The Historical Ecology of Early Vermont Surveys

Methodology

Theory

Historical
Survey Data

in Norbury NY (now Cabot VT) “choice land timbered with maple, beech, bass, some elm, ash and birch & in patches some few butternuts, with Maidenhair and some nettles” Samuel Gale 1773
Witness & Corner Trees

1792 Witness trees in Penobscot County (Me.) Deed Registry

Northwest corner of the Kennebec Purchase—
"Started at a marked Beech tree"
--Ephraim Ballard October 1789

T8 R10 W.E.L.S. (Me.)

1792 Witness trees in Calais Vt. Town Office
Repositories

Town Halls

LDS FH Library

State/Academic Archives

Historical Societies

County Court House

Private Collections
Sources

Outline Survey

Road Survey

Misc. Records

Return of Surveys

Lotting Map

Married Lotting Survey
“… a difficulty arose in my mind, for my object was to sell out of Mansfield and if possible get the ninety pounds for the survey. A great proportion of the corners of said lots were made on spruce or of fir timber, and if I described them as such, it would show the poorness of the town. In my survey bills, I called spruce and fir gumwood, a name not known to the people of Sharon [Connecticut, proprietors]”…

1773 Ira Allen, *Autobiography*
In the summer of 1773 Mr. Ira Allen, with three men, went from the block fort on Onion River, in pursuit of a Mr. S. Gale, who, with a number of men, were surveying in the district of the New Hampshire grants, for the land jobbers of New York. Allen and his party traversed the district from east to west… through Kingsland…; and at length, obtaining information of the surveyor’s destination, they procured provisions and some spirits, and we went again in quest of him; they discovered his line, and by that, followed him to near the north east corner of the present town of Montpellier; here it ended, and he could not be traced further, because being appraised of his danger, he made a corner on dry land, and thus precipitately escaped. and Allen came to the corner an hour after he fled. On the sixteenth day they reached the block fort whence they sat out.

--Ira Allen’s History of the State of Vermont
Sept. 15th 1773 … Middling land Maple, Beech and a little Birch but is something uneven. To a pond appearing to extend about half a Mile to the left Hand and about 15 chains to the Right … 8 chains ~Thence Out of the pond ~ on to a neck of Land Coming in from right Hand thence to the Pond again~ 6 chains 50 Links… Whence out of Pond a large Brook Runs out at the South End of the Pond ~ Then over middling good Maple and Beech Land something Uneven…

--Samuel Gale Field Notes NYSA
The Township of Irasburgh contains

23,040
ACRES OF LAND,

is divided into lots of one hundred and ten acres each, is of a fertile soil, and contains about eighty inhabitants. There is now in said town, a Saw-Mill, and Grist-Mill, with other valuable places for water-works, and the title is indisputable; a public common will be reserved in front of the Court-House, and the adjoining lands, will be sold in smaller lots, as may suit the purchaser.

An authorized agent will be constantly on the premises, ready to transact any business embraces in this publication. And it is conceived, that all persons who may hereafter visit, or become settlers in said town, cannot fail of being abundantly rewarded.

JERUSAHA ALLEN.

Colchester, 4th April, 1815.

* * * NOTE.—All the Printers in the State of Vermont, of the New-Hampshire Sentinel, printed at Keene, of the New-Hampshire Patriot, printed at Concord, and of the Boston Patriot and Columbian Sentinel, printed in Boston, are requested to insert the above advertisement in their several papers three weeks successively, and transmit their accounts therefor to Heman Allen of Colchester, in the State of Vermont, for payment.

The Lots in Irasburgh contain 117 acres, strict measure each. The quality of each lot is marked in the upper part of it; G stands for good land, M for middling land, and B for bad land.

Copied from the Original, June, Heman Allen, Proprietor.
Sources of Vermont Data
Lotting 62%
Deeds 8%
Outlines 6%
Roads 6%
Sundry Returns 19%

Composite Map Lebanon, N.H. Torbert 1935
Presettlement (ca. 1800) Town Composition by Taxa

% Composition
- Spruces
- Fir
- Cedar
- Tamarack
- Beech
- Birches
- Ashes
- Basswood
- Maples
- Hemlock
- Pines
- Oaks
- Hickories
- Chestnut
- Town sample
Presettlement --1781

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<tr>
<th>Montpelier witness trees</th>
<th>Montpelier Pine Lots</th>
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<tr>
<td>1781 Trees</td>
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<tr>
<td>%</td>
<td>%</td>
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<td>21</td>
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<td>5</td>
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<tr>
<td>Basswood</td>
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<td>4</td>
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</tr>
<tr>
<td>Fir</td>
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</tr>
<tr>
<td>Elm</td>
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</tr>
<tr>
<td>Oak</td>
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Green Mount, Montpelier
Presettlement Town Clusters

Hemlock-Northern Hardwoods

Lords Hill, Marshfield

Beech-Birch-Maple

Mixed Spruce-Hardwoods
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<tr>
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<th>FIA 1997</th>
<th>Change 1997/1800</th>
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<td>Birches</td>
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<tr>
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<tr>
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<td>0%</td>
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Presettlement Town Clusters and Tension Line
Were early surveyors biased in choice of witness trees?

How accurate are early surveys?

What ecological data are contained in original surveys?
Surveyor Bias = Not the Nearest Tree

Size

Vermont Surveys min. 6” PLS posts 4-6”

Pragmatic need to Witness Corner 5 person crew with axemen

Position Bias changes density estimate

Condition – Ease of Marking Second nearest +50% farther

Species Unaffected by equal bias
Species Bias

Siccama enigma (either surveyor bias or change in beech)

Northeast Vt. 30 towns 31% beech witness trees

Ease of marking --blaze vs. scribing w/ axemen
Choice available 2nd nearest expected 50% farther

Northeast Vt. 1780s post –to-tree distance
443 witness trees
Beech 8.8’
Maple 9.0’
Hemlock 9.1’
Birch 9.9’
Spruce 8.1’
Fir 6.6’
Overall 8.8’

Siccama 1971
Consistency of bias
Presettlement Forest Density (trees/ha >~ 20cm dbh)
Witness tree in the Court House

On the town line of Sebois Plantation (T3 R8 N.W.P.) (Me.)

1794 Samuel Weston Blazed original survey of towns in Waldo Purchase
1820 Resurvey 8 popple blazed and line "all hurricane and burnt"
1831 Resurvey line with 40-50 acres of hardwood standing
1878 Noah Barker cut "chips" as evidence in timber trespass

In small patches or old growth surrounded by second growth
Blazed at ~ 16" diameter, grew 3 ¼ " in 85 years over blaze
Applications & Accuracy

Peeling N.H. 1792

Hubbard Brook N.H.
Vermont Presettlement Database

Presettlement % of town lines disturbed by Fire and Wind