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## **5.0 ECONOMIC RELATIONSHIPS**

### **5.1 INTRODUCTION**

The economic relationships between the Forest, the Region, and the national and international economies are more complex than might first be expected. Timber from the Forest is supplied not only to local markets but also to international markets, especially Canada. Local forest product companies receive pulp and sawtimber from the Forest and the industrial forests of the Four Counties, but also import wood from other areas of the Northeast and Canada. Visitors come from all over the United States and Canada while the hospitality businesses that serve them have linkages to the regional, national and international economies. In this section of the assessment, these relationships are examined from the perspective of the Forest and in the context of regional and national economic conditions.

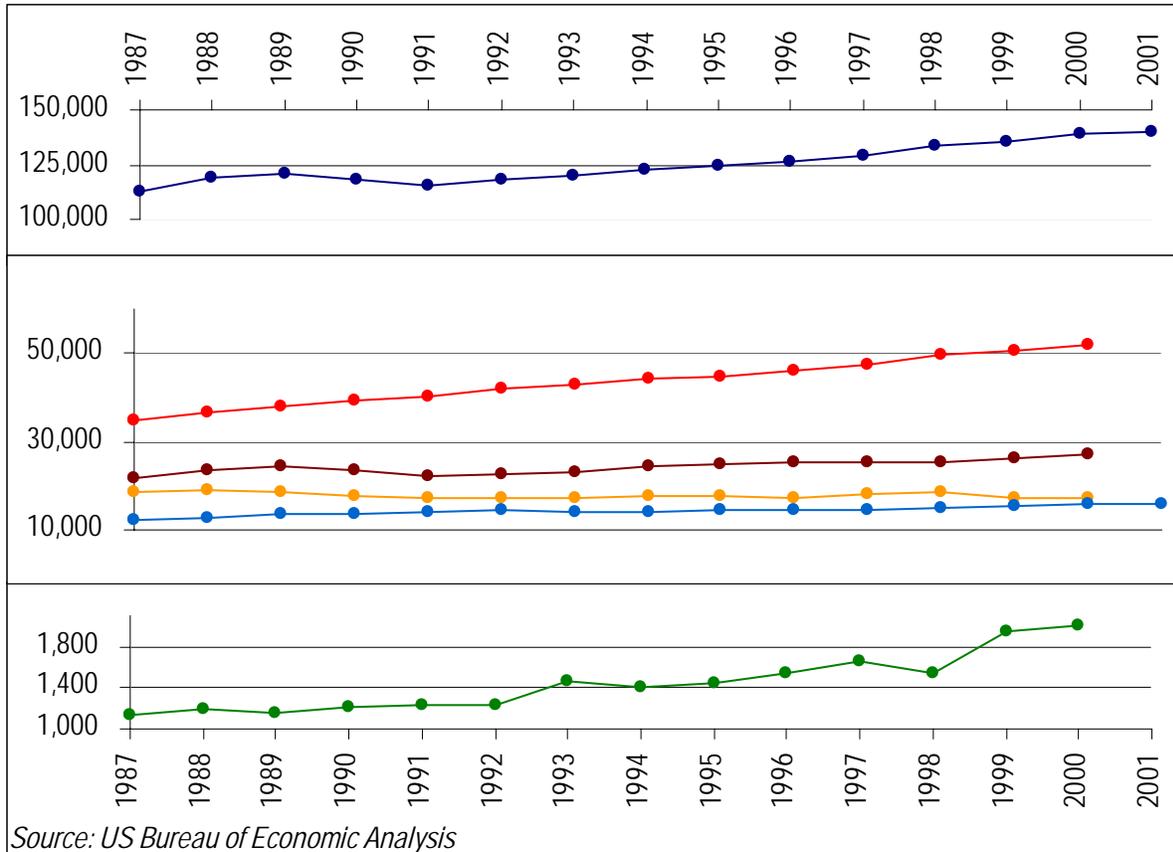
This section includes an overview of the economic patterns within the region, the trends in the Forest wood production, and trends in the recreation and tourism sectors. This section also deals specifically with the economic linkages between the Forest and the major sectors of the regional economy that it affects. This includes the relationship between Forest revenues and payments and how they affect the municipalities and the Four Counties in the Forest Region. This part of the analysis uses data on economic trends principally from state and federal government sources.

### **5.2 ECONOMIC PATTERNS IN THE FOREST REGION**

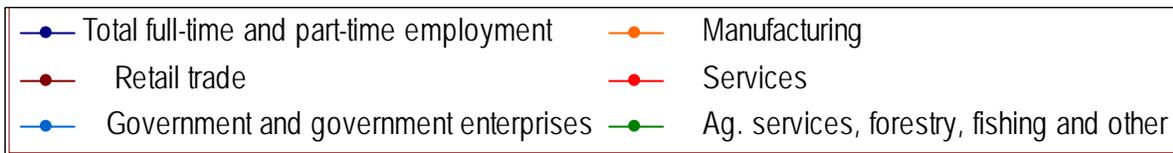
#### **5.2.1 Employment and Income by Economic Sector for the Four Counties, ME, and NH**

The Four Counties of the Forest Region are undergoing a gradual economic change that mirrors the rest of New Hampshire, Maine and to a large extent all of New England. Employment trends from 1987 to 2001 for the Four Counties combined are shown in Figure 5-1. Trends for New Hampshire and Maine are shown in Figures 5-2 and 5-3, respectively. These figures reflect a steady increase in overall employment while the manufacturing sector remains stagnant or declines. Most of the increase in total employment is accounted for by non-government services and retail trade. In the services sector, tourism, business services, health care, and education have been the leading sources of the increase in employment. The small sector of forestry and agricultural services has also increased slightly in recent years for all counties. Coos County, although it reflects the general trend of increases in service employment found in the other three counties, has remained static in overall employment through the period.

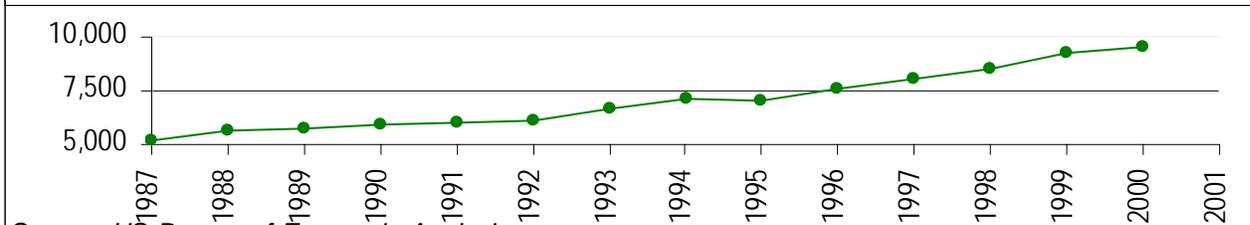
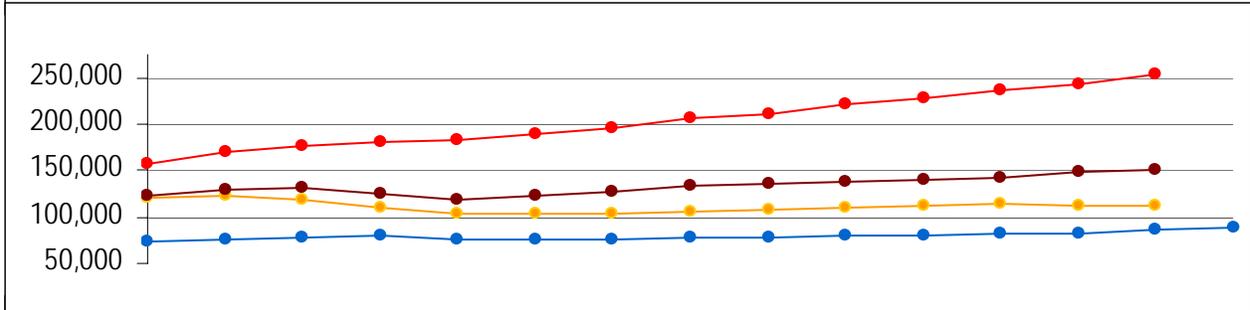
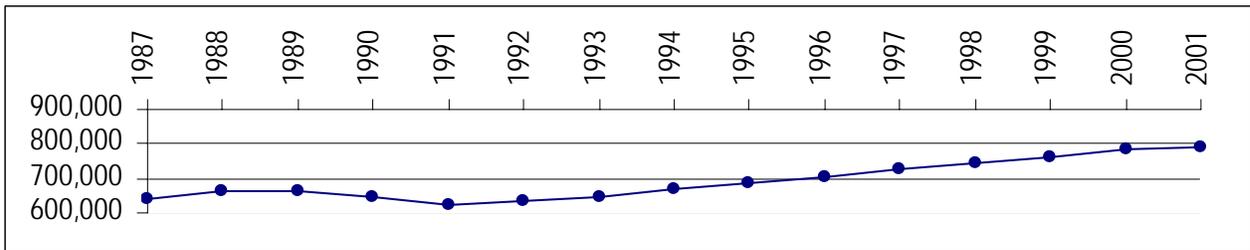
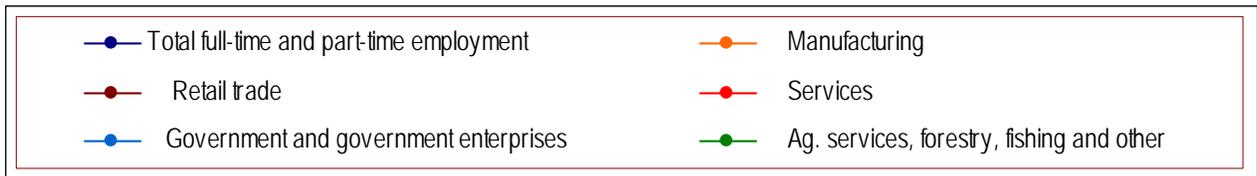
**Figure 5-1: Employment by Sector for the Four Affected Counties (Combined)**



Source: US Bureau of Economic Analysis



**Figure 5-2: Employment by Sector for New Hampshire**



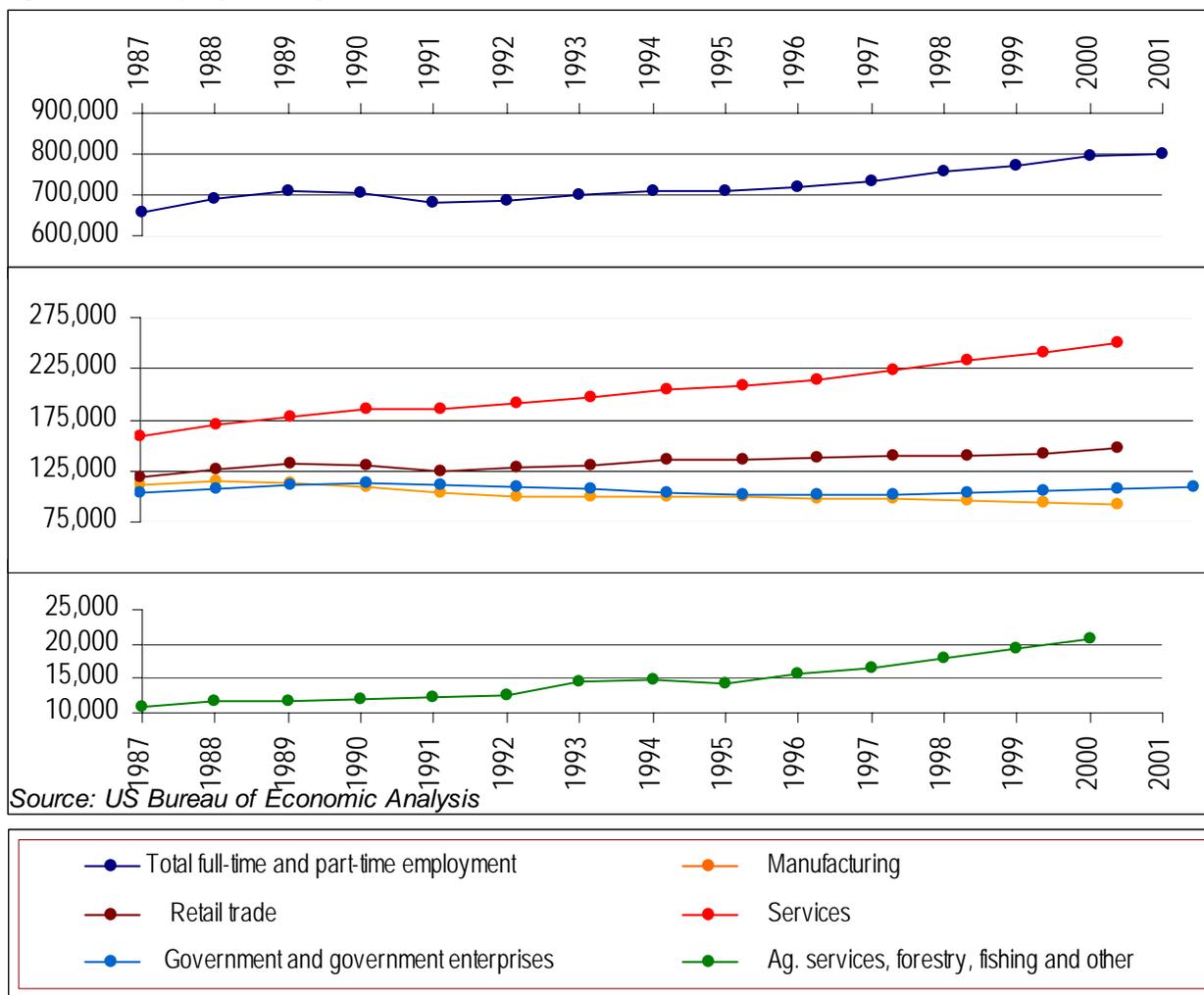
Source: US Bureau of Economic Analysis

### 5.2.2 Recreation and Tourism Spending and Trends

The overall increase in services and retail trade in the Forest Region is driven in large measure by the increases in outdoor recreation, tourism and second homes that have occurred during the last 15 years. The increase in tourism is reflected in the increased revenue from accommodations and meals and the collection of rooms and meals taxes in the Four Counties as shown in Figure 5-4. There has also been an increase in retail trade employment, which, in part, reflects increased tourism. This increase in economic activity from outdoor recreation has affected Coos County along with the other three counties in the Forest Region.

The number of recreation visitors in the WMNF and their spending can be compared to the region as a whole by referencing data for the White Mountain Visitor Region collected by the New Hampshire travel surveys and shown in Table 5-1. The Forest had 4.7 million recreation visitors using Forest lands in 2002 which is 54% of the White Mountain Visitor Region total visitors for all purposes, and 9% of the New Hampshire visitor total. Spending by recreation visitors to the Forest was \$171 million in 2002, which is 23% of the \$734 million spent by all travelers in the White Mountain Visitor Region and 5% of the New Hampshire total.

**Figure 5-3: Employment by Sector for Maine**



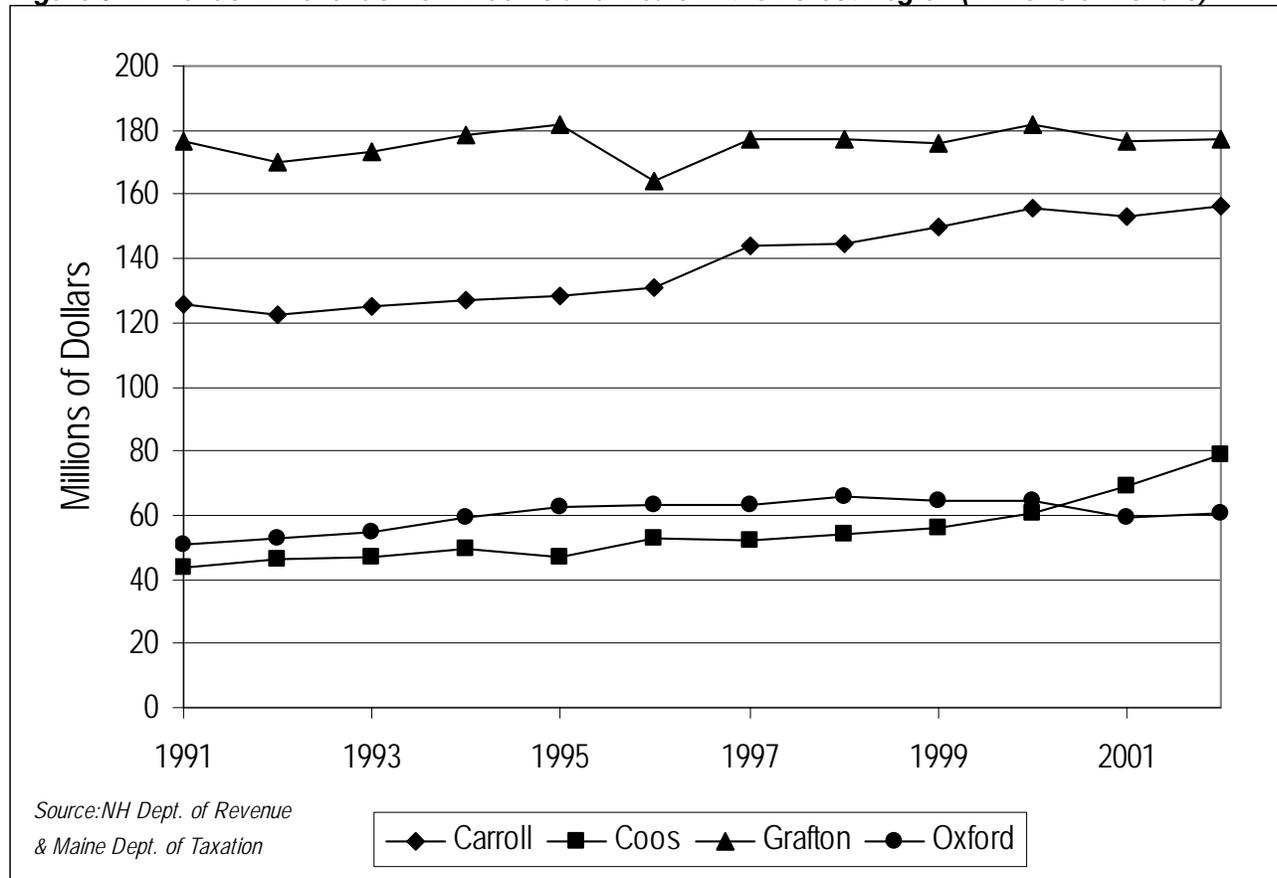
**Table 5-1: Visitor Spending in the Forest Compared with the Region and NH in 2002**

	Visitors in Millions	% Visitor of NH Total	Visitor Spending in Millions	% Spending of NH Total
White Mountain National Forest	4.7	9%	\$65	2%
White Mountain Visitor Region	8.68	16%	\$734	20%
New Hampshire	53.82	100%	\$3,733	100%

*Source: Institute for New Hampshire Studies and this Report*

This travel data indicates that the average New Hampshire traveler spent \$69 per day, while the average White Mountain Region traveler spent \$84 per day. The average Forest recreational visitor spent \$36 per visitor day (See Table 5-5). However, it is difficult to compare this assessment's estimates with the New Hampshire Travel Survey results because of differences in the way the data was collected and in the definition of a visitor day.

Data on trends in visitation to the White Mountain region and New Hampshire from the New Hampshire visitor survey (Goss, 2003) show that visitor trips increased slightly through the period from 2000 to 2002. The statewide increase was 0.4% in the number of visitor days. Business travel seems to have been reduced as a result of the economic recession and the terrorist attacks of September 11, 2001 more than recreational travel, especially in southern New Hampshire (Goss, 2003). The trend of increased tourism and recreation is supported by the data on revenue from rooms and meals shown in Figure 5-4. Data are not available from Maine to make these types of comparisons, but the general similarities between the New Hampshire and Maine sections of the Forest and the states suggest that the New Hampshire patterns are probably reflected in Maine.

**Figure 5-4: Trends in Revenue from Rooms and Meals in the Forest Region (Millions of Dollars)**

### 5.2.3 Trends in Forest Products and Processing

Localized patterns in the quantity, quality, price, and types of wood products can be difficult to thoroughly and accurately trace. Methods of gathering data on these parameters differ considerably from one state to another, and private businesses can be reluctant to share proprietary information about their processing. Projections of future patterns present a whole new set of challenges. Regional experts have examined both sawtimber and pulpwood trends, focusing on where wood is going and the factors controlling its market price. Numerous analysts in both public and private sectors have published reports on these trends that are specific to the Northeast and to the Region.

This section will provide a brief overview of factors likely controlling wood products and processing in the Northeast and how these trends influence the Forest.

In 1989, the Canada-U.S. Free Trade Agreement was initiated causing tariff-free trading between the two nations. Shortly after, the introduction of the North Atlantic Free Trade Agreement in 1994 opened the trade doors of Mexico to U.S. and Canadian markets. By 2002, over \$440 billion worth of goods were exchanged between Canada and the U.S. alone. Maine and New Hampshire, both sharing a border with Canada, experienced a tremendous growth in trade. A study completed by The Trade Partnership for the U.S. Council of the Americas found that Maine's lumber and wood products accounted for 31% of its total state exports to Canada in 1999. Additionally, from 1993 to 1999, Maine paper products experienced a 22.3% increase in exports to Canada. According to the Canadian Embassy, Canada is New Hampshire's primary destination of exported goods.

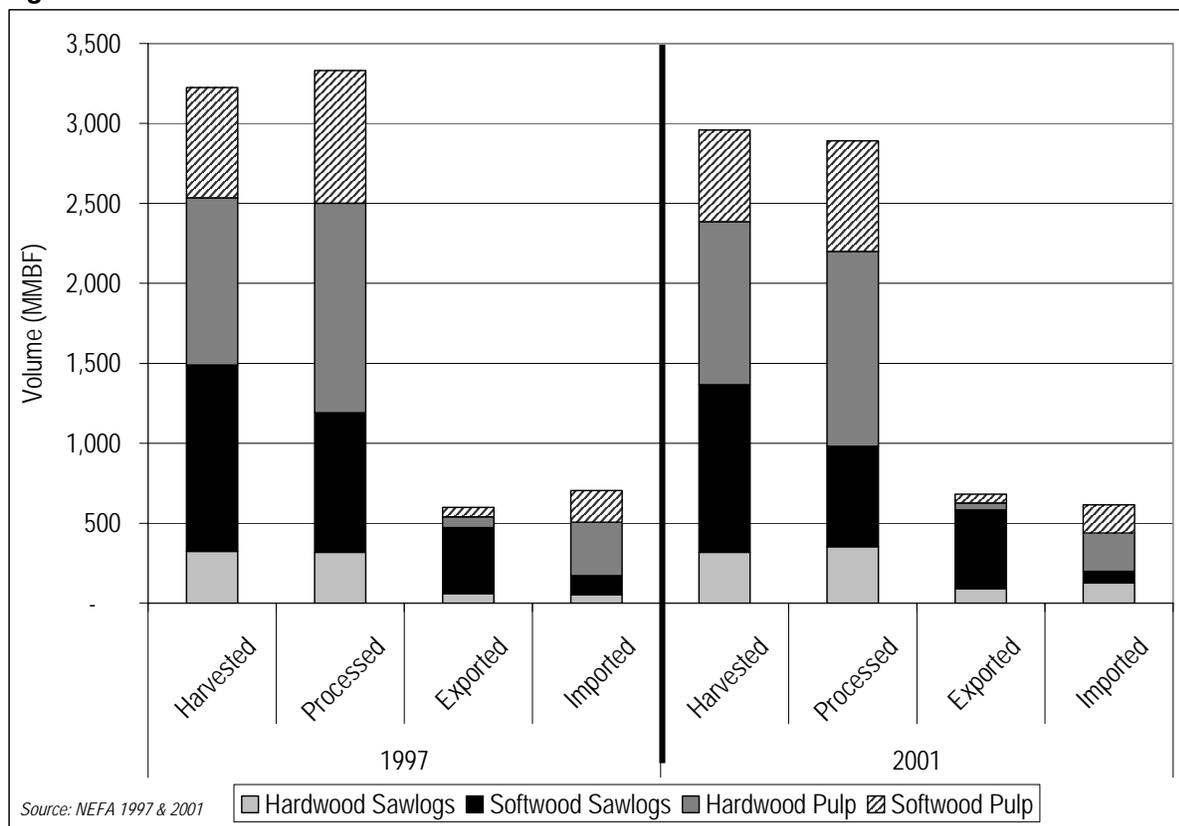
### **Pulpwood and Sawtimber**

The pulpwood market in the Northeast has experienced many significant changes over the last several decades that are relevant to the Forest and the Region. The Northeastern pulpwood market faces ever-increasing pressure from the global paper industry, but also faces a changing landscape locally. The shift from a softwood dominated pulp industry to a more hardwood dominated pulpwood market has kept overall harvest levels from growing as rapidly as once predicted. Additionally, increased recycling of wastepaper, improved efficiency of the pulping process and loss in market share to the Southeastern U.S. have all contributed to the slow growth of the pulp industry in the Northeast (Irland et al., 2001).

Figures 5-5 and 5-6 were adapted from the Northeast States Foresters Association (NEFA) reports on wood flows in the region. Numbers are expressed in millions of board feet (MMBF). Significant points from the NEFA report for Maine are as follows:

- 1) Maine processes close to as much wood as it harvests.
- 2) Imports are dominated by pulpwood to supply Maine's strong pulp industry.
- 3) 67% of Maine's exports are dominated by high value softwood sawlogs.
- 4) Pulpwood (hardwood and softwood) comprise over 66% of Maine's imports.

**Figure 5-5: Maine Forest Products in 1997 and 2001**

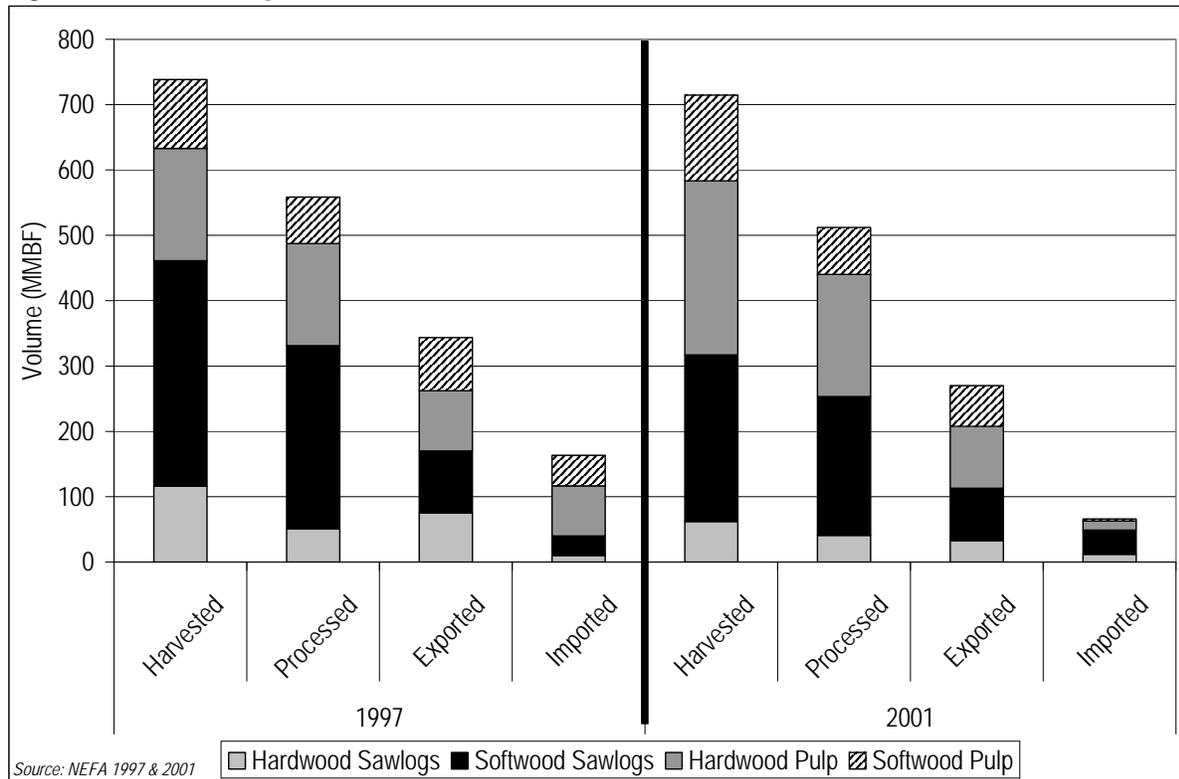


The pattern in New Hampshire is very different (Figure 5-6). New Hampshire is cutting more than it is processing, as can be seen from the difference in the import and export columns. Some significant patterns are outlined below:

- 1) New Hampshire shifted its focus in 2001 to harvesting and exporting more pulpwood and less sawtimber, likely due to the closure of its primary pulp mill in Berlin.

- 2) Though total harvests, processing, and exports experienced only a slight decline in 2001, New Hampshire imported only 42% of what it did in 1997.
- 3) Softwood sawlogs and hardwood pulpwood continue to dominate New Hampshire's primary processing.

**Figure 5-6: New Hampshire Forest Products in 1997 and 2001**

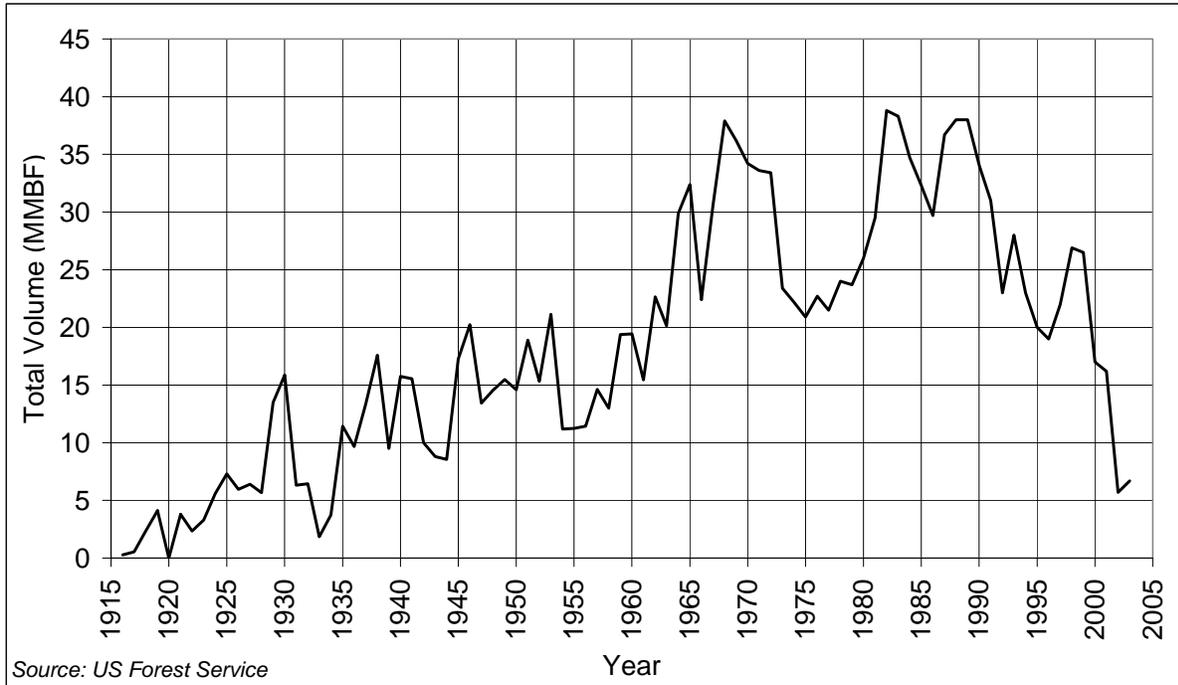


The Forest has not kept pace with regional harvest patterns. Forest Service records allow us to examine the longer term trend in timber extraction. Figure 5-7 shows that there was a steady increase in the annual harvest from 1915–1969, and then a pause, followed by renewed strength in timber harvests in the mid 80s to early 90s. What is seen after 1989 is a very rapid and steady decline in cutting. However, during this most recent decline, the wood harvests in the broader region (ME, NH, VT, and NY) have remained close to historic levels.

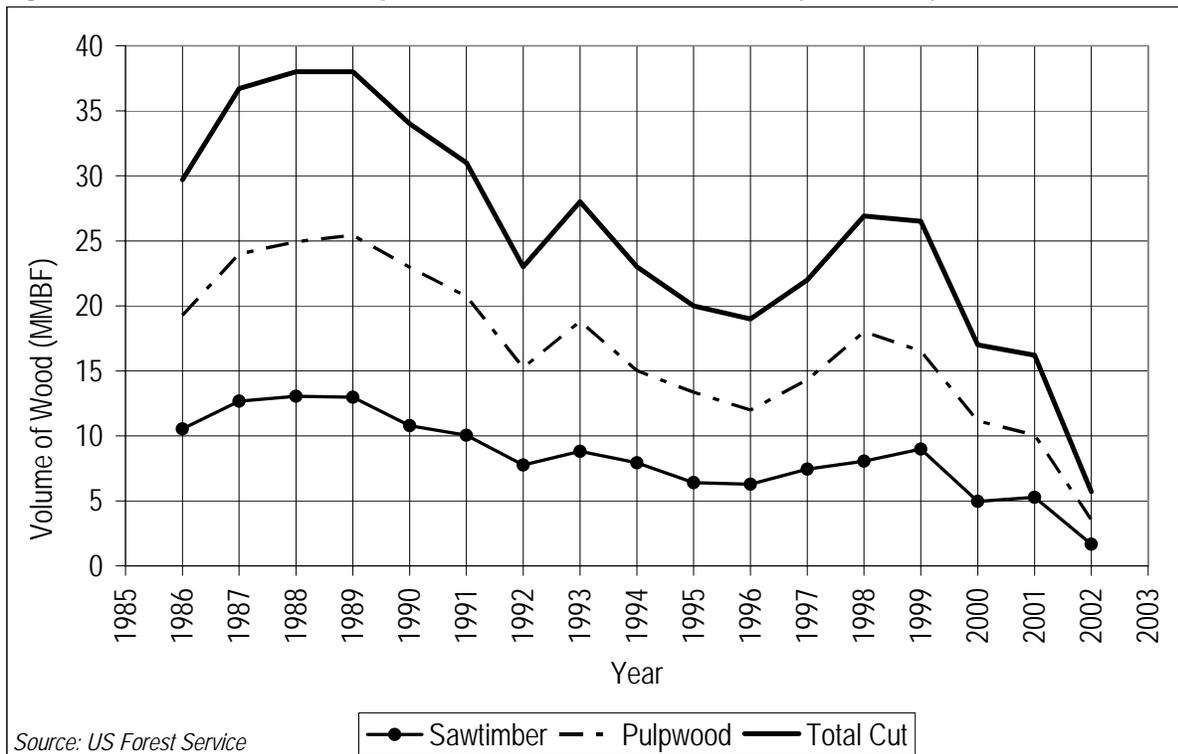
Since 1989, sawtimber and pulpwood production has steadily declined (Figure 5-8) on the Forest. In most recent years, the Forest is back down to harvest levels not seen since the Great Depression. In 2002 and 2003, the total harvest was only 5.7 and 6.6 MMBF respectively, which is down from the 2001 harvest of over 16 MMBF. There are several explanations for this decline. The Forest Service is required to conduct thorough environmental analysis on all timber sales, which translates into sharp increases in the time and resources needed for each sale. Additionally, in response to issues dealing with Threatened and Endangered Species, the contracting of timber sales was interrupted from early 1999 through December of 2001. During this time period, harvesting continued to take place on sales already under contract but no new sales were contracted.

The allowable cut on the Forest is set at 35 MMBF annually, but the Forest has not reached that level since 1989, just a few years following the initiation of the last Forest Plan. Though the pulpwood harvest on the Forest has declined since the late 1980s, pulpwood production in the Northeast has increased gradually over the same period (Whidman and Griffith, 1997).

**Figure 5-7: Total Volume of Wood Harvested on the WMNF from 1915 – 2003 in MMBF**



**Figure 5-8: Sawtimber and Pulpwood Harvests from the WMNF (1986-2002)**



## 5.2.4 Comparison of Value and Volume of Wood Harvested On and Off the Forest

### 5.2.4.1 Volume

Total volume harvested from the Forest has been declining for close to two decades. An important consideration is how the volume of wood cut from the Forest contributes to the Region's total harvest. Data on the Forest are provided by the Forest Service, and New Hampshire values are derived from the New Hampshire Division of Forest and Lands.

Table 5-2 shows the contribution of the WMNF (NH component only) harvest for one year<sup>1</sup> to the tri-county area (Coos, Carroll, and Grafton) and New Hampshire as a whole. Pulpwood and fuelwood were aggregated for the purposes of this comparison. In 2001, the WMNF sawtimber harvest represented 4.2% of the tri-county harvest and less than 2.0% of the total NH harvest. For pulpwood and fuelwood, the numbers are slightly higher. An additional relevant statistic is the tri-county's contribution to the state harvest. Over 44% of the state's sawtimber was harvested in the tri-county area, as was over 59% of its pulpwood. This presents a snapshot of the Forest's position in the state's forest products industry and three of the affected counties.

**Table 5-2: Percentage of Wood Harvested from WMNF Relative to the Tri-County and NH for 2001**

Area	Total Sawtimber Harvest 2001	Total Pulpwood & Fuelwood Harvest 2001	Total Harvest 2001
Volume of WMNF / Volume of Tri-County	4.2%	3.8%	3.9%
Volume of WMNF / Volume of NH	1.9%	2.2%	2.1%
Volume of Tri-County / Volume of NH	44.2%	59.2%	53.4%

*Source: NH Division of Forest and Lands and U.S. Forest Service*

### 5.2.4.2 Value

Sawtimber and pulpwood volumes provide only one measure of the Forest's position and influence in the regional market. The Forest has been managed with a strong focus on producing high value sawlogs, through the removal of low value wood in earlier years. The Forest's high value sawtimber represents a key niche in the area and has impacts on the local economy. Table 5-3 was derived from New Hampshire timber tax data and U.S. Forest Service records. Here, the Forest provides more value to the Region than volume. Looking at 2001 data in Tables 5-2 and 5-3, the WMNF contributed 3.9% of the tri-county's wood volume, but over 5% of its value. These differences appear small, but only because the volumes cut on the Forest are at depressed levels. If the Forest were removing its annual allowable cut of 35 MMBF, then the volume contribution would jump to over 9% of the tri-county's total cut, and the value would be closer to 13%.

To better illustrate the differences in sawtimber on and off the Forest, we can examine regional inventory data for high value sawlogs. High value sawlogs can be classified as tree grades 1 and 2. Table 5-4 illustrates that the Forest has a significantly higher percentage of hardwood and softwood high grade timber than the surrounding regions, translating to more dollars per tree. Sampling error for the Forest data was 17%.

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<sup>1</sup> Only the year 2001 was used for this comparison due to the availability of harvest data at the state level. Similar data for Maine were unavailable.

**Table 5-3: Value of Forest Products Harvested from the WMNF Relative to the Region (1998-2001)**

Area	1998 Timber Value	1999 Timber Value	2000 Timber Value	2001 Timber Value
Tri-County	\$ 20,825,810	\$ 21,873,960	\$ 19,735,464	\$ 21,110,660
State	\$ 46,510,440	\$ 47,910,262	\$ 45,530,024	\$ 46,992,548
White Mountain (NH only)	\$ 1,494,917	\$ 1,654,388	\$ 1,100,612	\$ 1,125,468
Value of WMNF / Value of Tri-County	7.2%	7.6%	5.6%	5.3%
Value of WMNF / Value of NH	3.2%	3.5%	2.4%	2.4%
Value of Tri-County / Value of NH	44.8%	45.7%	43.3%	44.9%

Source: NH Dept. of Revenue and U.S. Forest Service

**Table 5-4: Net Volume of High Value Sawtimber (MMBF) for Trees > 15" DBH<sup>1</sup>**

	Tree Grade 1	Tree Grade 2	All Sawtimber	Percent High Grade (1 or 2)
<b>NH Timberland:</b>				
Softwoods	1316.6	1451.7	6374.4	43%
Hardwoods	1081.6	1337	4664.8	52%
All	2398.2	2788.7	11039.2	47%
<b>ME Timberland:</b>				
Softwoods	4993.2	1539.2	10081.5	65%
Hardwoods	1465.2	2186.3	7249.8	50%
All	6458.4	3725.5	17331.3	59%
<b>WMNF Timberland:</b>				
Softwoods	380.2	80.7	472.0	98%
Hardwoods	425.3	255.8	1088.7	63%
All	805.5	366.5	1560.7	75%

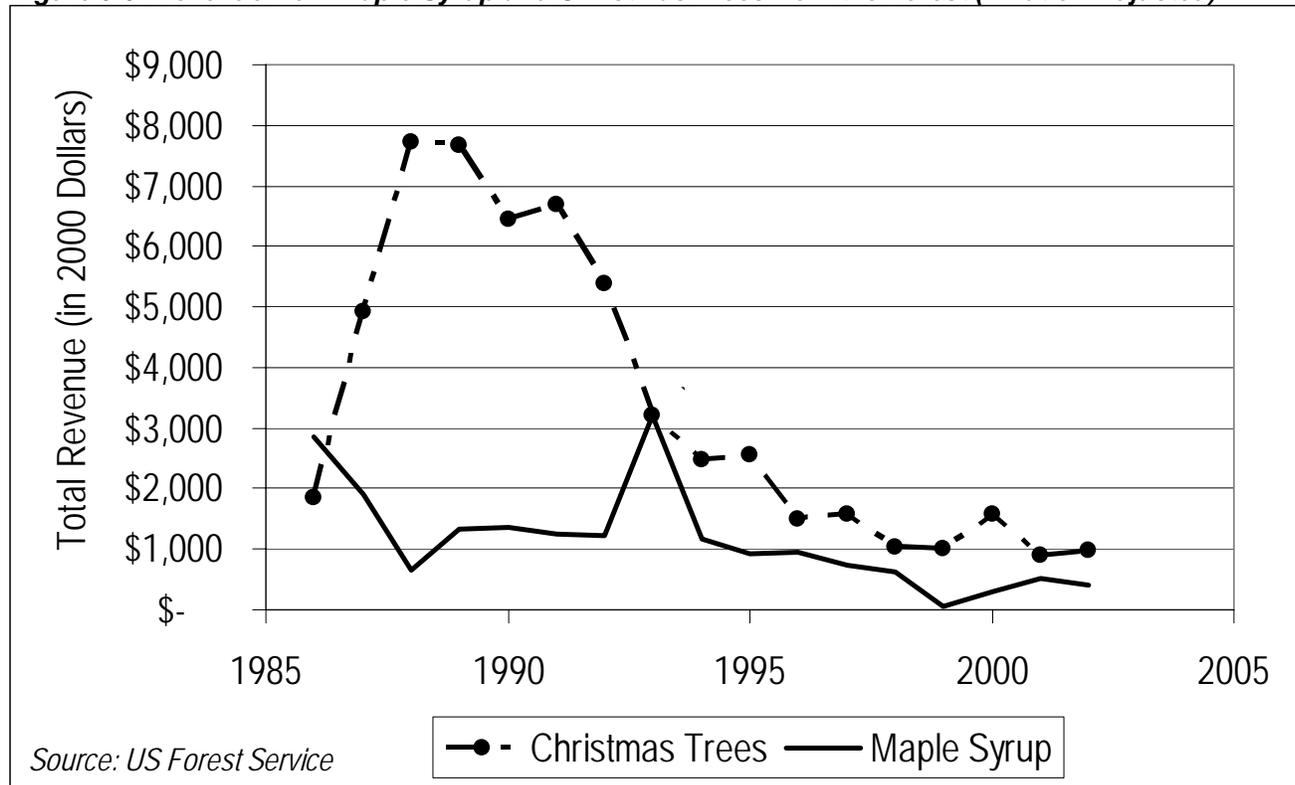
Sources: U.S. Forest Service, 1995 & 1997

### 5.2.5 Specialty Forest Products

The Forest provides additional products such as maple syrup, Christmas trees, and fir bows for wreaths. These products are a small percentage of overall Forest products revenue, but provide the public with valued cultural resources. Figure 5-9 shows inflation adjusted<sup>2</sup> (in 2000 dollars) revenue trends from maple syrup and Christmas trees from 1986 – 2002. Revenue has declined for both over that period. The total revenue for these products has not exceeded \$8,000 in any given year, providing negligible economic benefit to the Region and the Forest as a whole.

<sup>1</sup> DBH = Diameter at Breast Height is the width of a tree at 4.5 feet above the ground.

<sup>2</sup> Inflation adjustment calculated using the Consumer Price Index (CPI) standardized to the year 2000.

**Figure 5-9: Revenue from Maple Syrup and Christmas Trees from the Forest (Inflation Adjusted)**

### 5.3 METHODOLOGY OF ECONOMIC ANALYSIS

The purpose of the economic linkages analysis is to better understand how specific activities, including timber cutting and recreation, affect the economy of the Forest Region. This is a prerequisite to the assessment of the economic impacts of alternative management plans, which will be undertaken later as part of the Economic Impact Statement (EIS).

The economic linkage analysis uses the Forest Service's IMPLAN economic impact model and the FEAST economic planning tool to evaluate economic effects of Forest activities within the Four Counties. The IMPLAN model (MIG Inc, 2000) is used not only by the US Forest Service, but also by other government agencies and private organizations, to assess the economic effects of specific activities or changes in levels of activity. The model is used in this report to assess the economic effects of current activities on the Forest, but it can also be subsequently used to assess the economic effects of management alternatives that give rise to different levels of activity on the Forest.

The IMPLAN model is an economic input/output model. It takes as inputs the specific economic activities that take place on the Forest or as a direct result of Forest activities. This includes harvesting of wood and other products, recreation activities, camping and other accommodation on Forest land. It also takes into account payments made by users of the Forest to the Forest Service for cutting wood and use of Forest land. The model accounts for expenditures made within the Forest Region which result directly from Forest activities. This includes the wages and expenses of loggers and purchases such as fuel, meals, and accommodation made by people engaged in recreation on Forest land. The output of the model is expressed in terms of regional employment and income resulting from specific activity levels.

The model accounts not only for these direct expenditures, but also traces the indirect and induced effects of such spending by Forest users, and the economic effects of the business activity linked to the

Forest. Therefore, the economic effects of pulp and paper mills, saw mills, and other forest product industries are also assessed to the degree that they depend on Forest harvested wood. The indirect and induced effects of spending by businesses catering to those engaged in recreation on the Forest are also included in the model.

The expenditures by visitors to the Region who are not using the Forest or by businesses not involved with the use of Forest land are not included in the model, even though they may benefit indirectly from proximity to the Forest. The economic impact analysis is, therefore, restricted to the linkages that exist in the regional economy between the use of Forest land and the people, governments and businesses within the Four-County Region. This model-based analysis includes the most important economic linkages that occur, but it is not exhaustive. Other effects including intangible benefits to the regional economy and the linkages beyond the Four-County area are discussed later in a broader context.

#### **5.4 ECONOMIC LINKAGES BETWEEN WMNF ACTIVITIES AND THE ECONOMIC PATTERNS OF THE FOREST REGION**

Economic linkages between the Forest and the Region can be considered in the context of the three geographic units or levels on which this socio-economic assessment is focused. These are the Affected Towns, the Four Counties, and the Wider Region including Maine, New Hampshire, Massachusetts and Vermont. The sixty Affected Towns are strongly influenced by the economic activities of the Forest. Many of them receive direct payments in lieu of taxes, and they provide services to the Forest. These towns are also home to many Forest workers and businesses directly related to Forest activities. Although the importance of these towns as part of the Forest based economy is clear they do not form a coherent economic entity that can be analyzed or assessed as a whole. These sixty towns and MCDs are spread over the Four Counties and often separated by mountain barriers that restrict road access. Each town often has stronger economic links to economic hubs in their counties than they do to the whole group of Affected Towns. For this reason, and because most economic data is only available at the county level, the economic linkages are evaluated here primarily at the Four-County level. A later section deals specifically with the payments to towns.

##### **5.4.1 Employment and Income in the Forest Region**

The Forest has a direct employment of 250 people, of whom 110 are full time and 140 are seasonal. It has annual total expenditure of approximately \$11 million (WMNF Budget FY 02). It is one of the larger employers in the Affected Towns, but it is considerably smaller than the Fraser pulp and paper mill complex in Berlin/Gorham, which has employed between 700 and 900 people in recent years. Within the Four Counties, the Forest Service is a far smaller employer than the State of New Hampshire, Dartmouth College, Dartmouth Hitchcock Medical Center, and several manufacturers. In 2002, the Four Counties had employment of 140,000 and personal income of \$5.7 billion. Overall the direct employment by the Forest service accounts for less than 0.2% of the employment and the personal income in the Four Counties.

Timber valued at \$1.2 million was harvested from the forest in 2001 and \$345,000 worth was harvested in 2002. The pulp cut has linkages to ten or more pulp and paper mills in New Hampshire, Maine, and Canada. The log harvest has linkages to a much larger number of sawmills and other timber processors throughout New England, New York and Canada. Small amounts are exported to other countries. The fuel wood cut is mostly used within the Four Counties. Local sources estimate that about 90% of the timber is cut by loggers based in the Four Counties. However, the final destination of the timber is not known with any certainty. It is estimated that approximately 50% is processed in the Four Counties. The destination for timber cut is subject to rapid change as the volume of wood cut from the Forest has

declined in recent years and the wood products industry in the Wider Region has declined and structurally changed. It is very difficult to predict the destination of pulp or timber cut in the future.

The Forest attracted approximately 4.7 million visitors engaged in outdoor recreation on Forest lands in 2002. This is equivalent to 1.8 million visitor days. These visitors spent an estimated \$65 million in the Forest Region. Table 5-5 shows the number visitors in each category and their expenditures per visitor day.

The recreation visitor data in Table 5-5 is presented in terms of visitor days, although the original data may have been collected based on other units. The expenditures per visitor day include overnight and day visitors based on their principal recreation activity. A visitor day is a period of at least 12 hours and the number of visits has been adjusted to visitor day units as described in the Section 3 of this report. The expenditures are only for purchases made in the Four-Counties. Expenditures on durable goods such as snowmobiles, ski equipment and fishing gear are assumed to be made in the Four Counties only if the visitor is a resident of one of the Four Counties. On average, 22% of the recreation visitors to the Forest come from the Four Counties.

**Table 5-5: Recreation Visitors to the Forest and Expenditures in the Forest Region**

Recreation Type	Visitor Days	Expenditure per Visitor Day	Total Annual Expenditure
Hiking	728,000	\$14.68	10,687,000
Nordic Skiing including Tuckerman's	72,000	\$32.04	2,307,000
Hunting	112,000	\$17.67	1,979,000
Fishing	79,000	\$21.71	1,715,000
Snowmobiling	32,000	\$81.14	2,596,000
Driving and Viewing *	91,000	\$58.30	5,306,000
Road Access Day Use & Camping *	323,000	\$29.07	9,390,000
Alpine Ski Area Use *	377,000	\$82.54	31,117,000
<b>All Visitors</b>	<b>1,814,000</b>	<b>\$35.89</b>	<b>65,097,000</b>

*Source: US Forest Service Recreation Data, AMC Surveys, USFWS National Survey, NH Snowmobile Association, Institute for NH Studies. (\* Indicates a Developed Recreation Category)*

The linkages between the recreation visitors to the Forest and the economy of the Forest Region are substantial and diverse. The direct expenditures go to hundreds of large and small businesses that include Forest concessionaires such as campgrounds and ski areas, AMC huts, private campgrounds, hotels, restaurants, grocery stores, gasoline stations and other retailers.

#### **5.4.2 Total Economic Impact of Forest Related Activities on the Economy of the Forest Region.**

The direct employment and expenditures by the Forest Service, the direct activities of timber cutting and the direct expenditures of recreational visitors to the Forest result in additional economic activity within the Four-County Forest Region and beyond in the Wider Region. This creates indirect and induced employment and income, which has been evaluated by the use of the Forest Service IMPLAN model. The total impacts including direct, indirect and induced employment and income for the Forest Region are shown in Table 5-6.

**Table 5-6: Total Employment and Income in the Forest Region from Forest Activities**

<i>Forest Activity</i>	<i>Total Employment</i>	<i>Total Income</i>
Forest Service Expenditures	374	\$13,117,000
Payments to States and Towns	23	\$729,300
Timber	276	\$10,536,100
Recreation incl. Fishing and Hunting	1,469	\$31,474,501
<b>Total Forest Activities</b>	<b>2,141</b>	<b>\$55,856,901</b>

*Source: US Forest Service IMPLAN and FEAST Economic Impact Models*

The income and employment data are based on 2002 information, or adjusted to 2002, except for the data on timber cut, which are based on 2001 data. The year 2001 was chosen to represent the current activity for timber because 2002 had an exceptionally low timber cut and revenue due to restrictions on timber cutting. The year 2002 is not representative of the current situation. However, it should be noted that timber cuts in the last several years have been below the levels in the early part of the current Forest Plan period and they are well below the allowable cut. Therefore, the economic impact analysis, with respect to timber, should not be interpreted as representative of the allowable cut in the current plan.

The economic effects of the Forest activities in specific areas of the economy result from the economic linkages that have been discussed. Impacts from specific sectors are also assessed by the IMPLAN and FEAST models, and they are presented in Table 5-7. The two largest sectors affected by Forest activities are the retail trade and the services sector, which reflect the very large contribution to the total regional income and employment from recreational tourism. The government sector is also large, reflecting the activities of the Forest Service and state and local government activity from the direct payments made by the Forest. The two sectors most affected by timber cutting are agriculture, which includes forestry services, and manufacturing, which includes pulp mills, paper mills and saw mills. These two sectors are relatively low as a result of the current low levels of timber cutting.

**Table 5-7: Total Employment and Income in the Affected Industries of the Forest Region from Forest Activities**

<i>Industry Sector Affected</i>	<i>Total Employment</i>	<i>Total Income</i>
Agriculture	41	\$562,800
Mining	0	\$4,300
Construction	40	\$1,423,700
Manufacturing	178	\$7,633,900
Transportation, Communication, & Utilities	54	\$1,990,000
Wholesale trade	55	\$2,480,700
Retail trade	718	\$13,318,600
Finance, Insurance, & Real Estate	44	\$1,133,100
Services	606	\$12,685,200
Government (Federal, State, & Local)	400	\$14,544,500
Miscellaneous	7	\$79,400
<b>Total All Affected Sectors</b>	<b>2,141</b>	<b>\$55,856,200</b>

*Source: US Forest Service IMPLAN and FEAST Economic Impact Models*

### **5.4.3 Interpretation of the Results of the Economic Impact Model in the Context of the Forest Plan**

The IMPLAN FEAST model is a very valuable tool in understanding how Forest activities affect the economy of the Forest Region. The model relies on the existence of a fixed relationship among economic activities in a region, as measured by economic surveys undertaken by the U.S. Department of Commerce. When the model is used it is assumed that these relationships will remain constant, so that a linear relationship will hold between an input, such as timber cutting or recreational visits, and a resultant level of income and employment. In addition, because the model is run for a specific region, the model only takes into consideration economic activity in the modeled region. It is therefore quite sensitive to how much of the linkage in a particular sector occurs in the region. For example, if all the timber cut were to be transported to mills outside the Four Counties, the Forest Region income and employment would fall to a fraction of the modeled levels even if the timber volume cut was the same.

With these caveats, the results of the model for the recreation sector can be considered a reasonably good predictor to the general direction and magnitude of the economic impacts. As mentioned, the model only considers impacts within the Forest Region and any change up or down in recreational visitors to the Forest is likely to result in proportional changes in Forest Region income and employment. It is unlikely that there will be a major structural shift in the recreational sector in the near future.

In the timber sector, the relationships between timber cut, logging employment and income are reasonably predictable. Most of the logging operators are based in the region and are likely to remain so. However, the situation for the timber sector linkages to the rest of the wood products industries is much more difficult to interpret for two reasons. First, there are inadequate data on the linkages between the timber sector and the wood products industry in the Forest Region. The amount of timber cut on the Forest that is delivered to mills in the Forest Region is uncertain and apparently subject to rapid change. This is unrelated to the volume of wood cut on Forest land. Second, the wood products industry in New Hampshire and Maine is declining and projected to decline further in the next decade (Argiropolis and Bartlett, 2003), while it is undergoing rapid change under pressure from other regions and foreign producers.

As a result of this situation, interpretation of the economic impact results for the timber sector, beyond the logging sub-sector, will probably require additional data and analysis to supplement the model. Overall the levels of employment and income in the forest product industry in the Forest Region are likely to be affected more by the externally driven fortunes of wood products manufacturers than by the timber cut on the Forest. Within the industry however, there may be specific sub-sectors, such as those which depend upon high value specialty sawtimber where the Forest may be a major provider and therefore the Forest can significantly affect the regional market.

### **5.4.4 Intangible Economic Effects of Forest Activities and Management on the Economy of the Forest Region**

The economic model approach to assessing the economic impact of the Forest is valuable but only captures part of the economic benefits that the Forest brings to the region. Many of these are intangible but nonetheless have well recognized effects. They can be summarized as follows:

- 1) The Forest as a scenic and natural resource provides an important attraction and benefit for visitors whose recreation does not bring them on to the Forest lands. This includes visits to state parks, public and commercial natural attractions, museums, historic sites, resort hotels, conference centers, educational institutions, retail outlets, and sports facilities. In addition to the 4.7 million Forest recreational visits approximately another 4 million visits each year take place

around the scenic environment of the Forest (Goss, 2003). The spending of all these visitors, while not directly attributed to the Forest, is facilitated and enhanced by the Forest. Loss of Forest land or degradation of the Forest environment would reduce these economic values.

- 2) The Forest, by conserving lands, water, soil, air and wildlife, protects and enhances the value of these resources on other lands in the region making them more attractive and valuable in the regional economy. For example, the recent acquisition and protection of natural areas in Coos County is creating a mosaic or network of conserved lands in which the total network is more valuable than the sum of its individual parts.
- 3) Proximity to the forest enhances property values and attractiveness (Sundquist and Stevens, 1999). This may be especially true for seasonal homes and retirement homes which are a very large fraction of the total homes in the area. Second homes are an important driving force in the economy of the Forest Region.

### 5.5 ECONOMIC IMPORTANCE OF FOREST USES TO FOREST SERVICE REVENUE

The Forest generates revenues from users in four major categories. The 2002 revenue from these four principal sources is shown in Table 5-8. Historically the largest of these has been the fee paid for cutting timber, fuel wood and other products. This is equivalent to the stumpage price.<sup>1</sup> As recently as 2001 this was as high as \$1.2 million. In 2002 this was only \$345,000 due to restrictions on the amount of timber cut in that year. Another revenue category is the fee paid by ski areas for the use of Forest land. This is based on ski area revenue adjusted by the area on Forest land. The revenue changes with ski area sales. The largest source in this category was the Loon Mountain Ski Area.

At present, the largest source of revenue is the parking fee permit demonstration program. Under this program, which was initiated in 1997 under the National Recreation Fee Demonstration Program (PL 104-134), forest visitors are charged for a parking permit to use the Forest. Revenue has increased under this program from \$349,000 in 1997 to \$719,000 in 2002. As discussed earlier this partly reflects increased recreation but it is also hard to interpret because users are adjusting to the program. The Forests total revenue in 2002 of \$1.7 million was approximately 15% of the annual expenditure of \$11 million.

**Table 5-8: White Mountain National Forest Revenues from Users**

<i>Revenue Source</i>	<i>Revenue FY 2002</i>
Campsite Concession Fees	\$188,278
Ski Area Concession Fees	\$503,738
Fee Demonstration Parking Permits	\$719,197
Timber Sales	\$344,656
<b>Total</b>	<b>\$1,755,869</b>

*Source: US Forest Service Fee Demonstration Program Revenue Records and FY 2002 Budget*

<sup>1</sup> Stumpage price is equivalent to the price paid for the raw logs harvested during timber sales.

## **5.6 DIRECT ECONOMIC EFFECTS OF THE FOREST TO TOWN AND COUNTY BUDGETS**

The Forest makes payments in lieu of taxes (PILTs) to the towns and county governments in which it holds lands. The PILTs are paid on a per acre rate basis. The largest recipients of PILTs are the towns that have the largest areas of Forest, many of which are unincorporated, so the payments are made to the county governments. The list of PILT payments and town budgets are given in Appendix B. There are 51 towns and 3 counties in New Hampshire that received PILTs in 2002 amounting to a total of \$843,000. The largest single recipient was the Town of Lincoln, which holds over 72,000 acres and received \$86,000, while Coos County received \$161,000 for the unincorporated acreage within the county. In Maine, Oxford County received \$31,000 in 2002 and Stoneham Town received \$12,000. The average PILT payment was \$19,882.

There is considerable variability among the Affected Towns in the relative importance of the PILTs to the town budget. There are 6 towns where the PILTs are over 10% of the town revenues. These are Benton, Chatham, Ellsworth, Easton, Albany and Harts Location, all of which are towns with small populations. There are 9 towns where the PILTs are less than 1% of the budget. PILT payments to the 3 New Hampshire Counties have increased by approximately twelve fold in the last 10 years. Most of that increase occurred in 1995.

The Forest also makes payments to New Hampshire and Maine under the 25% payment-to-states fund. Since 1908, 25% of Forest Service revenues from commodity receipts such as those from timber sales, mineral resources, concession fees, etc have been returned to states in which National Forest lands are located. The states then transferred these payments to counties or towns for public schools and roads. The payments to New Hampshire under this program averaged \$4.4 million per year over the last 14 years for which data is available. However, the payments under this program change with the value of the timber cut and the revenue of ski areas.

The Secure Rural Schools and Community Self-Determination Act of 2000 created a new payment formula for the 25% Payment to States Fund that gives counties an alternative to receiving funding under the traditional 25 percent fund. The new formula is based on averaging a state's three highest payment amounts between 1986 and 1999 to arrive at a compensation allotment or "full payment amount." A county may choose to continue to receive payments under the historic formula or to receive the county's proportionate share of the state's full payment amount. The implications of the changed funding formula are not clear at this time.

## **5.7 POTENTIAL EFFECTS OF NATIONAL AND REGIONAL ECONOMIC TRENDS ON ECONOMIC LINKAGES TO WMNF**

The regional and national economic trends now in play are expected to incrementally shift the economy of the Forest Region and much of the New Hampshire and Maine economies during the Forest Plan period. The major trends currently in progress have been described in section 5.2 and are expected to continue. They are:

- 1) A continued decline in traditional manufacturing sectors including paper, lumber, and wood products. The New Hampshire Department of Employment Security projects that employment in the paper industry will decline by 11.3% by 2010, and in the lumber and wood products industries by 2.5% (Argiropolis and Bartlett, 2003). Similar trends can be expected in Maine and throughout the northeastern states. This decline will be driven by national and global competition and the need to adjust to a rapidly changing economic environment. This will have the effect of reducing the strength of the economic linkages between timber production and the forest products industries in the Region.

- 2) Services, including hospitality services and tourism, are expected to increase as they have in the last decade. The New Hampshire Department of Employment Security projects that employment in eating and drinking establishments will increase by 23.6% by 2010 and hotels and other accommodations will increase by 12.6 % (Argiropolis and Bartlett, 2003). These general trends are expected to continue throughout the Northeast. The implication for the Forest Region is that tourism is likely to play a proportionally increasing role in the region.