Central Vermont Regional Characteristics

Location and Demographic Trends

The Central Vermont Region is comprised of 23 municipalities in Washington County, including: Barre City; Barre Town; Berlin; Calais; Duxbury; East Montpelier; Fayston; Marshfield; Middlesex; Montpelier; Moretown; Northfield; Orange; Plainfield; Roxbury; Waitsfield; Warren; Washington; Waterbury; Williamstown; Woodbury; and Worcester. As its name implies, the Region lies at the geographic heart of the State. Accordingly, it embodies may of the most celebrated qualities of Vermont's culture and landscape, and also serves as its political hub.

Physically, the Region is transected by several north-south running mountain chains, including, the Green Mountains to the west, the Northfield Range to the south, the Worcester Range to the north central, Irish Hills to the south central, Woodbury Mountain to the north, and the Groton Range to the east. These mountain chains are separated by fertile river valleys. the Winooski River Valley is an exception to this pattern, cutting across the mountains as it flows west to Lake Champlain.

The region represents approximately 10% of the State's population , with a population of 65,034.[1] Central Vermont Towns range in size from approximately 600 to just under 10,000. The population grew by 2.78% from 2000 to 2010, which represents a significantly slower growth from the previous decade as population grew by 6.13% from 1990 to 2000. Town level population growth and decline over the past decade within the Region varies widely from a 3.34% decline in Plainfield to a 19.97% growth in Roxbury.

Although the Region's population growth can generally be categorized as slow, the demand on the area's land based resources has not. Between 1990 and 2010, the average household size decreased from 2.64 to 2.00. At the same time, between 2000 and 2010,the number of housing units increased from 29,912 units to 32,479 units, an increase of 9.68%.[2] The increase in housing units can, in part, be attributed to the second home market in Vermont; many towns in the Central Vermont Region, particularly adjacent to population recreational areas such as the Mad River Valley have a significant number of second home owners.

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[1] US Census Bureau, US Census 2010

[2] US Census Bureau, US Census 2000 and 2010

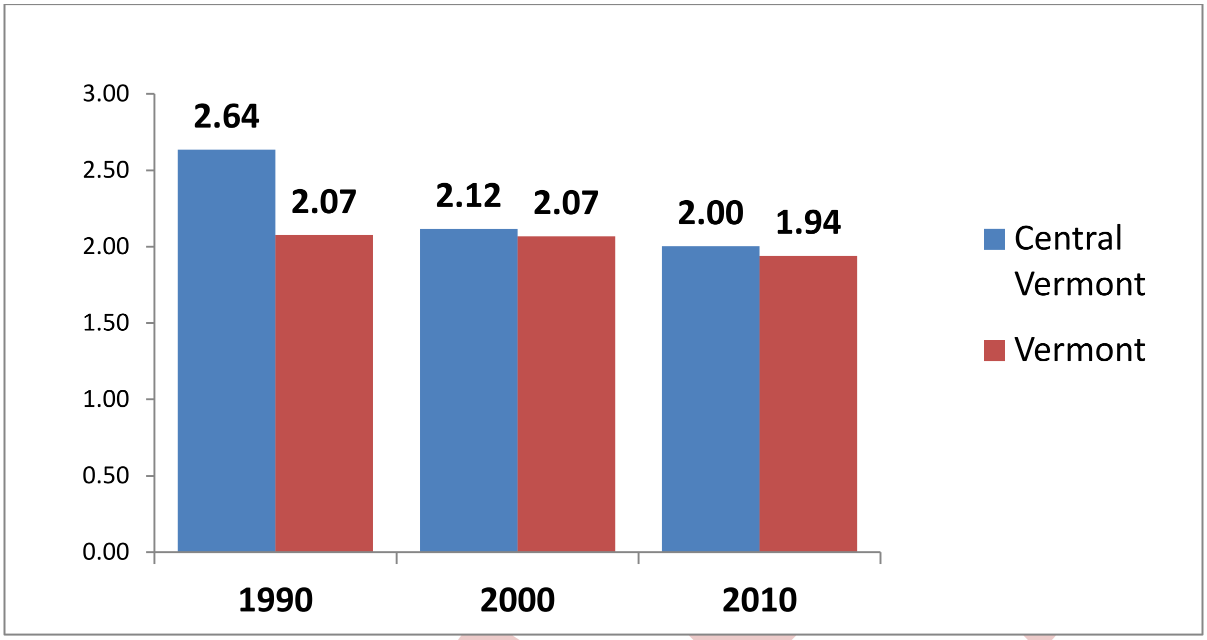

Figure 1: Decreasing Household Size, Data from US Census

Land Use Trends and Future Land Use

Approximately 77% of the total land area in Central Vermont is forested. However, large tracts of managed, productive timberlands are being lost to subdivision and development due to inflated land prices and the comparative economic hardships of forestry use. Often, such development does not significantly decrease the overall forest acreage, but fragments ownership so that unified or event individual management becomes difficult.

As Private landowners own a majority of the Region's productive forestland, it is therefore, imperative that these lands are conserved through sound, long-term forest management programs, and compatible patterns of growth and development. Productive forestlands are defined as all large tracts which in themselves, or when combines form a major economic unit r long-term timber production.

Land Use	Acreage	Percent of Region
Forest Land	404,127	77.53%
Ag/Open Land	66,257	12.71%
Scrub/Shrub	18,113	3.47%
Residential	15,600	2.99%
Surface Waters	6,075	1.16%
Wetlands	3,233	0.62%
Commercial/ Services	2,837	0.54%
Industrial	1,560	0.46%
Institutional/Government	1,317	0.25%
Roads and Parking Lots	1,132	0.22%

Figure 2: Central Vermont Land Uses 2002[3]

Like much of the state, early settlement in Central Vermont began in the Valleys, where population, commerce, and infrastructure have historcilaly been concentrated in compact hamlets, villages, and cities. The surrounding countryside and wilderness supplied the raw materials (e.g. lumber, granite, wool, grains, milk, etc.) for the manufacturing concerns of these centers. In recent decades, however, people and commerce has shifted into the countryside. Much of the residential deevlopment over the apst 30 years has taken place on large lots located on the back roads of predominatley rural communities. With greater frequency, new businesses have located along the state highways, interstate exits, and collector roads wihicn bring commuters back and forth to work and tourists to and from their destinations, or in areas where other infrastrcutural improvements have been provided.

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*The information for this table was derived from the interpretation of aerial photographs supplemented by field checks. Figures for "developable" land include only those portions of a parcel committed to a given use and not necessarily the entire acreage of the parcel within which the use occurs.

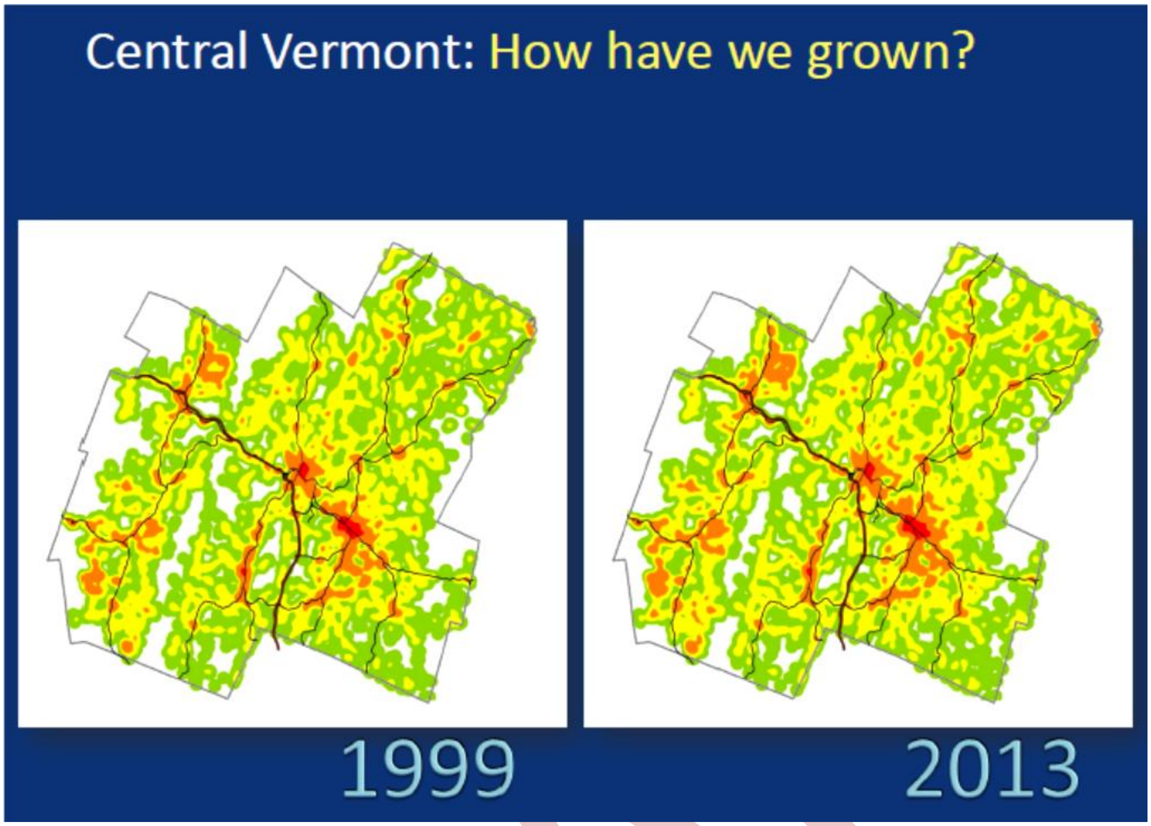

Figure 3: Central Vermont Residential Growth, 1999-2013; E-911 Housing Data.

As a results of this trend, many of Central Vermont's rural municipalities have doubled their population, while our largest cities have seen stagnant growth or decline. The fact that much of the Region's new growth has occured aling transporation corridors is no accident, and is often encouraged by land use regulations. Due to the incrementail nature of growth in the Central Vermont Region, it is not until the past decade that the effects of "strip development" and suburban like sprawl have become apparent throughout the Region.

These development patterns effect the forested landscape. According to a recent state-wide study, the number of parcels containing more than fifty acres of *woodland* (undeveloped land with relatively intact forest) has decreased in Vernont by four percent (4%) between 2003 and 2009.[4] This is in step with the character of incremental growth and development in Central Vermont. Consider the following statistics:

[4] Vermont Family Forests and Vermont Natural Resources Council, "Informing Land Use Planning and Forestland Conservation Through Subdivision and Parcelization Trend Information." 2010. Pg. 9. Website

Percent Loss in Parcels Greater thn 50 Acres between 2003 and 2009	Central Vermont Towns
0%	Berlin, Cabot, Duxbury, Fayston, Worcester
1%	Barre City, Moretown, Roxbury, Waitsfield, Washington, Waterbury,
2%	Calais, Orange, Marshfield, Warren, Williamstown, Woodbury
3% or more	Barre Town, East Montpelier, Middlesex, Montpelier, Northfield, Plainfield,

Figure 4: Parcel Loss, Veront Family Forests and Vermont Natrual Resources Council. Data for 2003-2009, Published 2010.

Economic Trends

Similar to state-wide economic-base changes, the Central Vermont region's dependence on manufacturing and productive lands based work (agriculture, forestry, hunting, and fishing) has declined while its dependence on service-producing sectors and the public sector has increased.

Overall, the "annual contribution of forest based manufacturing and forest-related recreation and tourism in the Vermont economy is over $1.5 billion.:[1] It is estimated that state-wide, 6,379 Vermonters are employed in forest-based manufacturing, while approximately 13,000 people are thought to be working in some type of forest related profession (manufacturing, tourism, and recreation).

Although less than a handful exceed the customary definitions of small businesses, Central Vermont's 25 largest employers provide one-fourth of the region's employment. The list is peppered with government, health care, education providers, and insurance companies.

The mix of public and private employers provides a relatively stable block of local employment. The primary markets for the products of 11 of these largest employers are outside the state of Vermont. They generate wealth by bringing revenues from beyond the state's borders to provide employment here. Rock of Ages, Ben & Jerry's, colleges and ski areas trade in international markets. National Life, Capital City Press and Vermont Mutual Insurance market throughout the country.

While government services and health care do not generate wealth for the state, they do import and retain regional revenues. Taxes from throughout Vermont provide state employment centered in Montpelier and Waterbury. The same is true of Blue Cross and Blue Shield insurance premiums and Central Vermont Medical Center and Washington County Mental Health, located in Berlin.

Health care facilities retain the community's wealth by providing services that would be purchased elsewhere if they were not available in the region.

The need for education as well as health care will increase in the years ahead, and therefore both public and private educational institutions are likely to continue to provide substantial employment.

Vermont Castings, Ben & Jerry's, and Cabot Cooperative Creamery as well as the Sugarbush, Mad River Glen and other ski areas and colleges market Vermont as well as their individual products.

As can be readily seen from the list of major employers, the region's employment is not put at risk during turmoil in any one industry. The diversity of products, services and companies provides protection against significant loss of employment in this group of large employers.

1,000+ Employees

Employer	June, 2008
Central Vermont Medical Center	1,200

500-1,000 Employees

Employer	June, 2008
National Life Group	750
Washington Co. Mental Health	700
Cabot Cooperative Creamery	650
Green Mountain Coffee Roasters	600

250-500 Employees

Employer	June, 2008
Blue Cross / Blue Shield	370
Norwich University	370
Community College of Vermont	265
Pike Industries	250

100-250 Employees

American Flatbread Co. Bond Auto Parts	Sugarbush Resort Summit Ventures

Distributed Energy Systems	Suss Microtec
EF Wall and Associates	The Times Argus
HP Hood	Union Institute & University
New England Culinary Institute	Vermont Mutual Insurance Group
Northfield Savings Bank	Vermont State Employees Credit Union
Rock of Ages Corporation	

Figure 6: Central Vermont Employers

As of 2011, the Barre-Montpelier Labor Market Area (LMA) major employment sectors by industry included: government (24.7%); retail trade (12.5%); goods producing (12.0%) and health care and social assistance (12.1%). [5] The same report found that only 0.4% of the employed population worked in "agriculture, forestry, fishing and hunting, and mining. Many Vermonters are engaged in smaller ventures that involve backyard and portable sawmills, maple syrup production, crafting furniture out of locally harvested wood, and growing and selling Christmas trees.

Such forest-related businesses include:

Mills/Logging	
Baird Mill	Waitsfield
Rick Barstow	Adamanr
Fontaine Sawmill	East Montpelier
Joseph E. Lockerby	Berlin
Single Gate Farm	Barre
Timber Mill Custom Sawing	Waterbury
Under Orion Farm	Marshfield
Ward Clapboard Mill, Inc	Waitsfield
Mad River Forestry	Mad River Valley

Sugaring	
Eastman Long & Sons	Waitsfield
Goodrich's Maple Farm	Cabot
Fresh Tracks Farm	Berlin
Sweet Retreat Guesthouse and Sugarworks	Northfield
Tonewood Maple	Waitsfield
Morse Farm Maple Sugarworks	Montpelier
Cold Hollow Cider Mill	Waterbury Center
Lotus Lake Sugarhouse	Barre

[5] Ken Jones, ACCD "The Central Vermont Economy, 2011"

Cobble Hill Sugarhouse	Barre
Bragg Farm Sugarhouse and Gift Shop	Montpelier
Cabot Hills Maple Certified Organic Maple Syrup	Cabot
Dave and Pat Clark Maple Syrup	Waitsfield

Woodworking	
David Boynton Cabinetmaler, LLC	Plainfield
Black Bear Wood Products, Inc.	Northfield Falls
JH Lumber & Wood Products	Williamstown
Maple Corner Woodworks	Calais
Neudorfer, Inc.	Waterbury Center
Northfield Wood Products	Northfield
Solhem Sauna LLC	Duxbury
Traditional Design, LLC.	Waitsfield
Vermont Wildwoods	Marshfield

Tree Farms	
Gilbert Tree Farm	Williamstown
Balsam Acres	Worcester
Murray Hill Farm	Waterbury Center
Smith Farm	Cabot

Figure 7: Forest Products Related Businesses

Regional Forest Characteristics

Vermont is one of the most heavily forested states, with more than 4.6 million acres or 75% of its lands covered in trees. Approximately 77% of the total land area in Central Vermont is forested. Central Vermont encompasses a number of natural systems. The Green Mountain range has a significant influence on the climate of the region, with temperatures in higher elevations typically cooler than at lower elevations and with higher elevations receiving significantly more precipitation than low lying areas. As part of the Northern Green Mountain and Northern Vermont Piedmont biophysical regions, Central Vermont is characterized by both high elevations and hills and by cool summer temperatures. Characteristic natural communities inlcude the norhtern Hardwood Forests and the high eleveation communities of the Spruce-Fir Northern Hardwood Forests.

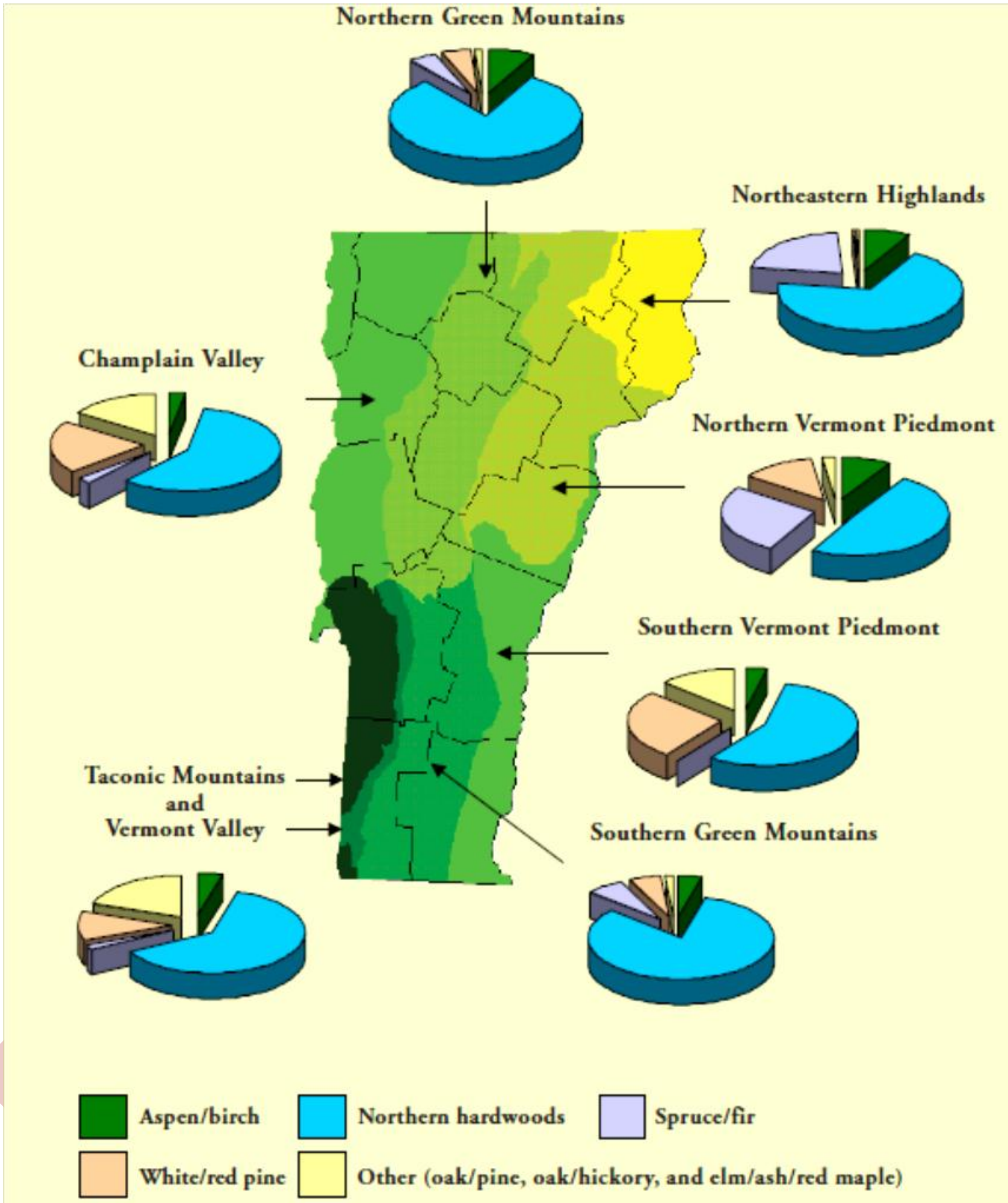

Figure 8: Distribution of Forest Land by Forest-type Group in the Biophysical Regions of Vermont[6]

Both the Northern Green Mountains and Northern Vermont Piedmont Regions are dominated by Northern Hardwoods and Spruce and fir.

[6] The Forests of the Green Mountain State; USDA Forest Service, 2003. pg. 7. http://www.vtfpr.org/util/NERB158.pdf (Accessed September 15, 2013).

Biophysical Region	White and red pine	Spruce and fir	Oak and pine	Oak and hickory	Elm, ash, red maple	Northern hardwood	Aspen, birch	All types
Champlain Valley	100.5	11.4	10.8	20.0	44.9	285.9	13.0	486.5
Northern Green Mountains	1.8	106.4	0.0	0.0	3.2	340.5	38.9	490.7
Northeastern Highlands	49.0	48.0	0.0	1.1	9.6	800.1	77.6	985.4
Northern Vermont Piedmont	109.3	235.0	0.0	12.9	6.8	425.7	73.9	863.6
Southern Green Mountains	48.8	58.1	0.0	11.6	0.0	708.5	37.7	864.7
Southern Vermont Piedmont	132.7	0.0	12.4	51.6	1.7	275.7	18.2	492.3
Taconic Mountains	49.1	6.5	6.1	59.2	3.7	215.7	19.1	359.4
Vermont Valley	0.5	0.0	5.4	6.6	4.8	58.2	0.0	75.5
Total, all regions	491.7	465.4	34.7	163.1	74.8	3,110.1	278.3	4,618.1

Figure 9: Distribution of Forest Land by Forest-type Group in the Biophysical Regions of Vermont[7]

Existing Forest-Based Land Use

The Central Vermont Region is characterized by diverse landscapes and elevations, from the spine of the Green Mountains to the valley floors. Such diversity contributes to varied vegetative types and natural communities including: early succession forests, northern hardwood and spruce-fir forests, sub-alpine forests; cliffs, rock outcrops, and wetlands. The majority of timberland in the Region is dominated by beech, maple, and birch, with spruce-fir found at higher elevations.

There are a number of forest-based uses in the Region. Forest lands are harvested for primary manufacturing (processing logs into lumber, veneer, pulp, or paper) and secondary manufacturing (the creation of finished products like furniture)[8]. In 2010, the Washington County Vermont Sawlog and Veneer Log Harvest reported total hardwood harvested as 3,669 Mbf (thousands board feet)-the lowest in the State, and total softwood as 3,915 MbF-9th in the State. In contrast, Orange County reported total hardwood harvested 5,492 Mbf-8th in the State, and total softwood as 9,132 Mbf-6th in the State.[9] Washington County pulpwood harvested in 2010 was reported as 8,013 cords, and Orange County reported 18,426 cords. [10]

[7] The Forests of the Green Mountain State; USDA Forest Service, 2003. pg. 8. http://www.vtfpr.org/util/NERB158.pdf (Accessed September 15, 2013).
[8] North East State Foresters Association, "The Economic Importance of Wood Flows from Vermont's Forests, 2007". 2007. pg.3, 7. Website http://www.vtfpr.org/inlcudes/documents/ecimportfor.pdf (accessed September 15, 2013).
[9] Vermont Department of Forests, Parks, & Recreation, 2010.
[10] Vermont Department of Forests, Parks, & Recreation, 2010.

Washington County woodchip production in 2010 was reported as 792 green tons in sawmill residue shipments, and 22,925 green tons in whole tree chip harvest. Orange County reported 9,270 green tons in sawmill residue shipments, and 89,936 green tons in whole tree chip harvest.[11] Finally, demand by primary mills and consumption by mill size is shown below:

DEMAND BY PRIMARY MILLS IN VERMONT – 2010

Volumes in Mbf

County	Mills	Totals Volume	hardwood	softwood
Addison	9	16,989	13,385	3,604
Bennington	3	124	92	32
Caledonia	10	14,327	3,684	10,643
Chittenden	4	8,306	651	7,654
Essex	3	3,858	3,858	0
Franklin	4	849	687	163
Lamoille	5	8,318	8,184	134
Orange	7	11,011	1,728	9,284
Orleans	13	21,955	13,781	8,174
Rutland	10	17,227	10,074	7,153
Washington	7	1,723	937	786
Windham	15	53,206	39,830	13,376
Windsor	15	3,462	2,956	506
Total Mbf		161,355	99,847	61,508
# of Mills	105			
		Mbf	Mbf	Mbf

Consumption of Sawlogs & Veneer Logs by Mill Size – 2010

Mill Class & Capacity	no. of mills	2010 volume	2010 hardwood	2010 softwood	average volume	percent of total
I. over 5 MMbf	7	82,936	59826	23,110	11,848.0	51.4%
II. 2.5 - 5 MMbf	11	42,275	22,774	19,501	3,843.2	26.2%
III. 1 - 2.5 MMbf	9	22,805	14,318	8,487	2,533.9	14.1%
IV. 0.5 - 1 MMbf	12	9,412	1,869	7,544	784.3	5.8%
V. 0.1 - 0.5 MMbf	8	2,635	825	1,810	329.4	1.6%
VI. under 0.1 MMbf and idle	58	1,291	235	1,056	22.3	0.8%
Total	105	161,355	99,847	61,508	1,536.7	100.0%
		Mbf	Mbf	Mbf	Mbf	

Figure 10: Mill Demand and Consumption , Vermont Department of Forests, Parks, & Recreation, 2010.

Additionally, maple trees are integral to maple sugaring and conifer trees are grown and cur for sale at Christmas time. The local and specialized food movement also influences the viability of the harvesting of wild edibles such as fiddleheads and mushrooms. Recreational and tourist based uses are highly visible uses of the forested landscape and include: camping; hiking; hunting; skiing; snow-shoeing; snowmobiling; and biking to name a few. While the State is

[11] Vermont Department of Forests, Parks, & Recreation, 2010.

known for its downhill resorts such as Sugarbush Resort in Warren, the woods are also home to a number of cross-county opportunities such as are found at Morse Farm in East Montpelier. In addition to formal trails, there are a number of informal trail systems often managed by private landowners or a group of neighbors. Central Vermont is home to four seasons of tourism, from fall foliage to summer hiking and camping. Much of the scenic landscape that draws visitors from afar is linked to our striking vistas and forested lands.

Although the existing forest-based land uses are influenced by climate change, threatening traditional uses such as sugaring and the ski industry, there will be opportunities for adaptation. For example, as recreation destinations begin to plan more for the "four seasons" additional mountain biking trail networks are being developed across the region.