

# Taxation and Sustainable Management in the Northern Forest

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- Taxes are an important determinant of forest land expectation value
- Property taxes in individual Northern Forest States have dramatically different impacts, especially when preferential programs are considered

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<http://www.nsrcforest.org>

# Project Summary

- Canham (1992) performed the most recent comprehensive analysis of the tax situation in the Northern Forest but substantial changes have occurred in the region since then. Forest industry has been divesting its lands to individuals and pension funds, property values have increased substantially, and rising property taxes have made sustainable forest management problematic. The role of state taxes, in particular, is of substantial concern because the different ways in which timber and land are taxed between the four states can have substantial competitive and sustainability impacts for the forest sector as a whole.
- The objective of this study was to analyze the total tax burden associated with federal and state taxes on timberland owners in the four Northern Forest states. We reviewed existing forest taxation policies and current issues regarding tax impacts on forest management in the four states. We compared changes in Land Expectation Value from all taxes affecting forested land, evaluating the taxation of both hardwood and softwood forest types. An important outcome of this research was a clearer understanding of the role of tax policy in the Northern Forest states and the implication that it has for sustainable forest management in the region.



# The Problem

- Dynamic tension between the local need for revenues for public services and the resistance of firms and individuals to paying higher taxes
- Host of questions regarding this problem
  - Who pays?
  - How much?
  - Fairness?
  - Efficiency?

# Tax Issues and Forest Lands

- Diverse counties with respect to growth, population, and economic activity
- In very rural areas, low economic diversity
  - Counties have limited ability to meet social and mandated objectives
- Rising property values in many counties leading to back-door tax increases
- Increasing pressure on traditional land uses from regulation and changing public perceptions

# Changes in NF States Since 1994

- Withering of industrial forest owners
- Rise of TIMOs and REITs
- Decline in forestry activities
- Low population & economic growth
- Fiscal policy concerns

## Population Growth 1990-2011

|    | 2000-11 | 1990-00 |
|----|---------|---------|
| ME | 0.37%   | 0.38%   |
| NH | 0.59%   | 1.09%   |
| NY | 0.23%   | 0.54%   |
| VT | 0.26%   | 0.79%   |
| US | 0.93%   | 1.24%   |

## Economic Growth 1990-2010

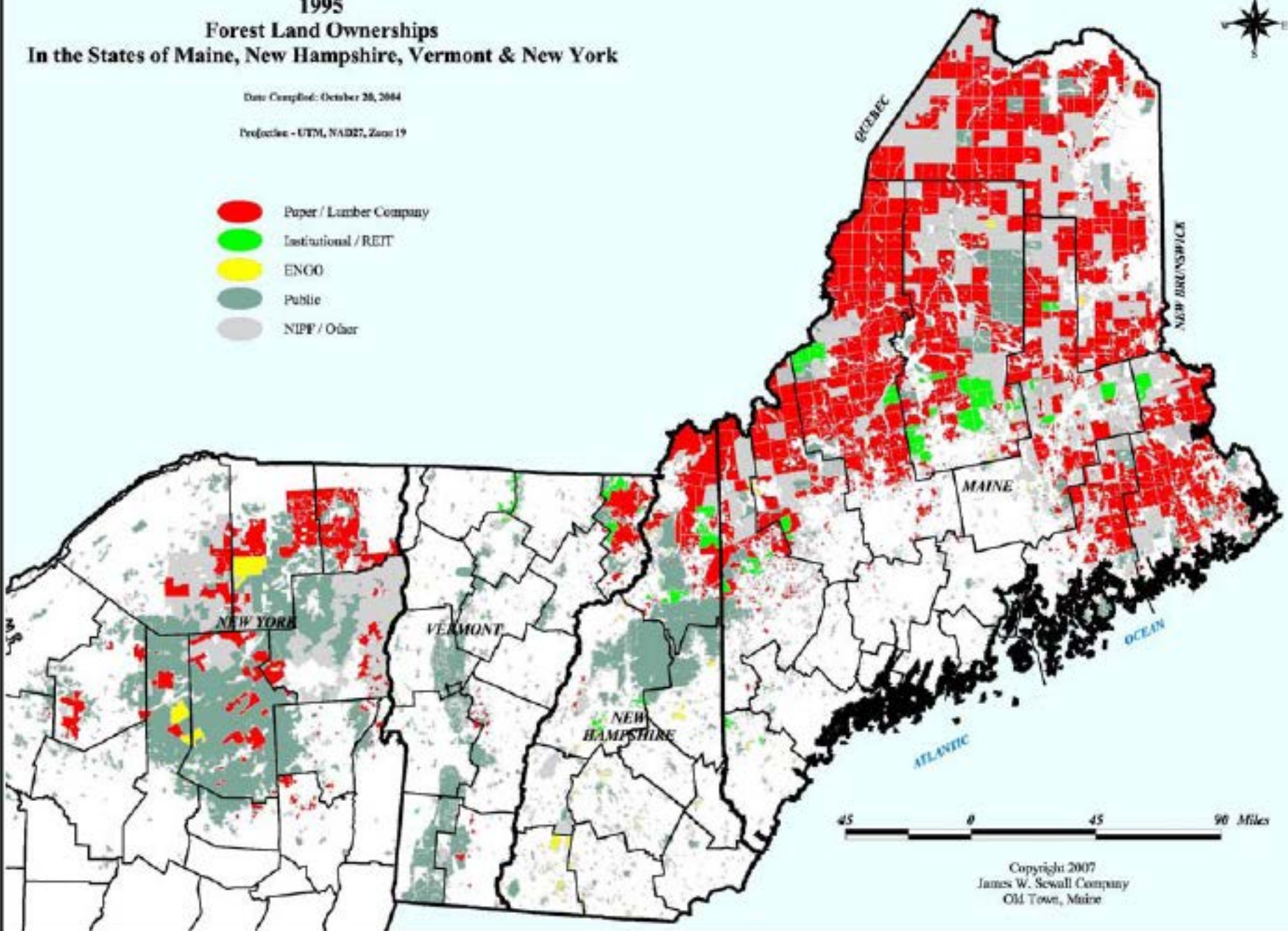
|    | 2000-10 | 1990-00 |
|----|---------|---------|
| ME | 1.01%   | 2.22%   |
| NH | 1.15%   | 5.11%   |
| NY | 1.44%   | 2.68%   |
| VT | 1.45%   | 3.06%   |
| US | 1.56%   | 3.40%   |

# 1995 Forest Land Ownerships In the States of Maine, New Hampshire, Vermont & New York

Date Compiled: October 28, 2004

Projection - UTM, NAD27, Zone 19

-  Paper / Lumber Company
-  Institutional / REIT
-  ENGO
-  Public
-  NIPF / Other



45 0 45 90 Miles

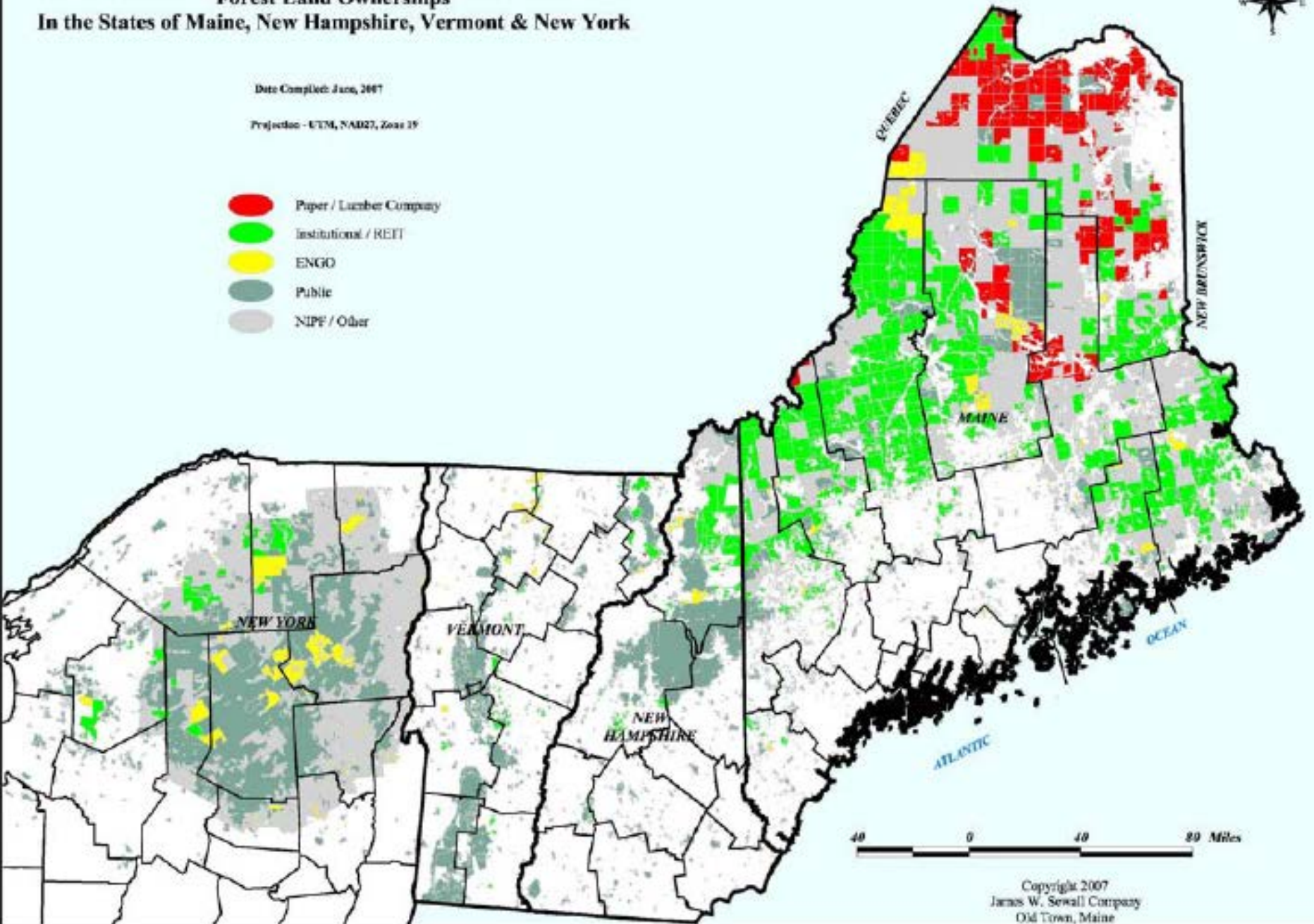
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Old Town, Maine

# 2007 Forest Land Ownerships In the States of Maine, New Hampshire, Vermont & New York

Date Completed: June, 2007

Projection - UTM, NAD27, Zone 19

-  Paper / Lumber Company
-  Institutional / REIT
-  ENGO
-  Public
-  NIPF / Other



40 0 40 80 Miles

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# State and Local Tax Revenue by Source for NF States: 2009

| State         | Per Capita Tax Revenue | Property Taxes | General Sales Taxes | Individual Income Taxes | Corporate Income Taxes | Licenses & Other Taxes |
|---------------|------------------------|----------------|---------------------|-------------------------|------------------------|------------------------|
| United States | \$7,902                | 33.4%          | 22.9%               | 21.3%                   | 3.6%                   | 18.9%                  |
| Maine         | \$8,352                | 38.6%          | 17.9%               | 24.3%                   | 2.5%                   | 16.7%                  |
| New Hampshire | <b>\$6,907</b>         | <b>64.4%</b>   | 0.0%                | <b>2.0%</b>             | <b>9.9%</b>            | 23.8%                  |
| New York      | <b>\$11,909</b>        | 30.4%          | 16.6%               | <b>32.8%</b>            | <b>7.7%</b>            | 12.4%                  |
| Vermont       | \$9,143                | <b>44.2%</b>   | 11.3%               | 18.3%                   | 3.0%                   | 23.1%                  |

Source: [www.TaxFoundation.org](http://www.TaxFoundation.org)

Note: NY is #3 in per capita tax revenues (behind AK & WY), #1 in income taxes, and #5 in property taxes; NH is #40 in per capita tax revenues and #3 in property taxes; VT is #6 in per capita tax revenues and #6 in property taxes; ME is #15 in per capita tax revenues #11 in property taxes



# Research objectives

- Compare and contrast tax policies in the NF states
- Evaluate the impact of taxes on timberland value in the NF states
- Assess the impact of these policies and their impacts on sustainable forest management



# Methodology

- Calculate the Land Expectation Value (LEV) for a “*representative*” tract of timberland in each state
  - Accounting for representative ownership costs and timber returns from managing land for timber
- Purpose is to assess the marginal effect of each tax on LEV’s, not provide precise returns to timber management in each state

# A Brief Return to the Classroom – What is LEV Again?

- LEV represents the discounted value of net returns from forest production over an infinite time stream

$$LEV = \frac{\sum_{t=0}^r [(pQ_t - C_t) / (1+i)^t] * (1+i)^{r-t}}{(1+i)^r - 1}$$

- Represents the opportunity cost on the land from switching land uses
- The basis for current use valuation determination

# Data Needed

- Focus is on the relative economic effects of each state's policies, rather than land productivity
- Revenues
  - Timber volumes, prices, and timing
    - Uneven aged hardwood management
      - 20 yrs cutting cycle
      - \$244/MBF
      - 5.88 MBF/ac
    - Even-aged softwood management
      - 70 yrs rotation
      - \$131/MBF
      - 39.4 MBF/acre
  - No other revenues considered

# Data Needed

- Costs
  - Assuming a 50-70 acre tract of land
  - Management costs (set to 0)
  - Calculated income taxes (base income = \$75K or 25% rate)
  - Capital Gains tax rate (15%)
  - Calculated property taxes (average assessment \* rate)
  - Calculated severance taxes (rate \* harvest)
  - Discount rate (5%)



# Taxation Types in the Northern Forest States that were examined

- **Property Tax** – All 4 states
- **Yield/Severance Tax** – NH and NY
- **State Income Tax** – ME, NY, and VT
- **Federal Income Tax** – All 4 states
  
- **Inheritance Tax** – Not included

# LEV Calculation for this Analysis

$$LEV_{AT} = \frac{\sum_{t=0}^r [I_t(1 - CGR) - (I_t \times SIT) - (I_t \times YT) - PT_t(1 - ORD)](1 + i)^{r-t}}{(1 + i)^r - 1}$$

Where:

*CGR* = Capital Gains rate = 15%

*SIT* = State Income Tax Rate

*YT* = Yield Tax Rate

*PT* = Average Property Tax

*ORD* = Ordinary Income Tax Rate

*i* = Discount Rate = 5%

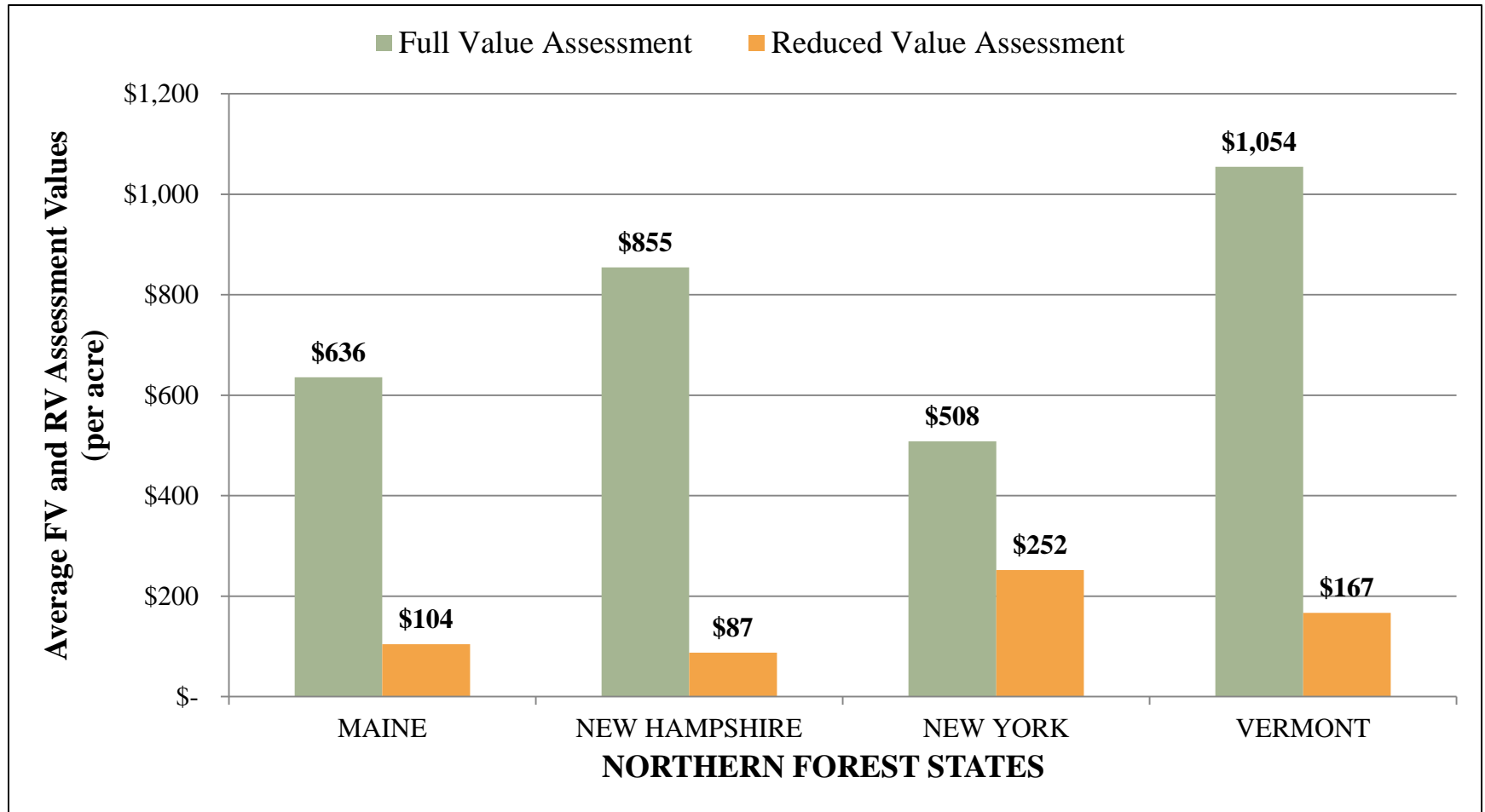
*r* = Cutting cycle or rotation length

# Summary of NF State Forestry Programs

|                             | STATE                           | MAINE                                   | NEW HAMPSHIRE  | NEW YORK  | VERMONT  |
|-----------------------------|---------------------------------|---|--|---|--|
| <b>Program Name</b>         |                                 | <b>Tree Growth</b>                      | <b>Current Use</b>   | <b>480a</b>   | <b>Current Use</b>   |
| <b>Program Goals</b>        | <b>Timber Production</b>        | ✓                                       |  | ✓   | ✓  |
|                             | <b>Management</b>               | ✓                                       |  | ✓   | ✓  |
|                             | <b>Open Space</b>               |   | ✓  |   |  |
|                             | <b>Recreation</b>               | ✓                                       |  |   |  |
|                             | <b>Economy</b>                  | ✓                                       |  | ✓   |  |
|                             | <b>Scenery</b>                  |   |  |   | ✓  |
|                             | <b>Protect Environment</b>      |   |  | ✓   | ✓  |
|                             | <b>Plan for Growth</b>          |   |  |   | ✓  |
| <b>Eligible Land</b>        | <b>Minimum Acres</b>            | 10                                      | 10   | 50  | 25   |
|                             | <b>Open Space</b>               | Separate Program                        | Yes  | No  | No   |
| <b>Management Planning</b>  | <b>Basis for Land Valuation</b> | Income Capitalization                   | Income Capitalization  | 20% of Assessed Value   | Income Capitalization  |
|                             | <b>Timber Yield Tax</b>         | No                                      | 10%  | Only enrolled - 6%  | No   |
| <b>Conversion Penalties</b> | <b>Penalty Amount</b>           | 20-30% of difference between FMV & UV   | 10% of FMV at time of conversion   | 2.5 x 10 year rollback with additional interest                       | 10% of equalized assessed value  |
|                             | <b>Reasons for Penalty</b>      | Withdrawal, with or without development | Withdrawal to non-qualifying use;<br>Noncompliance or release of easements | Land Conversion; Various failures to comply with plans or subdivision | Development, subdivision of parcel, management contrary to plan or standards |
|                             | <b>Reimbursement</b>            | Yes                                     | No   | No  | Yes  |

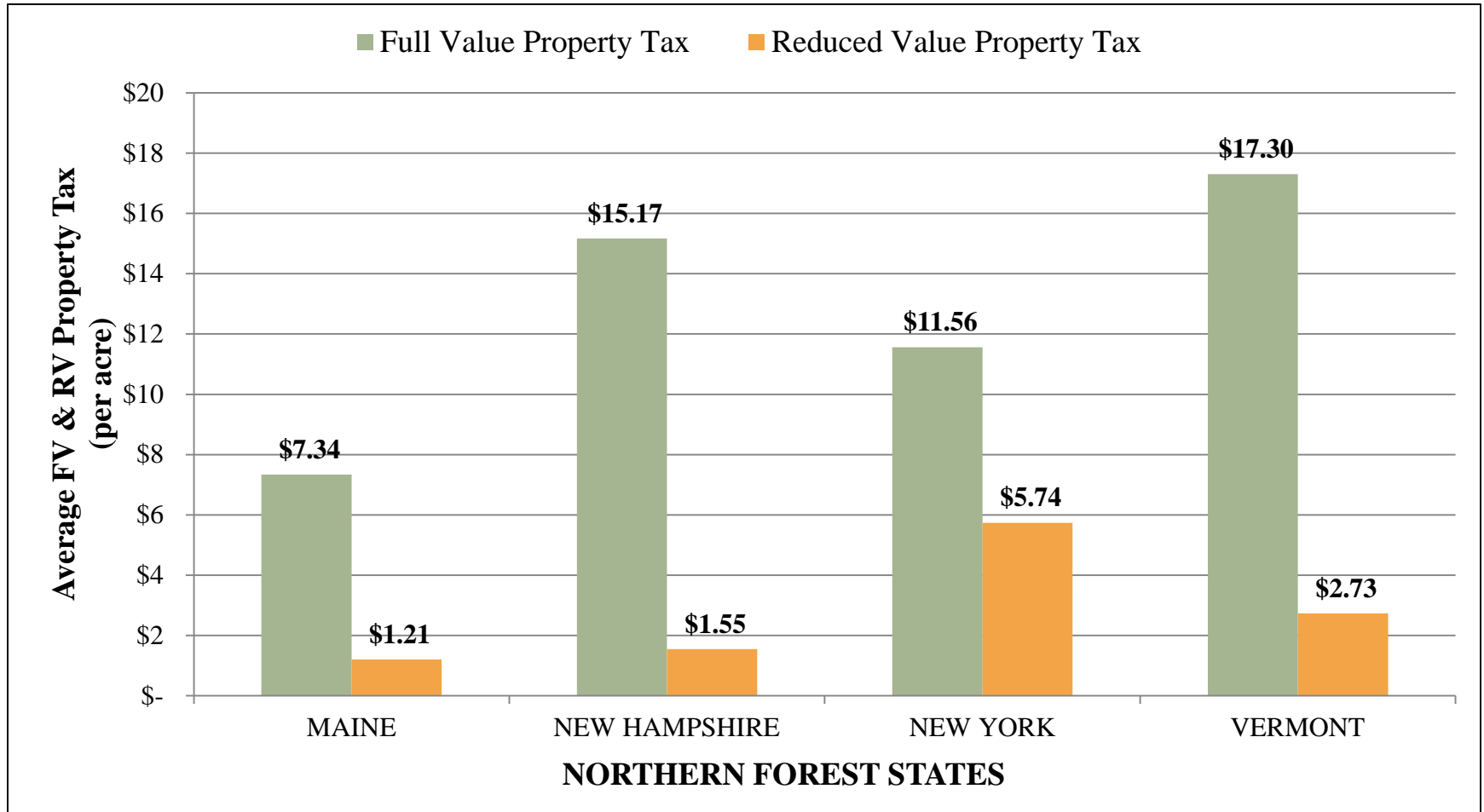


# Average Assessed Values of Timberland in NF States



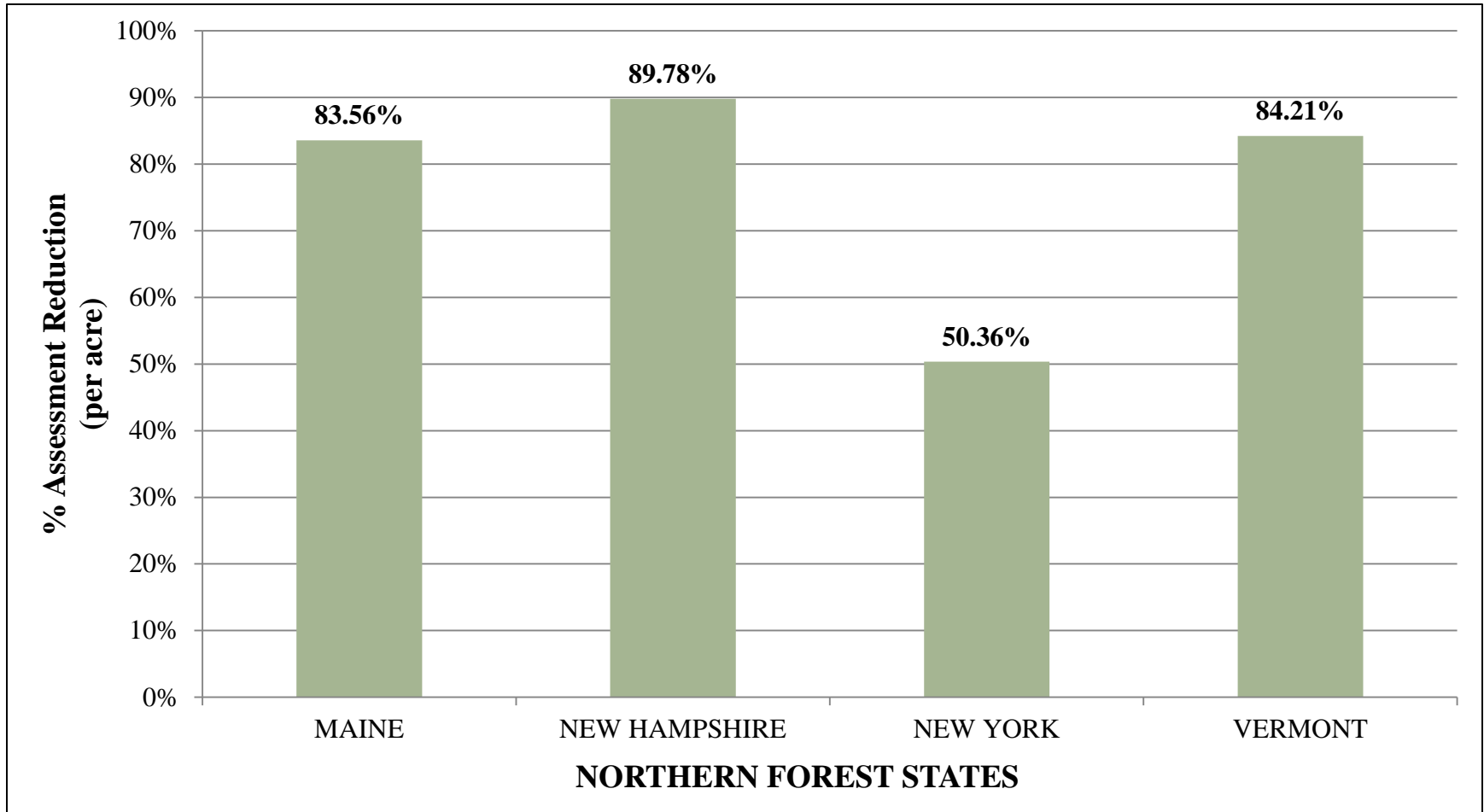
Source: Based on tax rolls and discussions with many tax assessors

# Average Per Acre Property Tax in the NF States



Source: Calculated average values existing in each state

# Percent Reduction in Assessment from Preferential Tax Programs in NF States



# Reduction in LEV after Taxes

| Land Expectation Value (LEV) |           |          |             |            |        |         |            |               |
|------------------------------|-----------|----------|-------------|------------|--------|---------|------------|---------------|
| State                        | Wood Type | Rotation | Treatment   | Before-Tax | CGR    | CGR,SIT | CGR,SIT,YT | CGR,SIT,YT,PT |
| ME                           | Softwood  | 70       | No Exempt   | 175.29     | 149.00 | 134.10  | 134.10     | 26.07         |
|                              |           |          | Tree Growth | 175.29     | 149.00 | 134.10  | 134.10     | 116.19        |
|                              | Hardwood  | 20       | No Exempt   | 869.46     | 739.04 | 665.14  | 665.14     | 557.11        |
|                              |           |          | Tree Growth | 869.46     | 739.04 | 665.14  | 665.14     | 647.23        |
| NH                           | Softwood  | 70       | No Exempt   | 175.29     | 149.00 | 149.00  | 131.47     | (96.04)       |
|                              |           |          | Current Use | 175.29     | 149.00 | 149.00  | 131.47     | 108.21        |
|                              | Hardwood  | 20       | No Exempt   | 869.46     | 739.04 | 739.04  | 652.10     | 424.59        |
|                              |           |          | Current Use | 869.46     | 739.04 | 739.04  | 652.10     | 628.84        |
| NY                           | Softwood  | 70       | No Exempt   | 175.29     | 149.00 | 136.99  | 126.47     | (46.99)       |
|                              |           |          | 480         | 175.29     | 149.00 | 136.99  | 126.47     | 30.19         |
|                              |           |          | 480a        | 175.29     | 149.00 | 136.99  | 126.47     | 57.45         |
|                              | Hardwood  | 20       | No Exempt   | 869.46     | 739.04 | 679.49  | 627.32     | 453.86        |
|                              |           |          | 480         | 869.46     | 739.04 | 679.49  | 627.32     | 531.04        |
|                              |           |          | 480a        | 869.46     | 739.04 | 679.49  | 627.32     | 558.29        |
| VT                           | Softwood  | 70       | No Exempt   | 175.29     | 149.00 | 133.22  | 133.22     | (126.34)      |
|                              |           |          | Current Use | 175.29     | 149.00 | 133.22  | 133.22     | 92.22         |
|                              | Hardwood  | 20       | No Exempt   | 869.46     | 739.04 | 660.79  | 660.79     | 401.23        |
|                              |           |          | Current Use | 869.46     | 739.04 | 660.79  | 660.79     | 619.80        |

CGR = Capital Gains Tax  
YT = Yield Tax

SIT = State Income Tax  
PT = Property Tax

# Sensitivity Analysis

Variations in LEV resulting from changes in:

- **Interest Rates:**
  - **LOW** interest rates correspond to **SMALLER** reductions in LEV.
  - **HIGH** interest rates correspond to **LARGER** reductions in LEV.
- **Timber Price:**
  - **LOWER** timber prices correspond to **LARGER** reductions in LEV.
  - **HIGHER** timber prices correspond to **SMALLER** reductions in LEV.
- **Rotation Age:**
  - **SHORTER** rotation age corresponds to **SMALLER** reductions in LEV.
  - **LARGER** rotation age corresponds to **LARGER** reductions in LEV.

# Conclusions

- Differences in tax structure and intensity in the four Northern Forest states influence the LEV of private forest property
  - Property taxes are typically the source of the greatest reductions in LEV for private forest property in the Northern Forest states
    - These taxes occur annually and are unrelated to income events
    - Property assessments often unrelated to income potential of the land
  - Choices made by states to impose additional taxes are reflected in LEV and can be significant

# Conclusions

- State forestry assessment programs can greatly reduce the property taxes that forest landowners pay.
  - May create an incentive to maintain a property in forest production
  - Concerns about tax shifting and provision of public services
  - Cost of community services and fairness issues (time and parcel bias)
- Risks associated with these programs may cause landowners to be reticent about entering into them.
- Currently established state forestry programs, except in New York, have been heavily utilized and effective in reducing property taxes.
  - Their effectiveness is now causing these programs to be reconsidered in some states.
  - New York's program is particularly challenging for landowners.

# The policy dilemma

- We are much better pointing out problems and concerns than describing solutions
  - Some problems are only partially policy induced
- Market forces are working to change the structure of the forest sector
  - There is little that is irrational occurring but that does not make it more palatable
- Implications of the changes are still only poorly understood
  - Work has focused on the near term, while the long term is hard to fathom



# List of products

- **Presentations**

- Newman, D.H., B. Malmshiemer, and J. Haas. 2010. Taxation and Sustainable Management in the Northern Forest. NY SAF Meeting. Syracuse, NY, 1/28/10; Also NE SAF Meeting, Durham, NH 3/9/2010
- Newman, D.H., J. Haas, and N. Malmshiemer. 2012. The Impact of Taxation on Land Expectation Value (LEV) and Sustainable Forest Management in the Northern Forest States. NY SAF Meeting. Syracuse, NY, 1/27/12
- Newman, D.H. and N. Malmshiemer. 2013. Taxes in the Northern Forest 20 Years After the Northern Forest Lands Study. NY/NE SAF Meeting. Saratoga Springs, NY, 1/31/13
- Newman, D.H. 2013. Property Tax Issues in NY: The Way Forward? ESFPA Annual Meeting, Syracuse, NY, 9/26/13

- **Graduate Students**

- Jonathon Haas. 2011. The Impact of Taxation on Land Expectation Value (LEV) and Sustainable Forest Management in the Northern Forest States. Unpublished M.S. Thesis, SUNY ESF.

- **Manuscripts**

- Newman, D.H., J.E. Wagner, J. Haas, and R.W. Malmshiemer. The Impact of Forest Taxation on Working Forests in the Northern Forest States. (Submitted to the Northern Journal of Applied Forestry)