leases with residential leases while maintaining the integrity of the holding by clustering the homes in order to make the farm or forest economically sustainable (Healy & Short, 1981).

Public Acquisition

Full fee ownership of real property contains a bundle of rights which may be held jointly or separately. Real property ownership rights include: (a) A set of physical rights to the real property and (b) a set of legal rights of ownership. Physical rights include surface rights, subsurface rights and above surface rights to the physical property. The legal rights of ownership include the right to exclusive possession, right of quiet enjoyment and right of disposition. Each of the above rights, and parts thereof, may be acquired and sold. For example, a person may sell the right to the subsurface minerals of the property or sell the right to develop or use his land to another thereby disposing of the right of exclusive possession to his parcel of land. Similarly, an easement to cross a parcel of land may be sold by transferring a right of exclusive possession to another (Smith & Corgel, 1987).

Acquisition may be by a Federal, state or local governmental agency. If purchased by a Federal agency, financial obligations at the local level are relieved and the agency's financial expertise can be used to acquire the land. However, Congressional approval may be required and specific agency criteria must be met. At the state level, state-wide bond acts can provide significant resources for financing a purchase. However, lengthy delays may result in the loss of acquisition opportunities. Local governments can be more flexible in the type of property they can acquire although limited funding and experience can limit the size and number of acquisitions.

When full fee ownership of land is acquired, a land trust or a public entity for example, has full control of the land. Full control of the land allows for permanent protection of the land from undesired uses and insures public access. This method of land protection is the most expensive way to ensure that the land is managed according to the owner's objectives. When acquired by a public entity, the property is removed from the local tax base and the responsibility and cost of managing the property are borne by the acquiring public agency. This results in long term commitments of agency resources to maintain the land and make in-lieu payments of taxes to municipalities and counties. Depending on the use of the acquired lands, receipts from timber sales and leases could be used to fund

some of these costs.

Less than fee acquisition of real property is in many cases a significantly less expensive method of ensuring that the land is managed for the provision of certain public benefits. Under this method, the property remains on the local tax rolls but often at a lower rate because of restrictions like conservation easements and the loss of development rights. By acquiring only certain rights to the land, government does not have to resort to condemnation proceedings with reluctant landowners who are allowed to remain on their land. Furthermore, the cost and responsibility of land management rests with the landowner. Certain responsibilities also rest with the owner of the development rights and conservation easements. Such a responsibility includes monitoring the uses of the property to ensure that they are in compliance with the terms of the easement. The administration and enforcement of less than fee property rights can be problematic and lead to disputes over the exact meaning of the rights. Another disadvantage of less than fee ownership include the cost of acquiring the rights themselves. Where development pressure is intense, the cost of development rights may approximate the cost of full fee acquisition. In addition, a property's development rights may be extremely difficult to accurately value which can cause problems during purchase negotiations (Foresta, 1984).

Other Mechanisms

Although not directly designed to prevent land fragmentation, forestry assistance programs can encourage landowners to keep their holdings in productive uses rather than parcelling the land for development. By providing technical assistance and grants to individual owners for planning, reforestation, erosion control and other forest management practices, such programs can help the non-industrial private forester address problems they may not have the time, ability or financing to do themselves. Such assistance could be offered without fee if the landowner agrees to keep the land in current use and open for public recreation. Although such programs cannot be expected to stop land speculators from practicing their trade, it could provide enough incentive to keep the hobby forester's land in public use. Educational programs could also be used to inform the public on proper recreational uses of private lands. Through such an educational program responsible recreational uses of private lands may remove some of the barriers between the public and private landowners.

In order to protect private landowners from lawsuits which seek damages for injuries resulting from public use of private lands, state and federal liability statutes need to be reformed. The landowner must be given assurance that by allowing the public to use his land for recreational

enjoyment, he will not be penalized with law suits. In order to insure that recourse is available, a state funded pool for legal defense and indemnification should be created.

Since most recreational homes are not occupied during much of the year, those forms of recreational development which have higher occupancy rates should be encouraged over the former. By promoting motels, timeshares, guest houses, hostels, and bed and breakfasts rather than condominiums and second homes, less land is required to accommodate the same number of visitors in an area. Such a policy was used by the California Coastal Commission early in its existence by favoring permits for the construction of motels over second homes (Healy & Short, 1981).

Second home ownership subsidies through the federal income tax code promote land parcellation. Owners of dwelling units used as second homes or vacation homes can deduct mortgage interest expense, property taxes and casualty losses from ordinary income on their federal income tax returns. In addition, second homes can qualify as rental property if personal use of the dwelling is limited to fourteen days and ten percent of the number of days it is rented at fair market value. In addition to deducting rental expenses, including depreciation from rental income, up to \$25,000 of rental or other passive losses from the property can be deducted from ordinary or earned income

(U.S. Department of Treasury, 1987). By providing such incentives, the federal government is promoting highly consumptive rural land uses for detached and condominium vacation homes. The present federal income tax code does not encourage forestry uses of land. By re-establishing preferential treatment of taxes on capital gains from timber sales and encouraging forestry investments through investment tax credits in reforestation activities, timberland owners would have a greater incentive to manage their land for forestry rather than divest their lands and rely on others to provide them with their raw materials.

Through sale lease-back arrangements, full title to property is acquired and then sold back to the original owner or to another subject to restrictive covenants on allowed uses and management of the land. Liability and management responsibilities may be transferred to the lessee. This method may maximize tax benefits of both landowner and lessee depending on each party's tax situation. Certain lands, such as agricultural lands and forest land are most appropriate for this type of arrangement. Finding an appropriate lessee may be difficult.

CHAPTER IV

THE GREENLINE APPROACH TO LAND CONSERVATION

Thus far this study has discussed the consequences of land parcellation and changes in land use in Northern New England and reviewed mechanisms for maintaining large forest landholdings. This chapter offers a model for coordinating the implementation of these mechanisms among the various actors concerned about the fragmentation of forest lands. The goal of the model is to integrate land conservation techniques into a comprehensive plan which recognizes the opportunities and constraints of the region's physiographic and cultural landscape as well as its institutional and political realities.

Introduction to Greenline Planning

Northern New England is faced with development pressures which may irrevocably change the existing patterns of land ownership, parcel size and land use. Even if a consensus exists that complete preservation of the landscape is in the best long term interests of the region (an assumption which is highly subject to debate), it appears that no existing single institution is capable of achieving

this goal. Since the region contains approximately 10 million acres of land, budgetary reasons alone suggest that outright federal purchase of these lands or a combined tri-state purchase by Maine, New Hampshire and Vermont is untenable.

Because the resources and landownership patterns in the region cross state boundaries and there are no existing mechanisms to coordinate state agency agendas, many of the traditional land conservation techniques are, by themselves, inappropriate. A hypothetical development project in Vermont serves as an illustration. Assume the Vermont state economic development office identifies an area along the Connecticut River, which separates Vermont and New Hampshire, as a desirable site for a destination resort which is expected to stimulate the region's economy. State assistance is given to the proposed development by funding the extension of a state highway in the area which will be routed along the Connecticut River. The expansion is expected to make the resort more accessible to the greater Hartford, Connecticut metropolitan area. Because the municipality's planning board is not familiar with such large developments, it amends its zoning and subdivision laws to allow the developer to build more units than the municipal infrastructure can adequately service. As a result, it must draw water from the river to serve the water supply needs of the development. A year prior to this

proposal, New Hampshire identified a section of the Connecticut River across from the proposed development site as wild and scenic under the State's newly enacted river protection law. To implement the protection program, it establishes special land use restrictions on building within 1000 feet of the river. Also, as part of a U.S. Fish and Wildlife Service program, Atlantic Salmon are being reestablished in the Connecticut River. That section of the river where the development is being built is identified as prime spawning grounds for Atlantic Salmon. Because there is no coordination among the various state and federal programs, conflicts quickly arise. The buildings and roadway along the Connecticut River in Vermont detract from the scenic qualities of the river which New Hampshire has attempted to protect. Withdrawals from the Connecticut River decrease water levels in the river so that the success of the salmon restoration program is jeopardized. Such a situation exemplifies the need for a coordinated regional land conservation and development program which transcends local development and land conservation initiatives.

Furthermore, the conservation techniques used to protect a single outstanding resource, such as a unique geologic formation, are not appropriate for the study area because its identity is characterized by an entire region rather than a single site specific resource. The region is attractive to visitors because of its variety of undeveloped

lakes, scenic rivers and many mountainous regions. Therefore, because of the high cost of such conservation techniques as public fee acquisition, it would not be feasible for a public entity to acquire all the land within the region that is of regional significance.

A greenline plan for land conservation is a public and private sector effort to conserve the natural, cultural, recreational and visual resources of a region containing both public and private land (Hirner & Mertes, 1986). This method of landscape protection takes its name from an imaginary green line which is drawn on a map around the region of interest. The plan recognizes that no one private organization or public agency has the resources or legislative mandate to conserve and manage the area's resources and that a working landscape is preferable to one that is reserved only for recreational uses.

Through the greenline approach to landscape conservation, federal, state and local governments coordinate their regulatory authority and financial resources to protect important landscapes from fragmentation and inappropriate development using a variety of regulatory, market incentive and direct purchase techniques. Through such a coalition, the resources of federal and state governments work cooperatively with municipal and county governing bodies. Together, federal, state and local governments can accomplish what each could not do alone.

The greenline method is less costly than a full fee purchase of land which requires large initial capital outlays and large operating costs and in-lieu payments of local property taxes. Preserving the character of large areas of forest land through the greenline method also would not disrupt existing local economies and governments as much as complete federal purchase of the land would do.

The greenline concept requires that an area possess certain characteristics for it to be appropriate for greenline protection. The region should possess a coherent landscape which gives the area a strong regional identity. The economic and cultural characteristics of the area should suggest that the landscape is best protected from parcellation and incompatible uses by means other than fee ownership and that a working landscape maintains the region's cultural identity (Herner & Mertes, 1986).

The greenline method is beginning to gain acceptance in the U.S. National Park Service and the U.S. Forest Service. Various forms of the greenline approach have been used in the Columbia River Gorge of Oregon and Washington, in the Adirondak Mountain region of New York and in the Pinelands of New Jersey. The primary motivation for establishing a greenline conservation scheme in each of these regions was to protect the region's resources from threats posed by encroaching residential and commercial development. The success of the Columbia River Gorge model is too early to

asses. However, the New York and the New Jersey resource management programs have been relatively successful. In both of these areas, urban expansion has been directed to those areas which are most suitable for such land uses while protecting those resources which are sensitive to commercial and residential encroachment.

The Structure of a Greenline Planning Proposal

It is instructive to present some fundamental concepts of greenline planning before formulating a plan for Northern New England. This includes a description of the structure of the planning process and of a model greenline plan. This background provides the basis for establishing a greenline plan for Northern New England.

Formulating A Greenline Planning Proposal

Before a greenline landscape management plan can be formulated and the implementation mechanisms selected, a planning proposal needs to be developed to better define the plan's objectives and to gain public support for the initiative. First, a pre-planning strategy should be set up to introduce the greenline planning concept to the public and to gauge the level of interest and support for the idea. This can begin by hosting a regional conference of all

interested conservation groups. The focus of the conference would be to develop a land conservation strategy employing greenline concepts. The sponsors of the greenline concept should present the idea to community leaders, conservation organizations and to the various government agencies who will ultimately be responsible for implementing the plan. It is important to consult with elected officials of the region before the planning process proceeds beyond the conceptual stage. Such officials should include federal and state Congressional delegations and county commissioners whose support will be needed if the process is ultimately to succeed. Any attempt to proceed with the idea without at least their knowledge could be interpreted as an attempt to subjugate the regulatory authority of local governments.

The greenline plan should include incentives for those who may initially be opposed to it. The level of incentives provided should be based upon the level of the perceived property value loss, the degree of expected opposition and the effectiveness of the opposition in defeating the proposal.

Other initial pre-planning tasks include distributing written summaries of the planning process and organizing an advisory committee and a coalition of interested groups with a staff to sustain the proposal. A study plan should also be developed to ensure that the proposal does not change each time the coalition and the advisory group meet. Such a lack of direction may ultimately defeat the proposal before

it is presented as a legislative initiative (Corbett, 1984).

To avoid confusion, the objectives of the study need to be clearly defined. They should give the plan a direction which the advisory committee and the coalition's staff can follow without frequent intervention from other interested coalition members who may attempt to change the direction of the plan to meet their own agendas. The objectives should be developed at public workshops to achieve maximum citizen involvement in the planning process. Coalition members would be required to provide financial assistance to keep the study from discontinuing. However, large commitments of resources are not expected to be needed at this stage of the proposal.

Once the greenline planning proposal begins to take form, a program for supporting the proposal needs to be developed. A series of public workshops which explain the proposal should be held. Through citizen participation in the planning proposal process, sensitive issues such as home rule can be discussed in a public forum to allay public resentment towards a perceived loss of home rule. Public informational meetings can also provide an opportunity for gauging the level of support for various proposals early in the process. Certain parts of the proposal which are particularly unpopular can be discussed and amended if necessary to gain widespread support. Public attitude surveys could also be used to achieve these objectives

(Corbett, 1984).

Funding sources to do the planning and the cost of plan implementation need to be identified. Once identified, a detailed cash flow statement should be developed outlining sources and uses of funds for some given length of time. In the Columbia River Gorge, much of the planning funding came from the federal government while in the case of the New Jersey Pinelands, significant state funding was provided.

Finally, the greenline plan proposal needs to be drawn. All of the information obtained during the study and public meetings should be reviewed and summarized to formulate a plan proposal which will serve as the basis for federal enabling legislation. The plan should contain the goals it intends to achieve, a map of the region outlining the different management areas, a description of the purposes and administrators of each management area, specific recommendations for plan implementation and a delineation of the responsibilities of local, state, and federal governments for carrying out the recommendations of the plan (Corbett, 1984).

The Organization of a Greenline Plan

Before designing a landscape conservation plan for the Northern New England region it is useful to first gain a better understanding of how the greenline method works.

This is best accomplished by providing an overview of the process, introducing the actors involved and discussing the components of a greenline plan.

An Overview of a Greenline Plan

A greenline plan begins with the introduction of enabling federal legislation. The legislation creates the framework for establishing a land management plan. The legislation is administered and implemented through planning activities at the federal, state and local levels. The enabling legislation delineates the purposes of the planning process and authorizes federal agency involvement in the planning functions. There are three management areas within the greenline planning region, each with its own management objectives. Special management areas are the most strictly regulated areas and are under the jurisdiction of the U.S. Forest Service. General management areas are administered by a Tri-State Commission and growth areas are under the direct jurisdiction of municipalities and counties. Although the Forest Service and the Tri-State Commission administer the plan in the special and general management areas, most of the actual implementation of the greenline plan is conducted by lower level governing bodies.

The Actors in Greenline Planning

A successful landscape conservation effort for the Northern New England region is beyond the scope of any one organization. Recognizing this, the greenline concept of resource management requires coordinated planning efforts in both the private sector and in the public sector at the local, regional, state and federal levels.

The Federal Government

Because the planning region is large and involves more than one state, the authority, funding and technical expertise of Congress and the federal agencies are valuable resources for establishing and maintaining a greenline planning system. These factors weighed heavily in the use of the greenline model at the Columbia River Gorge (Katherine Jesch, personal communication, August 9, 1988). The federal government's role begins in Congress with the introduction of the enabling legislation.

The enabling federal legislation should: (a) clearly state its purposes, (b) describe the roles and responsibilities of each level of government involved in the planning process and the areas of their jurisdiction, (c) recognize the authority of a Tri-State Commission, (4) identify the federal agency responsible for implementing the

federal portion of the plan, (d) delineate the responsibilities of the principal administrators and those who will implement the plan, (e) describe the enforcement methods to ensure compliance with the intent of the legislation, (f) authorize appropriations to fund planning activities and capital expenditures and (g) set a time-line for Federal, state and local agency compliance.

The legislation authorizes the U.S. Forest Service to administer certain components of the legislation. Certain areas within the greenline planning region are specially designated Forest Service management areas.

The States-A Tri-State Commission

The states participate in the planning process through a coalition of representatives from each state within the planning region. In the case of the Columbia River Gorge, a Bi-State Commission was formed between Oregon and Washington to coordinate state activities and ensure that each state's interests were represented during the planning process (see Appendix A for discussion of relevant provisions within the Columbia River Gorge National Scenic Area Act). In the case of the Northern New England region, the coalition is a Tri-State Commission. It is created by the respective states with planning authority recognized in the enabling legislation. The primary responsibility of the Tri-State

Commission is to draft a land use management plan for the resources in certain areas within the planning boundaries and overseeing the implementation of the resource management plan.

Municipalities and Counties

The management goals outlined in the management plans of the Forest Service and the Tri-State Commission must also be reflected in local master plans. Implementation of the plans through local ordinances, economic development programs and land acquisitions are performed by municipalities and counties. The municipalities and counties may also involve organizations such as land trusts to meet the goals of their master plans.

Components of a Greenline Comprehensive Management Plan

A Comprehensive Management Plan is formulated to guide management of all the resources within the Plan's jurisdiction. All activities occurring within the greenline planning region must be consistent with the Plan. The Comprehensive Management Plan consists of plans prepared by the U.S. Forest Service and the Tri-State Commission. Each of these sub-plans must be consistent with the purposes of the federal enabling legislation. Some of the basic

components of those plans are described in this section.

Goals of the Greenline Plan

The goals of the resource management plan drafted and administered by the U.S. Forest Service are stated in the enabling legislation. The Tri-State Commission's plan shall contain a statement of its goals which must be consistent with the purposes of the federal legislation. The goals provide greater specificity than the purposes of the enabling legislation and thereby provide a basis for determining the consistency of local master plans and implementation programs with the Comprehensive Management Plan. For example, one of the purposes of the New Jersey Pinelands National Reserve legislation is to "protect, preserve and enhance the significant values of the land and water resources of the Pinelands area." The legislation further states that there shall be included within the policy or goal section of the Reserve's Comprehensive Management Plan a policy which "provides for the protection of such activities as farming, forestry, proprietary recreational facilities which are consistent with the purposes of this section [of the statute]" (National Parks and Recreation Act of 1978).

Resource Inventory and Assessment

An inventory of all significant resources needs to be performed. At a minimum, the inventory should describe the type, location, size, ownership and value of the resource. Examples of the different types of resources which should be inventoried are undeveloped lakes and rivers, unique geologic formations, outstanding viewsheds, mountains with high recreational value, valuable timber stands, and rare plant communities. Areas which are not considered to be unique or significant natural areas, should be evaluated for residential, commercial and industrial development. Limitations on such uses should be identified using development suitability criteria such as slope of the land, soils and the hydrology of the site.

A land use capability assessment for the entire planning region should be performed using the data supplied by the inventory. The assessment should determine the development, forestry and recreational opportunities and constraints of the resources inventoried.

The Greenline Management Areas

There are three broadly defined management area designations within the greenline planning region. Each area has its own management objectives. Special Management

Areas contain the most environmentally and scenically sensitive resources in the region such as undeveloped lakes and important wildlife habitat such as deer yards. In general, land use activities in these areas are more restrictive than in other areas. All the resources within this area are managed according to a management plan drafted and administered by the Forest Service. Growth Areas surround existing built landscapes within which industrial, commercial and residential development are encouraged. These areas are exempt from most provisions of the legislation and are governed completely by local governing bodies. General Management Areas contain the balance of the planning region. They are managed according to a management plan administered by the Tri-State Commission. General Management Areas permit the greatest variety of land uses within the entire planning region.

Land Use Designations Within the Management Areas

Once the goals for each management area have been established and a resource inventory and assessment performed, preferred land uses can be designated for each of the management areas. Accompanying the designations should be a list of compatible activities permitted in the area as well as the intensity of the permitted activity. Once the permitted uses of each Area's resources have been

determined, a review of the designation should be made to ensure that the spatial distribution of the land use designations can be effectively managed. If not, a redistribution of preferred uses should be made to ensure a that workable landscape exists and that adjacent land uses do not conflict with one another.

A Greenline Plan for Northern New England

This section discusses the major components of a greenline plan for the Northern New England region. It describes the purposes of the enabling legislation and the agenda for participants in the planning process. The responsibilities of the principal actors are described in detail and an analysis of the inventory and land use assessment designation process is also discussed.

The Enabling Legislation

Purposes of the Enabling Legislation

The enabling federal legislation is the Northern New England Scenic Area Act (the Act). It establishes the Northern New England Scenic Area (Scenic Area), the boundaries of which are identified in Figure 1. The purposes of the Act are (a) to protect and enhance the

natural, cultural, scenic and recreational resources of the Scenic Area and (b) to support the economy of the Scenic Area by encouraging growth in existing urban areas that is compatible with the first purpose of the Act. The Act establishes three different types of management areas within the Scenic Area. They are Special Management Areas, General Management Areas and Growth Areas. The boundaries of each of the management areas shall be determined by the sponsors of the legislation. The areas contain many separate geographic locations but each is managed according to the management goals established for each of the areas.

The Goals of the Enabling Legislation

The management goals of the Special Management Area provide the basis for managing the resources of that area. There are separate sets of management goals for each of the three management areas but only the goals of the Special Management Area are contained within the Act.

The goals governing the management of the General Management and Growth Areas are established by governing bodies below the federal level and are therefore not contained within the federal legislation. The goals of Special Management Areas are to:

1. Protect and enhance forest lands for the production of forest products.

2. Provide public non-commercial outdoor recreational opportunities.

3. Maintain the integrity of viewsheds from existing trails.

4. Maintain the unobstructed flow of water in rivers and streams.

5. Protect and enhance the use of agricultural lands for the production of crops, fruits, or other agricultural products including but not limited to dairy products.

6. Prohibit major development actions including but not limited to the partitioning of land and issuance of building permits for residential structures on any parcel of land less than forty acres.

7. Protect and preserve the historic features of the landscape.

8. Discourage the fragmentation of those lands identified as important for the Area's agricultural and forest products industries.

9. Encourage growth in existing urbanized areas.

10. Minimize conflicting land use planning objectives at public and private land interfaces. Encourage coordinated land use planning on the White Mountain National Forest with planning in adjacent counties and municipalities.

Principal Functions of the Plan Administrators

Although many different public and private groups may participate in the planning and implementation of the Comprehensive Management Plan, the U.S. Forest Service and the Tri-State Commission (Commission) are the principal administrators of the Plan. This section describes how these two organizations function and how activities of other participants in the greenline planning process relate to the Forest Service and the Tri-State Commission.

Tri-State Commission

The Tri-State Commission is a regional planning agency established by an interstate agreement between the States of Maine, New Hampshire and Vermont. Their charge is to draft and administer a management plan to achieve the legislative intent of the federal enabling legislation. The Commission is established by each state legislature to carry out its functions and responsibilities in accordance with the provisions of the interstate agreement and the enabling legislation. Since the administration and implementation of the plan involves several levels of public sector programs, a companion program for inter-agency coordination and consistency should be established to avoid duplication of responsibilities, conflicting policies reflecting different

management objectives and delayed decision-making (Corbett, 1984). The Commission's authority is recognized in the enabling federal legislation but it is not an agency or instrumentality of the United States. Funding for the operations of the Commission and its staff are provided by the states and planning grants from the Department of Agriculture.

Membership

Members of the Commission are appointed according to the federal enabling legislation. The appropriate provision of the legislation shall state that the membership of the Tri-State Commission shall consist of:

1. Eight members, comprised of one resident from each of the following counties and appointed by each of the following county governing bodies: Caledonia, Essex and Orleans Counties, Vermont; Coos County New Hampshire; and Franklin, Oxford, Somerset and Piscataquis Counties, Maine.

2. Three members, comprised of one resident of the States of Maine, New Hampshire and Vermont to be appointed by the Governors of each of those states.

3. One non-voting member, who shall be an employee of the Forest Service and shall provide technical assistance to the Commission and appointed by the Secretary of Agriculture.

All actions of the Tri-State Commission shall require a

two-thirds majority vote of its members. The Commission shall adopt regulations relating to other administrative procedure, the making of contracts, conflicts-of-interest, financial disclosure, open meetings of the Commission, advisory committees, and disclosure of information consistent with the more restrictive statutory provisions of the three states (Columbia River Gorge National Scenic Area Act, 1986).

Authority and Responsibilities

The first major responsibility of the Commission is to hold public meetings and review testimony for establishing the goals for the General Management Areas and develop a General Management Area Plan. In addition to the goals, the Plan includes a resource inventory and land use capability assessment study and a description of allowed land uses and subdivision guidelines for each management unit within the General Management Areas. Other responsibilities include reviewing local master plans and implementing ordinances for consistency with the Plan, administering the Plan's implementation by regional planning authorities, counties and municipalities, enforcing the Plan's implementation and hearing and deciding appeals of Plan implementation decisions.

Establishing the goals of the General Management Area

is a cooperative effort involving the Commission and the communities who will be affected by the General Management Area Plan. Although the Commission will draft the goals, the Commission's staff will design, distribute and summarize the responses of a questionnaire concerning the goals of the General Management Area which shall become part of the decision making documentation for drafting the goals. A series of public meetings will also be used to involve the public in the goal-setting process. Information obtained in these meetings shall be included in a record of decision which documents the reasons for decisions made in the goal formulation process. When establishing the goals, it will be important to have meaningful local community involvement early in the goal formulation process in order to remove an appearance of centralized planning.

The Plan's implementation will be facilitated if the trust and cooperation of the implementing communities are obtained early in the planning process. For the Commission and local governing bodies to cooperate in meaningful dialogue, each group must participate early in the goal formulation process and be forthright when they outline how their interests must be satisfied. Such a forthright public participation process will facilitate negotiations between each interest group and help to avoid misunderstandings later in the planning process. Such a dialogue will result in a resource management plan which meets the purposes of

the enabling legislation as well as reflects the values of the local communities. The goals will serve as the basis for the policies used to implement the General Management Area Plan. Therefore, the importance of establishing goals which capture the intent of the legislation and the values of the local communities should be emphasized. The goals will be drafted to reflect the Commission's interpretation of the purposes of the legislation and the recommendations received from comments made at the public meetings. Further comments will be received once the draft goals are released during a second round of public comments and then issued in final form.

The Commission shall have the power to issue guidelines to facilitate the implementation of the policies necessary to achieve the purposes of the Act. The guidelines shall have the force of law and serve to assist municipalities and counties in interpreting the intent of the goals. There shall also be a public review and comment period upon issuance of the Commission's guidelines.

The Commission and its staff will perform an inventory of the General Management Area resources. The inventory data will be used to assess the opportunities and constraints of various land uses. The goals and the results of the inventory and assessment will provide a basis for prescribing allowed uses within each management unit of the General Management Areas.

The Commission shall also oversee and enforce the implementation of the Plan. Enforcement shall be through review of municipal and county comprehensive plans and implementation programs. Upon certification by the Commission that local master plans and implementation programs are consistent with the goals and guidelines, the complying governing bodies shall be eligible for planning and economic development grants. If local and county governing bodies do not amend their Master Plans and implementing ordinances for consistency with the General Management Area Plan, the Tri-State Commission shall write an implementation plan for them. Violations of the goals and guidelines could also result in civil penalties imposed by the state in which the violation occurs, and state attorneys general could seek injunctions. The Commission shall fund local and county planning activities in their states through bond offerings and through federal funding authorized in the enabling federal legislation.

The U.S. Forest Service

Upon passage of the enabling legislation, the U.S. Forest Service will become the key actor for federal participation in the planning process. Its first task is to formulate a Special Management Area Plan consistent with the purposes and goals contained in the enabling

legislation. The Special Area Management Plan guides the agency's management activities including the identification of land, or rights to land, for federal purchase. The Plan shall also prescribe the permitted land uses on private lands and minimum parcel size requirements. The Special Area Management Plan includes the goals contained in the enabling federal legislation, a resource inventory, a land use assessment and land use designations. Other Forest Service responsibilities include monitoring and enforcing activities within its jurisdiction for compliance with the Special Management Area Plan.

Land identified in the Plan for purchase by the Forest Service may be purchased in fee or less than fee. Lands purchased in fee shall be withdrawn from all form of entry, appropriation or disposal under the public land laws relating to mining activities on federal land. Land may be acquired in fee with subsequent disposition of certain rights. The proceeds from the disposition of real property rights shall be held in an irrevocable trust for the purpose of additional land acquisitions in the Special Management Area. Alternatively, less than fee ownership of land is also authorized. The management of lands held in less than fee shall be managed according to provisions of the contracts made by the Forest Service and other parties.

Local and county master plans and implementation mechanisms shall be reviewed by the Secretary of Agriculture

for compliance with the Special Management Area Plan. Non-compliance with the Special Management Area Plan by a municipality or county may result in the Forest Service writing local and county Special Management Area Plan implementation programs for those governing bodies. Other enforcement activities include the imposition of civil penalties, loss of federal grants for planning and economic development.

The U.S. Department of Agriculture shall also be responsible for paying in-lieu taxes for land they purchase in Special Management Areas. The amount paid to the local governing bodies shall be equal to the amount paid by the most recent owner in the year immediately preceding the year of the purchase. In-lieu severance or yield tax payments shall also be made to municipalities and counties for those lands held in fee by the Forest Service and managed for timber. The amount paid, shall be consistent with the current tax rate used for taxing private timberland owners. For those lands where timber rights have been sold, the party holding the rights shall be responsible for paying timber severance or yield taxes when the timber is harvested.

The Inventory, Land Use Assessment and Designation Process

As mentioned in the discussion of the responsibilities of the Tri-State Commission and Forest Service, both of

these organization will prepare an inventory of the resources in their planning areas. Accompanying the inventory will be a land use assessment which identifies the relative value of each of the resources for various uses.

The inventory shall use maps and text to identify and discuss the most important characteristics of the resources being inventoried. The inventory shall include existing land uses, unique geologic formations, critical wildlife habitats, undeveloped lakes and rivers, mountains with high recreational value, outstanding viewsheds, culturally significant landmarks, ownership of parcels of greater than 100 acres, rare plant communities and lands most suitable for commodity uses of forest and agricultural lands.

An assessment of the resources identified and briefly described in the inventory shall accompany the inventory. The assessment should include an identification and classification of those resources under high, medium or low likelihood of parcellation and development. Some of the variables which could be considered in the assessment are accessibility to the resource, current zoning and subdivision regulations, slope of the land and proximity to outstanding natural areas such as mountains, lakes and rivers. The actual criteria used to assess an area's opportunities and constraints for various land uses should be developed as part of a public participation and review process. The results of the land use assessment shall be

used to designate the preferred land uses within each management unit of the Special and General Management Areas.

The process for inventorying a resource and evaluating its opportunities and constraints for various land uses and designating permitted land uses in General Management Areas is slightly different from the process for Special Management Areas. The inventories, assessments and designations for General Management Areas would involve greater public participation and review of the Commission's decisions. The following model inventory, assessment and designation process includes such a strong public oversight function:

1. Identify the region to be inventoried according to some natural boundary such as a watershed or a political boundary such as township boundaries where no clear physiographic region exists.

2. Provide baseline data for the entire region including types of resources in the region (e.g. timberlands, rivers, lakes, mountains, etc.), size of the resource (e.g. number of acres per parcel of forest land) and ownership).

3. Analyze each resource to obtain the necessary degree of detailed information needed for a complete assessment of the resource's value. For example, for timberlands, the land's capacity for growth in board feet per acre per year, proximity to mills, dominant species and

the approximate existing stand value should be quantified where possible.

4. Summarize the inventory data by resource.

6. Present the inventory summary to the Commission with explanations by the Commission's staff.

7. Seek public comments on the inventory including comments from experts in the field and municipal, county and regional governing bodies.

8. Update the inventory based upon public input in step seven.

9. Using the suggestions made in step eight, the Commission, with the assistance of its staff, adopt general draft policies for managing the resource and criteria for establishing permitted land uses.

10. Public input sought on policies and criteria offered by the Commission including technical consultation with experts most familiar with the resource.

11. Incorporate comments made in step ten. Commission adopts policies for managing the resource and criteria for establishing permitted uses of the resource.

12. Commission offers options for land use designations including rationale for each option chosen with reference to criteria used in formulating options.

13. Public comment sought on options identified in step twelve.

14. Commission consensus is sought on land use

designation options and incorporated into the management plan.

Once the General and Special Management Area Plans are complete, they shall be submitted to the Secretary of Agriculture for review for compliance with the purposes of the enabling federal legislation. If the Secretary finds that the Plan does not meet the purposes of the enabling legislation, he shall submit his comments to the Tri-State Commission stating why the Plan is not in compliance. It shall then be the responsibility of the Commission and the Forest Service to perform whatever Plan revisions are necessary to bring the Plan into compliance as directed by the Secretary of Agriculture. Non-compliance will result in the loss of federal planning funds for the Commission.

This process is done for each management unit within the General Management Area and Special Management Area and incorporated into each Area's Plan. Both Plan's are reviewed for compatibility with one another and combined in a single document called the Northern New England Scenic Area Comprehensive Management Plan.

Plan Implementation

Other than the purchases of land by the Forest Service, the Comprehensive Management Plan is implemented by the municipalities and counties with the cooperation of private

sector organizations such as land trusts. The governing bodies will use a variety of land conservation mechanisms such as those discussed in the previous chapter. It shall be the responsibility of the local governing bodies to notify the Tri-State Commission and the U.S. Forest Service, within sixty days of the receipt of the approved Comprehensive Management Plan, that it will amend its master plan and adopt implementation mechanisms which are consistent with the Comprehensive Management Plan. Within one year from the date of the receipt of the Comprehensive Management Plan, municipalities and counties and regional planning authorities with land within the Special Management Areas or General Management Areas shall amend such plans and implementation mechanisms and submit them for a consistency review determination by the Commission and the U.S. Forest Service.

Several factors will affect the combination of implementation tools which most effectively meets the goals of the Plan. Some of the factors local governing bodies should consider when designing a Plan implementation program include the nature and extent of permitted development, existing patterns of land ownership within the region, the level of monitoring and enforcement available to the agencies responsible for administering the implementing mechanisms and the responsiveness of the mechanism in meeting the land use management goal of the

region (Bradley, 1984).

CHAPTER V

EXISTING STATE AND REGIONAL PLANNING IN NORTHERN NEW ENGLAND

The consequences of parcelling large forest landholdings in Northern New England have been identified and a structure for coordinating implementation mechanisms to address those consequences has been suggested. This chapter reviews existing land use planning systems within the region which affect or are affected by the policies suggested in the Northern New England Scenic Area Act.

During their last legislative sessions, the states of Maine and Vermont responded to the problems associated with land speculation and development by adopting statewide comprehensive land use planning programs. Similarly, in 1988, New Hampshire responded to increasing development pressures in its unincorporated or unorganized areas by granting planning, zoning and subdivision regulatory authority to counties which contain such areas. In order to evaluate the feasibility of the Northern New England greenline planning proposal, these state-wide and county planning acts will be evaluated for compatibility with the Northern New England Scenic Area Act.

Vermont's Act 200

Purpose of Act 200

The land use planning process established by Vermont's Act 200 is intended in part to promote sufficient space in appropriate locations for forestry and agriculture, and residential, recreational, commercial and industrial development (An Act Relating to Encourage Consistent Local, Regional and State Agency Planning, 1988). The Act's planning process is guided by thirty-two goals which are to be addressed in the comprehensive plans of participating municipalities, regional planning commissions and state agencies (see Appendix B for list of the goals). The goals and their accompanying policies address a broad range of planning issues related to growth management.

The Origins of Act 200

Vermont's state-wide comprehensive land use planning law is a response to a sense of loss of control over management of the State's resources. In 1970, Vermont established a reputation as a leader in strong state land use control when it passed a land use regulation bill referred to as Act 250. Act 250 was a reactive response to development pressures which were threatening to alter the

character of Vermont. As developers and land speculators devised methods to avoid the intent of Act 250, Vermont watched some of its towns and villages grow at unprecedented rates. By adopting Act 200, Vermont has chosen a more proactive response to the demands which rapid urban expansion place on the State's resources and local and regional governing bodies.

Vermont chose to model its land use planning system after a system which has withstood the test of time in the State of Oregon. In 1973, Oregon passed Senate Bill 100 which established a land use planning system that has received national recognition. Oregon developed a decentralized land use planning program with enough state oversight to ensure that certain state goals be met, while allowing local governing bodies to choose how they meet those goals.

Oregon recognized that rapid population growth and unplanned urban expansion was altering the natural resources it so highly valued. By requiring local, county and state governing bodies to address the threats posed by such growth and expansion, Oregon has taken a proactive response to rapid and uncontrolled growth. It has done this by directing urban expansion to existing development nodes and conserving its productive forest and agricultural lands. Vermont recognized that it also heavily depended on its natural resources to support an economy dependent on

agriculture, timber and tourism. Having recognized the economic and cultural similarities between the states of Vermont and Oregon and recognizing Oregon's success and leadership in state land use planning, Vermont has chosen to model its Act 200 after Oregon's comprehensive land use planning program.

Act 200 and Natural Resource Management

Act 200's natural resource management goals state, in part, that the fragmentation of lands identified as important for agriculture and forestry shall be discouraged and that public access to non-commercial outdoor opportunities be protected (An Act Relating to Encourage Consistent Local, Regional and State Agency Planning, 1988). A related policy states that scattered residential development not related to community centers causes loss of prime agricultural lands and that planning at all levels should provide for the development of land and resources according to long-term patterns of growth (An Act Relating to Encourage Consistent Local, Regional and State Agency Planning, 1988). These goals and policies are to be achieved through municipal and regional planning consistent with State-wide planning goals and policies.

Funding for implementing the Act is authorized at \$27,250,000 for the first year with subsequent annual

funding provided by a real property transfer tax which will generate about \$7,250,000 per year.

Compatibility with the Northern New England Scenic Area Act

Act 200 requires regional planning commissions to actively solicit local citizen participation in the planning process (An Act Relating to Encourage Consistent Local, Regional and State Agency Planning, 1988). By acquainting the public with State-wide planning which emphasizes citizen participation, public apprehension about the loss of home rule can be allayed before introducing the Scenic Area Act.

In order to determine whether municipalities are involved in a continuing planning process and that they are eligible to receive planning assistance funds, regional planning commissions are required to consult with their member municipalities to evaluate their planning progress and determine their planning assistance needs. The regional planning commissions also review and approve or disapprove the plans of its member municipalities based upon their consistency with the State-wide goals and policies. Such an oversight function is analogous to what would be required of the Tri-State Commission and the Forest Service. By coordinating their consistency review procedures, with those of the regional planning commissions, an unwieldy

second review of municipal plans can be avoided while still providing an effective oversight function.

The Vermont law requires regional planning commissions to adopt regional plans which are consistent with the State-wide planning goals and compatible with State agency and municipal plans. The regional plan must include a map of existing and planned land uses including those areas proposed for agricultural, forestry and recreational uses. By coordinating efforts and planning assistance, the Scenic Area Act requirements can dovetail with the regional planning requirements of Act 200. For example, Act 200 requires regional planning commissions to develop a regional data base to identify areas of regional significance. Such information could be shared among the regional planning commissions, the Tri-State Commission and the U.S. Forest Service to develop a Tri-state regional planning data base.

Act 200 establishes a Council of Regional Commissions which reviews regional and State agency plans for consistency with the State-wide goals (An Act Relating To Encourage Consistent Local, Regional and State Agency Planning, 1988). Because members to the Commission represent the interests of regions throughout the State, the Council of Regional Commissioners is an excellent existing forum for discussing Vermont's participation in a Tri-State Commission.

The Act authorizes State funding for certain community-

based non-profit organizations to fully participate in the planning process (An Act Relating To Encourage Consistent Local, Regional and State Agency Planning, 1988). By providing such an opportunity, Vermont has incorporated into Act 200 a fundamental concept of greenline planning which encourages both public and private sector participation in the plan implementation process. Through such an approach, the resources and expertise of the private sector can be utilized to achieve the goals of the planning process.

Incompatibility with the Northern New England Scenic Area Act

Act 200 does not require municipalities to adopt plans and plan implementation programs which are consistent with the goals and policies of the Act. Rather, municipalities are only encouraged to do so. There are however strong incentives for municipalities to comply with the Act. Those municipalities which adopt plans and plan implementation programs consistent with the Act are eligible for planning assistance funds, state and regional agency technical assistance and they have a greater say in other regulatory and state agency actions. The primary state agency regulatory actions are those taken under Vermont's Act 250. Under Act 250, permits are required from the Vermont Environmental Board for large scale development (Land Use and Development Act, 1970). In addition, an

incentive reward system is established which confers bonus points in a scoring system used for awarding state economic development grants or additional pollution control funding to those municipalities which adopt approved plans. Unlike the Scenic Area Act, regional or state authorities are not authorized to write plans for non-complying municipalities and cannot impose civil penalties or injunctions (An Act Relating to Encourage Consistent Local, Regional and State Agency Planning, 1988). The Scenic Area Act imposes planning requirements upon municipalities, counties and regional planning authorities. Because comparisons may be made with the relative inflexibility of the Scenic Area Act, the mandatory nature of the Scenic Area Act may be politically untenable.

Maine's Comprehensive Planning and Land Use Regulation Act

Purpose of the Act

Maine's Comprehensive Planning and Land Use Regulation Act provides for continued State regulation of development proposals in areas of State-wide concern which directly impact natural resources of Statewide significance or otherwise affect vital state interests. The Act contains, in part, three goals which address concerns relevant to the Northern New England Scenic Area Act. Those goals

encourage orderly growth and appropriate development while protecting the State's rural character, safeguards its agricultural and forest resources from development and promotes and protects the availability of outdoor recreation opportunities (Comprehensive Planning and Land Use Regulation Act, 1988).

Compatibility with the Northern New England Scenic Area Act

Similar to the Vermont's Act 250, Maine's land use planning law requires municipalities to solicit and consider a broad range of public review and comments before adopting a local growth management program. If public education programs are successful in helping the public understand the process established by the Act, and they are provided ample opportunity to participate in the process, opposition to planning can be mitigated. By conditioning the public to land use planning and creating an atmosphere which is not hostile to planning, there will be less opposition to the Scenic Area Act proposal.

The Act does not require municipalities to adopt a growth management program but it does provide incentives for towns to do so. Municipalities which choose to comply with the Act's requirements become eligible for certain planning assistance and implementation grants, State open space acquisition funds and economic and public facilities grants.

A growth management program includes a comprehensive plan which is consistent with the Act's goals and guidelines. The plan also contains an inventory and analysis section which, in part, describes current and existing development patterns (Comprehensive Planning and Land Use Regulation Act, 1988). This inventory and analysis may be adopted and modified to meet the planning needs of the U.S. Forest Service and the Tri-State Commission. The Forest Service and the Commission should use this information to the extent it provides them with information needed to designate preferred land uses within their jurisdictions. By using the information available from regional and municipal inventories required by Maine's Comprehensive Planning and Land Use Regulation Act, the Scenic Area Act planning process can be expedited.

Section 4961-A of the Act states: "The provisions of this section constitute express limitations on the home rule powers granted to all municipalities under home rule authority" (Comprehensive Planning and Land Use Regulation Act, 1988). This provision is significant because limitations on home rule are politically sensitive. By establishing such a provision, the Scenic Area Act is buttressed by a precedent which subordinates local authority on issues of State-wide concern to a higher level of government.

New Hampshire's Response

Unlike Vermont and Maine, New Hampshire is the only northern New England state which does not have state-wide comprehensive land use planning. However, in 1988 the New Hampshire State legislature responded to development pressures in unincorporated and unorganized places when it passed House Bill 842. House Bill 842 is an Act granting county commissioners planning and zoning authority in unincorporated and unorganized places (An Act Granting County Commissioners Planning and Zoning Authority in Unincorporated and Unorganized Places, 1988). Many of the unincorporated areas in New Hampshire contain large forest landholdings owned primarily by companies in the wood products industries.

The Act was a response to unplanned and uncontrolled development in the State's unorganized and unincorporated areas where there are no zoning, subdivision regulations or planning boards. In one location, a property owner requested that he be allowed to access a town road from his land in the unincorporated area of Hale's Location. The abutting Town of North Conway refused the landowner access to the road. The landowner's proposal lead to a series of conflicts concerning mitigation of the proposed land use impacts on the Town of North Conway. Although North Conway

was affected by the development, there were no local or regional governing bodies which had the authority to regulate the development even though it had a substantial impact on the adjacent towns.

The county most affected by the Act is Coos County. Coos County is the northern most and least densely populated county in New Hampshire. It contains ten unincorporated areas which represent about thirty percent of the County's total area. Coos County constitutes the entire New Hampshire component of the Northern New England region (see Figure 1 on page 3). The Coos County commissioners have since formed a planning board with a charge to develop a master plan for the unincorporated areas within the County. The master plan will serve as the basis for zoning, subdivision and site plan regulations.

Although Coos County New Hampshire does not have a coordinated regional land use planning system to address the consequences of changing land ownership patterns, there may be certain advantages to beginning a Tri-State response to such changes in a region which does impose an existing planning structure. Under such conditions, the Forest Service and the Tri-State Commission can design a land use planning system which does not have to be coordinated with an existing land use planning model. However, because New Hampshire has not taken a proactive response to the threats posed by the fragmentation of large forest landholdings, the

opportunities discussed earlier for coordinated state, regional and federal planning are not available in New Hampshire.

Conclusion

The Northern New England Scenic Area Act is an attempt to coordinate planning among three states and their political subdivisions according to two sets of resource management goals. One set of goals is intended to guide the management of those resources which have special regional significance to the Northern New England region while the second set of goals is intended to direct the management of other resources in the region.

Vermont, Maine and to some extent New Hampshire, have recognized that some of their natural and cultural resources are at risk and that a proactive response to those threats is necessary to maintain the integrity of the region's resources. However, the resources and threats to the resources do not recognize the political boundaries between each of the states. Similarly, the recent legislation that each of the states has enacted does not coordinate planning efforts with neighboring states. For these reasons, it appears that the coordinating authority and financial resources of the federal government are necessary to effectively protect the resources of the region.

Some difficult planning decisions will have to be made

in the region which will not be popular with many of its residents. Decisions which limit the use of some of the region's resources, regulate minimum parcel sizes or increase the amount of publicly owned land may not be popular. Such decisions are politically difficult for local elected officials who must respond to short term re-election objectives. In such cases, some of the politically difficult decisions may have to be made by Congress, once the planning agenda is drafted by local sponsors of the legislation. The land use management decisions which currently face the Northern New England region have the potential to irreversibly change the character of the region's landscape, the accessibility of its recreational resources to the general public and alter its natural resource based economy. The challenge which faces the people of the region is to decide how those decisions will be made. Economic forces which influence the management of the region's resources can be left without further restraint to determine the region's identity, or a coordinated proactive regional planning response to those forces can be developed by the people of the region to guide the destiny of Northern New England.

APPENDIX A

SELECTED SUBSECTIONS OF SECTION FIVE OF THE COLUMBIA RIVER
GORGE NATIONAL SCENIC AREA ACT OF 1986 ESTABLISHING
THE COLUMBIA RIVER GORGE COMMISSION

Section 5. The Columbia River Gorge Commission

- (a)(1) To achieve the purposes of this Act and to facilitate cooperation among the States of Oregon and Washington, and with the United States of America, the consent of Congress is given for an agreement described in this Act pursuant to which, within one year after the date of enactment of this Act-
 - (A) the States of Oregon and Washington shall establish by way of an interstate agreement a regional agency known as the Columbia River Gorge Commission.
 - (B) the States of Oregon and Washington shall provide to the Commission, State agencies, and the counties under State law the authority to carry out their respective functions and responsibilities in accordance with the provisions of this subsection.
- (b) For the purposes of providing a uniform system of laws, which, in addition to this Act, are applicable to the Commission, the Commission shall adopt regulations relating to administrative procedure, the making of contracts, conflicts-of-interest, financial disclosure, open meetings of the Commission, advisory committees, and disclosure of information consistent with the more restrictive statutory of either State.
- (c) Upon the request of the Commission, the Secretary of Agriculture and other Federal agencies are authorized to provide information, personnel, property, and services on a reimbursable basis, and the Secretary is authorized to provide technical assistance on a non-reimbursement basis, to the Commission to assist it in carrying out its functions and responsibilities pursuant to this Act.

- (d) The Commission shall establish voluntary technical and citizen advisory committees to assist the Commission in carrying out its functions and responsibilities pursuant to this Act.

APPENDIX B

ACT 200'S PLANNING GOALS SELECTED FORM 24 V.S.A. S 4302

Continuing Planning Process:

Goal 1: A coordinated, comprehensive planning process and policy framework shall guide decisions by municipalities, regional planning commissions, and state agencies.

Goal 2: Citizen participation shall be encouraged at all levels of the planning process and decisions shall be made at the most local level possible commensurate with their impact.

Goal 3: Consideration must be given to the use of resources and the consequences of growth and development for the region and the state, as well as the community in which it takes place.

Goal 4: Whenever appropriate, municipalities shall be encouraged and helped to work creatively together to develop and implement plans.

Resources:

Resource quality:

Goal 1: Important and economically valuable agricultural and forest lands shall be protected by limiting alternate uses on those lands to low density uses designed to preserve the long term viability of farm or forest use.

Goal 2: Fragmentation of lands identified as important for agriculture and forestry shall be discouraged.

Goal 3: The quality of air, water, wildlife and land resources shall be maintained or improved.

Goal 4: Special areas shall be identified, development shall be planned so as to protect and preserve them and, when necessary, they should be placed in whatever form of public or private ownership that would best maintain and utilize their value to the

public. Special areas shall include the following:

- (a) significant natural and fragile areas;
- (b) important features of the Vermont landscape;
- (c) significant scenic roads, waterways, and views, particularly along the interstate network and other scenic corridors;
- (d) lands that include or are adjacent to greenways or to sites or areas of historical, educational cultural, scientific, architectural or archeological value.

Use of resources:

Goal 1: Strategies to facilitate the appropriate extraction of earth resources, and the proper restoration and preservation of the aesthetic qualities of the area shall be addressed.

Goal 2: Energy conservation should be actively encouraged and wasteful practices discouraged.

Goal 3: Public access to noncommercial outdoor recreational opportunities, such as lakes and hiking trails shall be identified, provided where feasible, and protected.

Goal 4: Growth shall be planned to maintain and enhance recreational opportunities for Vermont residents and visitors.

Goal 5: Those natural resources referred to in 10 V.S.A. S 6086 including headwaters, waste disposal, water conservation, floodways, streams, shorelines, wetlands, wildlife habitat, endangered species primary agricultural soils, forests and secondary agricultural soils earth resources, extraction of earth resources and development affecting public investments should be planned for development and use under the principles of environmental conservation set forth in that section.

Public and Private Investment:

Capital investment:

Goal 1: Public investments, including the construction or expansion of infrastructure, shall be made so as to support development in locally designated growth areas and shall not be made so as to lead development in important and economically viable agriculture or conservation areas.

Goal 2: The rate of growth should not exceed the ability of the town and the area to provide facilities and services.

Goal 3: The development and provision of governmental and public utility facilities and services should be based upon a projection of reasonably expected population increase and economic growth, and should recognize the limits of the state's human, financial and natural resources.

Planning for growth:

Goal 1: Development shall be planned so as to maintain the historic settlement pattern of compact village and urban centers, or both.

Goal 2: Economic growth shall be encouraged in locally designated growth areas, or employed to revitalize existing village and urban centers, or both.

Goal 3: Intensive residential development shall be encouraged primarily in areas that are identified as village or urban centers and strip development along highways shall be discouraged.

Goal 4: Consistent with all other goals established in this section, development in areas which are not special areas as specified in the resource quality goals of this section, relating to resource quality, should be permitted at reasonable population densities and reasonable rates of growth.

Economic development:

Goal 1: In order to achieve a strong economy that provides satisfying and rewarding job and investment opportunities and sufficient income to meet the needs and aspirations of the citizens of Vermont, economic development should be pursued so as to provide maximum economic benefit with minimal environmental impact.

Goal 2: Expansion of economic opportunities shall be addressed in areas with high unemployment or low per capita incomes.

Goal 3: Access to educational and vocational training opportunities sufficient to ensure the full realization of the abilities of all Vermonters shall be addressed.

Agriculture and forestry:

Goal 1: Strategies to help the agricultural and forest industries remain viable shall be developed.

Goal 2: The manufacture and marketing of value-added agricultural and forest products shall be addressed.

Goal 3: The construction, expansion or provision of public facilities and services should be planned so as to not significantly reduce the resource value of important and economically viable adjoining agricultural or forestry lands.

Planning for housing:

Goal 1: The housing requirement for Vermont's expanding resident population, particularly for those citizens of low or moderate income, must be met by the construction of new housing units and the rehabilitation of existing structures.

Goal 2: Sites for the multi-family and manufactured housing should be readily available in locations similar to those generally used for single-family conventional dwellings.

Goal 3: There should be a reasonable diversity of housing types and choice between rental and ownership for all citizens in a variety of locations suitable for residential development and convenient to employment and commercial centers.

Transportation systems and public utilities:

Goal 1: The transportation system should provide convenience and service which are commensurate with need, should respect the integrity of the natural environment, and should be energy efficient. The need for public transit shall be addressed.

Goal 2: New construction or major reconstruction of roads and highways should provide paths, tracks or areas solely for the use by pedestrian or other non-motorized means of transportation when economically feasible and in the public interest.

Goal 3: The development and expansion of governmental and public utility facilities and services should occur, where appropriate, within highway or public utility right-of-way corridors in order to reduce adverse impact on the landscape and achieve greater

efficiency in the expenditure of public funds.

Note: Additional information on Vermont's Act 200 can be obtained by writing to the Vermont Department of Housing and Community Affairs, State House, Montpelier, VT or calling them at 802-828-3217.

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