

The Historical Ecology of Early Vermont Surveys



Methodology

Theory



The Cape RNA Goshen

Survey Data

Remnants

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



Northwest corner of the Kennebec Purchase— "Started at a marked Beech tree"

--Ephraim Ballard October 1789



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



in Calais Vt. Town Office

Repositories



Town Halls

LDS FH Library

State/Academic Archives







Private Collections

Historical Societies

County Court House

Sources



Outline Survey

the at the north east comer and t Sprice tree at the south east com Lot b. Beginning by a beach to the south west comer & by a beer at the northwest and by a birth tra the northeast comer, I by a Fir tree the south east corner. Lot 7. Beginning by a Sprace tree the south evert corner, and by a row - le tree at the north weit comer & beech tree ato the north east comer by a beach tree at the south east a Lot 8. beginning by a bedar tree southwarts comer, and by a birch to

Return of Surveys

Thene E 24 J. 17 rodi to a birch - Thene E. H.J. 10 rods to a himlock true - Thene 838 J. 14 rods to a himlock -Thene J & 5 & 37 - rods to a buch true Thene J.39/2 &-7 roas to a himlork - Thence & 21. J. 22 roas to a maptetri Thence & 31. S 12 rode to a beach true - Thence & 35 S. 54 may to a herrlock true, at the fost of the Such hitch of the E. hill -Thence S. 19. E. 10 roas to a State at the top of 3. hill Theme E 24. J 27 rods to a maple true one roacton torly of the between 6+ Nº 33 4. N. 36 - Thene E 36 S. on the line between let Nº 33. & 36; and between 2 Ar 4- 34 & 35. to the Town line between Montpelier & st Andrews gour about 226 maas -

Sand Parson brost through P. Hings G. Stevens G. Bennetted Breeman Wist of Jaar Sutmanne Lon _____

Road Survey



Misc. Records



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



Actual Survey Bill: Proprietors' Record Mansfield, VT Lotting Survey 1804 110 witness trees Beech 64% Spruce 18% Maple 8% Birch 6% Hemlock 4%



Sept.1773- Field Notes NYSA



Samuel Gale 1772

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





Township of Irasburgh The tains

23,04ACRES OF 1

is divided into lots of one hundred and ten acres each, is of a fertile foil, and contains about eighty inhabitants. There is now in faid town, a Saw-Mill, and Grift-Mill, with other Valuable places for water-works, and the title is indifputable ; a public common will be referved in front of the Court-Houfe, and the adjoining lands, will be fold in fmaller lots, as may fuit the purchafer.

An authorifed agent will be confantly on the premifes, ready to tranfact any businels, embraced in this publication. And it is conceived, that all perfons who may hereafter vifit, or become fettlers in faid town, cannot fail of being abundantly rewarded. JERUSHA ALLEN.

Colebefter, 4th April, 1815.

*** NOTE .- All the Printers in the State of Vermont; of the New-Hampfbire Sentinel, printed at Keene, of the New-Hamp/hire Patriot, printed at Concord, and of the Bofton Patriot and Columbian Centinel, printed in Bofton, are requefted to infert the above advertifement in their feveral papers three weeks fucceffively, and tranfmit their accounts therefor to Heman' Allen of Colchefter, in the State of Vermont, for payment.

Plan of Iras burgh, as surv. eyect in the years 1792 and 1793 by James Whitelaw. 9 80 98 G go GBU G G 26 SP Bee da. 92 124 Stake 186 Ber 190 Gust 205 The Lots in Trasburg & contain 157 acres, strict measure, each. The quality of each Is ot is marked in the upper part of it; G stands for good Land, M, for middling Isand, and B, for bad Isand. Capies from the ougenal start Siman Allen Proprie Club

Rendyks. Mai fist, seerid, and third division Sata are membered from 16.208 inclusion and are inclused in a green linge. Hy on standar to contain 18 sourch to able 16. In 64 Statistica are summisted from 16 by inclusion and area a ted linge; hy an estimate to contain stars algores outs. So Statistics are set membered from 16 bis inclusion; and are included at in a gettime tinge. Sog are estimated to contain 18 acres task.

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B. Wentworth 500 acres.

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village

Sources of Vermont Data

Lotting	62%
Deeds	8%
Outlines	6%
Roads	6%
Sundry Returns	19%

Thence & 2. I. I. 17 rods to a birch - Thence E. A. J. 10 rods to a himlork true - Thence 830 J. 14 rods to a himlork --Thence J & 5 & 37 - rods to a beach true - Thence J. 39/2 &-7 rods to a himlork - Thence & 27. J. 22 rods to a maple to Thence & 81. J. 12 rods to a beach true - Thence & 35 J. 54 mag



FIG. 4-A reconstruction of the original forest cover of Lebanon, from 531 trees named as bounds in



St. Johnsbury, VT

Composite Map Lebanon, N.H. Torbert 1935



Ironwood Names in Presettlement Surveys





Shelburne Bay by C Heyde ca. 1852







Presettlement -- 1781

	Montpelier	Montpelier
1 A A	witness trees	Pine Lots
1000	1781	1787
Trees	186	62
	%	%
Beech	25	21
Maple	28	11, 11, 11, 11, 11, 11, 11, 11, 11, 11,
Hemlock	22	45
Spruce	10	6
Birch	5	10
Basswood	4	A DECKER OF
Fir	2	2
Elm	2	ALC: NOT OF
Leverwood	1.00	3 3
Ash	1	
Oak	and the second se	2



Green Mount, Montpelier

Presettlement Town Clusters

Lorda Hill

Northern Hardwo

Lords Hill, Marshfield



ce-Hardwoods

Beech-Birch-Maple

Ca. 1800 Classification

Current Ecological Unit Classification



Cogbill 2011

USFS Keys 1995

Vermont 1800 Presett FIA 1997 Change 138 towns all 1997/1800 Cherries Poplars 2% 12% Maples 44 Cedar ronwoods <mark>2%</mark> 1.8 Ashes **Tamarack** 0% Birches 9% Hickories 0% 0% Pines 2% 1% **Spruces** Elms Hemlock Oaks $\mathbf{0}$ 0.3 Beech Juglans 0.1 20 0.1 Basswood



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







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

Pragmatic need to Witness Corner5 person crew with axemenPositionBias changes density estimateCondition – Ease of MarkingSecond nearest +50% fartherSpeciesUnaffected by equal bias

Species Bias
Siccama enigma (either surveyor bias or change in beech)Northeast Vt. 30 towns 31% beech witness treesEase of marking--blaze vs. scribing w/ axemenChoice available2nd nearest expected 50% farther





Northeast Vt. 1780s post-to-tree distance 443 witness trees Beech 8.8' Maple 9.0' Hemlock 9.1' 9.9' Birch 8.1' Spruce 6.6' Fir Overall 8.8' Siccama 1971

Consistency of bias





Presettlement Forest Density (trees/ha >~ 20cm dbh)



Cogbill 2013

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







