

Matt Langlais, Caledonia/Essex County Forester Department of Forests, Parks & Recreation

1229 Portland Street, Suite 201 St. Johnsbury, VT 05819-2099

[phone]802-751-0111 [fax] 802-748-6687

www.vtfpr.org

[email] matt.langlais@state.vt.us

# **MEMORANDUM**

To:

Ginger Anderson, Chief of Forest Management

From:

Matthew Langlais, Caledonia/Essex County Forester

Subject:

UVA Violation: Plum Creek Maine Timberlands, LLC 139.54 acres cut contrary

Date:

April 26, 2010

Landowner:

Plum Creek Maine Timberlands, LLC

999 Third Avenue, Suite 4300

Seattle, WA 98104

SPAN #:

348-108-10039

Parcel Town:

Lemington (contiguous with lands in Bloomfield, Averill, Avery's Gore, Lewis, Brighton, Morgan &

Brunswick)

The purpose of this memorandum is to report an adverse inspection of the Plum Creek Maine Tunberlands LLC property that is enrolled in the Use Value Appraisal Program in Essex County. Please find attached a map detailing those acres considered cut contrary (139.54 acres). Violations include cutting contrary to the approved forest management plan as well as failure to implement AMP's, discharge resulting (see attached letters).

- Clough Brook North Harvest (LM-03-01-09), Stand LM-03-34 1.
  - Management Plan Data/Prescription
    - i. Northern Hardwood; 8.4 MSD; 82/35 AGS/UGS BA; Two stage shelterwood prescribed with 30-40 square feet residual basal area.
  - Inspection Findings
    - Stand has been cut contrary to prescribed silviculture. Stand inventoried on 2/10/2010 and 2/12/2010. Residual basal area across 90.91 acres of the stand reduced to 19.7 square feet (36 inventory points with 2.63 standard error).
    - ii. AMP Violations-discharge resulting include:
      - 1. Landing located within 50'stream side protection zone (AMP # 16)
      - Unnecessary crossings—3 crossings installed on one brook whereas none actually needed (AMP
      - Protective strip not maintained (AMP #14)
      - Machinery operated/skid trails placed within 25' streamside protection buffer (AMP #14)
      - Stream channel excavated/altered to allow for the movement of water (AMP # 10)
      - Equipment in headwater stream and or headwater wetland causing rutting (AMP # 10)





- Clough Brook North Harvest (LM-03-01-09), Stand LM-03-43 2.
  - Management Plan Data/Prescription
    - i. Mixed wood; 8.2 MSD; 88/38 AGS/UGS BA; 410 Stems per acre regeneration; Two stage shelterwood prescribed with 60 square feet residual basal area and overstory removal on 30-40% of the stand where understory is well stocked with seedling and sapling sized red spruce.
  - Inspection Findings
    - i. 40.15 acres of stand cut contrary to plan. Stand inventory on 3/17/10 and 4/13/10 found 23.3 square feet of basal area and 15.38% of regeneration plots stocked (39 inventory points with 4.18 standard error). Neither regeneration plots nor residual stand basal area describes successful implementation of prescribed
    - AMP Violations-discharge resulting include:
      - Protective strip not maintained (AMP #14)
      - Machinery operated/skid trails placed within 25' streamside protection buffer (AMP #14)
      - Equipment in headwater stream/wetland causing 1-2 foot rutting (AMP # 10)
      - Equipment crossing brooks without crossing structures in place (AMP #10).
      - Two unnecessary stream crossings (AMP #9).
- Clough Brook North Harvest (LM-03-01-09), Stand LM-03-44 3.
  - Management Plan Data/Prescription
    - i. Northern Hardwood; 7.6 MSD; 97/42 AGS/UGS BA; Intermediate thinning to residual basal area of 60
  - Inspection findings
    - i. 8.47 acres of stand cut contrary to plan. Stand inventory on 3/26/10 found 16.3 square feet of basal area (8 inventory points with 4.60 standard error).

Cc: Kathy Decker Jeff Briggs Dan Kilbom





Matt Langlais, Caledonia/Essex County Forester Department of Forests, Parks & Recreation

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[phone] 802-751-0111 [fax] 802-748-6687

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[email] matt.langlais@state.vt.us

# INTERNAL MEMORANDUM

To:

Ginger Anderson, Chief of Forest Management

From:

Matthew Langlais, Caledonia/Essex County Forester

Subject:

Addendum to April 26, 2010 memo reporting UVA Violation on Plum Creek Maine Timberlands, LLC

Date:

April 29,2010

The purpose of this memorandum is to provide background information pertaining to the Dept of Forests, Parks & Recreation's involvement with Plum Creek Maine Timberlands LLC since they took ownership of the Essex County lands in the fall of 2008.

The forest management plan under which Plum Creek has been operating over the last 18 months was developed by the prior owner of the lands just prior to the ownership change. Given the aggressiveness of this plan (which called for an increase of the harvest from 7,000 cords to 45,000 cords annually) it was my intention from the start to provide a fair amount of time with the Plum Creek foresters to both get an understanding of their ownership objectives as well as provide them with an understanding of the goals and objectives of the UVA program. It was my hope that after spending time in the field with them I would gain insight/a comfort level with how they operate as well as that they would become familiar with what is required of them to remain eligible for use value benefits.

It became clear from the start that this would be an involved process. The very first harvest I visited with them on December 22, 2008 was cut contrary to the approved plan. This harvest had been submitted by the prior owner and implemented by Plum Creek. About 30 acres of a 205 acre block was supposed to be a shelterwood treatment but had been commercially clearcut. This UVA violation was not documented as such due to the newness of the ownership, the smaller scale of the contrary cutting, and Plum Creek's forester was not familiar with the program. We were assured that contrary cutting would not happen again due to new practices that would be put in place by Plum Creek. Over the next 16 months I spent eleven days in the field with Plum Creek reviewing harvest plans. Of the 25 harvest plans submitted (covering 6,059 acres) I have approved 15 plans (4,189 acres), have not yet approved 4 plans (777 acres) due to inconsistencies and further information being required, and am awaiting Plum Creek action on 6 additional plans (1093 acres). Field review has occurred on all 4,189 acres of approved harvests. This review not only involved myself but, at times, other FPR District V Foresters including Richard Greenwood and Louis Bushey, other County Foresters including Nancy Patch, Nate Fice, Russ Barrett & Dave Paganelli as well as Gary Sabourin who was brought in to talk specifically about Vermont's water quality standards. In addition to field review we have met with Plum Creek staff on three different occasions to discuss UVA, AMP and Heavy Cut standards/procedures. The Vermont Land Trust has also invested a considerable amount of staff time overseeing their interest in the easement. All told, the Department of Forests, Parks & Recreation invested over 51 person days educating and working with Plum Creek over the past 18 months to avoid the type of harvesting which took place this past winter in Lemington. Documentation of the water quality violations and contrary harvesting involved an additional 9 person days (M. Langlais 6, R. Greenwood 2, J. Briggs 1 day).





# CURRENT USE PROGRAM 133 STATE STREET MONTPELIER, VT 05633-1401

FOR DEPARTMENT USE ONLY

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AND USE VA				

NOTICE OF DEVELOPMENT OR DISCONTINUANCE F (TO BE COMPLETED BY LANDOW	'ROM LAND USE VALUE APPR NER OR DIRECTOR OF PVR)	AISAL PROGRAM
SECTION 1 ALL FIELDS REQUIRED FOR PROCESSING  Name of Landowner  Plum Creek Maine Timberlands, LLC	Town	Date of Development or Discontinuance 05/24/2010
Succt or PO Box 999 Third Avenue, Suite 4300	Parcel Identification No. 100011.2	Number of Acres Withdrawn 14,639.000
Cny State Zip Code Senttle W/A 98104	SPAN - School Property Account No. 202-522-10079	Number of Acres Developed 0.000
Check appropriate reasons for withdrawal or disqualification and explain	below:	
Disqualified but no development you mu	If a portion of the land is being wast submit 3 copies of maps and madelineating the revised enrolled and ang. Maps must be drawn to the ords.	up charts of the entire d excluded acreage
Description Entire parcel of managed forestland.		
Reason for Withdrawal  Adverse inspection report received from Department of F	orests Parks & Recreation.	
Adverse inspection report received from Department of 2	VA VIII VA	
	-	
	· ,	
		,
THIS NOTICE MUST BE PRINTED AND MAILED WITH AN If signature is other than owner(s), attach copy of recorded	ORIGINAL SIGNATURE OF ALL power of attorney or other recorded authorize	LAND OWNERS
Owner Signature:	Date:	unggir ng mga katal dia. Kapalah kak kapalah kakungan
Owner Signature:	Date	· · · · · · · · · · · · · · · · · · ·
Owner Signature:		
SECTION 2 TO BE COMPLETED BY THE PROPERTY-VALUATION OF	REVIEW DIVISION	
5-24-10 (Constitution Signature - Director, Property Valuation	7-9-(O ion & Review Date Issued	# Acres Withdrawn # Acres Developed

L.U-1 Rev. 1/09

MAIL COMPLETED FORM AND MAPS TO:

Property Valuation & Review Division

Current Use Program 133 State Street

Montpelier, VT 05633-1401



State of Vermont Department of Taxes 133 State Street Montpelier, VT 05633-1401 July 9, 2010 Agency of Administration

Corporate Tax Department Plum Creek Maine Timberlands, LLC 999 Third Avenue, Suite 4300 Seattle, WA 98104

RE: Discontinuance of Plum Creek parcel from Use Value Appraisal Program

Dear Tax Department:

I am writing to notify you that the Vermont Department of Taxes, Division of Property Valuation and Review has received from the Vermont Department of Forests, Parks and Recreation an adverse inspection report on a Plum Creek Maine Timberlands, LLC parcel of land located in Essex and Orleans Counties. See the attached schedule for the location and acreage affected by this report. Consequently, the entire parcel is removed from the Use Value Appraisal Program effective April 1, 2011. 32 V.S.A. § 3756(i) (Director of Property Valuation and Review shall remove from use value appraisal the *entire* parcel of managed forest land when Department has received adverse inspection report) (emphasis added). A new application for Use Value Appraisal for this parcel will not be considered for five years after the removal. 32 V.S.A. § 3755(d). Any appeal from an adverse inspection report must be made to the Commissioner of the Department of Forests, Parks and Recreation within 30 days of the date of this notice. 32 V.S.A. § 3758(d).

You will receive a Notice of Assessment in a separate mailing for the land use change tax that is due, pursuant to 32 V.S.A. § 3757(a), with respect to the portion of the parcel that has been developed, as defined in 32 V.S.A. § 3752(5).

Sincerely,

William E. Johnson, Director Property Valuation and Review

Cc: Chris Fife, Plum Creek Virginia Anderson, FP&R Town Assessing Officials



State of Vermont Department of Taxes 133 State Street Montpelier, VT 05633-1401

July 9, 2010

# Plum Creek Maine Timberlands, LLC Land Discontinued due to A.N.R. Adverse Inspection

Municipality	Acres <u>Discontinued</u>	<u>SPAN</u>
Averill	14,639	020 255 10079
Averys Gore	8,224	022 256 10002
Bloomfield	9,112	066 020 10090
Brighton	5,269	090 028 10364
Brunswick	2,277	105 033 10027
Lemington	9,907	348 108 10039
Lewis	6,673	351 259 10008
Morgan	497	411 128 10241
Total	56,604	
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# INSTRUCTIONS FOR NOTICE OF DEVELOPMENT OR DISCONTINUANCE FROM LAND USE VALUE APPRAISAL PROGRAM

Section 1 - Development/Discontinuance

This form is to be used to notify Property Valuation and Review of the development or discontinuance of land from the use value appraisal program. If development or discontinuance is occurring on only a portion of the land enrolled, 3 copies of a revised map are required to be filed with this notice. This form and maps must be filed by the landowner by completing Section 1 and mailing the completed form and all maps to:

Property Valuation & Review, Current Use Program, 133 State Street, Montpelier, VT 05633-1401.

The fair market value of the land being discontinued will be determined by Property Valuation and Review. If any land has been or is to be developed, the value of the developed land will also be determined. There is a land use change tax of twenty percent of the fair market value of the developed land. The tax will be ten percent if the owner demonstrates to the satisfaction of the director that the parcel has been enrolled more than ten years. If the developed land is a portion of a parcel, the fair market value of the developed land shall be the fair market value of the developed land prorated on the basis of acreage divided by the common level of appraisal. The tax is due 30 days after the tax notice is mailed to the taxpayer and shall be collected in accord with and subject to the penalty, interest and enforcement provisions 32 V.S.A., Chapter 151. If you wish to prepay the tax and have the lien removed from discontinued property that has not yet been developed, you may do so by contacting Property Valuation and Review and requesting that a Notice of Assessment be issued for the amount due.

"Development" means, for the purposes of determining whether a land use change tax is to be assessed under 32 V.S.A. §3757, the construction of any building, road or other structure, or any mining, excavation or landfill activity. "Development" also means the subdivision of a parcel of land into two or more parcels, regardless of whether a change in use actually occurs, where one or more of the resulting parcels contains less than 25 acres each. If subdivision is solely the result of a transfer to one or more of a spouse, parent, grandparent, child, grandchild, niece, nephew or sibling of the transferor, or to the surviving spouse of any of the foregoing then "development" shall not apply to any portion of the newly-created parcel or parcels which qualifies for enrollment and for which, within 30 days following the transfer, each transferee applies for reenrollment in the use value appraisal program. "Development" also means the cutting of timber on property appraised under this chapter at use value in a manner contrary to a forest or conservation management plan as provided for in 32 V.S.A. §3655(b), or contrary to the minimum acceptable standards for forest management; or a change in the parcel or uses of the parcel in violation of the conservation management standards established by the commissioner of forest, parks and recreation. The term "development" shall not include the construction, reconstruction, structural alterations, relocation or enlargement of any building, road or other structure for farming, logging, forestry or conservation purposes, but shall include the subsequent commencement of a use of that building, road or structure for other than farming, logging or forestry purposes.

#### APPEALS

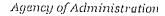
How to Appeal an Eligibility or Change in Use Decision

If you wish to appeal the development/discontinuance of enrolled property determined to be no longer eligible or undergone a change in use, you must file your appeal with the Director of Property Valuation & Review within 30 days of the Notice of Development or Discontinuance. If still aggrieved, an appeal of the director's decision may be made to the Superior Court (\$250.00 filing fee) or State Appraiser via the Director of Property Valuation and Review (\$70.00 fee) in the same manner and under the same procedures as an appeal from a decision of the board of civil authority, as set forth in 32 V.S.A., Chapter 131, Subchapter 2.

How to Appeal an Adverse Inspection Report or Denied Management Plan Approval

If you wish to appeal the development/discontinuance resulting from a decision of the Department of Forests, Parks and Recreation concerning the filing of an adverse inspection report or the denial of approval of a management plan, you must file an appeal with the commissioner of the Department of Forests, Parks and Recreation within 30 days of the Notice of Development or Discontinuance. If still aggrieved, an appeal of the commissioner's decision may be made to the Superior Court (\$250.00 filing Ice) in the same manner and under the same procedures as an appeal from a decision of the board of civil authority, as set forth in 32 V.S.A., Chapter 131, Subchapter 2.

If you have any questions regarding this form, please contact the Division of Property Valuation and Review, Current Use Program, 133 State Street, Montpelier, VT 05633-1401. Telephone (802) 828-5861.





State of Vermont Department of Taxes 133 State Street Montpelier, VT 05633-1401

July 13, 2010

Corporate Tax Department
Plum Creek Maine Timberlands, LLC
999 Third Avenue, Suite 4300
Seattle, WA 98104

RE: Notice of Assessment for Developed Portion of Parcel Discontinued from Use Value Appraisal Program

# Dear Tax Department:

By letter dated July 9, 2010, I notified you that the Vermont Department of Taxes; Division of Property Valuation and Review had received an adverse inspection report from the Vermont Department of Forests, Parks and Recreation for a Plum Creek Maine Timberlands, LLC parcel of land located in Essex and Orleans Counties, resulting in removal of the entire parcel from the Use Value Appraisal Program.

Pursuant to 32 V.S.A. § 3757(a), the portion of the parcel that has been developed, as defined in 32 V.S.A. § 3752(5), has been assessed at fair market value, prorated on the basis of the fair market value of the total acreage enrolled, and divided by the common level of appraisal. The developed portion is identified as 139.54 acres in the Town of Lemington and its value for the purpose of computing the land use change tax has been determined to be \$39,304<sup>1</sup> as of the date of removal, May 24, 2010. The land use change tax is 20% of the fair market value or \$7,860.80.

The land use change tax and a \$10 lien release fee are due within 30 days of the date of this notice. Upon receipt of \$7,870.80 (land use change tax plus lien release fee) and a completed Land Use Change Tax Return, the lien on the developed land will be released. A partially completed Land Use Change Tax Return is enclosed for your convenience.

<sup>&</sup>lt;sup>1</sup> Pursuant to 32 V.S.A. § 3758(b), "Any owner who is aggrieved by the determination of the fair market value of classified land for the purpose of computing the land use change tax may appeal in the same manner as an appeal of a grand list valuation."

Also enclosed for your reference is a schedule of the fair market value for the remaining portion of the parcel, by town, that has not been developed. The land use change tax is not due on undeveloped portions of the property until development occurs as defined in 32 V.S.A. § 3752(5). If you wish to remove the lien on the undeveloped portions of the property, you may pay the land use change tax, as reflected on the enclosed schedule, along with a lien release fee of \$10 per town.

Sincerely,

William E. Johnson, Director Property Valuation and Review

## Enclosures

cc: Chris Fife, Plum Creek
Virginia Anderson, FP&R
Town Assessing Officials



State of Vermont Department of Taxes 133 State Street Montpelier, VT 05633-1401

# Plum Creek Maine Timberlands, LLC

# Land Discontinued due to A.N.R. Adverse Inspection

Municipality	Acres Discontinued	SPAN		Fair Market Value Enrolled Land (as of	.L:	and Use Change Tax
Averill	14,639	020-255-10079	\$	4,381,954.00	\$	876,378.40
Averys Gore	8,224	022-256-10002	59	.2,510,861.00	\$	502,173.80
Bloomfield	9,112	066-020-10090	\$	2,110,196.00	\$	422,031.40
Brighton	5,269	,090-028-10364	\$	1,677,149.00	\$	335,424.60
Brunswick	2,277	105-033-10027	. 2	735,743.00	2	147,148.80
Lemington	9,907	348-108-10039	\$	2,790,528.00	\$	558,101.00 *
Lewis	6,673	351-259-10008	\$	1,965,579.00	\$	393,119.80
Morgan	497	411-128-10241	\$	169,513.00	Ş	33,902.40
Total	56,604		\$	16,341,523.00	<u></u>	3,268,280.20

<sup>\*\*</sup> This calculation includes the land use change tax of \$7,860.80 that is currently due on 139.54 acres of developed land.



# VERMONT PO BOX 1577 MONTPELIER, VERMONT 05601-1577

# RECEIVE

OCT 1 6 2008 5

AGRIGULTURAL LAND, FOREST LAND, CONSERVATION LAND AND ARM BUILDINGS

	JUSE MALIUL APPRA			TADAK DASAGATAN MANANG MESA
	**ALLTREEDSTREQUIRED FOR TROCESSING AT	O'BENEOMEREMEDE		
I. Name of Lando			3. Town Averill	
Plum Cre	ek Maine Timberlands, LLC		4. Location of Property	
		***************************************	4. Location of Property 3/4 of Southeast A	
2. Contact Landoy Third	Avenue, Suite 4300	Phone	5, SPAN – School Property A 020-255-10079	
City Seattle	WA 98	ip Code 8104	6. Number of Acres Owned 14,653.000	7. Number of Acres Excluded 14.000
8. Farm Buildings (Provide numbe	Actively Used by a Farmer to be Enrolled: r of each type to be enrolled)	9. Acres to be Appraised Category	at Use Value: 14,639,000 Acres	
Barns	Farm Crop Processing Facility	Agricultural Land		교통 New Enrollment
Greenhouses	Farm Employee Housing	Productive Forest La	nd -13,933,000	Revised Enrollment
Sheds	Sugarhouses	Nonproductive Fores	st Land $\frac{706.00}{1}$	Addition to Enrolled Parcel
Silos	total $0$	Conservation Land		. Addition to Endied   Meet
f	ACHIOF THE FOLLOWING QUESTIONS AUnansw	ered questions will limit	eligibility:	YIES NO
A. Is there acrea	e in the same ownership and contiguous to the total ac	res on Line 6 which is n	ot included in this	· · · · · · · · · · · · · · · · · · ·
application?	- 			
B. Are there any	dwellings, camps, mobile homes or other buildings on e number and type: 7 camps	the entire property?	•	
C. Do you fowns	er) qualify as a farmer by making half of your gross income	ome from the business o	f farming as defined in	
Regulation L.	75-3 of the Internal Revenue Code 1954 and/or from the	ie sale of processed proc	lucts produced from 75	
percent of the	farm crops produced on the farm?	sclusively to house one of	or more farm	
employees, as	defined in section 9 V.S.A. §4469, and their families, a	is a nonmonetary benefit	of the farm	<u>.</u> !
employment?	P. 5.034hh.	ومحروم والمستران والمستران والمستران	hara madificad famous	
E. If you (owner	) do not qualify as a farmer, are your farm buildings lean tease of at least 3 years? <i>Enclose copy of lease</i>	sed to and actively used	by a quanticu farmer	
E IF YOU ARE	APPLYING FOR AGRICULTURAL LAND:			
1. Is this appli	cation for at least 25 contiguous acres in active use for a	any of the following?	Donton	
Cropland	Hay land Orchard Sugarbush action is for less than 25 configuous acres:	Christmas tree	- Pasture	·
a. Is the lan	d contiguous with other land you own in the next town,	making at least 25 acres	s?	· 🛄
<ul> <li>b. Does the</li> </ul>	land produce gross income of at least \$2,000/year from	the sale of farm crops?		
c. Is the lan	d leased to, and actively used by, a farmer under a writt APPLYING FOR FOREST LAND:	en lease for at least 5 ye	ars /	
1. Is this applie	eation for at least 25 contiguous acres of forest land?		.,.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
2 Is more that	20% of the land nonproductive forest land or open lan	d (see instructions)?		
3. If this applie	cation is for less than 25 contiguous forest acres, is the landing at least 25 acres?	land configuous with oth	er land you own in the	
H. IF YOU ARE	APPLYING FOR CONSERVATION LAND:	•		
1 Have you be	en certified under 10 V.S.A. \$6306(b)?			
2. Have you be	cen certified as a qualified organization as defined in 10 cen determined by the Internal Revenue Service to qual	FV.S.A. §630187 ifv as a Section 5017c)(3	A promization, which	
is not a priv-	ate foundation as defined in Section 509a of the Interna	il Revenue Code, for at l	east five years	,
preceding co	ertification as defined in 10 V.S.A. §6301a?	.,,.,		
SECTION2	** FIFIIS APPLICATION MUST BE PRINTED AN His grature is cother than cowner (s) attach	copyrofitecorded powers	of attorneyzor other records	drauthorization
I hereby certify that	I intend to have all my property described on this application	appraised at use value exce	ept those partions specifically e	excluded on Line 7.
Liee Advisory Boar	I, my heirs or assigns, are subject to this provision of 32 V.S./ d and state statutes. When this application is signed by the lan	idowner(s) and approved by	y the state, it shall be recorded i	in the land records of the
municipality and sl	all constitute a lien to secure payment of the land use change	tax to the state upon develo	pment of the parcel. The lien s	hall run with the land. The
landowner shall be	or the recording cost.  Owner Signature: Anothy E. Jon.	ell	Date: 10-10-	- 95
	Owner Signature:		Date:	
	Owner Signature:		Date:	
SECTION3	TO BE COMBLETED BY THE D	RECTOROUPROPE	RINAVALEUALLION AND	RINJEW
From the inform	tion herein certified by the applicant il have determine			
an l	=//\Q \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \			
Date ( )	5//////		Director Property	y.Walliation(and Review 💯 💯



# VERMONT DEPARTMENT OF TAXES PO BOX 1577 MONTPELIER, VERMONT 05601-1577

# RECEIVED

PORTEPARTMENT USE ONLY 0CT 16 2008

PROPERTY VALUATION

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SECTION IN FAILS PLEEDS REQUIR	ED/FOR BROCESS	ING#DESCRIBE THE	PROPER	TYVASJITEXISTEDI <b>BUR</b> O	DRE CONVEYANCE
Name of Landowner(s) - List all				Town	
Essex Timber Company, LLC				Averili	
·				Parcel ID# from Grand List 100011.2	Book .
Contact Landowner Mailing Address 29 North Main Street		Phone		SPAN - School Property Ac 020-255-10079	count No.
City Ipswich	State MA	Zip Code 01938	,	Number of Aeres Owned 14,653	Number of Acres Excluded 14
Farm Buildings Actively Used by a Farmer to (Provide number of each type to be enroll				Acres to be Appraised at Use Category	Value: Acres
Barns	Farm Crop Pro	ocessing Facility		Agricultural Land	
Greenhouses	Farm Employe	ee Housing	<del></del>	Productive Forest Land	13,933 LI 968 H
Sheds	Sugarhouses			Nonproductive Forest La	nd 706 13670.5
Silos <u> </u>		TOTAL	•	Conservation Land	
SECTION 2 DESCRIBE RORTION	TRANSFERRED HE	RE-			
Portion Transferred To: (Name and Address)				Change of Ownership Date	Acres Transferred
Plum Creek Maine Timberlands, L	LC 999 Third Ave	e, Ste 4300, Seattle,	WA	9-18-08	14,653
SECTION 34 VALUETELDS REQUIRE	D)FOR/PROCESSI	NG \DESCRIBETHE/B	ROPERT	Y/AS/IT/EXIS/IED/ARRIE	RGONVEVANCE
Name of Landowner(s) - List all				Description of Parcel (Physics	
Plum Creek Maine Timberlands, I	LLC			2/4 of Court = -1 a	211
				3/4 of South East Ave	erill
Contact Landowner Mailing Address 999 Third Avenue, Suite 4300		Phone			
City Seattle .	State WA	Zip Code 98104		Number of Acres Owned 14,653	Number of Acrès Excluded 14
Farm Buildings Actively Used by a Farmer to	be Enrolled:				
(Provide number of each type to be enrolled)				Acres to be Appraised at Use	Value:
Barns	Farm Crop Pro	cessing Facility	. ]	Category	Acres
Greenhouses	Farm Employee		-	Agricultural Land	13-933 < 1026.8
Sheds	Sugarhouses		-	Productive Forest Land	700 - 160 +7
Silos	0 (Lante (10 a)	TOTAL	•	Nonproductive Forest Lan	d -100 45.6
			-	Conservation Land	
SECTION 3	ANORIGINAL	OTIGEMUSTABETRIN SIGNATURETOF ALEX s).:attach:copylofrecoide	JANDOV	D)MAILED;WIRH- VNERS:ON/ALLLCORIES Stattomey or other recorde	l authorización
I AM THE OWNER OF ALL/A PORTIO VALUE APPRAISAL PROGRAM AS O DRAWN TO THE STANDARDS ESTAR	ON OF THE PROPER UTLINED ABOVE.	RTY DESCRIBED IN SE I HAVE ENCLOSED A	ECTION I	AND WISH TO HAVE IT	CONTINUE IN THE USE
Owner Signat	ture: Melly	is finel	1	Date: 10-10	-02
Owner Signat	are:			Date:	The state of the s
Owner Signat	atre.			Dates	

NOTICE OF CHANGE OF OWNERSHIP

MAIL COMPLETED NOTICES, APPLICATIONS, AND MAPS TO:

Property Valuation & Review Division
Department of Taxes
PO Box 1577
Montpelier, Vermont 05601-1577

Jun (

LU-CHANGE 2/08

Exh F

# Inventory of Plum Creek Timberlands

# Attachment B: Inventory Cruise Specifications

#### General Procedures

1) Plum Creek Timber Company (PCTC) will provide the contractor with a shapefile of the plot locations to be cruised. Contractor is to flag the cruise line starting location at a readily identifiable landscape feature with the distance and bearing to the first point center written on the flagging.

2) Contractor will hang flagging where cruise lines cross major features (skid roads, pickup truck roads,

property line, stream, etc.) and mark it with the direction and distance to the nearest point.

3) Clearly mark point centers on the ground with a surveyor's type flag (stick, or similar), and also mark with flagging tied at eye level to make it clearly visible from a distance. Mark the flagging with the unique point identifier, the cruiser's initials and date.

a) Two types of plots will be taken for this cruise Prism plots and fixed area plots.

i) Prism plots:

(1) Use a 5 BAF prism.

(2) Plot spacing by grid with a plot every 2 acres - see shapefile

ii) Fixed area plots:

(1) 1/1000 acre fixed plots

(2) Plot Spacing by grid with three plots per acre.

4) Send or deliver all completed point data from the previous work week (cruise batches), in digital format (the form) as defined by PCTC.

- 5) All batches will be audited to the description on Exhibit E. Plum Creek will provide feedback on the results of the audit within two weeks of receiving a batch from the contractor All batches that have passed auditing will be processed for invoice payment. All failed batches will be subject to re-cruise. In these cases payment will be withheld until such batch passes.
- 6) Completion of all plots Send all completed point data in the digital format (the form) as defined by PCTC and all field tallies, notes, maps, and data that are property of PCTC.

## Specific-Individual Tree Specifications,

#### All Prism Plots

- 1) A prism shall be employed to select all trees on a point.
- 2) Tree Measurements
  - a) Begin tree measurements at each point with the first tree (mark as #1 or flagged at dbh) to the east of north and proceed in a clockwise direction.

b) Tally all species 1.0 -inch dbh class and larger

- c) The 1-inch dbh classes will be defined as shown in the following example. The 6-inch dbh classes will range from 5.60 to 6.59 inches.
- d) Record trees forked below 4 1/2 feet as two separate trees.

e) Mark all trees with a paint stick at the point dbh was measured.

- f) Measure all borderline trees for limiting distance and mark those determined as "out" with an X at dbh facing plot center
- 3) For each live tree on each point, record species, dbh, acceptable or unacceptable growing stock and total height on every tree; to the top of the live crown.

#### All fixed area plots:

1) A fixed radius plot encompassing 1/1000th of an acre from a fixed plot center

- a) Begin with a flag at plot center This is critical for check cruising the plot
- 2) Tree measurements:
  - a) Begin tree measurements at each point with the first tree (flagged) to the east of north and proceed in a clockwise direction.
  - b) Tally all species 6 inches in height and larger
  - c) For each live tree on each plot, record species, acceptable/unacceptable growing stock. For unacceptable growing stock indicate whether due to browse (UGS-B) or suppressed (UGS-S). For each species/AGS-UGSB-UGSS code combination, record up to 10 stems. Record species/AGS-UGSB-UGSS combinations that have more than 10 stems as 10+

# Other plot data:

1) Is there a seed source available? (birch 300', maple 150', red spruce 400', balsam fir 200') Yes/No.

Specific—Quality Control Standards
Plum Creek Timber Company will audit points. Audit criteria are attached as (Exhibit E and F).

## Electronic Data Format

1 Collected plot data will be submitted to Plum Creek using the format attached (The Form – Exhibit D) or as agreed upon by both parties.

108.9

	plots
Regenerati	331

BAF 5

Total BA QMD Avg BA per tree

piots 60

21 422 5.07 0.14

Acceptable	Growing	Stock

Species	Stems/ac	Total stems
RS	84.59215	9212 084592
WB .	78.54985	8554.07855
YB	1604.23	174700.6042
BF	268.8822	29281.26888
HM	996 9789	108570.997
RM	758.3082	82579.75831
BE .	280 9668	30597.28097
QA	15.10574	1645,015106
R	33 23263	3619.033233
НМ	12 08459	1316.012085
YB	30.21148	3290.030211
BE	9.063444	987 0090634
	4172.205	454353.1722

# Unacceptable Growing Stock

Species	Stems/ac	Total stems
RM	78,54985	8554.07855
MM	1930.514	210232 9305
BF	163.142	17766.16314
RM	45.31722	4935.045317
BF	72.50755	7896.072508
PC	1190.332	129627 1903
YΒ	658.6103	71722.65861
BF	151 0574	16450.15106
YB	84 59215	9212.084592
HM	123.8671	13489.12387
HM	57 40181	6251.057402
RM .	480 3625	52311.48036
BÉ	33 23263	3619.033233
НМ	413.8973	45073.4139
NC	3.021148	329 0030211
MM	3.021148	329.0030211
RS	6.042296	658.0060423
WB	33.23263	3619 033233
BE	30.21148	3290.030211
BE	105.7402	11515 10574
YB	151 0574	16450.15106
QA	12 08459	1316.012085
R	9.063444	987 0090634
	5836.858	635633.8369

RESULTS のとといる LEWINGTON

Tract Name Acres

Lemmington 108 9

1/1000th acre Regeneration Plots 311

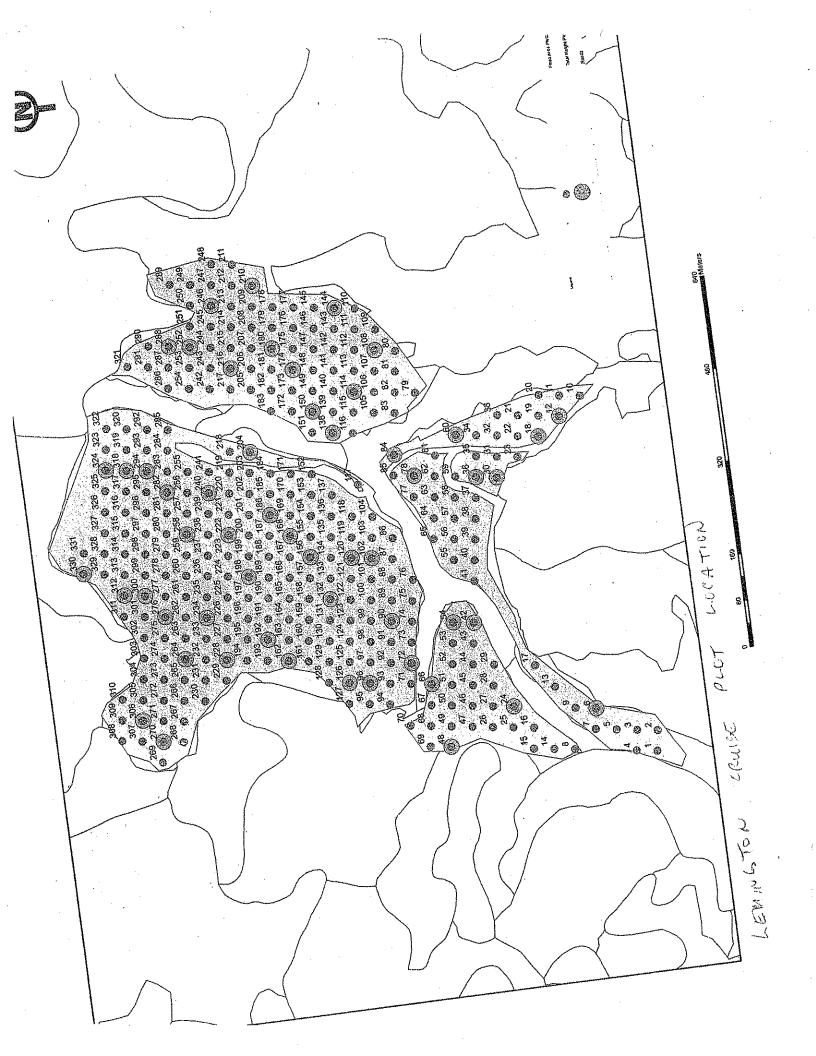
Total Stems\* 454353 635634 Stems/ac\* 4172 5837 Acceptable Growing Stock Unacceptable Growing Stock

BAF 5 Prism Plots

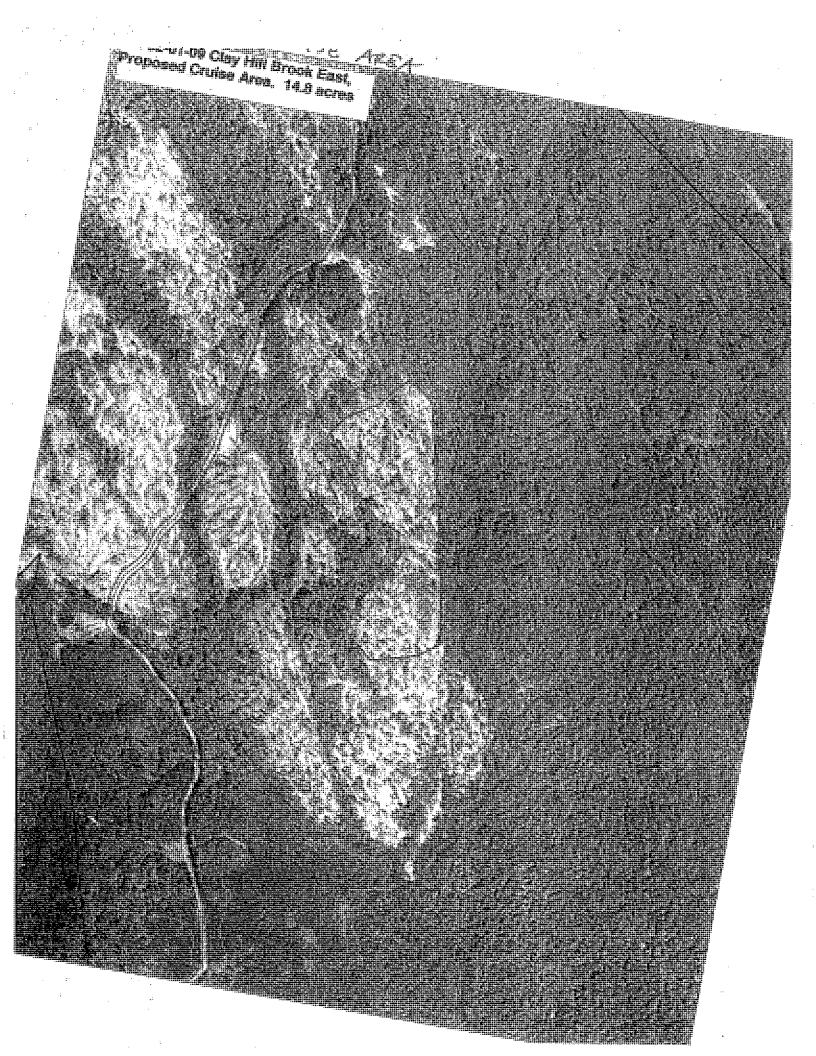
8

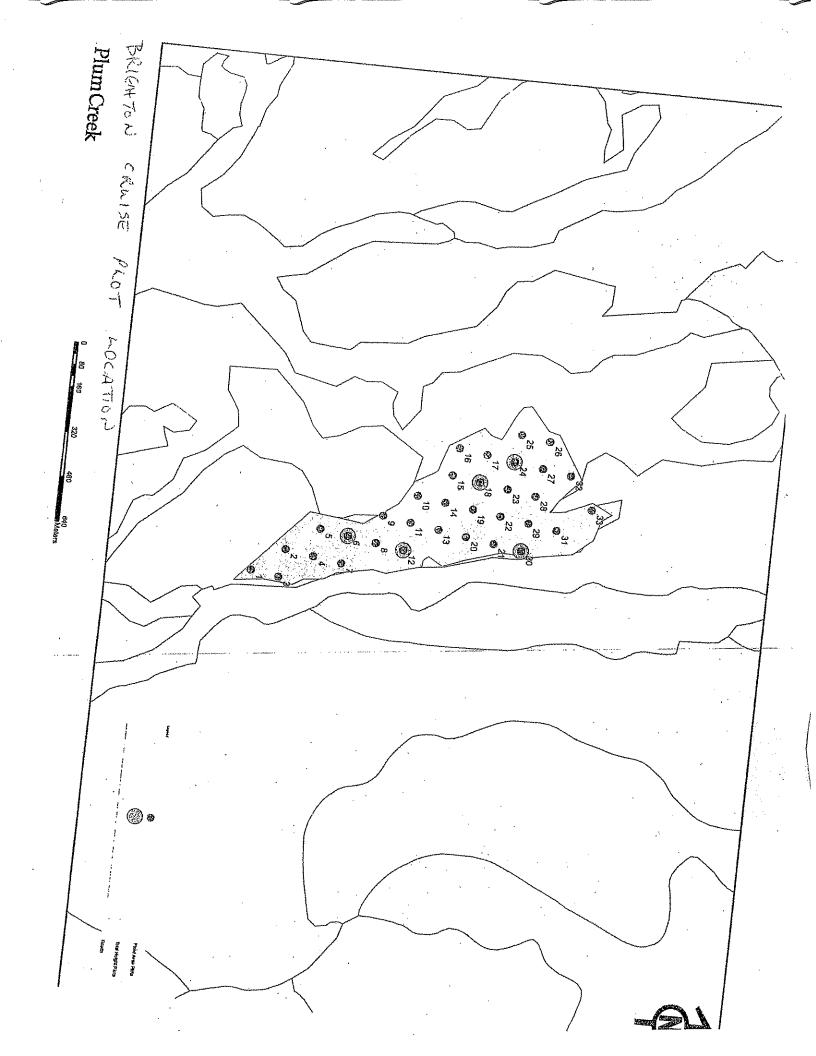
Total Basal Area	21.422
Quadratic Mean Diameter	5.07
Avg Basal Area per free	0.14

\* when a specific species tallied more than 10 in any one 1/1000th acre plot the tally was capped at ten. The stems per acre for both acceptable and unacceptable growing stock are actually higher









RESULTS CRUISE Baleton

Tract Name

Brighton 10.8

Acres

1/1000th acre Regeneration Plots

33

Acceptable Growing Stock Unacceptable Growing Stock

Total Stems\* 97200 89673 Stems/ac\* 9000 8303

\* when a specific species tallied more than 10 in any one 1/1000th acre plot the tally was capped at ten. The stems per acre for both acceptable and unexceptable growing stock are actually higher.

BAF 5 Prism Plots

ď

Quadratic Mean Diameter Avg Basal Area per tree Total Basal Area

45.01 3.51 0.07

Summery

Brighton ac

10.8

Rec	ene	erati

plots 33

		plots
BAF 5		5

Total BA QMD Avg BA pei 45.010 3.51 0.07

# Acceptable Growing Stock

Species	Stems/ac	Total stems
RM	2848.5	30763.64
YB	3848.5	41563.64
НМ	121.2	1309.091
BE	2121.2	22909.09
BF	30.3	327.2727
QA	30.3	327,2727
	9000	97200

# Unacceptable Growing Stock

	8303.03	89672.73
BE	30.3	327.3
BE	181.8	1963.6
HM	181.8	1963.6
RM	181.8	1963.6
YΒ	30.3	327.3
HM	30.3	327.3
RM	575.8	6218.2
YB	697.0	7527.3
MM	1090,9	11781.8
BE	757.6	8181.8
YB	90.9	981.8
PC	4454.5	48109.1
Species	Stems/ac	Total stems

# AVERYLL CRUISE RESULTS

Acres 1/1000th acre Regeneration Plots Tract Name 40 Averill 14.88

Acceptable Growing Stock Unacceptable Growing Stock 8050 7725 Stems/ac\* Total Stems\* 119784 114948

Avg Basal Area per tree

Quadratic Mean Diameter

Total Basal Area

20,004

0.12 4.74 BAF 5 Prism Plots

acceptable and unacceptable growing stock are actually higher. \*when a specific species tallied more than 10 in any one 1/1000th acre plot the tally was capped at ten. The stems per acre for both Summery

Averill acres

14.88

Averill acres

14.88

Regeneration

plots 40

plots 6 BAF 5

Total BA QMD Avg BA per tree

20.004 4.74 0.12

# Acceptable Growing Stock

Species	Stems/ac	Total stems
RM	412	5 61380
YB	255	0 37944
BF	. 2	5 372
RS	5	
WB	125	0 18600
QA	. 2	
BE	2	<u>5</u> 372
	805	0 119784

# Unacceptable Growing Stock

Species	Stems/ac	Total stems
RM	900	13392
PC	5750	85560
YB ·	300	4464
WB	200	2976
YB	125	1860
BF ·	75	1116
MM 1	300	4464
YB	25	372
RS	. 25	372
HM	25	372
	7725	114948

LAW OFFICES

# CHENEY, BROCK & SAUDEK, P.C.

159 State Street Montpelier, Vermont 05602

TELEPHONE 802-223-4000 - TELEFAX 802-229-0370 www.cbs-law.com

KIMBERLY B. CHENEY
RICHARD LINTON BROCK
RICHARD H. SAUDEK
DAVID L. GRAYCK
ZACHARY KNOX GRIEFEN-ALSO ADMITTED IN MA
HEATHER N. JARVIS
CHRISTOPHER J. SMART, COUNSEL



JAMES S. BROCK 1913 ~ 2000

August 31, 2011

Angelina Desilets, Deputy Clerk Vermont Superior Court Essex Unit, Civil Division P. O. Box 75 Guildhall, VT 05905-0075

In Re: Plum Creek Maine Timberlands, LLC v. State of Vermont Docket Nos. 72-12-10 & 19-4-11 Excv

Docket Nos. 294-12-10 & 76-4-11 Oscv (consolidated)

Dear Ms. Desilets:

Enclosed please find a Request by Plum Creek Maine Timberlands, LLC for Court Site Visit Prior to Trial for filing.

Thank you.

Sincerely,

David L. Grayck

Enclosure

cc Michael O. Duane, Esquire Client

FEB 1 7 2012

Vermont Superior Court Essex Civil Division

# VERMONT SUPERIOR COURT ESSEX UNIT

ENTRY REGARDINO	G REQUEST
Plum Creek Maine Timberlands, LL vs. Vermont De [Grayck/Duane]	ept 72-12-10 Excv
Title: Request For Court Site Visit Prior to Filed on: September 1, 2011 Filed By: Grayck, David L, Attorney for: Plaintiff Plum Creek Maine Timbe	
Response: NONE	
<pre>Granted Compliance by</pre>	
Denied	
Scheduled for hearing on: at	; Time Allotted
- other Site visit shall occ trial day after ope	en first
trial day after ope	wind 2/2/18/16
• • • • • • • • • • • • • • • • • • • •	
Judge 70	2-17-12 Date
Date copies sent to: 2/23//2 Copies sent to:	Clerk's Initials

Attorney David L Grayck for Plaintiff Plum Creek Maine Timberlands, LL Attorney Michael O Duane for Defendant Vermont Dept of Forest, Parks

# Vermont Superior Court Essex Civil Division

FEB 1 7 2012

	<u>VE</u>	RMONT SUPERIOR
ENTRY REGARDING REQUE		ESSEX UNIT
	30-6-11 Excv	
Title: Request For Court Site Visit Prior to Trial, No. Filed on: September 1, 2011 Filed By: Grayck, David L, Attorney for: Plaintiff Plum Creek Maine Timberlands, LL	1	
Response: NONE		
Granted Compliance by		
Denied		
Scheduled for hearing on: at; Time A	allotted	
- Other S& Or Jor on 7:	2-12-10	<u>ب</u>
		• •
<u></u>		
2/	17/18	
Judge	Date	
Date copies sent to: 2/3//2 Clerk's Ini Copies sent to:		د س سے سے
Attorney David L Grayck for Plaintiff Plum Creek Maine Attorney Michael O Duane for Defendant Vermont Dept of		

FEB 1 7 2012

# Vermont Superior Court Essex Civil Division

# VERMONT SUPERIOR COURT ESSEX UNIT

ENTRY REGARDING REQUEST
Plum Creek Maine Timberlands, LL vs. Vermont Depar 31-6-11 Excv [Grayck/Duane]
Title: Request For Court Site Visit Prior to Trial, No. 1 Filed on: September 1, 2011 Filed By: Grayck, David L, Attorney for: Plaintiff Plum Creek Maine Timberlands, LL
Response: NONE
Denied
Scheduled for hearing on: at; Time Allotted
Other
Sæ order on 72-\$12-10
2/12/12
Judge Date
Date copies sent to: 2/23/12 Clerk's Initials Copies sent to:  Attorney David L Grayck for Plaintiff Plum Creek Maine Timberlands, LL Attorney Michael O Duane for Defendant Vermont Department of Taxes

# Vermont Superior Court Essex Civil Division

FEB 1 7 2012

	VERMONT SUPERIO
ENTRY REGARDING REQUES	T ESSEX UNI
Diam Garage Mark Mark Control of the	9-4-11 Excv
Title: Request For Court Site Visit Prior to Trial, No. 2 Filed on: September 1, 2010 Filed By: Grayck, David L, Attorney for: Plaintiff Plum Creek Maine Timberlands, LL	
Response: NONE	•
Denied	
Scheduled for hearing on: at; Time Al	lotted
Other	
- See order in 72-12-10	۵ <sub></sub>
• • • • • • • • • • • • • • • • • • • •	
2-1	7-12
Judge , Da	ate
Date copies sent to: 2212 Clerk's Init	ials
Attorney David L Grayck for Plaintiff Plum Creek Maine T Attorney Michael O Duane for Defendant Vermont Department	

STATE OF VERMONT

SUPERIOR COURT Essex Unit

CIVIL DIVISION
Docket Nos. 72-12-10 & 19-4-11 Excv
294-12-11 & 76-4-11 Oscv

(consolidated)

In re: Appeal by Plum Creek Maine Timberlands, LLC

REQUEST BY PLUM CREEK MAINE TIMBERLANDS, LLC FOR COURT SITE VISIT PRIOR TO TRIAL.

Now Comes Plum Creek Maine Timberlands, LLC ("Plum Creek") by and through its

attorney, Cheney, Brock & Saudek, P.C., and hereby requests that the Court take a site visit

prior to trial in the above captioned matter. Plum Creek and the State are both available on

Thursday, September 22, 2011, or Tuesday, September 27, 2011 for a site visit, and have

reserved these dates pending the Court's decision on the site visit request.

Plum Creek requests the site visit so that the Court can be oriented as to the physical

location and layout of the area where the timber harvest took place, and to observe the

condition of the land post-harvest. Plum Creek also requests that the Court view other

locations on Plum Creek's property so that the Court can obtain perspective on the extent of

the "parcel" which the State proposes to expel from the Use Value Program, including the

condition of the land at these other locations.

Plum Creek proposes that, during the site visit, no party would be placed under

oath and no record would be maintained. In order for the Court to rely upon

comments or observations made during the site visit, those comments and observations

must be repeated and referenced during the hearing when the witness is testifying under

oath and is available for cross-examination. In re Quechee Lakes Corp., 154 Vt. 543,

552 (1990). This is the procedure that the Superior Court, Environmental Division

uses for site visits in its adjudication of Act 250 and zoning appeals.

CHENEY, BROCK &
SAUDEK, P.C.
159 STATE ST.
MONTPELIER, VERMONT
05602

Plum Creek anticipates that it would require up to 4 hours for the proposed site visit. Plum Creek can provide four-wheel drive transportation for the Court. Plum Creek proposes that counsel for the parties and the Court would travel in the same vehicle, and that additional party representatives may participate in the site visit and would provide their own transportation.

Plum Creek and the State have consulted with respect to this site visit request. They are each available for a site visit by the Court on Thursday, September 22, 2011, or Tuesday, September 27, 2011. Plum Creek proposes that prior to the site visit, the parties would prepare a site visit agenda and itinerary.

Plum Creek proposes that the site visit commence with the parties and Court all meeting at the court house in Guildhall at the time and date set by the Court.

WHEREFORE, Plum Creek Maine Timberlands, LLC moves and requests the Court to take a site visit prior to trial in this matter.<sup>1</sup>

DATED at Montpelier, Vermont on August 31, 2011.

CHENEY, BROCK & SAUDEK, P.C.

(802) 223-4000

dgrayck@cbs-law.com

Attorneys for Plum Creek Maine Timberlands, LLC

By:

David L. Grayck, <sup>(</sup>Esquire

For the Firm

cc: Client

Michael O. Duane, Esquire

<sup>1</sup> If the Court is unavailable for a site visit prior to trial, then in the alternative Plum Creek requests that the Court take a site visit prior to the close of the hearing and with an opportunity for the parties to put the site visit on the record in compliance with *Quechee Lakes*.

SAUDEK, P.C. 159 STATE ST. MONTPELIER, VERMONT 05602

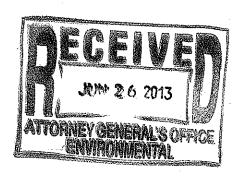
CHENEY, BROCK &

LAW OFFICES

# CHENEY SAUDEK & GRAYCK PC

159 State Street Montpelier, Vermont 05602

TELEPHONE 802-223-4000 - FAX 802-229-0370



KIMBERLY B. CHENEY RICHARD H. SAUDEK DAVID L. GRAYCK #

# ALSO ADMITTED IN NH and NY

HEATHER N. JARVIS

CHRISTOPHER J. SMART, COUNSEL

June 26, 2013

Michael O. Duane, Esq. Office of the Attorney General 109 State Street Montpelier, VT 05609-1001

HAND DELIVERED

Re:

Plum Creek Maine Timberlands, LLC

Dear Michael:

I write to advise that County Forester Langlais has implemented changes to his approval process of Plum Creek's proposed prescriptions which are directly contrary to the Large Landowner Alternative, the UVA Manual, and UVA statute. This unwarranted and unilateral conduct must cease immediately as it deprives Plum Creek of its right to make productive and economic use of its land.

Specifically, since the trial concluded on June 4, 2013, County Forester Langlais has improperly required as a condition of prescription approval (i) the intra-stand depiction of treatments on a map; (ii) the re-categorization of the treatment areas as "new" stands; and (iii) the cruising of the "new" stands. These conditions are tantamount to the County Forester's unilateral revocation of the standards set forth in the Large Landowner Alternative, the UVA Manual, and UVA statute.

As you know, for UVA purposes, the stands approved in the 10-year concept plan are the stands which are subject to treatment in a proposed prescription. There is no basis for the County Forester's conclusion that "new" stands are being created or his unwarranted demand that the "new" stands be delineated based upon cruise data. Indeed, this is nothing more than a subterfuge for the County Forester to invalidate Plum Creek's 10-year concept plan and its enrollment in UVA under the Large Landowner Alternative, and it appears as wholly vindictive.

I must stress that Plum Creek has been, and remains, committed to compliance with the Large Landowner Alternative, the UVA Manual, and the UVA statute. Under these authorities, the requirement for prescription approval is that there be a "Map to standards with stands

delineated and stand numbers assigned (as with all UVA plans)." The ten year management plan irrevocably defined the stands for the ten year period. The County Forester does not have the authority to require data to define "new stands" as a condition of prescription approval.

As the State is aware, there are multiple examples of the County Forester's approval of prescriptions, granted prior to the recently concluded trial, where there was no delineation on a pre-harvest map of "new stands," nor any requirement that these "new stands" be cruised as a condition of the prescription's approval. For example: the Spaulding Brook sale, Bloomfield 1.12 sale, Granby 1.12 sale, and the Jones Brook Headwaters sale.

Further, the Ouimette plan and its related correspondence also amply show that the County Forester is imposing on Plum Creek requirements that are not required of other UVA participants.

The County Forester's recently implemented practices which change the rules and hold hostage prescription approval must stop. It is imperative that, as we wait for the Court's decision, the status quo be maintained. The status quo is amply evidenced by the above identified prescriptions and the practices which the County Forester followed in connection with his approval of them. I request that you promptly advise me of the specific measures which will be taken to ensure that the County Forester conforms to the status quo while we await the outcome of the pending appeals.

Vand L. Hrayk David L. Grayck, Esq.

Client cc:

WILLIAM H. SORRELL ATTORNEY GENERAL

SUSANNE R. YOUNG DEPUTY ATTORNEY GENERAL

WILLIAM E. GRIFFIN CHIEF ASST. ATTORNEY GENERAL



TEL: (802) 828-3171 FAX: (802) 828-3187 TTY: (802) 828-3665

http://www.atg.state.vt.us

# STATE OF VERMONT OFFICE OF THE ATTORNEY GENERAL 109 STATE STREET MONTPELIER, VT 05609-1001

May 15, 2013

David L. Grayck, Esq. Cheney, Saudek & Grayck, P.C. 159 State Street Montpelier, VT 05602

RE: <u>Plum Creek Maine Timberlands</u> Docket Nos. 294-12-11 & 76-4-11 Oscv 72-12-10 & 19-4-11 Excv (consolidated)

Dear David:

As indicated in my May 13 letter, per Plum Creek's request, I consulted with FPR regarding a possible mechanism to assist in smooth sailing, so to speak, for future harvests and FPR responded that having Plum Creek harvests marked and laid out, prior to any cutting, would assist in achieving this. Please find attached a copy of the Plum Creek General Harvest Guidelines Northern Kingdom Unit – Vermont with FPR's suggested language.

Please do not hesitate to contact me if you have any questions.

Sincerely,

Thea Schwartz Assistant Attorney General



# GENERAL HARVEST GUIDELINES NORTHERN KINGDOM UNIT - VERMONT

#### PRE-HARVEST LAYOUT:

A forester will identify and protect streams and significant wetlands as follows;

Eased streams and significant wetland buffers will be identified using orange paint with a two stripe designation and SB (stream buffer) or HB (harvest boundary) designation. These depict No Cut boundaries. Equipment will only be allowed within these buffers at crossing locations designated by a forester.

Non-Eased streams and wetland buffers will be identified and buffered according to AMP guidelines using blue paint with a two stripe designation or blue flagging marking the boundary. Any trees to be harvested within the buffer will be marked with a single slash of blue paint. Wherever possible, any trees cut in the buffer should be laid outside the buffer. No slash is to be left in the buffer. Equipment will only be allowed within these buffers at crossing locations designated by a forester.

- A forester will identify and flag former skid trails that can be used in current operations and flag new trails where needed using orange flagging.
- A forester will designate stream crossings with two pink flags, and will have the required stream crossing method
  instructions written on flagging at crossing location.
- A forester will establish the external bounds of harvest area with pink flagging or orange paint with a three stripe designation and HB (harvest boundary) designation.
- Trees will be marked as follows:

No Cut Designations: For seed tree cuts, classic shelterwood harvests, retention areas, and individual retention trees.

Ring of paint or X and stump marked- No Cut Tree (identified with orange paint)

W - Wildlife Tree (identified with blue paint or orange paint)

SB - Stream Buffer (identified with blue paint or orange paint)

HB - Harvest Boundary (identified with orange paint)

LX - Property Line Tree (identified with orange paint)

B - Bumper Tree (identified with blue paint along skid trail)

<u>Cut Designations</u>: For intermediate thinnings, classic and irregular shelterwoods, overstory removals in advanced two-aged stands, single tree and group selection harvests, salvage cuts, and crop tree release harvests.

Trees marked for removal will be identified with a slash of **blue paint**, clearly visible on at least two sides of the tree.

<u>Cut Designations:</u> For overstory removals with seedling/sapling regeneration, clearcuts, progressive clearcuts, and larger group cuts.

Cut areas will identified using blue-striped flagging

- Paint may be used on trees to convey other messages.
- A forester will identify any potential problems within the harvest area and address them with the contractor.

# STREAM BUFFER PRESCRIPTION:

• "Blue Line" streams, wetlands and other riparian features identified in the Conservation Easement will have a 50' No-Cut / No-Travel buffer (on each side), identified with orange paint as indicated above. Required crossings

will be identified by a forester.

- All other streams, wetlands and other riparian features will have an appropriate buffer, and be identified with blue paint or blue flagging as indicted above.
- All water related buffers will be maintained to current Vermont State AMP standards.

#### STREAM CROSSINGS:

- All stream crossings will be identified by a forester, as indicated above (two pink flags).
- All crossings will be installed, maintained and closed-out to current Vermont State AMP standards.
- All crossings will be as narrow as possible and installed at right angles to the stream.
- No trees will be harvested from within the buffer unless designated for removal as indicated above (slash of blue paint).

# **SKID TRAILS:**

 Main trails will be identified by a forester, using the methods described above (orange flagging). The number of secondary skid trails will be kept to a minimum in order to limit site disturbance. All skid trails will be maintained during operations and closed-out to current Vermont State AMP standards.

## TRUCK ROADS:

All truck roads will be maintained to current Vermont State AMP standards throughout the duration of the harvest.

#### LANDINGS:

 Landings will be identified by a forester prior to harvest. Existing landings will be utilized whenever possible and appropriate. All landings will be maintained and closed out to current Vermont State AMP standards.

# HABITAT RETENTION / CONSERVATION EASEMENT CONDITIONS:

- Retention will be utilized to retain native tree and vegetation species for the reoccupation of an implemented clear-cut or overstory removal. The retention will occur in the form of corridor retention along streams, as well as through retention of oversize trees, coarse woody debris and standing dead snags.
- As addressed on page 2 of the Conservation Easement, two 16" or greater logs per acre of standing dead or downed trees be established or retained. This includes recruitment of coarse woody debris by selecting trees that have the possibility of fulfilling the requirement in the future.

											•
				•							,
		•									
Plot#	Tree #		Product Code								
1262		BF	P	6	16		20101210				
1263		YB	P	13	40		20101210				
1263		YB	Р	12	40		20101210				
1263		RS	L	9	36		20101210		•		
1263		WB .	Ρ .	11	40		20101210				
1263		YB	L .	20	16	65	20101210	15			
1264		BF	Р	9	24		20101210				
1264		BF	L	10	48	0	20101210	15			
1264		RS	L	11	48	0	20101210	15			
1264	. 4	YB	С	19	0	0	20101210	15			
1265	1	HM	Р	12	32	0	20101210	15			
1265	2	НМ	L	12	8	0	20101210	15			
1265	3	HM	L .	11	12	0	20101210	15			
1266		null		0	0	0	20101210	15			
1270	1	HM	Р	8	20	0	20101210	15			
1270	2	YB	С	16	0	0	20101210	. 15			
1270	3	RS	L .	16	40	0	20101210	15			
1270	4	RS	L	6	12	0	20101210	15			
1270	5	нм	Р	13	40	0	20101210	15			
1270	6	HM	Р	12	32	0	20101210	15			
1270	7	YB	L	12	8	0	20101210	15`			
1270	8	RS	L	15	36	0	20101210	15			
1271	1	YB	С	26	0	0	20101210	15		•	
1271	2	WB	L	15	20	0	20101210	15		•	
1271	3	BF	L	6	. 8	0	20101210	15			
1271	4	BF	L	9	16	0	20101210	15			
1271	5	BF	L	11	32	0	20101210	15			
1271	6	RS	L	12	32	0	20101210	15			
1271	7	'HM	P	4	8	0	20101210	15			
1271	8	HM	P	8	20	0	20101210	15			
1411	1	WB	P	14	36	0	20101210	15			
1411	2	WB	L	11	16	0	20101210	15		-	
1411	3	BF	L	6	16	0	20101210	15			
1412	1	НМ	L	12	8	0	20101210	15			
1412	2	HM	P	19	48	0	20101210	15			
1412	3	HM	P	15	48	0	20101210	15			
1412	4	НМ	P	11	48	0	20101210	15			
1412	5	HM	Ρ .	13	48	0	20101210	15			
1413	1	HM	L	13	16	55	20101210	15			
1413	2	HM	P	6	16	33	20101210	15			• •
1414	1	HM	P	9	36	0	20101210	15			
1414	2	НМ	L.	12	8	0	20101210	15			. :
1414	3	нм	P	10	40	0	20101210	15			
1414	4	нм	P	13	44	0	20101210	15			•
1415	1	BE	P	4	8	0	20101210	15			
1415	2	нм	P	15	40	0	20101210	15			

				•				
				•				
Plot #	Tree #	Species Code	Product Code	DBH Class	Merch Ht	Total Ht	Cruise Date	Plot Size/BAF
1415	5	3 HM	L.	12	16	0	20101210	15
1415	;	4 HM	T	9	8	0	20101210	15
1415	;	5 HM	Р	12	32	0	20101210	15
1416	5	1 HM	Ρ .	10	56	70	20101210	15
1416	5	2 HM	Р	9	56	70	20101210	15
1416	5	3 HM	Р	10	64	75	20101210	15
1416	;	4 HM	P	12	64	75	20101210	15
1416	5	5 HM	Р	. 5	40	70	20101210	15
1417	<i>!</i>	1 RS	L	9	32	0	20101210	15
1417	<i>'</i>	2 YB	L	12	12	0	20101210	15
1417	<i>'</i>	3 YB	С	30	0	0	20101210	15
1417	! `	4 RS	L .	10	32	0	20101210	15
1417	' !	5 YB	L	15	16	0	20101210	15
1418	}	1 YB	С	21	0	0	20101210	15
1419	) (	0 null		0	0	0	20101210	15
1420	) (	0 null		0	0	0	20101210	15

.

#### Michael Duane

From:

David Grayck [DGrayck@cbs-law.com]

Sent:

Friday, October 21, 2011 1:49 PM

To:

Michael Duane

Subject:

FW: VT inventory data request

Attachments:

CBN plot data.xisx; CBN\_Plots.dbf; CBN\_Plots.prj; CBN\_Plots.sbn; CBN\_Plots.sbx;

CBN\_Plots.shp; CBN\_Plots.shp.xml; CBN\_Plots.shx

Michael,

In response to your letter of October 11, 2011, with respect to:

"In addition, with respect to the State's requests for the production of documents (paragraphs 5-6) none of the documents presented so far show or evince a survey or investory that he State believes was conducted in 2010 or 2011 by a third party contractor for Plum Creek lands that included the Clough Brook North tract."

Attached is the shapefile of the plot locations for CBN as well as the plot data associated with those plots.

With respect to the attached files, Joseph Kennedy reports that there were plots that fell in the Clough Brook harvest area. Plum Creek didn't specifically cruise that area. Instead, stratified inventory transects happen to pass though the Clough Brook harvest area. As a result, the plot data, although specific to that area, cannot be worked up as an inventory for the Clough Brook harvest area. It doesn't meet statistical significance nor is it evenly distributed in those stands.

Regards, David

David L. Grayck, Esq. Cheney, Brock & Saudek, P.C. 159 State Street Montpelier, VT 05602

(802) 223-4000

(802) 229-0370 (facsimile)

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http://www.atg.state.vt.us

# STATE OF VERMONT OFFICE OF THE ATTORNEY GENERAL 109 STATE STREET MONTPELIER, VT 05609-1001

October 11, 2011

David L. Grayck, Esq. Cheney, Brock & Saudek, P.C. 159 State Street Montpelier, VT 05602

RE: <u>Plum Creek Maine Timberlands</u> Docket Nos. 294-12-11 & 76-4-11 Oscv 72-12-10 & 19-4-11 Excv (consolidated)

Dear David:

Thank you for the hand delivery last Friday of the disc with respect to the hard copy documents you provided to me at your office on September 22, 2001 which were accompanied then by a hand written cover letter describing the same.

I would appreciate it if you would serve me a formal response to the State's Interrogatories and Requests for Production of Documents dated August 12, 2011. If, as you informally indicated, the response to Interrogatories paragraphs 2-4 may be to see certain documents please state so.

In addition, with respect to the State's requests for the production of documents (paragraphs 5-6) none of the documents presented so far show or evince a survey or inventory that the State believes was conducted in 2010 or 2011 by a third party contractor for Plum Creek lands that included the Clough Brook North tract. Kindly clarify this point, as well as whether there are other documents that will be made available for inspection and copying or withheld in response to the request.

Enclosed please find an unsigned draft version of the State's supplemental discovery responses regarding paragraph 50 of Plum Creek's Interrogatories and Requests for Production of Documents. This unsigned version is being presented for your convenience in advance of Matt Langlais' deposition as it may assist in the deposition proceeding in an efficient manner. I will provide you with a signed supplemental response when Matt can have his signature on the same notarized.

Sincerely,

Michael O. Duane

Assistant Attorney General

## FOREST MANAGEMENT PLAN

## ESSEX TIMBER COMPANY, LLC ESSEX, ORLEANS, & CALEDONIA COUNTIES, VERMONT VT FP & R DEPT, VLT & FSC VERSION

November, 2007

LandVest, Inc.
Timberland Division
5086 U.S. Route 5
Newport, Vermont 05855
802-334-8402
Richard G. Carbonetti ACF CF
VP Timberland
Project Manager

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## Appendices

Appendix A - Description of Forest Strata and Silvicultural Recommendations
Appendix B - Cruise Specifications
Appendix C - Strata Stand and Stock Tables
Appendix D - Growth and Removal Summary

Appendix E – Reports
Appendix F – Diameter & Height Distribution SVS Simulation

# Use Value Appraisal Forest Management Plan Signature Page: For the Lands of Essex Timber Company November 2007 Owner's Approval and Acceptance of the Forest Management Plan: Caledonia/Essex County Forester's Approval and Acceptance of the Forest Management Plan: Matt Langlais for the VT Department of Forests, Parks and Recreation Date: 12.19.07 Vermont Land Trust's Approval and Acceptance of the Forest Management Plan:

Dan Kilbern or Pieter van Loon for the Vermont Land Trust

Date: 12/27/07

## Alternative UVA Plans for Selected Large Landowners

## Background:

Some forestland in Vermont has historically been owned and managed by large industrial landowners. Although relatively recently sold by such companies as Champion International and International Paper, some of these lands have remained as fairly intact large contiguous holdings through conservation efforts, often managed by Timber investment and management organizations (TIMO's).

Historically, many of these lands have not been enrolled in Vermont's Use Value Appraisal Program. With the passage of ACT 60, this has now changed with all of the State's largest landowners now enrolled. Statewide the average parcel size for enrolled forestland is 110 acres although in Essex County, where ownerships are largest, it is 650 acres. This figure reflects the fact that four landowners own roughly 70% of the total 200,000 acres of UVA-enrolled forest land (with over half of this being enrolled in the last five years). The Use Value Program is now a necessary component for these lands to be economically viable for owners. Given the UVA program's statewide application, ownerships of tens of thousands of acres are held to the same standards as those applied to 25 acre parcels. Managers of these lands have shown that they cannot feasibly meet some of the minimum requirements of the program.

The main issue preventing the managers of these lands from meeting the program standards is the stratified random sampling inventory system commonly used to develop plans for large ownerships. This system is at odds with standards of UVA because UVA requires stand specific information and this stratified inventory system provides only coarse information on forest types across any land block. To enable large ownerships to participate in UVA with meaningful plans, an alternative to the plan inventory guidelines is needed.

#### Alternative Plans

The proposed alternative would require that the landowner submit a "10-year concept" plan for contiguous blocks of forestland 5,000 acres and larger. The Department of Forest, Parks & Recreation would approve these concept plans which would include the following components:

- 1. Map to standards with stands delineated and stand numbers assigned (as with all UVA plans)
- 2. For each broad forest cover type described from the stratified random sample:
  - a. Corresponding UVA type
  - b. Acreage
  - c. Forest Cover Type description
  - d. Management recommendations including area regulation scheme. Silvicultural prescriptions to be employed and a description of stand conditions for which each prescription will be utilized

All individual stands are considered to have "no activity" under this conceptual plan. When an entry or harvest or other activities is planned, the consultant will submit an amendment for approval. Approval must be received prior to commencement of harvest activities.

The amendment document will include stand specific information from a pre-sale cruise and meet all of the *minimum standards* for forest management as described in the UVA Program Manual effective April 15, 2006. This includes copies of maps with stands clearly delineated.

Activity plan amendments will be accepted for review twice a year:

For fall/winter harvests by August 1

For summer harvests by April 1

Managers should plan harvests for a year on any given block in which an amendment is submitted.

Discontinuous blocks of land less than 5,000 acres in size will not be eligible for this alternative UVA plan, whether or not the owner/manager has other blocks that are.

Harvesting and other activities that take place without the signed amendment from the County Forester will be considered in nonconformance with the filed UVA plan.

The schedule and requirements for the plan Conformance Inspection Reports (CIR's) any plan updates, other amendments or reporting changes are not affected by this procedure. Entry plans will cite both total and acceptable growing stock (AGS) residual Basal Areas as well as quadratic mean stand diameter (MSD) along with the appropriate Silvicultural Guides.

Owner's Approval and Acceptance of the UVA Large Tract Forest Management Plan Standards:

Wil Merck for Essex Timber

Date: 12/3/07

Caledonia/Essex County Forester's Approval and Acceptance of the UVA Large Tract Forest Management Plan Standards:

Matt Langlais for the VT Department of Forests, Parks and Recreation

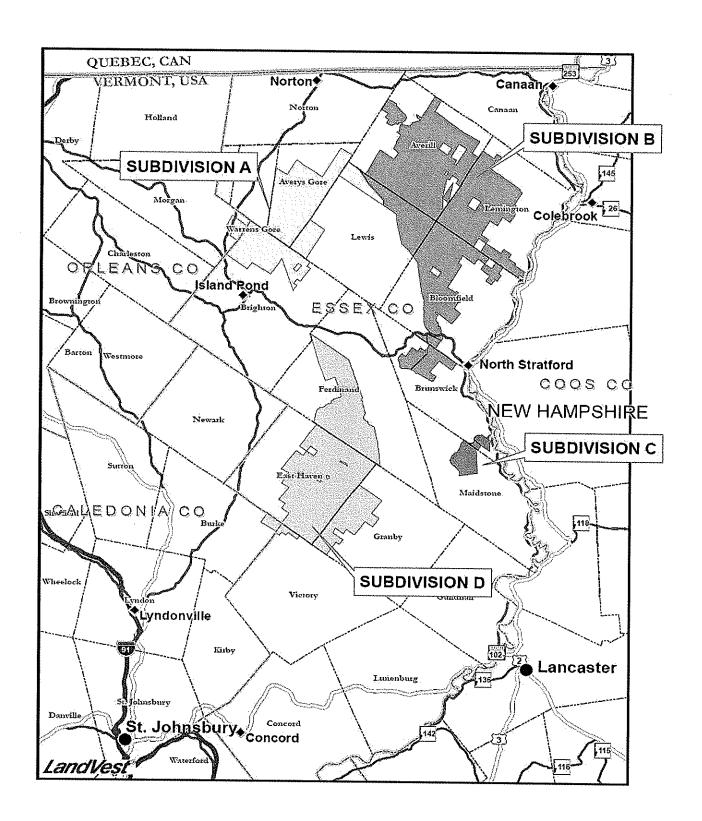
## **PART I - Essex Timber Company**

#### INTRODUCTION

In 1998, Champion International Corp. (Champion) sold its Vermont timberlands to The Conservation Fund (TCF). TCF in turn sold 26,000 acres to US Fish & Wildlife Service (USF&WS) and 22,000 acres to the state of Vermont. The balance, about 84,000 acres, was placed on the market by TCF. Essex Timber Company, LLC (ETC) was the successful bidder in the competition to purchase this tract. Upon conveyance, the land was encumbered by a conservation easement and a public access easement.

ETC purchased the land as an investment. Its investment objectives coordinate well with sustainable management of the forest resource and a wide range of conservation and resource values.

ETC has owned the former Champion Lands for seven years. As a continuing commitment to sustainable management, ETC is following its initial Forest Management Plan and has contracted with LandVest Timberland to do an inventory and develop an updated Forest Management Plan that complies with Forest Stewardship Council (FSC) certification, the state's Use Value Assessment program (UVA), and the terms of the conservation easement on its ownership. This plan will cover the next ten years 2007 through 2017.



#### LAND USE HISTORY

"The fertility and extent of the upper Connecticut River valley flood plain enabled an even larger-scaled industry to eventually dominate the landscape- logging and lumbering. While agriculture in this area went through a succession similar to other agricultural regions in the Northeast; wheat/livestock, sheep, and then dairy, intermixed with varying degrees of diversity determined by local conditions and external market demand, agriculture was to be sustained throughout the last half of the nineteenth and first half of the twentieth centuries by the logging and lumber industry.

As the scale of efficiency increased the productive capacity of lumber and wood manufacturing mills, marginally productive farms, away from the rich intervales, were further absorbed into the rapidly expanding forest industry. Intensification of agriculture, improvement of market access, and mechanical innovation increased the size and productive capacity of fewer and fewer farms, and also created situations where plant, animal, water, and mineral resources were incorporated into more complex production regimes serving multiple industries.

This era, roughly spanning the years 18401880 was dominated by logging and lumbering, but was a time in which local farmer's participated, rural communities were settled, and manufactured goods were exported." 1 "The introduction of the railroad was instrumental in the progress of the lumber and wood manufacturing mills throughout the entire 'Spruce-Fir-Northern Hardwood' vegetation zone. In a larger sense, railroads were an adaptation to wood scarcity. As with the logging railroad, technology enabled industrialists to gain access via rail to sources of the materials out of which most of the nineteenth century cultural landscape was built- wood, stone and agricultural products." 2 The wood scarcity was due to industrial sector growth and expansion, the war effort and the post-war baby boom. This scarcity was becoming most evident in the softwood component of the northeastern forest. Another contributing factor to greater removals of the softwood component was due to a lack of technology in the conversion of lowgrade hardwood into paper. It was not until the 1970's that large-scale harvesting of the hardwood component begun. St. Regis Paper Company stumpage reports clearly show this trend. A stumpage report from 1939 to 1956 shows 419,000 softwood cords and 15mmbf of softwood harvested, while only 4,000 hardwood pulp cords were harvested from their Vermont lands. It is important to point out that market-driven harvests of hardwood sawtimber were also taking place. In the same period, 97mmbf of birch and maple were harvested. Up to the late 1960's low-grade hardwood removals were low with little volatility. A stumpage report from 1970-71 shows a distinct shift to capture the low-grade hardwood standing timber. The report shows 17,000 cords of hardwood pulp harvested. This trend continued through St. Regis' tenure and was continued by Champion Corporation's ownership.

During the ownership period of St. Regis Paper Company and through Champion's ownership the lease camp practice was established and expanded. The camp culture exists today and provides ETC with revenue and constant "eyes-on-the-land". Leaseholders have provided past and present owners with information regarding road conditions and report unlawful uses on the land. The expansion and maintenance of company roads has established a pattern of year round use creating added administrative time for ETC. ETC has seen no conflict between camp leasing and timber management and plans to continue the camp tradition.

The former Champion lands played and will continue to play a significant role in the local and regional economy. The lands now have an increasing burden of providing an array of objectives.

ibid<sup>2</sup>

People, Land and History: The Cultural Landscape of the Nulhegan District. 01-15-01. Scharoun, et al.)

Recreational uses have increased and are expected to continue to increase. While certain types of public access are guaranteed by the Public Access Easement, the management of that access is almost entirely the obligation of the state's Agency of Natural Resources. ETC lease camps comprise only a small percentage of the total recreational users. According to Gray Stevens of the Vermont Outdoor Guides Association, at least 20 commercial guiding companies use the ETC and surrounding lands. He further predicts that "...considerable economic benefits to the region..." will be realized over time. The Vermont Department of Forests, Parks and Recreation has been carrying out a day-use study to determine the levels of use as well as the areas of high ingress and egress. When these levels are reported, ETC and the easement holders will be better positioned to make decisions on the variety of recreational uses. Currently no overnight camping is allowed outside the leased camps.

While recreation is significant, timber management has been the most important economic benefit from this land to the local communities, and we expect that to remain so for the period of this plan. For reasons of both local economic benefit and quality control, ETC is committed to hiring, training and establishing relationships with local contractors. While ETC needs to capture the highest value for its raw material, efforts are made to direct the flow of raw material to local outlets. With the revised plan recommending a significant increase in harvest levels the local logging, trucking, and management businesses will certainly see additional economic opportunities. Furthermore, the placing of additional stumpage on the market will serve the local mill capacity (both in the US and Canada) to meet demands for raw materials.

<sup>&</sup>lt;sup>3</sup> Gray Stevens, Smartwood Assessment of Essex Timber

### PARCEL DESCRIPTION

## **Location and General Description:**

To the original +/- 84,000 encumbered acres acquired from Champion, ETC added 1,483 acres in 2000, which are encumbered by a conservation easement similar to the original one, and has added 498 acres in fee in the last two years. The current UVA acreage is 86,262 acres. The final acreages were recently corrected to comply with town tax mapping.

The ownership is located in 14 towns in northeastern Vermont (Table 1): Averill, Avery's Gore, Bloomfield, Brighton, Brunswick, East Haven, Ferdinand, Granby, Lemington, Lewis, Maidstone and Victory in Essex County, Burke in Caledonia County, and Morgan in Orleans County.

The lands range north 30 miles from the town of Victory almost to the Canadian border, and west 20 miles from the Connecticut River Valley to VT RT 114. These lands are located amid more than 200,000 acres of conserved lands. This largely undeveloped expanse of forests, mountain peaks, ponds, and streams contributes greatly to the character of this region. In addition, these lands are important to the quality of life in the "Northeast Kingdom" and surrounding area. These lands have long contributed to the local forest-based economy, provided important fish and wildlife habitats, and have been a place for public recreation.

Table 1. Ownership Location

Table 1. Ownership Location					
Town	Acreage				
Averill	14653				
Averill	812				
Avery's Gore	8238				
Bloomfield	9370				
Brighton	5275				
Brunswick	463				
Brunswick	2277				
Burke	370				
East Haven	13464				
Ferdinand	8115				
Granby	4301				
Lemington	9915				
Lewis	6697				
Maidstone	1461				
Morgan	503				
Victory	368				
Total acres	86262				

#### Natural Resources:

The lands are situated within the Northeast Highlands Biophysical Region. Cold temperatures, heavy snowfalls, short growing seasons, and thin, acidic soils characterize this biophysical region. The lands include six ecologically significant areas (as designated by the Conservation Easement), including areas of old growth forest, undisturbed wetland complexes, deer wintering areas, and relatively remote ponds. The lands include a wide variety of wildlife habitats, from ponds, streams, wetlands, and vernal pools to slopes of hardwood forest, softwood in lowland basins, and mixedwood forests of various age classes and at elevations ranging from 850 feet along the Connecticut River in Lemington to more than 3,000 feet on the upper slopes of East Mountain in East Haven and Gore Mountain in Avery's Gore. Approximately 60% of the lands are hardwood types, 16% softwoods and 24% mixed woods. Northern hardwoods dominate hardwood types with spruce and fir dominant in the softwoods. The lands are home to over 200 different species of

birds, mammals, reptiles, and amphibians. The boreal characteristics of the biophysical region reflect many of the species present.

Noteworthy species include boreal chickadee, rusty blackbird, black-backed woodpecker, mink frog, snowshoe hare, black bear, moose, and white-tailed deer. These lands contain some of the highest densities of moose in the State. The intensive timber management of the twenty years preceding ETC ownership has contributed greatly to the high habitat suitability of these lands for moose.

#### Recreational Resources:

Each of the private owners of these lands has successively continued the tradition of public access. Recreation on these lands largely mimics recreation on other large industrial forestlands across the Northern Forest. Public access has always been allowed for uses such as hunting, fishing, trapping, and bushwhacking. Today, snowmobiling is also a major activity. The Public Access Easement was created to formally preserve these traditions.

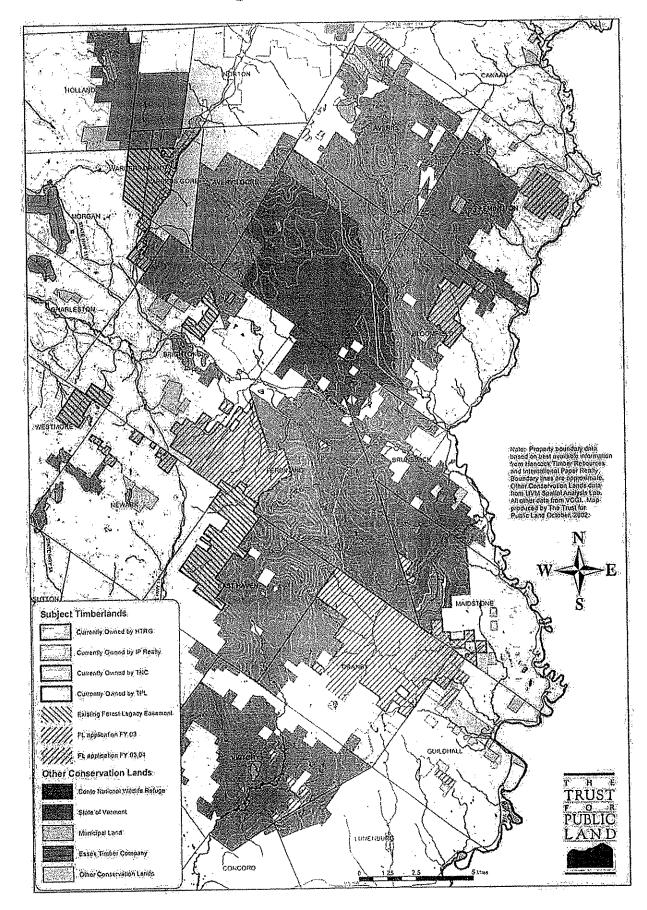
The Essex lands are served by an extensive system of gravel roads, winter roads and skid trails. While these were developed for forest management, they also provide recreational access to thousands of acres of land. Snowmobiles utilize about 117 miles of the road system during the winter months. The lands have also provided for hunting, fishing, berry picking, cross-country skiing, snowshoeing, and many other dispersed recreational activities. Notable recreation features include Sable Mountain, Madison Brook, East Branch of the Nulhegan River and Unknown Pond in Avery's Gore. Established recreation sites are very limited and primitive. They include access trails to ponds, rivers and streams, and aside from snowmobile trails, are informal and have been created and maintained by use, not by the landowner.

Current and past owners have had a longstanding recreational camp leasing program. Presently there are sixty-one camp lot leases on Essex Timber lands. Camp leases allow individuals or private associations to occupy and maintain privately owned camps for recreational purposes at a specified site. Those who were lessees upon the date of conveyance from Champion have lifetime leases, with an additional 20-year extension for their family members. At the end of that period the landowner may renew the lease, or let it expire, at the landowner's option. Those who have leased from Essex Timber since the date of conveyance have a five-year term that is renewable at the landowner's option. Recently, ETC has begun offering 15-year terms on its leases.

#### **Other Conservation Lands:**

The past decade has witnessed an increased effort by conservation groups in the Northeast Kingdom to conserve significant portions of the forested landscape. The Essex Timber Company lands are part of an approximately 200,000 acre, nearly contiguous parcel of conserved lands. The conserved lands are comprised of a combination of private ownerships encumbered with conservation easements, state lands and federal ownership.

# Northeast Kingdom Conservation Lands



#### Geology & Soils:

The Essex Timber Company lands are located in the Northeast Highlands biophysical region of Vermont. The dominant bedrock type is granite. Soils are composed primarily of glacial tills. Detailed soils information for Essex County is not available, but the U.S. Department of Agriculture's Soil Conservation Service did some general typing in the northern portion of the property in 1977, finding four major soil types. These include the Peru-Marlow, Lyman-Marlow-Peru, Cabot-Peru, and the Muck and Peat-Peacham Associations. Because these types are representative of soils found in the region, it is reasonable to assume that they would also be the major soil types found on the rest of the ETC lands.

The major limitations for forest productivity and timber harvesting relative to soils is the presence of a hardpan within 24 inches of the ground surface. Field observations indicate that this is present over much of the property. The hardpan limits water movement and root development to the upper horizons, raising concerns of equipment operation and wind throw hazard on these sites.

#### Soil Associations<sup>4</sup>

<u>Peru-Marlow Association:</u> Deep, gently sloping to moderately steep, moderately well drained and well-drained, loamy and stony soils on mountains and foothills. The soils have a compact layer within 3 feet, contributing to wind throw and site damage and root injury during harvest operations. These soils are typical in the mid elevation/slope areas on the ownership. **Rating 63** 

<u>Lyman-Marlow-Peru Association</u>: Deep and shallow to bedrock, sloping to moderately steep, well drained and somewhat excessively drained, loamy and stony soils on mountains and foothills. This soil type is generally associated with the higher elevations and ridge tops of the ownership. Limitations to forest management include excessively steep slopes and a shallow-to-bedrock condition. **Rating 61** 

<u>Cabot-Peru Association</u>: Deep, gently sloping to sloping, poorly drained and moderately well drained, loamy and stony soils of the mountains and foothills. A compact layer is within 3 feet in most soils, contributing to wind throw and site damage and root injury during harvest operations. This type is typical in lower elevations and foothills, likely the soil type common along most stream courses and in mixed wood transitional zones along the bottom of slopes. **Rating 51** 

<u>Muck and Peat-Peacham Association</u>: Deep, level, very poorly drained mineral and organic soils in depressions and wet side slopes. This soil association is typically associated with wetland areas on the ownership, and the Yellow Bogs area of the neighboring Conte Lands. **Non-rated** 

On a scale from 1 to 100 the best soils are rated 1 (100) and the poorest quality soils are rated 7. The average value group for the soils on this ownership is 4.

<sup>&</sup>lt;sup>4</sup> Soil Potential Study and Forest Land Value Groups for Vermont Soils, USDA, Soil Conservation Service, February 25, 1991

#### LANDOWNER OBJECTIVES

The landowner objectives provide guidance to the managers in developing a management system. They are:

- To utilize the best available silvicultural modeling and planning to meet the owner's investment objective, and the principal objective of the conservation easement, which is to establish and maintain productive forestry resources.
- 2. To return the timber resource to a well-stocked condition, and then to produce a sustainable supply of high quality sawlogs over a long term involving a period of a full rotation, +/- 100 years.
- 3. To work with natural forest processes to promote good ecosystem health, land productivity, a sustainable wood flow, and sound economic returns.
- 4. To seek optimal utilization of high and low value forest products to both ecological and economic goals.
- 5. To manage the land as a commercial forest, while conserving the forest's non-commercial values, including plant, animal, water, soil and aesthetic values.
- To manage the land as a commercial forest, while accommodating cultural, educational and recreational uses of the forest, and to coordinate those uses with abutting public and other eased lands.
- 7. To manage the land according to the terms of the conservation easement, State of Vermont Use Value Appraisal requirements and FSC Green Certification standards.

#### CONSERVATION AND PUBLIC ACCESS EASEMENTS

The property is encumbered by two easements, a working forest easement and a recreational access easement. Complete information can be found in the following documents, which have been recorded in each town of Essex's ownership:

- Champion International Lands Working Forest Grant of Development Rights and Conservation Restrictions ("the Conservation Easement"), dated August 6, 1999
- Champion International Working Forest Lands Grant of Public Access Easement, ("the Public Access Easement"), dated August 6, 1999

The Conservation Easement is jointly held by Vermont Housing and Conservation Board, and Vermont Land Trust, which has primary responsibility for easement monitoring and landowner contact. The Public Access Easement is jointly held by Vermont Housing and Conservation Board, and the state's Agency of Natural Resources (ANR), which has primary responsibility for easement monitoring and landowner contact. In addition to Essex's objectives, the management of the property is also governed in part by the terms of by the easements.

The principle objective of the Conservation Easement is:

"to establish and maintain productive forestry resources on the Protected Property and, in consideration of the contribution timber products make to the economy and communities of the region and the State, to encourage the long-

term, professional management of those resources, and to facilitate the economically sustainable production of forest resources in a manner that minimizes the negative impact and the duration of impact on the surface water quality, recreational benefits to the public, wildlife habitat, and other conservation values".

As this plan was developed, the principal objective described above played a large role in the assessment of the forest resource inventoried in 2006, and in the recommended silvicultural strategies.

Upon acquiring an additional 1,483 acres in 2000, ETC sold a conservation easement to Vermont Land Trust encumbering this land that is practically identical to the original easement. This easement is held solely by VLT and is on record in the towns of Lemington and Bloomfield.

The influence of the easements goes beyond that of the landowner objectives. Language in the documents specifically addresses permitted uses and restrictions on the property, and sets forth a number of forest management prescriptions. To date, ETC has had a productive and effective relationship with all of the easement holders.

While the Public Access easement specifies that ANR has responsibility for public use of the land, and is the landowner's point of contact for public use matters, ETC also has good relationships with the users of the land, including recreation organizations, researchers and local residents.

#### LAWS AND REGULATIONS

The State of Vermont has few timber harvesting regulations at the current time. Those of greatest importance are:

- Act 15, the "Heavy Cut Bill", requiring an "Intent to Cut" notification to the Department of Forests, Parks and Recreation prior to any harvest that will reduce the residual basal area below "C-Line" stocking, over more than 40 acres.
- An Act 250 permit, required for all harvesting operations on elevations exceeding 2500 feet. This permit is subject to review from the Vermont Department of Fish and Wildlife.
- Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont, ("AMPs"). Though AMP compliance is normally voluntary, the Conservation Easement on the Essex Timber Company lands requires AMP compliance.
- Any wood chips marketed to Burlington Electric's wood to energy plant in Burlington, Vermont, or to the Ryegate Power Station wood to energy plant in Ryegate, Vermont are subject to a timber harvest approval by the Vermont Department of Fish and Wildlife.
- Use Value Appraisal or Current Use: The UVA program requires the preparation of a Forest Management Plan and compliance with the approved plan to retain a substantial reduction in the Grand List value of the enrolled acreage. This assessment is based on the "use" value of the land to produce sustained crops of timber. There is a lien on the tract and annual reporting is required.

#### **BOUNDARIES**

There are 185 miles of boundary lines associated with the property that are not associated with roads, utility rights-of-way or water bodies. Of these, 18.4 miles are in common with the USF&WS ownership (established and marked around 1999), and 4.2 miles are in common with the ANR (established in 1999 with layout currently underway by ANR).

While the majority of the property and the abutting properties are not surveyed, boundaries are generally clear and well marked by blazes and paint. The previous owners and their abutters have traditionally maintained these. A few sections, particularly around in-holdings, are difficult to find. Property corner monumentation has been found in all locations visited to date. There are no known property line disputes.

Over the last four years, ETC has made a substantial investment in boundary marking. Boundary lines are now on a maintenance schedule, prioritized by need, with blazing and painting occurring every 15 years or sooner if needed.

The preparation of the current Forest Type Map and its basis in the current aerial photography, in conjunction with overlaying adjoining GIS boundaries, found several conflicts on boundary lines with adjoiners and aerial photo evidence. Agreements were made with ETC's forest manager and adjoiners and the current map more accurately reflects known boundary lines on the ground.

#### TIMBER MANAGEMENT

#### **Environmental & Natural Context**

Silvicultural opportunities are influenced by the environmental conditions that exist. Soils, topography, moisture regimes, species characteristics and climate influence the silvicultural decision-making process for the ownership. The following are the principle environmental and natural conditions that will influence the silviculture on Essex land.

- Soils are generally shallow to hardpan, especially in S and SH types. There are better drained soils where the best H types are found. Sub-surface moisture regimes and rooting depths for trees are shallow and contribute to windthrow tendencies. Yet these are on the whole generally productive forest soils. The Habitat Classifications utilized in the Flex-Fiber Inventory and Growth modeling program (developed by the University of Maine and the US Forest Service), address the capabilities for land to grow and support various generalized timber types. These were key factors in accurately modeling the current and potential future growth of the forests of ETC. The science of Flex-Fiber is based on decades of research and high order modeling and assessment techniques.
- Soil moisture can contribute to site damage and root injury during harvest operations. The
  harvesting operations of Champion often negatively impacted soil hydrology leading to
  damage and decline in existing overstories. Where regeneration has become established
  the sites are better suited to this new growth than the support of suppressed and
  intermediate stems that have suffered root and basal stem damage and are less capable
  due to age to respond to release.
- The principle species present are shade tolerant and well suited to natural regeneration regimes that favor the establishment and release of pre-existing regeneration. On some sites current overstories of hardwood and hardwood dominated mixed wood are better suited to Spruce-fir growth in both pure and softwood dominated mixed wood structures.

This is a result of the mining of Spruce-fir in the Champion days. In other stands where Northern Hardwoods or Beech-Red maple cover types are and should be dominant, past management left a lack of suitable levels of AGS to allow for the continued development of a sustainable overstory.

- Regeneration is abundant and the principle tree species are prolific seeders. There are thousands of acres that have presently or are capable of developing into suitable regeneration class stands. But in many instances, especially over the last decade, the negative impacts of moose browsing have greatly hindered the development of a viable understory of AGS. In areas where the regeneration developed prior to the recent excessive moose populations the regeneration class is often excellent, well stocked and very productive. Release and/or regeneration treatments will be critical to attain suitable levels of advanced regeneration on many acres.
- Beech and Red maple sprouting is a potential concern. Selective moose browsing has
  created Beech brush fields and significant levels of Red maple that is present but
  demonstrates high moose browsing damage. A continued working relationship with
  Vermont's Fish and Wildlife Department and the Fish and Wildlife Board to better manage
  moose populations is an important element of the management of this resource.
- Beech bark nectria disease is a serious concern. The identification and retention of individual stems or clone groups of resistant Beech is imperative to the successful retention of a viable Beech component.
- The location of stands on the landscape can influence stand integrity. The ice storm of 1998 certainly demonstrated how aspect and elevation can have dramatic impacts due to weather and other natural factors. Further, the aspect and topography on a landscape sized ownership has a major influence on timber types, wildlife and other ecological services and values and their distribution across the ownership.
- Species silvical characteristics and stand compositions provide a variety of regeneration options. While this is certainly true, the aforementioned moose browsing impacts have dramatically influenced the success of both planned and unplanned regeneration opportunities. Care will need to be taken in the planning and implementation of future regeneration entries to better insure success. Control of the moose population at or below the carrying capacity of the forest resource is the single most important future component of regeneration management of ETC and the surrounding forest resource
- Species of the Northern Forest are well suited for both even and uneven-aged silvicultural systems. The qualifier in this discussion is that due to the past history of management, prior to ETC taking possession of these lands, the development of true uneven-aged forest strata will take many decades to create and sustain the complex structures of true uneven-aged stands. Too often the forest stands currently present need to be set back with the use of even-aged treatments so that a sufficient stocking level of AGS can be developed to allow for uneven-aged practices to be implemented over a very long and patient time horizon.

### **Historical Context**

Consistent with many landowners in the northern forest of New York, Vermont, New Hampshire and Maine, ETC's timber resource is the product of a long history of industrial management and market driven harvesting. The harvest operations implemented by the previous owner often responded more to markets than to a long-term management plan based on sound silvicultural modeling.

Although markets for hardwood pulp had existed in this region for more than a century, the lands of Essex Timber were a relatively long haul. This was typically the last volume of pulp purchased by the mills because of the higher cost associated with the longer distances. This situation changed in the mid-1980's as world paper markets adapted to the use of hardwood fiber. Domtar, a Canadian paper company, built a state-of-the-art pulp and paper facility in Windsor, Quebec approximately 65 miles from the center of the Champion ownership in NH and VT. Champion capitalized on this new market and dramatically increased the harvest levels of hardwood from this region.

Salvage was the principle objective in managing the softwood resource on the ownership. The spruce/budworm epidemic of the late 1970's and early1980's ravaged the spruce/fir resource. Salvage operations resulted in extensive clear cutting of large softwood valleys and softwood flats resulting in extensive even-aged forest stands.

During its tenure, ETC has had a light harvest approach, concentrating on removal of lower quality stems declining stands, and attempting to allow net growth. But as revealed by the recent inventory, overstory growth rates are considerably slower and decline is more rapid than had been anticipated, and insufficient net growth has occurred.

#### **Current Conditions**

The historic treatment of these lands has resulted in a number of conditions that will drive the silvicultural decision-making on Essex Timber in the immediate future (5-10 yrs) as well as over the period of the next rotation. The following conditions generally apply:

- The softwood resource has been largely regenerated. Stands are now approaching 20 yrs of age and are classified as large sapling/small pole size. These often have scattered but still economically feasible overstories available for removal.
- The current inventory found a vigorous and well developed S1A type and a growing and expanding S2A type as well. There are pockets of mature softwood left in both isolated small units as well as strong Spruce-fir components in the SH and HS mixed wood types
- The Spruce/fir resource is underrepresented relative to its potential on the ownership.
   Observations made from the new forest type mapping and field observations during the
   inventory further reinforce this view. Quite often the selective removals of softwood in mixed
   wood types left HS overstories with strong Spruce-fir seedling and sapling classes in the
   understory. With careful overstory removals this advanced softwood regeneration can be
   released.
- The hardwood resource has been high-graded through the historical use of diameter limit cuttings. The net effect has been the establishment of large blocks of regenerated, evenaged hardwood and mixedwood stands crudely referred to as two-storied. The inventory and growth modeling carried out by LandVest in 2006 clearly demonstrates that this has left not only two-storied stands, but often stand types with an overstory of low quality and declining hardwood that is losing volume and providing little growth.

- The beech resource is in serious decline as the result of the beech nectria disease. The 2006 inventory further reinforces this view as typically the Beech tallied fell into the UGS category and has poor form and vigor. Undesirable beech regeneration is becoming a significant problem in some areas as previous harvest practices have inadvertently promoted beech regeneration through sprouting and coppice regeneration. Further impacting the long-term development of the forest is that Beech is not preferred by deer or moose as browse and due to selective browsing there are Beech brush fields on some acres. This potential may have to be dealt with via mechanical or chemical extraction to promote the development of more valuable and viable commercial species.
- The regeneration present in many of the two-storied stands from harvests of greater than 12 years old is of good to excellent quality. More recent regeneration has suffered significant moose browsing that has hindered understory development and in some cases reduced regeneration success. The 2006 inventory carried out both regeneration and moose browse surveys. That data will be crucial in the modeling and planning for future management planning on the ETC ownership.

These conditions will significantly influence the management decision-making on the ownership over the next ten years, and how that ultimately impacts the period of development for the next biological forest rotation, +/'- 100 years. Silvicultural objectives will be directed toward improving and correcting these conditions through a sound program of early rotation activities that will led to a healthier and more viable plan and stand structure for the longer term rotational time line. This plan is structured to return many declining stands to a regenerative phase, and allow stocked and healthy stands to grow.

#### Financial Considerations

ETC purchased its land in a competitively bid process, and it did so with the expectation of making a competitive rate of return on the capital committed. While the Conservation Easement removes all development value from the land, it also protects the landowner's right to manage the parcel as a working forest. (See the principle objective of the Conservation Easement cited above.) This plan is in keeping with those principles. ETC's returns thus far have been deliberately modest, but the timber management contemplated here intends to enable the land to produce a greater volume of higher quality products indefinitely.

## **EASEMENT AND OWNER OBJECTIVES**

The objectives set out by the easements and the landowner further build the framework for formulating the silvicultural approach. Both the landowner objectives and the easements seek the establishment and culture of forest stands capable of producing high quality, large diameter sawlogs while maintaining a healthy and biologically diverse forest. The following language is from the Purposes section of the Conservation Easement:

a) Manage forest stands for long rotations that maximize the opportunity for harvesting, sustained over time, of high quality sawlogs while maintaining a healthy and biologically diverse forest. Grantor and Grantees acknowledge that site limitations and biological factors may preclude the production of high quality sawlogs, and further that the production of a variety of forest products can be consistent with the goal of producing high quality sawlogs. "Long Rotations" means management for the production of target products consisting of saw timber quality trees within a range of at least the following diameters at breast height (DBH), where conditions are adequate:

Sugar maple, white ash, yellow birch - 18" - 20" DBH Beech - 16" - 18" DBH Paper Birch, Red Maple - 14" - 16"DBH Red Spruce - 14" - 16" DBH Hemlock - 18" - 20" DBH White Pine - 20" - 22" DBH

b) Manage the Protected Property for diversity of age classes, native tree species, and vertical structure, and to establish and retain standing dead and down large diameter trees in order to achieve the secondary objective of this Grant. For downed material, the desired outcome should include two 16" or greater logs per acre.

ETC's first objective is:

To return the timber resource to a well-stocked condition, and then to produce a sustainable supply of high quality sawlogs.

With the results of the recent inventory, it is clear that reaching any of these objectives will require a change from the relatively passive management of the past seven years. Many timber types on ETC lands have underperforming overstories. As described more fully below, the goals now are a) to either release or develop regeneration, b) retain AGS wherever it is available and sufficient enough to form the basis for continued forest stocking, and c) to gain an acceptable return on the investment.

The conservation easement for this tract emphasizes the production of high quality sawlogs. This indicates an important role for the removal of poorly performing stands, to be replaced by regeneration that can then be better managed for sustainable production into the future. ETC believes that this resource is well placed and capable, with careful silviculture, of growing and maintaining a valuable and vigorous forest that can meet the objectives of the easement and the landowner.

#### Part II - 2006 Inventory

#### **METHOD**

ETC contracted with LandVest Timberland to complete a 3-phase management plan development:

- Color infrared aerial photography at leaf blush in May of 2006.
- •A new type map was developed from these photographs.
- •A stratified cruise during the summer of 2006 of 954 randomly located point samples.

Aerial photo interpretation by subcontractor Group Alta resulted in an initial 56 timber types that were then combined into 29 strata for the initial cruise layout. These strata were then inventoried and the data was run for those 29 strata. Once those strata outputs were analyzed a further combination was made bringing the management plan strata total to an adjusted to 17 strata. All original cover types are retained and the 17 strata are found in the Appendix with the types comprising the final 17 strata. The maintenance of the various sub-types is very useful for planning and the implementation of management as the various sub-sets of forest types will provide ETC with more actively available data for decision making and planning within the strata. The inventory plots were derived from a set of random numbers based on a 5 x 5 chain grid set up on the entire ownership. From those random starting points LV biometric staff developed a computer routine that located points based on the needed distribution of points per strata, and to insure that an unbiased sample set the points on the ground based on the random starting points and the objective review process of the computer model. This created many lines on the ownership that varied from a maximum of 10 points per line to single randomly located points. This process utilized a number of scientific advances to create an unbiased and useful inventory result. No points were placed in easement buffers where forest management is prevented. From the results of the inventory, new Strata Stand and Stock Tables were developed, a new Type map was completed, and this plan was developed.

Each strata found in Appendix C is as homogenous in structure as is reasonably possible on an ownership of this size and diversity. The past harvest history, the unbiased nature of the point location, and the nearly 40 years of LandVest's managing northeastern forests allowed LV to develop these strata with a high degree of consistency and accuracy. A new set of aerial imagery was combined with high tech forest typing and stand type map develop in a modern GIS system to provide a clean slate from which to build types, strata and the plan. These very accurate forest typing elements were of great value in the development of the stratified cruise. The investment in up to date mapping resulted in more accurate and useful inventory data.

In addition to traditional data collection such as species, diameter and stem quality and products, LV also collected information on regeneration, moose browsing, insects and diseases, wildlife habitat, coarse woody debris and silvicultural options at each point location. LV is very comfortable with the outcome of the inventory. ETC now has an up to date and highly reliable inventory to serve as the basis for the development of a sustainable working forest management plan. Information on coarse woody debris, standing dead trees and moose browse impacts on forest regeneration have been included in this plan. As a better understanding of what types of analysis should be accomplished, ETC now has the base line data to accomplish those and better assess these non-traditional forest values.

#### **INVENTORY RESULTS**

The 2006 inventory demonstrates that the property holds 14.80 cord equivalents [at the 2.0 cords per MBF conversion] per forested acre. This subtotals as follows.

Sawlogs 1.756 MBF Tie Pallet 0.061 MBF Boltwood 0.282 MBF Cordwood 9.6 Cords **Growing Stock** 1.00 Cords

## Total Cords on 81,842.9 commercial acres: 1,212,446.20

(See Appendix B for Specifications and Appendix C for Strata Stand and Stock Tables)

It is significant that the current inventory volume is only 2.12% greater than the inventory done by Wagner Woodlands in 1999, even though harvest levels in the intervening years were very light, averaging only 7,539 cords per year, or .08 cords per acre per year.

Cord Equivalents [at the 2.0 cords per MBF conversion] for the 1999 Wagner Inventory

1999 Inventory:

1,187,210 Gross Cords

Adjustments and Estimated Changes Acquisitions (est.): +8,500 Removals: -45,232 Implied Growth/Mortality: +53,432

2006 Estimated Inventory: 1,203,910

LandVest believes this low growth level is due to the history of previous owners high-grading that left many stands stocked with released suppressed and intermediate stems. In addition, many remaining stems were negatively impacted by poor logging practices of the previous owners, further reducing stand vigor and contributing to loss of volume due to mortality and decreased growth rates on overstory stems. In addition, there has been lasting impact from the 1998 ice storm.

While LandVest believes that growth is strong on the ownership, it is now disproportional in its distribution to understory regeneration, fully released saplings, and smaller diameter poletimber that is young, vigorous and capable of rapid growth on these productive forest soils. Much of the volume in this size class does not appear in the 2006 volume table due to it falling in the sub-merchantable size classes of under 5 inches DBH. While the small diameter poletimber, in the 5-7 inches classes, is accounted for in the inventory, the real story of additional growth is often associated with these sub-merchantable stems.

## FOREST STRATA

## ESSEX TIMBER COMPANY LLC ACREAGE BREAKDOWN

STRATA OR CLASSIFICATION	ACREAGE	PERCENT OF SUPER STRATA ACRES	PERCENT OF FORESTED ACRES
H1B	1521.2	3.1%	
H2B	4236,7	8.8%	1.9%
H3B	16236.9	33.6%	5.2%
H3B/H2B	11120.8	23.0%	19.8%
H3C	9581.7	19.8%	13.6%
H4C/HS2B	5624.7	11.6%	11.7%
HARDWOOD TOTAL	48322.0	100.0%	6.9% 59.0%
HS2-3A		1001070	59.0%
HS2A	831.2	4.2%	1.0%
	852.3	4.3%	1.0%
HS3-4A/HS2B	2357.4	12.0%	2.9%
HS3B	13021.4	66.1%	15.9%
HS3C/HS2C	2636	13.4%	3.2%
HS MIXEDWOOD TOTAL	19698.3	100.0%	24.1%
S1A			21.170
S2A	999.7	21.5%	1.2%
	3660.2	78.5%	4.5%
SOFTWOOD TOTAL	4659.9	100.0%	5.7%
SH3-4A/SH2B	1222.5		
SH3-4B/SH2B	5836. <b>5</b>	13.3%	1.5%
SH3C/SH2B		63.7%	7.1%
SH3-4C/S2B	1008.5	11.0%	1.2%
SH MIXEDWOOD TOTAL	1095.2	12.0%	1.3%
OH MIXEDWOOD TOTAL	9162.7	100.0%	11.2%
•			
FORESTED ACREAGE TOTAL	81842.9		
			BEDGENT OF
NON FOREST CLASSIFICATIONS			PERCENT OF
CLEARINGS	153.6	2 50/	TOTAL ACREAGE
	100.0	3.5%	0.2%
FLOWAGES/BOGS	428.8	9.7%	0.524
		9.1 /6	0.5%
GRAVEL PITS	21.3	0.5%	0.0%
6==		0.070	0.0%
OPEN AREAS	21.2	0.5%	0.0%
DOLDO		5.2,0	0.076
ROADS	10 <b>7</b> 3,2	24.2%	1.2%
DIDADIAN BUILDING		•	1.2 /6
RIPARIAN BUFFERS CE	2641.6	59.5%	3.1%
MATERIAL TEN			3.176
WATER	99.4	2.2%	0.1%
TOTAL VIEW			0.170
TOTAL NON-FOREST	4439.1	100.0%	5.1%
			3.170
TOTAL PROPERTY	86282		

The broad forest type breakdown illustrates the manner in which hardwood acreage is the dominant super Strata on the ownership. With infra-red aerial photos flown in May of 2006 and professional aerial photo interpretation, this updated map is as accurate as current economically feasible technology allows.

Overall there is a good mix of forest types which are then combined for modeling and planning purposes into the 17 Strata represented here and throughout the plan. Fortunately due to the technology of GIS while we plan at the Strata level the mapping and digital data retains the original 29 forest types in the system. By accessing these sub strata level types planning for operational units by the manager of Essex Timber will be streamlined and more readily apply management where it is most timely and appropriate within a Strata.

#### **Description of Forest Types**

Listed below are the most frequently found forest cover types on the ETC that are derived from Eyre, F.H. <u>SAF Cover Types of the United States and Canada</u>. 1980 where an \* refers to a citation from the text above. In general, the property is hardwood dominated with the Sugar maple-Beech-Yellow birch cover type being the most commonly found throughout. This is partly due to the range of sites within the type that also dovetails with the variability found within the forest on any one given acre. The second most prominent type would be the mixedwood type of Red spruce-Sugar maple-Beech where there is more of a dominant hardwood component. Lastly, is a classic Spruce-fir type that occupies the remainder of the site spectrum from the tops of mountains and along riparian zones to areas of very poor drainage that are considered restrictive sites.

#### Red spruce- Balsam fir #33

This type is generally found with the two primary species (Spruce-fir) being the dominant component. However, exceptions abound depending on site, elevation, previous disturbance etc. Occasionally, an area will be occupied by a nearly pure Red spruce component or possibly the opposite with Balsam fir as the dominant species present. Another scenario commonly found within this type is the presence of associated species such as Northern white cedar, Paper birch, Yellow birch, Red maple and Aspen.

The type tends to occupy two different kinds of sites: 1) the imperfectly to moderately well drained flats, low ridges and knolls surrounding lakes, streams, swamps, bogs and continuing to the base of lower mountain slopes. 2) well-drained to excessively well-drained upper mountain slopes characterized by steepness, rockiness and shallow soils. The former is commonly termed a Spruce flat and the latter a Spruce slope. Unlike the zone of relatively deep, fertile, well drained soils that separate them, neither the Spruce flats nor the Spruce slopes provide an environment conducive to the strong establishment of Northern Hardwood types.

Common shrubs and site indicators include: Creeping snowberry, Raspberry, Witch-hobble, common Wood sorrel, False Lilly-of-the-Valley, Blue Bead Lily, Star flower, Goldthread and Purple Trillium.

#### Red spruce-Sugar maple-Beech #31

This type is characteristic of a hardwood dominated mixedwood stand that is frequently encountered across the ownership. Its prevalence is at the Cover type level to micro sites or even small pockets within a stand. In essence, this Forest type may be perceived as a quality secondary hardwood site that has a modest (variable) softwood component. The species composition is characterized by a varying Red spruce component that accounts for at least 20 percent of the basal area. However, this softwood component is not limited only to Red spruce but may also include Balsam fir or on rare

occasions Eastern hemlock. Other common deciduous associates include Yellow birch and Red maple. \* Undergrowth includes, False lily-of-the-valley, Wild sarsaparilla, Blue bead lily, Solomon's seal, Partridgeberry and Wood sorrel. Related shrubs to the type also include Hobblebush and Honeysuckle.

\*" This cover type is confined to sites where both edaphic and climatic parameters come sharply into play. It occurs especially in the higher elevation ranges of Sugar maple and Beech. The type tends to be site specific and is restricted to coarse, open-textured, un-compacted acidic tills. Thus, the sites are most frequently deep, well-drained soils located on lower slopes of mountainous areas or on other sites with equivalent ecological and topographical characteristics: upper slopes of hilly areas, benches and gentle ridges."

#### Sugar maple-Beech-Yellow birch #25

Within this forest type are numerous Northern Hardwood variations of this type; however this association best describes a majority of what is found across the ownership. Variations are usually expressed by a change in site, slope and / or aspect. Common species associated with this type are White ash, Black cherry, Red maple, Basswood, Red oak, Eastern hophornbeam, White pine and to a lesser extent Spruce-fir. After a disturbance of any nature, early successional species such as White birch, Aspen and Pin cherry are likely to become established within this Type. \*Best development of this type occurs on moist, well-drained, fertile loamy soils. Sugar maple, its principal component, unifies the association and is the least site-sensitive of the three species. It is absent only at the extremes of soil drainage. Where the type occurs on wet sites, it blends into a Red maple-Yellow birch-Hemlock mixture. On the drier sites Beech becomes increasingly prominent. Throughout the range, the blending of different subtypes and variants, past land use, cutting histories, soil characteristics, and differential deer (and moose) browse all significantly affect condition, structure and composition of the type.

On the forest floor, it's common to find and relate Hobblebush, Service berry and Witch hazel as common associated shrubs within this forest type. Moreover, Jack-in-the-pulpit, Violets, Wood sorrel, Lady-slippers and Trilliums are other broad site indicators of this forest type.

#### Red maple # 108

Mostly a type that forms on poor sites found near wetlands and on poorly soiled hilltops or rocky ridges where it out competes other species. Some acres within this forest type may be a result of previous harvesting practices, where the Red maple was of such poor quality that it has been left repeatedly as a residual. Spruce and fir are both found with this type near wetlands and poor sites, while White birch and Beech most often show up on more loamy upland sites. This forest type is rarely found in large tracts and frequently occurs as small scattered stands that shift in and out of other types.

Tree species found in the understories of this type are usually Beech, Red maple suckers and / or Striped maple. Herbaceous growth can be thick when near open areas around wetlands, with shrubs such as Winterberry, Mountain holly, Maleberry and various native Dogwoods in addition to ferns such as Interrupted, Cinnamon, Royal and Sensitive.

#### Beech-Sugar Maple # 60

\*Beech and Sugar maple together generally comprise a majority of the stocking, but the stands composition may vary from stands composed entirely of Beech–Sugar maple to a mixture of species. In New England, associates in the lower elevations include Yellow birch, Paper birch, Eastern hemlock, White ash, Red spruce and Balsam fir in higher elevations.

\*Generally the type is found on moist, well-drained soils with a Northern aspect. Generally, on drier sites, Beech associates with White ash, White pine, Eastern hemlock and Aspens. On the more acidic soils, Beech and Red maple are a more common combination. Where disturbed repeatedly by cutting or fire, Beech has a tendency to dominate. Often this type occurs with a variety of other species and many consider it to be a remnant of the Sugar maple-Beech-Yellow birch type. In young even-aged stands, short-lived species such as Pin cherry and Sumac are often quite prominent. Also, Yellow birch and other shade intolerant species such as White ash, Basswood and Black cherry are more common than in older stands. In mature stands, understory trees, shrubs and vines are more prevalent; they include Striped maple, Hop Hornbeam, Serviceberry and Hawthorn. Some of the herbaceous plants on better sites include blue cohosh, jack-in-the-pulpit, trilliums and maidenhair fern. On poorer sites herbaceous plants and ferns are not as plentiful where grasses and sedges often dominate the undergrowth.

#### Age Class Distribution

Classification of the forest by age class provides an indication of long-term timber resource sustainability. Significant gaps in the distribution of age classes points to difficulties that can arise in the future in terms of merchantability and operability of the timber resource.

The broad forest type breakdown continues to illustrate the high percentage of hardwood acreage on the ownership, though the overall percentage has decreased some due to new infrared photography and the retyping of the property.

As with the previous management plan, broad forest types were classified into estimated age classes to illustrate the development of the timber resource. Assumptions in allocating acreages previously made were held for comparison purposes. Sixty percent (60%) of the 3C and 100% of the 3D acreage were allocated to the 0-20 year age class as these were considered to be largely non-merchantable stands. To better approximate those acres and sub-groups that are greater than 60 years old, 40% of the 3A&B acres and all of the 4 size class acres were allocated to the 60-100 age group.

Age Class Distribution -2006 infra-red photography

ACRES	0-20	21-40	40-60	61-100	Total
H	7270	4237	20247	16568	48322
HS	1582	1684	10282	6152	19698
SH	1262	0	5077	2824	2824
S	1000	1830	1830	0	4660
Tot	11114	7750	37436	25543	81843
% Tot	13.6%	9.5%	45.7%	31.2%	100.0%

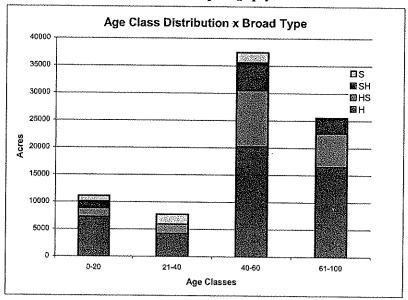
Age Class Distribution -1999 Orthophotos

500000000000000000000000000000000000000		550 G82 G82 G84 G84 G84 G84		o transferon e no como de la como e no c	and the See See See See See See See
ACRES	0-20	21-40	40-60	61-100	Total
H	16101	3164	27040	13177	59482
HS	2074	413	5532	3167	11186
SH	601	860	2219	1420	5100
S	1576	1347	1477	842	5242
Tot	20352	5784	36268	18607	81010
% Tot	25.1%	7.1%	44.8%	23.0%	100.0%

A comparison of the two classifications indicates that there remains a deficiency in the 21-40 year age class. The older age classes have become better represented, and less of the ownership is in the 0-20 year age class.

Though some of the shifts in the analysis can be credited to new photography and perhaps additions to the ownership, there does appear to have been some upward shifting in terms of age class distribution.

The following figure graphically illustrates the age class distribution using the values in the table above. The deficiency in the 21-40 age class is clearly evident. As with the previous plan, a future potential deficiency of pole and small saw timber-sized trees is even more evident than previously believed if low volume removals continue.



Age Class Distribution - 2006 infra-red photography

In order to illustrate the impacts of applying the approach recommended by the modeling, two approaches were taken.

LandVest developed a Stand Visualization Report (see appendix). In this process a stand visualization system (developed by the U.S. Forest Service) was run utilizing the recommended treatments for each stand type. After all simulations were completed, all stand types were grouped into the four strata of hardwood, HS mixed wood, SH mixed wood, and softwood, using weighted acreages. Each of the four strata was run through the visualization system and a stand summary, diameter, height and species distribution was obtained for each.

The second approach was to expand on the classifications of estimated age classes to illustrate the development of the timber resource. To accomplish this the acreages by type were allocated based upon treatment, type of treatment, and the priority for treatments. Assumptions used to allocate acreages for existing age classes were carried forward. In addition, it was assumed that most, but not all acreage in each type would receive the priority treatment. For example, not all of the H3B type would be treated with an overstory removal, but instead those H3B stands with good stocking would be treated with a thinning or other intermediate treatment, and therefore carry on to an older age class. Stands with developed advanced understories would not all be set back to the 0-20 year age class, but instead a significant component of these types would fall in the 21-40 year age class.

ESSEX TIMBER COMPANY LLC ACREAGE BREAKDOWN & AGE CLASS ALLOCATION

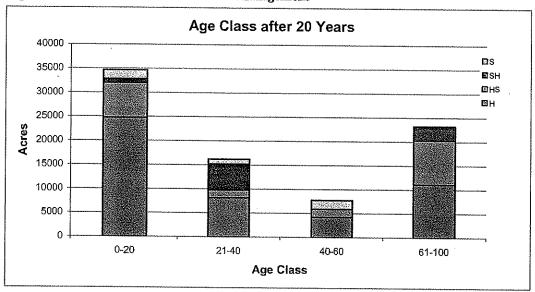
STRATA ORCLASSIFICATION	ACREAGE	PRIORITY	TREATMENT	AGE CLASS ALLOCATION
H18	1521.2			21-40
H28	4236.7			41-60
H3B	16236.9	5	OSR	20% 61-100; 80% 0-20
H3B/H2B	11120.8	3	OSR	20% 61-100; 60% 21-40; 20% 0-20
H3C	9581.7	6	CLT	0-20
H4C/HS2B	5624.7	5	ΙT	61-100; uneven-aged mgmt
HARDWOOD TOTAL	48322.0			
HS2-3A	831.2			41-60
HS2A	852.3			41-60
HS3-4A/HS2B	2357.4	4	iΤ	60% 61-100; 40% 0-20
HS3B	13021.4	5	įΤ	60% 61-100; 40% 0-20
HS3C/HS2C	2636	2	CLT	60% 21-40; 40% 0-20
HS MIXEDWOOD TOTAL	19698.3		~-· <u>-</u>	307021-40, 4070 0-20
S1A	999.7			24.40
S2A	3660.2	2	OSR	21-40 50% 41-60; 50% 0-20
SOFTWOOD TOTAL	4659.9		-	30% 41*00, 30% 0-20
SH3-4A/SH2B	1 <b>2</b> 22.5	4	OSR	64.40
SH3-4B/SH2B	5836.5	3	IT IT	21-40
SH3C/SH2B	1008.5		11	50% 61-100; 50% 21-40
SH3-4C/S2B	1095.2	1	OSR	60% 21-40; 40% 0-20
SH MIXEDWOOD TOTAL	9162.7		OOK _	60% 21-40; 40% 0-20
FORESTED ACREAGE TOTAL	81842.9			

This process provides us with a look at how applying the priority treatments will impact the age class distribution across the ownership on a strata basis in 20 years. The following table and figure illustrate the results.

Age Class Distribution after 20 Years of Management

CONTRACTOR OF	CANNEL CONTRACTOR AND A SERVICE	COMPROMOMORAL CERT	CARGORIA COM I Conformation (Section Co.	PARTOLIC September 1988 and 1	tree or a to 00.564 0.784 by a plantage
ACRES	0-20	21-40	40-60	61-100	Total
н	24796	8194	4237	11095	48322
HS	7206	1582	1683	9227	19698
SH	842	5402	0	2918	9162
S	1830	1000	1830	0	4660
Tot	34674	16178	7750	23240	81842
% Tot	42,4%	19.8%	9.5%	28.4%	100.0%

Age Class Distribution after 20 Years of Management



While the resulting imbalance in age class distribution is inconsistent with the secondary purpose in the Conservation Easement that requires maintaining a diversity of age classes and native tree species, it in fact is more advantageous than the imbalance illustrated in the previous management plan. In its first seven years, ETC has tried a very light hand in harvesting, expecting younger age classes to develop. But the 2006 inventory showed that this approach was not resulting in the kind of growth that the land is capable of producing. While the CE anticipates a growth rate of .38 cords per acre per year in hardwood stands, and .44 cords per acre per year in softwood stands, the "let it grow" approach has resulted in significantly less actual growth.

LandVest believes that age class distribution, especially in light of the health, quality and vigor issues related to the older age classes on this forest are an early rotation management issue that if properly addressed will allow for the long-term solution of the establishment and growth of a much more vigorous and high quality forest. To achieve this age class distribution goal we are addressing it early on by, in many instances, rolling over the current undesirable over story into a quality and fast growing regeneration and pole timber stand structure. These new stands can then be managed more aggressively moving forward to attain the more desirable age class distribution. The plan is to address this through silvicultural modeling and implementation of strategies designed to improve the resource and establish a higher quality forest. As the principal goal of the CE is to establish and maintain a productive forestry resource it is essential that we utilize the best available silviculture to stock as many acres as possible with the most vigorous and highest quality growing stock. As noted in the 1999 plan, the land had a reasonable age class distribution. But the reality is that many acres on ETC need to be regenerated because of the many low quality and less than vigorous over stories that prevent the forest from moving toward the goal of producing high quality saw timber. It is neither economically nor silviculturally desirable to continue growing unacceptable growing stock further into the future.

Previous owners often utilized high grading techniques that targeted the most vigorous and dominant stems, which often resulted in B- stocking levels of released suppressed and intermediate stems. In addition, extremely poor harvesting practices led to high proportions of the residual stems suffering from logging wounds, compressed soil and root damage. Finally, the 1998 ice storm provided even more damage. These stand conditions are not a good foundation for the development of a sustainable forest resource.

While growing high quality sawlogs is a main objective, ETC also recognizes the need for early successional age classes. Essex Timber will support the use of clear cutting, seed tree and overstory removal harvests to maintain 15%, or

approximately 12,000 acres of the ownership in the 0-20 year age class during any 20-year period. This goal will be exceeded in the next several decades as levels of AGS are enhanced so future commitments to age and size class diversity can be achieved. Eventually, about 55% of the ownership will be in mature and late succession stands.

The LandVest inventory, and subsequent modeling, demonstrates that to gain a forest capable of sustained yields of high quality saw timber, action must be taken now that in the short-term will set age class back, but still provide for some age class diversity. The removal of low volume, low vigor, and low quality over stories will be the best means for economically and ecologically turning this forest around so that the quality of the forest soils on ETC can be used to grow more wood, of higher quality more sustainably. For these reasons, LandVest recommends moving harvest levels from the current +/- 7,000 cords per year to over four times that level.

#### SPECIES COMPOSITION

The inventory carried out by LandVest in 2006 verified the base principles laid out in the original ETC forest management plan that there is a tendency for these lands to be occupied by tolerant species that are striving to develop late succession stand structures. It was further observed from the data that while the acreage of H types is the dominant cover type, +/- 48,000 acres or nearly 59% of the acreage, Spruce and fir comprise almost 52% of the sawtimber and 37% of the growing stock., while only being found in pure types on +/- 4,700 acres and dominant on another 9,200 SH types. Adding in the HS types that carry a fair amount of Spruce and fir and will likely develop a stronger SF component in the future, those types represent nearly 34,000 acres. Over time managers will continue to use silvicultural entries to favor the growth of Sugar maple, Yellow birch, Red spruce and White pine, over species such as Red maple, Balsam fir and White birch. But it is important to note that natural stands will always dominate and while species can be favored it is not practical, nor desirable, to move away from a naturally diverse forest.

Table 7 presents the revised existing species composition breakdown of the merchantable timber on Essex Timber.

Table 7. 2006 Current Species Composition by BA & T/A FOR STEMS 1-36 INCHES DBH

## SPECIES COMPOSITION BY BASAL AREA AND TREES/ACRE for TREES 1-36 INCHES DBH

	THEE OF THE STATE				
SPECIES	<b>BA PERCENT</b>	T/A PERCENT			
Balsam Fir	16.3	20.6			
Red Spruce	8.7	8.4			
Hemlock	1.0	0.1			
Northern White Cedar	1.0	0.2			
Tamarack	<0.1	<0.1			
White Pine	0.1	<0.1			
Sugar Maple	19.9	11.0			
Red Maple	7.6	5.4			
Yellow Birch	25.5	15.5			
White Birch	8.2	8.2			
White Ash	0.2	0.1			
Black Cherry	0.1	0.1			
Beech	6.4	10.2			
Aspen	0.5	0.9			
Brown Ash	0.1	<0.1			
Other Hardwoods	4.5	19.1			

Table 8. 2006 Current Species Composition by BA & T/A FOR STEMS 4-36 INCHES DBH

## SPECIES COMPOSITION BY BASAL AREA AND TREES/ACRE for TREES 4-36 INCHES DBH

SPECIES	<b>BA PERCENT</b>	T/A PERCENT
Balsam Fir	15.4	22.7
Red Spruce	8.4	9.9
Hemlock	1.1	0.4
Northern White Cedar	1.2	0.8
Tamarack	<0.1	0.1
White Pine	0.1	0.1
Sugar Maple	21,9	17.8
Red Maple	8.1	6.2
Yellow Birch	27,5	21.0
White Birch	8.2	8.4
White Ash	0.2	0.2
Black Cherry	0.1	0.2
Beech	5.7	7.2
Aspen	0.3	0.5
Brown Ash	0.1	0.1
Other Hardwoods	1.8	4.7

Silvicultural activities will be designed to maintain or slightly increase the percent of Hard maple over the birches and significantly increase the total volume of Spruce and fir on the ownership relative to its current position. The goal of moving Sugar maple forward at the expense of Yellow birch may be difficult in the short-term due to the identified need of implementing regeneration harvests and the excellent conditions created by light and disturbance that birches favor often being the outcomes of those

harvests. Yet long-term as the sustainability and size class goals are strived for, Hard maple should become a larger component of the forest. There still is that goal, the current inventory clearly demonstrates that achieving that desire will require a more significant passage of time as the regeneration harvests planned will favor Yellow birch and other more intolerant species on ETC. Currently the greatest effort will be directed toward increasing the percentage of Spruce, as this species has been significantly depleted over time through discriminatory harvesting.

# Softwood Composition --

Essex Timber lands are comprised of 59% hardwood as classified by broad forest type and just over 83% hardwood when the HS broad type is included as a hardwood type. As a percentage of the lands in one broad forest type, this is significantly above the average for lands in northern NH & VT. When reviewing past harvest practices and market opportunities that drove management through the latter half of the 20<sup>th</sup> century, it appears that the percentage of softwood acreage on this ownership has been reduced through past practices that repeatedly targeted softwood logs and pulpwood as preferred species and products for harvest. This inevitably resulted in a shift or "loss" of softwood acres as they moved from S of SH types to mixtures with more hardwood—SH & HS. This also resulted in the near extirpation of softwood from hardwood stands.

One of the silvicultural objectives for this ownership is to slowly reverse this pattern and increase the percentage of softwood volume and acreage at the stand and landscape levels. Spruce, pine and hemlock are species that should be increased. This objective is in line with the stated management objective of maintaining the diversity of native tree species.

Ecologically, increasing softwood composition, appropriate to the land's capacity to grow it, accomplishes the goal of more precisely matching species composition with site potential. This is a major consideration when planning long-term management designed to capitalize on the forest's natural productive capacity.

This objective will not be achieved at the expense of growing quality hardwood sawtimber. More accurately stated, this goal will improve the ecological health and quality of the forest and the timber resource on Essex Timber.

#### **OVERALL TRACT TIMBER VOLUME**

The following page summarizes the current tract inventory into four broad product groups, Sawtimber/Pallet, Boltwood/Flooring, Pulpwood and Growing Stock. The following table represents those numbers for the ownership as a whole.

# **Table 2 LandVest Timberland Timber Volume Table**

#### TIMBER CAPITAL VALUE ESTIMATE FOR THE LANDS OF ESSEX TIMBER COMPANY LLC ESSEX AND CALEDONIA COUNTIES, VERMONT December 1, 2006

**VOLUME AND VALUE** 

86,282 TOTAL TRACT ACREAGE

TOTALS

81,843 FORESTED ACREAGE

			METHOD TALOE		
SAWLOGS	Int. 1/4 Rule VOLUME&UNIT		\$VALUE/UNIT		TOTAL & VALUE
SPRUCE/ FIR HEMLOCK	74,337 2,374			/MBF	
WHITE PINE	33				
NORTHERN WHITE CEDAR	599				
SUGAR MAPLE RED MAPLE	20,979				
YELLOW BIRCH	6,514 30,130				
WHITE BIRCH	7,959				
WHITE ASH	325				
BLACK CHERRY	32				
BEECH	123				
ASPEN	331				
TIE/PALLET HEMLOCK	25				
TIE/PALLET HARDWOOD	4,998				
SAWLOG TOTALS	148,758	MBF			
BOLTWOOD					
WHITE BIRCH	6,300			/MBF	
YELLOW BIRCH	8,914			HVIDE	
BLACK CHERRY	56				
SUGAR MAPLE	7,781				
	23,051	MBF			
SAWTIMBER/BOLTWOOD TOTALS					
CORDWOOD					
HARDWOODS	672,858	CDS		/OD	
HEMLOCK	13,315	CDS		/CD	
WHITE PINE	61				
SPRUCE-FIR	89,734				
CDWD. TOTALS	775,968	CDS			
GROWING STOCK					
HARDWOODS	50,584	CDS		(0.0	
HEMLOCK	536	CD2		/CD	
WHITE PINE	713				
SPRUCE-FIR	32,497				
GROWING STOCK TOTALS	84,330				
CRAND TOTAL C					
GRAND TOTALS	171,810	MBF	& 860,298	CDS	MIII.
AVG. COMM. ACRE	2.099	MBF	& 10.51	CDS	*****
AVG.TOTAL ACRE	1.991	MBF	& 9.97	CDS	*****

# PART III - SILVICULTURAL PROGRAM

# SUMMARY OF SIMULATIONS

Growth projections for each forest type were accomplished using FlexFiber and a silviculture and stand projection *Simulate* program developed by LandVest. FlexFiber is a peer reviewed growth and management program developed by foresters from the USDA Forest Service and The University of Maine at Orono, Cooperative Research Unit.

First FlexFiber was used to grow each forest type without any treatments for 20 years. Natural growth rates were obtained according to these FF simulations to serve as a baseline of how these ETC forest strata will develop over time. These growth rates were then utilized in the LandVest Simulator to be the same as the growth rates obtained from FlexFiber. This process is followed so that projections can be utilized that pass a universally accepted modeling process that has been peer reviewed for its predictability and accuracy. Internal rates of return for a variety of proposed silvicultural treatments were derived using our Simulator with the FlexFiber growth rates (See Appendix D Growth & Removal Simulations). The simulations with treatments were also conducted with FlexFiber and Simulate to insure an accurate comparison. Simulate is designed to also test a variety of different cutting strategies, such as cut to A-line, B-line, C-line, 90, 80, 60, 40, and 30 ft²/ac. The goal being to determine the optimum silvicultural treatment that both address the maximization of IRR, while simultaneously designed to meet landowner and easement objectives. After obtaining growth rates from FlexFiber, internal rates of return were found using both the growth rate from FlexFiber and Simulate (see Table 2). This use of two simultaneous and somewhat different approaches provides ETC with a well conceived and defined means for determining with a higher level of certainty how the proposed silviculture will perform for each selected treatment and strata.

LandVest's primary modeling team is comprised of Steve Mongan EVP ACF LandVest and Dr. Haijin Shi Biometrician, with the on the ground input from Project Forester Richard G. Carbonetti ACF CF VP Timberland.

# SUMMARY OF FINDINGS ON MODELING

- 1. The inventory results show that this resource is in the final stage of transition from a relatively even-aged forest cohort that has been in place for the past hundred years or so. It has been subjected to a series of partial cuts over the past few decades. The current remnant particularly in the hardwood types, is in very poor condition, and generally incapable of producing viable stands of good quality hardwood sawtimber (these remnant overstories are generally 40-60 square feet of basal area; with less than 50 trees per acre we could term Acceptable Growing Stock AGS). In many cases there is a viable understory of sapling to small poletimber stems, of good quality and fully capable of stocking the site to capacity these are the stands future management will culture. A major recommendation is that the old remnant stands be removed quickly to enable this forest to meet the goals of the Conservation Easement.
- 2. As should be expected from a forest with this kind of profile, it doesn't matter much from a rate of return perspective what silviculture is accomplished. In most cases, not cutting at all produces a similar IRR to any cutting regimen or silviculture modeled. Prioritization of treatment follows two courses: The first is a method that takes the difference in IRR between best silviculture and not cutting as the rule for setting priority. The second method is to look at each stand-type to see which can least afford to wait (again from an IRR perspective) for treatment in this case removal.

# SUMMARY OF MODEL SIMULATION - TABLE 2

	נויר				,				7,000	***************************************		PRINCIPAL DE LA CONTRACTION DE	
		riber		Simulator	ator				IRR with	IRR with Adjusted Growth Rate	th Rate		
Stands	Natural	Management Grouph Data	Natural Growth	Management	IRR with	IRR with IRR With	Differ-	Adjusted	IRR with	IRR with Adjusted	Treat-	Differ-	Prio-
17 77 CANADA ANA ANA ANA ANA ANA ANA ANA ANA AN	Growth Rate (Cord/Acre/Year)	(Cord/Acre/Year)	Cord/Acre/Year) (Cord/Acre/Year) (Cord/Acre/Year)	Cord/Acre/Year)	Naturai Growth	manage- ment	ence	Mgt Growth Rate	Mgt Growth Fiber Natural Rate Growth Rate	Management Growth Rate	ment	епсе	rity
H1B	0.512	0.512	0.207	0.207	5.86%	5.86%	0.00%	0.512	9.57%	9.57%		%000	
H2B	0.470	0.470	0.414	0.414	7.60%	7.60%	0.00%	0.470	8.27%	8 27%	ΗN	0.00%	
НЗВ	909'0	0.668	0.469	0.336	5.16%	5.73%	0.57%	0.475	5.90%	6.21%	OSB	0.34%	۲,
H3B-H2B	0.607	0.641	0.466	0.404	5.67%	6.72%	1.05%	0.460	6.46%	7.17%	OSR	0.21%	ა ი
Н3С-Н1В	0.663	0.347	0.416	0.217	6.18%	7.14%	0.96%	0.234	7.82%	7.34%	CLT	-0.48%	) (c
H4C-HS2B	0.461	0.598	0.428	0.402	4.86%	5.31%	0.45%	0.425	5.02%	5.46%	Ŀ	0.44%	ינ
HS2-3A	0.419	0.419	0.643	0.643	7.30%	7.30%	0.00%	0.419	5.49%	5.49%	Ę	%000	
HS3B	0.512	0.601	0.510	0.541	5.41%	5.89% 0.48%	0.48%	0.543	5.56%	5.90%	Ŀ	0.34%	ιC
HS3C-HS2C	0.456	0.231	0.438	0.207	5.32%	4.35%	-0.97%	0.210	5.45%	4.39%	-	-1 06%	> 0
HS34A-HS2B	0.459	0.594	0.497	0.527	4.98%	5.76% 0.78%	0.78%	0.498	4.81%	5.60%	<u> </u>	700.1	7 4
S1A	0.243	0.243	0.417	0.417	7.11%	7.11%   0.00%	0.00%	0.243	3.10%	3.10%	Į.	%0000	-
S2A	0.633	0.639	0.774	0.912	7.73%	8.52%	0.79%	0.832	6.67%	7.79%	OSR	1 12%	6
SH34A-SH2B	0.922	0.644	0.674	0.722	4.49%	5.58%	1.09%	0.859	5.33%	6.24%	OSR	0 94%	1 4
SH3C-SH2B	0.860	0.843	0.604	0.524	5.12%	5.62% 0.50%	0.50%	0.629	6.60%	6.52%	OSB	7000	+
HS2A	0.456	0.456	0.559	0.559	5.95%	5.95%	0.00%	0.456	5.08%	5.08%	į L	%000	T
SH34B-SH2B	0.849	0.728	0.688	0.758	4.55%	5.63%	1.08%	0.874	5.15%	6.16%	E	1 01%	~
SH34C-S2B	0.621	0.573	0.656	0.639	6.58%	8.48%	1.90%	0.622	6.37%	8.35%	OSR	1.98%	,
	0.573	0.542	0.521	0.496	5.87%	6.39% 0.51%	0.51%	0.49	6.04%	%689		0 25%	
				- Commission of the Commission		T		-			-	2	

\* The negative IRR results from clearcut.

Note: the priority is based on both the tenth and thirteenth columns. In other words, the bigger the difference (the thirteenth column) and the lower the IRR with Fiber natural growth rate (the tenth column), the higher the priority.

# Interpretation of each column in Table 2.

- The first column is our stand name.
- 2. The second column is the natural growth rate from FlexFiber.
- 3. The third column is the growth rate obtained from FlexFiber with management treatments (e.g., regeneration cut).
- 4. The fourth column is the natural growth rate from our Simulate.
- 5. The fifth column is the growth rate obtained from our Simulate with management treatments.
- 6. The sixth column is the internal rate of return (IRR) obtained from our Simulate without any treatments.
- 7. The seventh column is the internal rate of return obtained from our Simulate with management treatments.
- 8. The eighth column is the difference between the seventh and sixth column.
- 9. The ninth column is the adjusted growth rate according to FlexFiber and our Simulate management growth rates (i.e., the third and fifth columns).
- 10. The tenth column is the internal rate of return obtained with the natural growth rate from FlexFiber.
- 11. The eleventh column is the internal rate of return obtained with the adjusted management growth rate (i.e., the tenth column).
- 12. The twelfth column is the recommended treatment in terms the internal rate of return obtained with the adjusted management growth rate (i.e., the tenth column).
- 13. The thirteenth column is the difference between the IRR with no treatment (i.e., the eleventh column) and the IRR with the best treatment (i.e., the twelfth column); therefore we know the estimation of management priority. In other words, we should first do treatments for those stands with large IRR difference.
- 14. The fourteenth column is the priority based on the tenth and thirteenth columns.
- 15. Treatment codes in the eighth and thirteenth column: NT No Treatment; IT Improvement Thinning; OSR Overstory Removal; CLT Clearcut.

#### TREATMENT BY SUPERSTRATA:

#### Hardwood- H Types:

The Hardwood stands on this tract were targeted by the previous owner to take advantage of markets and have left stands with varying conditions of quality, health and stocking. The long-term goal for the Hardwood forest type will be to improve overall quality and long-term value. Management on a stand level will vary depending on current conditions and previous treatments. As a result, some stands require no treatment other than time to appreciate in volume and value, while some stands will need to be rehabilitated or moved to regenerate due to issues of long term viability and value. There are also stands that are regenerated and well suited to shifting growth to a more promising younger component. Out of the +/- 48,319 acres of H types on the ETC ownership over 87% of the stands will be reviewed and potentially scheduled for treatments over the next 10-year management cycle. It is not envisioned that all this acreage will be scheduled in annual harvest plans, but this acreage is available for consideration due to priorities based on the resources silvicultural needs. In all likelihood treatments will occur on closer to 50-60% of the acreage in the next ten-year cycle.

# Softwood- S Types:

The previous owner typically mined or regenerated Softwood stands and had left the softwood resource found in pure types in two conditions, either of a seedling sapling size class or of a poletimber size class. The S1A acreage should be left to grow, while the S2A will be looked at 5 years out for either thinnings if technology and markets allow or the removal of the poorer quality overstories where regeneration is well established. In many places adequate Spruce-fir regeneration has become established in the understory beneath a mature overstory. The removal of these overstories will allow for the growth potential of these sites to be better utilized. The primary approach in the S2A type will be to implement thinnings or harvests that capture declining stems and release crop trees or regeneration, or establish regeneration. Out of the +/- 4657 acres of S types on the ETC ownership over 78% of the stands will be reviewed and potentially scheduled for treatments over the next 10-year management cycle. It is not envisioned that all this acreage will be scheduled in annual harvest plans, but this acreage is available for consideration due to priorities based on the resources silvicultural needs. In all likelihood treatments will occur on closer to 50-60% of the acreage in the next ten-year cycle. As a reminder it is important to note that in total while there are only currently 4,658.8 acres of pure S types in the final 17 Strata in this plan there is an additional 2,231.2 acres of stands that were photo typed as S types (6 sub-strata in total) Once the data was processed these were moved into SH types due to their species composition. This demonstrates that there are certainly going to be additional type movements back into more Spruce-fir and Cedar dominated S types as forest management and natural succession moves ahead on ETC.

# Hardwood Mixedwood- HS Types:

The hardwood dominated mixedwood types are found with a wide range of conditions that range from adequately stocked with and without regeneration to poorly stocked or recently cut at the end of the Champion ownership tenure. Many of these HS stands will in time naturally convert to SH types as the softwood that was harvested somewhat selectively by Champion will again capture the site as regeneration develops and fills the gaps in the current stand structure. Further, there will be a strong effort to remove declining retained hardwood from these types. That practice will also result in stronger stocking levels of Spruce-fir. These stands will be treated with the goal of maintaining maximum growth on residual sawtimber and pole-timber sized crop trees, and often to release a very well established and vigorous softwood seedling, sapling and small poletimber component. Treatments will depend on current conditions and stocking (especially regeneration)

and be administered on a shifting basis. The highest risk and declining stands will be targeted first with regeneration treatments such as OSR's and Shelterwoods. In well stocked stands with suitable health, treatments such as intermediate thinnings and crop tree release will be used to increase growth and maintain vigor of residual crop trees. Out of the +/- 19,700 acres of HS types on the ETC ownership over 91% of the stands will be reviewed and potentially scheduled for treatments over the next 10-year management cycle. It is not envisioned that all this acreage will be scheduled in annual harvest, but this acreage is available for consideration due to priorities based on the resources silvicultural needs. In all likelihood treatments will occur on closer to 50-60% of the acreage in the next ten-year cycle.

# Softwood Mixedwood- SH Types:

The softwood dominated mixedwood types are found with a wide range of conditions that range from adequately stocked with and without regeneration to poorly stocked or recently cut again at the end of the Champion ownership tenure. Due to the age and condition of much of the retained Spruce-fir, especially the Balsam fir, there is a significant amount of at risk volume in the overstory of nearly all of the stands in this type group. Quite often stands found with an SH notation will develop even higher stocking levels of softwood as the selective removal of Spruce-fir from these types lowered softwood stocking, but simultaneously prepared the sites very well for the establishment and growth of Spruce-fir regeneration and some intolerants such as Aspen or White birch. Just as was the case in the HS type group as regeneration develops and fills the gaps in the current stand structure softwood will again become a major contributor to the volume present in this strata. As treatments are implemented declining hardwood and softwood will be targeted for removal. These stands will be treated with the goal of maintaining maximum growth on residual sawtimber and pole-timber sized crop trees, and often to release a very well established and vigorous softwood seedling, sapling and small poletimber components. Treatments will depend on current conditions and stocking (especially regeneration) and be administered on a shifting basis. The highest risk and declining stands will be targeted first with regeneration treatments OSR's and Shelterwoods. A variety of small group and patch cuts along Group Selection will be utilized to implement improvement thinning where appropriate. In well stocked stands with suitable health, intermediate treatments with the short-term goal of increasing the growth on residual crop trees will be implemented. Out of the +/- 9163 acres of SH types on the ETC ownership nearly 100% of the stands will be reviewed and potentially scheduled for treatments over the next 10 year management cycle. It is not envisioned that all this acreage will be scheduled in annual harvest plans, but this acreage is available for consideration due to priorities based on the resources silvicultural needs. In all likelihood treatments will occur on closer to 60-75% of the acreage in the next ten-year cycle.

#### TREATMENT BY STAND TYPE

# Stand 1: H1B 1,521 acres

The BA (>=5") is 29.4 ft²/ac and the number of trees <=4 per acre is about 210. There is only 5.2 cds/ac. Even if we treated it in the second 5 years, we still cannot gain anything due to the low current volume and the time required for these young and vigorous stems to develop a commercially viable stocking level. **Treatment:** No treatment.

# Stand 2: H2B (H2A and H2BC) 4,237 acres

Similar to H1B, the BA is quite low (28.4 ft²/ac) and there are just 5.1 cds/ac in the overstory stocking. This strata's current overstory is not its future, but instead the sapling and seedling class on site or developing will be the managed stand in the future.

Treatment: No treatment.

# Stand 3: H3A 16,237 acres

There are 804 trees per acre with total BA=89.2 ft $^2$ /ac (75 ft $^2$ /ac >=5"). The understory is almost established at about 630 trees <=4". Fewer than 50 trees per acre >=5" are AGS. Poor quality residual overstory. According to the simulation, improvement thinning is not feasible. This forest type covers 16,237 acres.

<u>Treatment:</u> Overstory removal reserving clusters of crop trees, but for some healthy stands, improvement thinning can also be considered. Operational cruises will determine implemented silviculture.

#### Stand 4: H3B/H2B 11.121 acres

This type appears to have a more developed understory than H3A with 857 stems per acre in  $\leq$  4 inch classes, but the simulation result is similar. The overstory is stocked at 70 ft<sup>2/</sup>/acre  $\geq$ 5 inches DBH, hence the B stocking level which has led to more light reaching the forest floor to provide for the development of a vigorous regeneration class.

<u>Treatment:</u> Overstory removal reserving clusters of crop trees, but for some healthy stands, improvement thinning can also be considered.

## Stand 5: H3C/H1B 9,582 acres

There are about 627 trees <=4". The overall growing stock is 0.71 cds/ac. The current BA (>=5") is 55  $\rm ft^2$ /ac. The acceptable BA and number of trees (>=5") are 15.2  $\rm ft^2$ /ac and 34, respectively. Improvement thinning is neither feasible nor recommended. The understory is of such poor quality that overstory removal is also not a viable option.

<u>Treatment:</u> Clean silvicultural clearcut, covering two thirds of the area, done under non-frozen conditions to enhance scarification.

# Stand 6: H4C/HS2B 5,625 acres

The overall BA is 98 ft²/ac (81.4 ft²/ac >=5"). The total number of trees is 750/acre, however there are 601 trees/acre <=4"; indicating this forest type was treated in the last 10 or 20 years with most likely regeneration cuts. This type is similar to other hardwood types in that it has a degraded overstory with only  $30.4 \, \text{ft}^2/\text{acre}$  in AGS and a less than desirable understory. There is enough sawtimber in commercial

species to make thinning a viable option where individual stand conditions are suitably structured to provide sufficient residual AGS.

<u>Treatment:</u> improvement thinning is better than overstory removal for this forest type. The residual BA should be close to 64 ft²/ac.

# Stand 7: HS2-3A 631 acres

There are 2214 trees per acre for this forest type, however about 2053 trees are smaller than and equal to 4". The current BA is 47 ft²/ac (>=5"). Improvement thinning is not feasible for the following ten years. Treatment: Overstory removal to release the dense understory and to knock down some saplings and leave the stand less overstocked than it is currently found. OSR also produces the highest IRR.

# Stand 8: HS3B 13,021 acres

The BA is 84.2 for trees >=5". The number of trees <=4" is 373 of a total of 606 trees. The growing stock is 1.12 cds/ac. Improvement thinning in the first 5 years is not feasible, because the harvest per acres is lower than a desirable minimal operational volume of 6 cds/acre removals.

<u>Treatment:</u> Improvement thinning in the second 5 years to remove poor quality trees and create space for the good quality trees and understory.

# Stand 9: HS3C/HS2C 2,638 acres

The overall BA is 66.4 ft²/ac (59 ft²/ac >=5'). The growing stock is only 0.41 cords/acre (for trees >=4"). The number of trees <=4" is about 355 accounting for 73% of total number of trees. Acceptable BA is only 15 ft²/ac (>=5') and the number of trees in AGS (>5") is less than 40. This is another poor quality stand. Improvement thinning is not feasible for the following ten years due to volume and quality limitations of less than 6 cds/ac. Silviculturally, a regeneration cut is a must, but there is not much gain to IRR. Treatment: Clearcutting, leaving about one third of the stocking in clumps.

# Stand 10: HS34A/HS2B 2,357 acres

This is a growing stand with growing stock found at 1.19 cds/ac (from 4" to 10"). The current BA >=5" is  $92 \text{ ft}^2/\text{ac}$ . The total number of trees is 616 with 420 trees <=4". The acceptable BA (>=5") is  $38.4 \text{ ft}^2/\text{ac}$  and the corresponding number of AGS trees is 80. Although this forest type is not a healthy one, there is enough sawtimber for a viable thinning option.

**<u>Treatment:</u>** Improvement thinning.

#### Stand 11: S1A 1,000 acres

The current BA is only 28 ft²/ac. This forest type is not overstocked when analyzed in the trees 1" DBH and larger. But there is a very well established and dense seedling class in the <= 1" DBH stems. There are about 1568 trees per acre. This forest type can continue to grow until the average stem size can support a commercial thinning – some 15 to 20 years hence. There are also some specific stands or portions of stands that would benefit from PCT activities; the question is the economic viability of those procedures.

Treatment: No treatment within ten years.

# Stand 12: S2A 3,660 acres

Overall, there are 2614 tees per acres for this forest type and trees <=4" is 2445. The growing stock is 1.38 cds/ac (from 4" to 10"). The number of AGS trees is 1070 (987 <5"). Commercial thinning is not feasible for the following ten years due to the limited total timber volume, but as this strata develops it will likely be very suitable for early thinnings with cut-to-length harvesting equipment.

Treatment: Overstory removal (w/ mechanical thinning) in the second 5 years, to release the understory.

# Stand 13: SH34A/SH2B 1,223 acres

The overall BA is 158.8 ft²/ac with 125.7 ft²/ac >=5". The number of trees <=4" is 819. The growing stock is 2.8 cds/ac. The acceptable BA is  $66.3 \text{ ft}^2/\text{ac}$  (>=5") and the number of AGS trees is 210 (>=5"). The growing stock is 2.8 cds/ac. Comparatively, this is a good forest type with reasonable stocking. Model simulation indicates that overstory removal can achieve the highest IRR. But the difference between improvement thinning and overstory removal is small.

<u>Treatment:</u> As the objective of this plan is to grow large, high quality sawtimber, we overrode the simulation recommendation and will use improvement thinning.

# Stand 14: SH3C/SH2B 1,009 acres

BA=60 ft²/ac (>=5'). The total number of trees is 1196 per acre (986 trees <=4'). The acceptable BA and AGS trees (>=5') are 32 ft²/ac and 108/acre respectively. It is infeasible to do improvement thinning for the following ten years. The overstory is a thinly stocked residual, but there is a very viable and generally well established advanced regeneration and sapling class developed on site.

<u>Treatment:</u> Overstory removal designed to capture at risk value and release a very viable understory.

# Stand 15: HS2A 852 acres

This forest type was likely treated in the past 10 or 20 years. The current number of trees <=4" is 913 (721 are AGS), which accounts for 79% of the total number of trees in these sub-merchantable classes. Improvement thinning is infeasible and IRR from overstory removal is less than no treatment. Therefore time is required for a manageable stand to develop at some point outside of the planning cycle of this management plan.

Treatment: No treatment.

# Stand 16: SH34B/SH2B 5,837 acres

BA=111 ft²/ac (>=5"). The diameter distribution is a typical reverse "J" shape. The number of trees <=4" is 698 of the total 1025. The acceptable BA and trees >=5" are 55.1 ft²/ac and 177 respectively. The number of AGS trees <5" is 184. Improvement thinning and overstory removal can achieve similar IRR. Treatment: In order to grow large sawtimber, we chose improvement thinning rather than overstory removal. This approach serves the goals of ETC and an objective of the CE over the long term.

## Stand 17: SH34C/S2B 1,095 acres

The total number of trees is 1349 (1141 trees are less than or equal to 4"). The current BA (>=5") is 65 ft²/ac. The acceptable BA is only 16 ft²/ac. The overall number of AGS trees is 319. Due to the limited timber volume, it is infeasible to do improvement thinning for the following 10 years. The IRR from overstory removal is much higher than that from no treatment (8.55% vs. 6.44%). Treatment: Overstory removal to harvest most of the large trees and release the understory.

#### SILVICULTURE - GENERAL

These forests have the capability to grow all of the commercially viable species found in this Northeast Highland ecotype, both in even-aged and uneven-aged systems. However, as is often the case with industrial timberland in the northeast, most of ETC's current stand structure and composition are incapable of economically supporting true uneven-aged management practices. There is neither the age and size class distribution present, nor a sufficient level of acceptable growing stock available to provide for a suitable overstory that can sustain the light and frequent harvests required in an uneven-aged system. Secondly, the structure does not contain three distinct and viable age classes on most acres. There are often two age classes present, but in many of those stands, the older overstory is in decline or comprised of an insufficient stocking of AGS to allow for it to be carried forward while a third age class is developed. To address these issues, this plan calls for a harvest level of between 30, 000 and 40,000 cords covering about 3,500 acres per year, over the 10 year period.

The forest management activities recommended here are designed to achieve the owner's financial objectives within the constraints of the terms of the Conservation Easement, FSC certification, the Vermont Use Value Appraisal Program and State timber harvesting regulations.

Activities to enhance the forest's function as wildlife habitat and as a biologically diverse resource are built into the silvicultural actions outlined in the plan. As an adjunct to these non-consumptive uses, forest management actions will achieve a competitive rate of return on invested capital by building long-term value and generating periodic cash flows. Timber sale revenues provide cash for reinvestment in the property, and cover costs of management, such as road maintenance, taxes and insurance. Short-term income will be balanced with the cost of very high quality forest management work. Harvesting contractors will be properly compensated to achieve the goals of ownership.

At present there is a substantial resource available for harvest. With this land capable of producing 0.515 gross cords per acre, (based on fall 2006 growth modeling) this ownership can sustain an allowable harvest of +/- 40,000 cord equivalents/year. While many acres should simply be left to grow, there are many acres in need of pro-active management. These areas in need tend to be the hardwood stand types where excessive harvest levels and high grading has resulted in stands that are stocked with poor levels of AGS and are often found with a declining overstory over a more vigorous and potentially valuable second age class in the understory.

Ideally, harvest levels at the beginning of the management period would be between 30,000 and 40,000 cords annually. This harvest level is needed to capture the declining volume and value in the prioritized types. It is likely, however, that a two or three year ramp-up will be required. It will be necessary to expand forestry and harvesting capacity, and ETC will only do so at a rate that maintains the highest quality standards.

At the end of the 10 year management period, as the priority types and stands are stabilized, harvest levels will decline to equal or less than growth. The ownership will then enter a period where regenerated and released understory stands will require a period of growth. Eventually, fully stocked stands will be more commonplace and management will move into a more typical pattern of thinnings and regeneration. It will be at this time that issues regarding age class distribution can be addressed.

#### HARVEST STRATEGIES

# General Age Class Silvicultural Strategies

Regeneration techniques will utilize both even-aged and uneven-aged management systems. Although the use of true selection systems will be extremely limited due to the lack of uneven-aged stand structure at this time. Even-aged management or some variation of multi-aged management will dominate the Essex Timber's silviculture. True uneven-aged management will be used less often since the existing timber resource is largely even-aged, or at best two-aged. Conversion of even-aged to true uneven-aged management can be difficult and impractical. A more appropriate variation of the uneven-aged system is the use of patch cuttings and group selections that result in a mosaic of different age classes across the landscape.

# Partial cuts, justification

Where the current overstory has a sufficient level of AGS and is stocked at levels justifying or requiring thinnings partial cut practices will be implemented. These are comprised of both intermediate thinnings in immature stands and regeneration techniques in mature stands. Most thinnings in this forest will be release of selected crop trees via crown thinning – often in clusters (or thinning from the outside). The objective in those thinnings is to maximize stand value growth by selecting trees most capable of rapid accretion of value and thinning around those trees. The justification for thinning is these silvicultural activities will add to the internal rate of return on invested capital, as well as meet the goals of the owner and the CE to develop stands of broader size and age diversity.

Where stand quality and health allow regeneration treatments will also be implemented with partial cutting. ETC inherited a number of stands which have already undergone what have often mimicked the first of either two or three stage Shelterwood cuts, and the intent is to finish the job. More often, our regeneration methodology will be regular or irregular patch cuts. This is done because the objective will be to regenerate species that require both exposure of mineral soil and abundant sunlight — Yellow birch in SH and HS types and Spruce-fir in S and SH types are prime examples. While the regeneration of Yellow birch on the short-term may be in conflict with the stated goal to enhance the stocking levels of Sugar maple it represents the short-term reality of using management techniques that suit the current condition of the resource. As time passes and more fully stocked stands, even of Yellow birch develop, the opportunities to enhance the establishment and growth of the more shade tolerant Sugar maple will occur and be reflected in the modification of silvicultural practices implemented down the road.

# Canopy removal, justification

#### a. Regeneration

Regeneration harvests will be used under two primary conditions. Condition one is where there is adequate advanced regeneration that is ready for release and overtopped by poor quality overstory, the goal will be to remove the overstory and release the advanced regeneration. Condition two is where stands have not adequately regenerated and the overstory is not growing at satisfactory rates, is in decline, or stocked with an unsuitable level of AGS. The goal in these conditions will be to complete a seed tree, Overstory removal, Shelterwood, or Silvicultural Clear-cut regeneration harvest strategy.

#### b. Rehabilitation

Generally these harvests will be targeted at stands that have been high graded with a residual of suppressed and poor quality stems. The goal will be to remove the poor quality overstory and create conditions to regenerate and or release an existing and higher quality understory. This form of regeneration (release) harvest will be very common on the lands of ETC in that there are many acres of

poorly stocked and high-graded overstories that are currently not contributing to the growth of the forest either in quality or quantity, yet there are previously established understories of very viable sapling and very small poletimber. These treatments are less of a true regeneration action then the implementation of the removal of a declining overstory that is competing in such a manner that a very viable established understory would be well served by the release or stand rehabilitation.

# c. Salvage/Sanitation

In case of natural events causing significant damage to the crowns of trees, or other damage causes from insects or disease, salvage operations will be utilized to remove affected trees that have little or no chance to survive. Sanitation harvests will be completed to stop or reduce spread of insects or disease where appropriate. A further use of salvage operations will be the capture of declining overstories or recent mortality brought about as a result of past poor quality forest operations.

The preferred harvest equipment for ETC timber harvests is mechanical operations using feller bunchers that have the ability to "reach" into areas and pre-bunch hitches in identified skid trails. Grapple skidders can then be utilized to forward the hitches of trees to the landing. In this manner, skidders can refrain from operating in areas other than the primary and secondary skid trails.

With the advent of other technological advances such as Cut-To-Length fellers in conjunction with Forwarders, even more careful operational activities can be implemented with reduced damage to the soil and residual stands. This equipment, if deployed properly, can extend harvesting season without damaging the site. This will allow for a better economic profile for the contractor force and provide a more even product flow for local mills.

Conventional harvesting (use of chain saw operators and cable skidders) will also be utilized. This equipment is often the most suitable and safe for the most difficult and rough terrain. Operators "pulling" cable in sensitive areas where skidders and other equipment should not operate can mitigate ground disturbance issues. On steep slopes or where uphill skids are required due to the lack of suitable road access, cable crews are often the most cost effective and environmentally efficient equipment. Where small operational units are selected, the use of small cable skidders on small landings may be the most economical choice.

# Overview of Recommended Silvicultural Systems

This Forest Management Plan demonstrates that the management of timberland should be driven by the implementation of the most cost effective and environmentally appropriate silviculture. What this means in practice is that from the inventory, to the modeling, to the strata based management goals it is imperative that the managers of a landscape scale resource have many options available to provide for a dynamic and sustainable forest management program. The development of these recommendations was made with the full understanding that there are three oversight components to the planning and implementation process: 1) The Conservation Easement, 2) Use Value Appraisal Requirements, and 3) FSC standards. Having recognized that these three levels of oversight provide for the potential removal of some options, the plan's diverse recommendations meet both the spirit and terms of all three levels of oversight. The plan consistently returns to the goals of the easement and the owner, to manage the forest resources of ETC as an ecologically and economically sustainable working forest.

What follows is a presentation of a broad range of silvicultural options that form the menu from which this plan draws its recommendations for each of the 17 strata selected from the original 29 forest types inventoried on ETC. It is important to consider that for each strata there may be several options to achieve the desired overall planning goals for that strata.

# **Regeneration Options:**

Group Selection or Small Group Cuts: (uneven-aged, UVA code 8) The culture of multi-aged stands comprised of small even-aged pockets is an effective means of managing many of the stand-types found on the ETC ownership. To properly utilize this method the groups will be in a string of small openings connected by skid trails resulting in what is commonly referred to as a chain of pearls.

# The goals of this treatment option are:

- to limit impact on the residual stand
- maintain a more irregular stand structure
- establish regeneration in the openings
- Allow for the targeted removal of UGS and the retention of AGS clusters

# Implemented Silviculture will:

- remove no more than 1/3 of the basal area from the entire stand in any one entry
- avoid fixed strip layouts so the most mature or at risk timber can be selected and the best growing stock avoided.
- · utilize the most appropriate mechanical or traditional cutting methods
- Group sizing will be driven by the stocking level and size of the advanced regeneration present and will vary from as few as 4 or 5 stems to as large as 2 acres.
- The size and structure of these groups and patches will be determined prior to harvest.

Combined Group and Individual Tree Treatments: (uneven-aged, UVA code 8) For an option where there is a suitable level of currently available growing stock, yet selected stands require improvement thinning or the first levels of regeneration work a combination of small groups and the selection of individual trees will be a very effective means of managing these types. These treatments are only suitable where the current overstory is of acceptable quality and vigor to be considered suitable for carrying forward for at least one or two thinning intervals or cutting cycles. The stands typically to be treated with this regime will have not been recently harvested by Champion, often on better sites, and with over 50% AGS in co-dominant and dominant stems.

#### The goals of this treatment option are:

- improve and/or retain AGS whenever possible
- · limit removals to effect improvement thinnings or partial regeneration entries
- · retain sawtimber and poletimber crop trees and overall stand value
- · capture at risk value, even in relatively small volumes as an adjunct to the stand improvement

#### Implemented Silviculture will:

- treat stands with small group cuts on a hitch or multiple hitch sized openings (+/-6-25 trees).
- remove individual high value or volume stems adjacent to those openings that are deemed appropriate for removal,
- · release growing stock,
- · reduce residual stand damage
- create multi-aged stands that build stand value while meeting aesthetic concerns
- cluster thinning is often applied to this regime.

Individual Tree Selection: (uneven-aged, UVA code 7) In this instance we are recommending true uneven-aged practices, but guided by the principle that soils and other factors on the lands of ETC favor group removals and retention of groups to minimize windthrow and logging damage. There will be hardwood sites that once stocked with acceptable levels of AGS that will be capable of true single tree selection, but the current forest on the whole has very few acres that meet the silvical characteristics to support and prosper under uneven-aged treatments of this sort.

**Strip and Patch Cuts:** (even-aged, UVA code 6) In very uniform stands in need of regeneration or in areas where salvage is the objective the use of large patch cuts or uniform strips will be the option of choice. With many of these sites being readily regenerated to softwood and often having strong Spruce-fir understories, or poor quality hardwood stands without adequate available regeneration, the removal of the overstory utilizing larger openings would be appropriate.

The goals of this treatment option are:

- · capture of declining overstory value
- release of suitable advanced regeneration
- · use in more uniform stand types where a more mechanical layout will work efficiently
- provide true silvicultural clear cut options where appropriate to provide enhanced regeneration conditions

# Implemented Silviculture will:

- utilize mechanical harvest methods
- cuts will not exceed 15-25 acres with appropriate residual retention buffers except for salvage harvests are allowed, with notification and justification by the CE.
- where the presence of acceptable levels of advanced regeneration is present and is documented openings may exceed the 25 acre limit
- Openings can exceed 25 acres when utilized for future salvage opportunities as allowed by the CE.

Patch or Group Regeneration Cuts: (even-aged, UVA code 5) These cuts will vary from Release cuts in that there will not be adequate advanced regeneration or a suitable understory present for release. Pre-harvest inspections and inventory will be required to ascertain whether these entries are of a release or regeneration establishment nature. Obviously due to UVA and CE requirements those individual stands where established regeneration is lacking will require smaller openings and retained residual buffers to divide the patches into separate 25 acre blocks.

The goals of this treatment option are:

- regeneration establishment through the removal of unacceptable and/or maturing overstories,
- · create openings and disturb the site to favor the development of a new seedling class

#### Implemented Silviculture will:

- remove 25 to 50 percent of the basal area in clearly defined, though not necessarily regular shaped patches
- use the option of broader harvest levels where overstory conditions dictate.
- seed tree entries would also fall into this category, especially where Yellow birch is available and a desirable regeneration species due to present site conditions.

Light Two-stage Shelterwoods: (even-aged, UVA code 3) As the retention of suitable overstories is an overreaching goal of ETC and the CE as one moves this forest forward to a more

sustainable and productive structure lighter partial entries both in regeneration avenues and thinning entries will be favored. Where there is a poor overstory, or one with a limited sawtimber component that can be carried for 10 to 15 years the initiation of two stage Shelterwoods will be an effective means of regeneration. The justification for two stage versus three is that these sites are often too shallow or favor softwood sufficiently that attempting three cuts on a short cycle would be ineffective due to site limitations and potential losses to blow-down. In other instances regeneration treatments may have earlier mimicked the first stage of a three-stage Shelterwood and the current owner is simply implementing cuts two and three. These stands simply are often found as post Champion thinnings that were too aggressive and have left a poorer quality overstory with insufficient basal area and volume to enter the stands in a three cut cycle. In essence the CIC entry was the first, but unplanned stage of a three stage Shelterwood.

# The goals of this treatment option are:

- provide for partial removals in a regeneration scenario
- release advanced regeneration established from previous entries that have mimicked 1<sup>st</sup> and/or 2<sup>nd</sup> stages of Shelterwood systems.
- retention of short term value, the majority of the sawtimber stems of suitable vigor that can be carried forward 5-15 years
- · capture through partial entries limited volumes of declining and at risk stems

# Implemented Silviculture will:

- utilize classic Shelterwood strategies and techniques
- be generally implemented with mechanical harvesting techniques
- retain +/- 40 to 70 ft²/acre depending on the initial basal stocking level
- will often favor Yellow birch and Spruce due to the site and soil conditions found in the stands where 2 stage entries will be the selected practice

#### Release Cuts:

Overstory Removal: (even-aged, UVA code 4) This silvicultural option will be quite common on the lands of ETC as many acres are found with two-aged stands where the older and partially overtopping age class is often in poor condition and in many instances losing volume and value to decline and subsequent mortality. Further, these older age classes are often completely lacking in a suitable level of AGS to warrant carrying them for a longer period in the rotation for the strata.

These release cuts will utilize either partial or complete Overstory Removal harvests utilizing:

- 1. smaller patch or group cut/selection techniques,
- 2. true complete OSR treatments that will remove overtopping canopies from advanced seedling, sapling or poletimber understories,
- larger partial patch cut removals, but not complete OSR's, that will target openings that do not
  exceed the 25 acre CE limit where regeneration is targeted for enhancement, or the irregular
  nature of stocking demands the retention of suitable pockets of younger and more vigorous
  overstory components.
- 4. large overstory removals in areas where regeneration is well established, while retaining adequate retention for wildlife habitat and sensitive areas including seeps and stream buffers.

#### The goals of this treatment option are:

- · capture at risk or declining overstories
- release from overtopping competition advanced commercial regeneration, saplings or poletimber
- increase the percentage of AGS present on any treated acre

Implemented Silviculture will:

- retain AGS growing stock whenever possible
- target canopies where there is insufficient stocking in basal area or AGS to sustain the stand moving forward
- remove overtopping unacceptable growing stock and financially mature stems to release existing advanced seedlings and saplings.
- cuts will vary from under one acre to 25 acres in size, but in some regenerated stands could exceed the 25-acre limit and treat much larger acreages.
- Most often utilize mechanical harvest methods to successfully implement these treatments

#### Intermediate Treatment Options:

Overall the analysis of the timberland of ETC finds that there are opportunities later in the cycle of this plan to prioritize entries of an intermediate nature. While the plan clearly demonstrates that the initial 5-year period of the plan stands to be targeted for action will be comprised almost exclusively for regeneration treatments of all kinds. The forest resource of ETC was aggressively harvested for a 10 year period from 1984 to 1995 leaving many heavily cut stands that are ready for regeneration efforts to be initiated or completed. Simultaneously, the opportunities for intermediate entries are very limited. There are two major considerations for this and they both have ecological as well as economic considerations. The ecological is that ETC and the easement have the objective to develop a more valuable forest that is structured to produce larger diameter sawtimber quality trees. Secondly, the desire to have this forest perform in a sound economic fashion dictates that the required cash flow be generated where harvests and thinnings not only address short-term cash flow targets, but have the most impact on the overall IRR of the investment. To accomplish that, regeneration harvests will target the stands where dollars are being lost on the short term to decline and mortality, and over the long term to increase growth rates on AGS quality stems. In those stands where we find suitable AGS stocking, the overall stocking rarely requires entry early in this planning cycle in that the best stands from a quality and growth standpoint are either young, in the 5-30 years age and 1-10 inch DBH classes, or if of an older age and larger size profile at less than full stocking and in a position to continue to grow rapidly.

Therefore while we are presenting a full range of intermediate treatments, their implementation will be, for the most part, found later in the planning cycle, or waiting for implementation once the younger stands reach a full stocking level 15-25 years out.

Improvement Thinnings: (even-aged, UVA code 2) In those stands in the strata where current stocking levels are represented by a sufficient basal area of acceptable growing stock and that are at or near the A-line on the appropriate stocking guide partial cuts in the form of improvement thinnings would be very appropriate.

The goals of this treatment option are:

- · release of targeted crop trees
- improvement of the percentage of AGS in the residual stand
- thinning to B-level stocking based on the appropriate silvicultural guide
- limited site disturbance and residual stand damage

#### Implemented Silviculture will:

- cluster thinnings would be the preferred on-the-ground methodology
- concentrate removals so as to limit the impact on the residual stand and soils.
- release of stems of crop tree quality of Sugar maple, Red maple, White Ash, Yellow and White birch in the hardwood and Spruce first, then Balsam fir in the softwood
- to retain as a goal in all the minor species such as Beech, Basswood, Black Cherry, Mountain ash, White pine and Northern White cedar to insure diversity and a healthy ecosystem.
- residual stand stocking recommendations are 75 to 110 square feet in the mixed wood components, 60 to 70 square feet in the hardwood areas, and 70 to 150 in the softwood types

Group and Small Patch Thinnings: (even-aged, UVA code 2) The use of these treatments in stands slated for even-aged treatments will be dictated by stand structure relating to the entries implemented by Champion and the dynamic stand structures related to these entries. Quite often the previous entries, especially in S and HS/SH strata served to create a mosaic on the ground of even-aged groups of various sizes in stands with generally two age classes present, but at times three. In those stands where for a variety of reasons the stand structure is either patchy due to age differences or due to a grouping of AGS adjacent to groups of UGS the use of relatively small even-aged group removals will be an option for thinning stands approaching the A-line. In other words one will not create stands initially with three or more distinct age classes, but instead be leaving a stand that either has two distinct age classes and after a second entry will be moving into the realm of a reasonable uneven-aged stand structure of soft or mixed wood.

# The goals of this treatment option are:

- light entries in stands more suitable for multi-aged stand development
- target stands that due to past entries are found well stocked, but with size and or age class diversity due to a patchy stand structure
- provide for combined thinnings for improvement entries, yet with the potential to either establish required regeneration or release where present existing regeneration.

#### Implemented Silviculture will:

- · target low quality stems that are impeding the growth of pockets of AGS
- create or favor the existence of irregular stand stocking by size and age class distribution
- retain +/- 2/3 of the stand area in relatively undisturbed pockets.

# Pre-commercial Options:

As there is a long way to adjust the structure of the ETC lands to achieve the owner's and the CE goals of a sustainably managed working forest there may be value in using pre-commercial treatments. Acreage with high levels of competing vegetation or excessive levels of moose browsing could benefit from the planting of softwoods, in particular spruces, as a time effective means for getting forest stands reestablished. In all instances these out of pocket investments must be weighed against the economic returns associated with the results. But there way be a means for carrying out these sustainability treatments in the future with the help of Federal or State cost share monies. At present there are few funds available, and more importantly these actions need to stand on their own if the property is to be profitable and sustainable. There are currently Federal tax deductions and credits that can help to offset tree planting and other pre-commercial treatments, but unless there are overall economic gains to be made by these activities they are presented as options, but not as scheduled treatments.

**Pre-commercial Thinnings (PCT) – (UVA code 1)** This practice has proven to be very effective in accelerating rapid, early growth in young softwood and mixed wood stands, but the economics of it is in doubt for non vertically integrated managers. Densities are reduced from highs of 10-15,000 stems per acre to optimal stocking of 900-1500 trees per acre.

The goals of this treatment option are:

- · reduce competition for released crop trees
- · alter species composition to favor spruce

# Implemented Silviculture will:

- · select crop trees based on a series of decisions
  - starting with species (Spruce is #1)
  - o crown position (Select a stem already expressing some dominance),
  - o stem quality (straight and free of defects),
  - o finally a spacing goal of +/- 10 feet by 10 feet.

The acreage regenerated by Champion from 1990-2000 presents an abundant source of potential precommercial thinning opportunities. The previous owner conducted a limited program during the early 1990's. Sites for these treatments must be carefully selected so that the investment is only made on higher quality softwood sites, those with better drainage, and in individual stands that contain a sufficient stocking of Red and/or Black Spruce so that the investment in PCT will not be browsed away either by moose or deer. PCT can drop 20-30% off the rotation length of softwood and bring on line the first commercial thinning much earlier in the rotation. Further, gains are made through the reduction of early stand stress and that often precludes or greatly delays the onset of a variety of pathogens that can rob softwood stands of significant volume and value at rotation age.

**Timber Stand Improvement (TSI) – (UVA code 1)** These treatments vary from PCT in that they are generally implemented in large sapling to small poletimber hardwood. These operations look to release +/- 100-200 potential crop trees per acre. The TSI contractor selects target crop trees in a similar fashion to PCT but instead of getting a 4 side release a minimum of two and ideally three side release is the goal. These TSI operations can and have been in the past tied to manual removal of firewood. It is possible that with the recent upsurge in firewood demand the opportunity for thinning firewood blocks may again come back into fashion and make these efforts economically feasible.

The goals of this treatment option are:

- reduce competition for released crop trees
- alter species composition to favor the most valuable crop tree species for the site, generally Hard maple and Yellow birch for hardwood sites and Spruce and White pine for softwood sites

#### Implemented Silviculture will:

- select crop trees based on a series of decisions
  - starting with species (Site specific)
  - o crown position (Select a stem already expressing some dominance),
  - o stem quality (straight and free of defects),
  - o finally a spacing goal of +/- diameter in inches (represented as feet) plus 10 feet as the average distance between selected crop trees
  - Try to maintain a net of +/- 100-200 crop trees, regardless of pure spacing goals so as to have sufficient crop trees moving forward.
  - Retain sufficient residual stocking to avoid epicormic branching in hardwood crop trees.

Herbicide Treatments- Due to Vermont Law it is not possible to use aerial applications of herbicides on the lands of Essex Timber, but the state and the CE allow herbicides to be utilized with ground application. Herbicides for a relatively low cost per acre can be a remarkably effective means for removing competing vegetation so that established regeneration can get a quick release and remain much more vigorous and healthy. In other areas the removal of hobblebush, raspberries, Beech brush and other deterrents to the establishment and growth of commercially viable stems can be cost effectively accomplished with herbicides. Due to the negative impacts on the structure and species composition of the understory on many acres by moose browsing there may be no alternative to herbicides to prepare sites to again establish and develop viable understories. Further consideration over time will be required as to the potential and very real development of invasive species epidemics. The control of invasives may also require the use of herbicides as the management of ETC moves forward. At present the role of invasives is a minor, but growing concern in the Northeast Kingdom region of Vermont. Elsewhere, especially in the region of the four southern counties there is widespread forest damage due to introduced species. In those areas herbicides have been found to be the only effective means of control and/or where possible elimination of these destructive plants.

**Planting-** Planting is clearly not a broad landscape solution, but in the proper locations (good sites) and if addressing a multitude of issues such as timber production in conjunction with wildlife habitat enhancement, Champion demonstrated in its last decade that the planting of spruces on upland mixed wood sites was an effective means of regenerating sites and offsetting regeneration concerns, the replacement of volume lost to buffers and reduced harvesting in riparian zones, and finally a means for simply getting acres back in production.

#### HARVEST PLANNING

# Harvest Scheduling

The Use Value Appraisal Program (UVA) guidelines and the Conservation Easement holder's planning process dictate that a timber harvest plan be developed. With thoughtful planning all strata and the stands comprising the strata will be planned in advanced on a broad level projecting out ten-years. But it is imperative on a tract of this size and diversity that the managers of ETC are provided sufficient flexibility on a unit-by-unit basis to achieve silvicultural, ecological and economic goals. The stands have been prioritized through modeling and in most instances there will be a priority treatment selected. It is important to consider that for each strata there may be several options to achieve the desired overall planning goals for that strata. In order to maintain operational efficiencies, targeted areas may include stands in a relatively healthy condition based on location and harvest timing. Under these circumstances, the appropriate silvicultural prescriptions will be used based on stand conditions.

For each year of the timber harvest plan, managers will evaluate the individual stands available for treatment through an established protocol for evaluating forest conditions on a stand-by-stand basis. The protocol involves a pre-harvest assessment or cruise that determines the specific nature and conditions of the stands in the unit. Then utilizing those treatments from the silvicultural menu for those strata to meet the goals of the modeling, a timber harvest plan (THP) will be developed on a stand specific basis. (See Appendix D) THP's include provisions for sensitive areas, wildlife habitat, and other non-timber considerations, and are accompanied by operational maps.

In addition to considering site specific ecological values through the THP process, ETC managers also consider landscape level ecological values by distributing harvests to influence age class distribution and species composition. Managers review a number of GIS databases maintained by managers and others (Appendix E) to see what natural influences occurred on the proposed harvest areas, and how harvest operations may influence the larger landscape. Things such as natural heritage sites, the distribution of representative late successional inclusions, wildlife habitat, the application of whole tree harvesting in relation to elevation and site productivity, harvesting practices by adjoining landowners, recreational impacts, and aesthetic impacts are among those things considered during the planning process.

Individual timber harvest plans and their associated documents are then presented to the easement holder for review for compliance with the CE and the approved Forest Management Plan. In instances where treatments vary greatly from the original prescription, both the easement holder and the County Forester must approve an amendment to satisfy the requirements of the CE and the UVA program. THP's are also utilized for regulatory purposes, such as Act 250 applications for harvests occurring above 2500 ft. in elevation.

## **Harvest Timing**

# 15-20 Year Harvest Cycle -

The management contemplated for the Essex forest is a blend of even and uneven-aged regeneration systems and intermediate treatments. Please note as addressed earlier the use of unevenaged practices is well into the future due to the age, vigor and quality of the composition of much of ETC. Management decisions at the stand level are based on stand conditions. Some stands will be completely regenerated at the time of harvest whereas a strong component of some form of improvement cutting is a firm recommendation of LandVest. For planning purposes, a 15-20 year harvest cycle will be used to schedule intermediate treatments; with 5-15 years typically utilized for multiple entry regeneration harvests

based on the type of regeneration treatment selected. Managers will maintain a flexible planning regimen that permits rapid response to changing conditions.

# Residual Stand Objectives

When even-aged or two-aged management (e.g. seed tree, regular or irregular Shelterwood), or deferment cuttings is employed, live trees and native vegetation are retained and opening sizes are created within the harvest unit in a proportion and configuration that is consistent with the characteristic natural disturbance regime in each community type, unless retention at a lower level is necessary for restoration or rehabilitation purposes. Even-aged silviculture is used only where harvest units can include riparian and streamside buffers and other special zones. In addition, desirable overstory and understory species may be retained outside of buffers or special zones while allowing for regeneration of shade-intolerant and intermediate species consistent with overall management principals. Where stands have been degraded, less retention can be used to improve both merchantable and non-merchantable attributes. Even-aged practices will dominate the management of ETC on the short-term due to the current age and quality structure of the forest resource. These treatments will be utilized to capture decline, establish more AGS, and move these stands to a more fully stocked condition whereby then uneven-aged practices can have more success in bringing positive changes to the forest resource of ETC.

When uneven age silvicultural techniques are used, (e.g., individual tree selection or group selection), canopy openings are less than 2.5 acres. If used properly, uneven age silviculture is employed to prevent high-grading and/or diameter limit cutting. The use of this system is predicated on the development of stands with sufficient AGS to manipulate moving forward so as to allow for the longer rotations and development of higher quality stands that is a goal of ETC and the conservation easement.

Species to regenerate are selected based on site capability and presence of advanced regeneration, after consideration of long-term timber/wildlife values and biological and economic risks.

In light of the desire to retain native species and islands of vegetation for the reoccupation of native species, both macro (trees) and micro (other vegetation) the following Figures outline some options available where clear-cutting and overstory removals are implemented.

The Following Four figures are illustrations of ways to maintain 20 BA retention in a clearcut. Figure 1: Scattered Retention

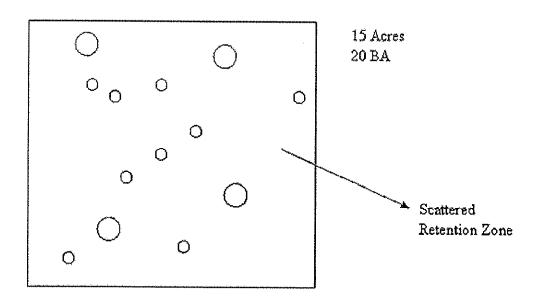


Figure 2: Corridors Retention

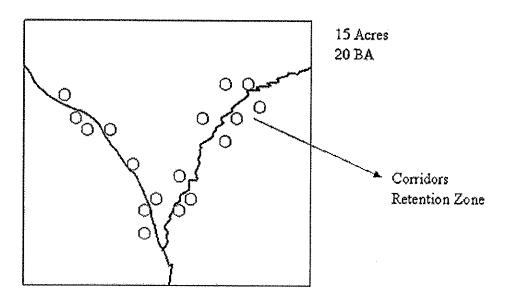


Figure 3: Clumped Retention

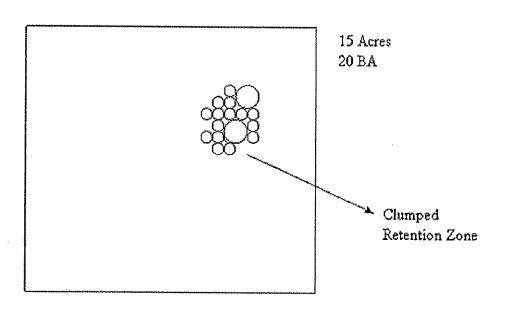
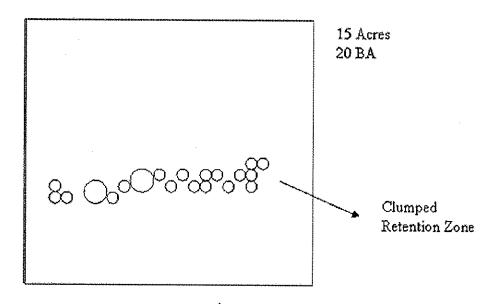


Figure 4: Clumped Retention



# **Coarse Woody Debris**

General Discussion and Background:

Generally, coarse woody debris (CWD) is defined as the portion of a tree that has fallen or been cut and left in the woods. More specifically, it is defined as a material greater than 8-10 cm (4 inches) in diameter, "the larger dead and mostly down woody material which is in various stages of decomposition. It includes pieces >7.5 cm and overturned stumps <1.3 m with attached roots, or >1.3m without roots. It excludes self-supporting, dead and upright, rooted stumps.

The role of coarse woody debris can be divided into four inter-related categories:

Role in productivity of forest trees

The slow release of nitrogen back into the soil horizons from the decomposition of large woody debris improves the productivity of the forest at micro site level.

Role in providing habitat structure to maintain biological diversity.

Sites for nests, dens and borrows; habitat for microbial decomposers; energy source for complex food web; moist micro-sites for insects, worms and fungi; travel ways across streams, the forest floor and beneath snow; cover from temperature and predators.

Role in geomorphology of streams and slopes.

Upland sources of coarse woody debris contribute to soil stability; soil surface stability, prevention and erosion of storm surface runoff; and large woody debris loads in streams.

Role in long-term carbon storage.

Next to fossil fuel burning, the most critical factor in the increase of  $CO_2$  is the atmosphere is the reduction in carbon storage of our forests. Long-term carbon storage is affected by the removal of material from the forest only if, after removal, the carbon is released more quickly.

Depending on the moisture and temperature regimes of an ecosystem, CWD may:

- Add a significant amount of organic matter to the soil;
- Provide habitat for organisms:
- Retain moisture through dry periods, providing a refuge for ectomycorrhizal roots and associated soil organisms
- Provide a site for asymbiotic or associative nitrogen fixing bacteria
- Represent a capital pool of nutrients for the ecosystem
- Provide a site for regeneration; and
- Contribute to soils acidification.

# **ETC Inventory Findings:**

The inventory implemented on ETC involved 954 sample points. At each point two data sets were collected to facilitate a better understanding of dead, down and decaying coarse woody debris. The first data set is based on traditional point sampling processes where standing dead stubs of at least 4.5 feet in height (point at which DBH could be measured) fell into the prism point they were tallied with species and diameter. To set these aside from other live tallied trees the cruiser would label the tree a cull. This was designed not to generate volume, but to get an assessment of standing dead trees per acre (see Table next page). Note that some of these stems were complete trees that had recently died and others were literally tall stumps at just over 4.5 feet in height. Though no statistical correlation between the tally of dead stubs on ETC with other ownerships has been made, there is an observational correlation with the long-term history of high grading and the negative impact from the 1998 ice storm when analyzing the significant number of standing dead snags both tallied and observed on ETC.

# ESSEX TIMBER COMPANY STANDING DEAD STUBS/TREES SUMMARY OF FINDINGS

STAND	T/A W/ DEAD TREES	T/A W/O DEAD TREES	DEAD T/A NET TALLY	% DEAD OF TALLIED TREES
H1B	304.0	294.2	9.8	3.2%
H2B	1491,5	1475.2	16.3	1.1%
H3A	803.8	786.0	17.8	2.2%
H3B/H2B	1035.5	1018.5	17.0	1.6%
H3C/H1B	781.0	761.4	19.6	2.5%
H4C/HS2B	773.0	749.1	23.9	3.1%
HS2-3A	2222.4	2214.1	8.3	0.4%
HS2B	1067.9	1033.7	34.2	3.2%
HS3B	606.3	572.0	34.3	5.7%
HS3C/HS2C	516.5	485.2	31.3	6.1%
HS3-4A/HS2B	648.3	615.7	32.6	5.0%
S1A	1613.4	1568.2	45.2	2.8%
S2A	2651.5	2614.0	37.5	1.4%
SH34A/SH2B	1236.9	1183.0	53.9	4.4%
SH3B/SH2B	1269.4	1195.7	73.7	5.8%
SH3-4B/SH2B	1074.9	1025.7	49.2	4.6%
SH3-4C/S2B	1385.1	1348.6	36.5	2.6%

# AVG STANDING DEAD STUBS/ACRE/STRATA

31.8

3.3%

On average 3.3 percent of the stems found on ETC were dead. That in the experience of LandVest is a high percentage on an overall basis for a forest found in this region. Typically the snag and dead stub target levels as requested by wildlife biologists have been 2-3 per acre. The ETC forest is currently generating over 10 times that amount. In fact when combined with the following Coarse Woody Debris (CWD) tally shown in the table below the forest resource of ETC apparently is not lacking in the current level of Coarse Woody Debris and is well situated to maintain a flow of CWD from this high percentage of standing dead snags and stubs.

The second set of data results were collected under the following specifications for DOWNED COARSE WOODY DEBRIS: CWD is defined as any dead bole section that is lying completely on the ground, unsupported by any other free-standing tree, living or dead. CWD will be measured using the perpendicular distance sampling method described here. The diameter of all downed logs that are "in" will be measured perpendicular to plot center to the nearest inch class at the point where the log is perpendicular to plot center. Species and Maser decomposition class will also be recorded. "In" trees meet the following criteria:

- Log is perpendicular to a straight line extending from plot center (Appendix)
- Diameter at the log center is 4.6" or greater
- Log is within the limiting distance defined by its diameter (Appendix)

# ESSEX TIMBER COMPANY COARSE WOODY DEBRIS SUMMARY OF FINDINGS COARSE WOODY DEBRIS SAMPLING RESULTS

SPECIES	NUMBER OF STEMS
AMERICAN BEECH	16
BALSAM FIR	138
EASTERN HEMLOCK	5
SUGAR MAPLE	37
OTHER HARDWOOD	4
ASPEN	1
RED MA[PLE	40
RED SPRUCE	22
WHITE BIRCH	11
YELLOW BIRCH	84
TOTAL NUMBER OF CWD STEMS	358
AVERAGE CWD DIAMETER	9.2 INCHES
AVERAGE TALLIED CWD PER POINT	0.38

The Coarse Wood Debris Summary Table demonstrates that on average there was a measured CWD stem on nearly 40% of the 954 sample points. From an observational standpoint this is a high percentage, especially in a forest that was heavily harvested and often through whole tree systems where little of the merchantable stems were left behind from targeted removals. This data set, in conjunction with the standing dead stem data discussed above supports the modeling provided by LandVest that indicates and then recommends the need to provide a significant increase in the annual harvest to capture potential mortality and remove declining and slower growing overstories so that more vigorous and higher quality stands can be either released or established over the next ten years.

The importance of this data from a biological diversity standpoint is still subject to both further analysis and discussion. ETC and their managers are continuing with the analysis and understanding of CWD information gathered during the inventory including the size class distribution and the distribution by stand type on the landscape. The current trend in sustainable forest management is to provide a somewhat lower level of utilization to insure that the forest floor has sufficient CWD to support vertebrate and invertebrate populations that play an important roll in the food chain, nutrient cycling and overall richness and diversity that provides for a healthier and more robust ecosystem.

• Looking at the forest through the results of the inventory there is an ample level of CWD on the ground and a steady and available source of standing dead trees to source future CWD. As this is an important consideration in a biologically aware forest management program, ETC will insure through their planning process that CWD levels will remain sufficient and will react to changes in the research as to what are suitable levels of CWD and standing dead trees. As the forest management program becomes active and the recommendations of this plan are implemented, there will need to be a careful consideration of the maintenance of both target levels of CWD and

Dead Standing Snags and Stubs as the forest becomes healthier and is stocked with more AGS and higher vigor stands.

Comparing the inventory from 1999 and the current inventory it would be expected to see a substantial increase in stocking. Even in unmanaged forests in this region over an eight-year period a net growth, especially considering the very low volumes harvested by ETC, would be expected to have exceeded 2.8 cords/acre in total. The new inventory demonstrates that this has not occurred and the evidence provided by the dead tree and CWD tallies supports that position. In many instances trees that were alive to be tallied in 1999 have died and now are either providing CWD on the ground or snags in the overstory. While this certainly assists in the development and maintenance of a biological diverse forest it more than likely is evidence of a forest in decline and in need of what is recommended in this plan; a restructuring of the forest to provide for a younger and more vigorous average stand across the ownership. This will then provide the quality, the growth, and the vigor to achieve the long-term goals of the easement for a more sustainable and valuable future forest.

# Wildlife and Legacy Trees

Harvesting will balance the economic and ecological consideration with regards to wildlife and unique features such as legacy trees. Since harvesting impacts not only the trees, but wildlife communities too, it is important to retain opportunities for these wildlife communities to benefit from our actions. This will include retaining snag trees, creating vertical structure within the canopy and retaining coarse woody debris. ETC is home to numerous herbaceous plant communities and both game and nongame species. There is also an overabundance of moose on the property that has become a factor in management

Den and snag trees are maintained where possible during active operations. Oversized trees, trees with visible cavities, and large trees with forks in them are all good candidates for Legacy trees. Efforts will be made not only to leave these trees but to buffer them as well.

#### HARVESTING PROTOCOLS

#### **Haul Roads**

ETC has good access throughout the ownership via the existing network of town roads, private roads and trails. New haul roads may be constructed in compliance with Section III (12) of the Conservation Easement.

Existing haul roads will be used and upgraded to meet BMPs. The Best Management Practices to be considered are those developed as the baseline for regulatory compliance in Vermont, the AMP or Acceptable Management Practices published by Vermont's Department of Forests, Parks and Recreation. In addition there are many regional BMP publications and guidelines, including those for compliance with FSC Northeast Regional Standards that will be considered and complied with in the management of ETC. New haul roads shall follow the contour as much as possible with grades between 2% and 10%. Grades exceeding 15% are permissible for runs not more than 200 feet between grade breaks.

Proper drainage structures including broad based dips, rolling dips and culverts will be used to minimize water movement on the road surface. Cuts and fills will be minimized as much as possible and haul roads kept to minimum essential width to reduce exposed road surface. Some property of the road surface. Any haul roads was a perennial or

intermittent streams will utilize properly designed and installed structures that may include bridges, temporary bridges, or properly sized culverts.

#### Skid Trails

With ETC's long history of timber management, skid trails traverse most areas. In most cases, these trails have been well cared for during and after use, i.e., they have been buttoned up properly, and will work adequately for the next harvest entry.

When at all possible, dispersed overland skidding shall be used. Furthermore, existing skid trails shall be used when they meet current specifications. Skid trail gradients should not generally be greater than 15%. Steeper slopes may be required to avoid boundaries, sensitive areas, or other areas that would otherwise be unreachable. Trails greater than 15% must be kept to a minimum and receive more frequent maintenance during active operations. Any trail leading to a natural drainage must utilize a suitable culvert or bridge.

#### Landing/Log Decks

All landing and log deck locations must be approved by the property manager prior to their construction and use. They must be at least 50 feet away from any SMZ. They should have a slight slope (2% to 5%) to allow for drainage. All decks and landings will be re-graded after active use is finished. Revegetation will occur in instances where there are aesthetic or erosion concerns, or when wildlife plantings are desired. Otherwise decks and landings will be allowed to re-vegetate naturally

The cutting contracts and verbal instructions in the pre-harvest conference will ask the loggers to remove tops from the landing and to re-distribute slash piles into the harvest site. The burning of slash and stumps will be used only where it is ecologically justified (e.g., for pest control).

#### Streamside Management Zones

Section IV 2 of the Conservation Easement reads, in part.

Surface Water Buffer Zones.

The following restrictions shall apply to wetlands, streams, rivers and ponds depicted on the Conservation Plan, which plan depicts so-called "blue line streams" as identified on 7.5 minute United States Geologic Survey Quadrangle maps which include the Protected Property.

- a) There shall be no harvesting or other forest management activities conducted in wetlands or within 50' wetland buffers depicted on the Conservation Plan.
- b) There shall be no harvesting or other forest management activities conducted in those areas lying within 50' of each bank/shore of streams, rivers and ponds depicted on the Conservation Plan. Stream crossings are exempt from this restriction, but the number and width of such crossings shall be kept to a minimum and said crossings shall include the installation of all erosion control devices and employ all recommended practices described in the Vermont AMPS or another BMP standard of equal or greater level of protection.

In addition, Vermont has a number of rules and regulations that protect water resources and streamside management zones (SMZ's). These include both Federal and state laws. In general, they

are designed to maintain water quality, prevent soil erosion and protect riparian habitats. Specifically, the laws that protect SMZ's on ETC include:

- Erosion and Sedimentation Control Law
- Acceptable Management Practices
- Heavy Cutting Law, Act 15
- Use Value Appraisal for Forestland
- Act 250 requirements for harvesting over 2500 feet in elevation

Buffers in which activities are curtailed by regulation range from 0-75 feet. In most cases, some activity is allowed. The following definitions and descriptions will be used to guide forest managers in assessing buffer widths and prescribing activities near streams as well as wetlands and standing water

## <u>Definitions</u>

#### **Ephemeral Streams**

An ephemeral stream is defined as "a stream that flows only during and for short periods following precipitation and flows in low areas that may or may not have a well-defined channel." Some commonly used names for ephemeral streams include: storm water channel, drain, swale, gully, hollow, or saddle. Ephemeral streams do not require an SMZ and usually do not have a defined channel. However, it is strongly encouraged that skid trails, roads, site-prep, and other soil-disturbing activities be minimized in the ephemeral streams to avoid erosion and sedimentation of storm water runoff that will flow downstream into streams or water bodies.

#### Intermittent Streams

An intermittent stream is defined as "a stream that flows only during wet periods of the year (30% - 90% of the time) and flows in a continuous well-defined channel." During dry periods, especially in summer months, intermittent streams may go down to a trickle of water and make it appear dry, when in fact there is water flowing through the stream bottom or "substrate". This is usually caused by the seasonal changes of the local soil water table or during periods of long-term drought. The CE does not require a no harvest buffer on these streams.

# **Perennial Streams**

Perennial streams are streams "that flow throughout a majority of the year (greater than 90% of the time) and flow in a well-defined channel." However, perennial streams can still 'dry up', particularly during extended periods of drought. Therefore when classifying stream type, it is important to check appropriate map resources and seek assistance from a professional who has been trained in stream determination. Though not completely, these streams typically appear on the Conservation Plan, along with 1<sup>st</sup>, 2<sup>nd</sup>, and larger order streams.

Essex Timber Company recognizes that each stream has a unique combination of features that determines the appropriate buffer width, including location, slope, elevation, soils, vegetation, and other riparian values. ETC will use the following general guidelines for determining widths and practices within streamside management zones:

- The larger the water body (higher order of the stream), the larger the management zone.
- The more intense the harvesting activity outside the management zone the larger the management zone.

 The management zone will be large enough to include associated wetland areas, ecologically or visually sensitive areas, steep slopes, and areas with sensitive soils.

To properly provide operational layout that will insure compliance with the protection of both eased no harvest buffers, as well as operational buffers designed to comply with sustainable forestry practices not required as a term of the easement ETC will follow these procedures:

- The buffers will be identified during pre harvest assessments and harvest planning to insure that silvicultural prescriptions are appropriately modified to reflect prescription guidelines from the ETC plan and AMP or BMP standards. In general:
  - Ephemeral Streams will have minimal no harvest buffers except when unique associated features are present, but will be avoided by harvesting equipment.
  - Intermittent Streams will have an established harvest buffer ranging from 25 to 75 feet with prescribed treatments within the buffer. The actual width and treatments within the buffer will be dependent on the combination of previously discussed features that are present.
  - Perennial Streams not identified in the conservation easement will have an established harvest buffer ranging from 50 to 75 feet. Minimal harvesting will occur in the first 25 feet of these buffers, with the remaining area treatment dependent on the combination of previously discussed features that are present.
  - Blue Line and larger order streams will have a minimum of a 50-foot no harvest buffer to remain in compliance with the CE. These will be expanded to include associated wetlands and other important associated features when appropriate.
- Forestry staff will identify and locate on the ground with paint the edge of no harvest buffer areas so as to prevent entry by harvesting equipment.
- Crossings for all stream types shall be identified on the ground by forestry staff based on AMP or BMP guidelines in order to avoid erosion and sedimentation.

# **Management of Steep Lands**

Essex Timber Company and their land manager acknowledge the need for protections on steep slopes in order to maintain soil stability and control erosion. However much of the acreage owned by ETC is on slopes in excess of 15% gradient. Additionally, many stands have minor steep slope components that when combined with the presence of streams and other sensitive areas it is unavoidable to have skid trails with excessive slopes. For these reasons ETC has committed to the use of excavation equipment to stabilize skid trails on all harvesting operations, including installing permanent water bars and mitigating other soil disturbances that have occurred during harvesting (including filling in skidder ruts). With these considerations, the following is the general policy for operating on steep land and slopes.

- Every effort shall be made to minimize skid road construction on steep slopes.
- All skid roads will be constructed along the contour if at all possible.
- Skid road gradients should not be steeper than 15% with the exception that steeper segments may be required to avoid boundary lines, sensitive areas, rock breaks or other areas not accessible using skid roads of lesser grades. If steeper grades are

- necessary, practices will be used to prevent concentrated water flow during periods of rainfall events.
- Skid roads shall climb upslope on a slant or zigzag pattern to break grade whenever possible. In some instances this will require the use of excavation equipment to "cut in" a skid trail with an appropriate grade and adequate drainage.
- Upon completion of skidding, areas of steep slope shall have water bars installed.
   Water bars will be installed at the appropriate interval as recommended by the State of Vermont AMP manual.
- Skid roads over 50% slope for any distance shall be considered critical areas and will be water-barred, mulched and seeded after completion of use.
- Primary skid roads are to be constructed with a minimum of approximately 300 overland feet between roads wherever possible.
- Alternative logging systems, such as high-lead cable systems, will be considered if at all
  possible.

# General Marking and Harvest Layout Guidelines:

Guidelines for marking and timber sale layout of each stand will vary on a case-by-case basis and be provided for in the THP process. Managers will have a working knowledge of the parameters of the timber sale including silvicultural goals, operational considerations and special resource considerations in addition to experience with log grades, cull and defect indicators, and indicators of tree vigor and response to release. The following process will be employed in laying out most sale areas:

- Harvest boundaries will be delineated through natural features or more commonly
  two stripes of red paint to ensure that the treatment area is well defined. Any
  harvests in proximity to property lines will necessitate an updated marking of the
  property line.
- Streamside management zones as determined through the timber harvest planning process will be identified and marked in the field with two stripes of red paint. In cases where limited harvests will occur within the SMZ these trees will be designated using traditional selective marking techniques, and blue paint.
- Special protection areas for important resources such as vernal pools, seeps and other wetlands will be delineated, again with two stripes of red paint.
- Primary skid trail layout will be accomplished utilizing flagging. Though the general location of primary trails will be designated, operators are given some flexibility in making minor adjustments. All stream crossings will be determined during skid trail layout.
- When utilizing groups or patches or some variation of these, the perimeters of the groups or patches to be harvested will be designated using two stripes of blue paint.
   In these cases trees with paint are reserved from harvest.
- When utilizing groups or patches retention stems within selected groups will either be painted with a red "X" or "W", or reserved by prescription, depending upon the goals of the treatment.

For individual tree and small group harvesting prescriptions, which include thinning, crop tree release, and individual tree selection systems, the following guidelines will be utilized. These will also be pertinent when selecting retention stems for shelter wood and seed tree harvests.

- Size: Trees marked to be harvested shall include all size (DBH) classes identified in the THP. A general rule is to consider those trees of the size that will increase over the investment horizon from pulpwood to small sawtimber or from small sawtimber to large sawtimber.
- Species: All species in the stand can be considered for marking. Concentrate on those higher value species to leave as crop trees in the residual stand. Regardless of value, retaining stems of a variety of species and condition, including the retention of snag trees on each acre as wildlife trees will serve to achieve and develop further biological diversity on the ownership.
- Quality: Mark trees for removal that have visible defects such as cat faces, frost cracks, lightening strikes, damaged tops, and visible signs of rot. When possible, leave one or two defective stems per acre as wildlife trees. High quality stems have no visible or detectable defects and which have good prospective growth potential and should be identified as crop trees by the THP prescription. The goal of any prescription should almost never be the complete removal of UGS, unless the retained level of AGS achieves the appropriate residual basal area target. The retention of UGS should insure that thinnings will leave a residual stand with suitable B-Level stocking.
- Crown Density: Crop trees to be left in the residual stand should have a high live crown ratio in order to respond well to release from surrounding competition. Crop trees should have nice, well-shaped and undamaged crowns. Trees market for removal should have underdeveloped, damaged, or malformed crowns.
- Stand Position: Each crop tree must be well spaced from surrounding competition but not yet left open enough to be subject to epicormic branching, wind throw, ice damage or lightening strike.

#### Reports

The following is a list of reports related to management activities and issues as utilized by ETC and their manager. Copies of these reports can be found in Appendix E.

- Pre-Harvest Stand Assessment Form: Used to evaluate on a stand-by-stand basis the individual stands available for treatment within a given year. The evaluation includes cruise information as necessary to determine the specific nature and conditions of the stands in the unit.
- Timber Harvest Plan: These are developed on a stand specific basis to ensure that silvicultural treatments meet stand conditions and the goals of modeling. THP's include provisions for sensitive areas, wildlife habitat, stream buffers, and other non-timber considerations, and are accompanied by operational maps.
- Contract File Checklist: These are developed to ensure that all necessary planning documents
  have been completed, approved, signed, and delivered to all parties with status to the sale. The
  checklist ensures documentation of compliance with the conservation easement, State permitting
  and program requirements, and ETC planning, contract and insurance requirements. The checklist
  is attached to the cover of operational file folders.
- Negotiations, Layout & Pre-harvest Planning: These are utilized to document pre-entry walk through and communication with the contractor and discussions on operational procedures, silvicultural intent, sensitive area concerns, contractual and regulatory requirements and other information pertinent to the successful completion of the sale.

- Safety and First Aid Protocol: Posted at each job site with copies located at the manager's office, the safety and first aid protocol sheets are used to ensure emergency numbers are readily available to contractors in the field and that directions to the job site are readily available at the manager's office.
- Harvest Inspection Form: Utilized to ensure inspection by forest managers and contractors
  compliance with safety and operational procedures. All compliant and non-compliant actions are
  documented and acknowledged by both forest managers and the contract and a corrective action
  plan is included under comments if necessary. Once the corrective action has taken place a new
  harvest inspection form is completed to show compliance.
- Post Harvest Evaluation: These evaluations are used immediately following harvest to document
  the outcomes of individual treatments. These are in essence a follow up to determine if the goals
  of the Timber Harvest Plan were met, and if any operational improvements can be made for future
  treatments.
- Road Inspection Form: Developed early on in the tenure of ETC to gain an assessment of road conditions. These have largely been replaced by GIS mapping and database management implemented by forest managers in co-operation with the Vermont Department of Forests and Parks.
- Bridge Inspection Form: Developed early on in the tenure of ETC to gain an assessment of bridge conditions. These have been used in limited instances to document the deterioration of individual bridges and develop plans in co-operation with the Vermont Department of Forests and Parks for their repair.
- Camp Inspection Form: Also developed early on in the tenure of ETC to ensure leaseholder compliance with the ETC camp lease policy, and to document any issues relative to water quality, special area protections, and fire dangers.
- Incident Report: Since the Agency of Natural Resources has the primary enforcement authority for
  most prohibited public uses and compliance with the Recreational Access Easement, these forms
  are utilized to document encounters with unauthorized public access use of ETC lands. These
  forms are also used to record observations of chronic and repeated use violations such as ATV
  activities in certain "problem" areas. Forms are retained on file and forwarded to the appropriate
  State contact person.

# **PART IV - ONGOING OPERATING PRACTICES**

#### **MONITORING & TRACKING**

Essex Timber maintains a record of all products harvested from the Essex forest. Contract number, town, location, species and/or species group and products harvested are recorded and tracked by location and contractor.

The contract year runs from April through March of the following year.

At the time of delivery to a purchasing mill a delivery slip is created that records the sale. Generally within two weeks a sale summary and payment is received. The summary sheet itemizes the products purchased by landowner, species, grade, volume and price.

Essex Timber has a trip ticket system used to track loads shipped from each site. Information on the trip ticket includes:

Job Number
Date
Logging Contractor
Destination
Location
Loading Contractor
Trucker
Product
# logs # ties

The slips are returned from the mill with the corresponding sales summary. The manager cross references all tickets and maintains a record of lost or missing tickets. A financial penalty is assessed any trucker for failure to use a trip ticket or for a lost ticket.

Contracts with logging contractors and truckers are maintained on file, as are any contracts with mills where the timber has been sold.

Foresters maintain a pre-harvest and post-harvest assessment record of each harvest site. These forms are maintained on file and available for review.

Pre-harvest operational cruising is conducted in a sub-set of stands scheduled for harvest in the near term.

Essex will continue to maintain a detailed record of harvests and sales.

#### HARVEST CONTRACTING

The local logging capacity and infrastructure is very well developed, with many skilled, well trained logging contractors who can carry out harvesting operations. Operators range from a single skidder and hand felling technique to fully mechanized operations, giving managers the ability to match the operators and equipment to individual site and silvicultural requirements.

Essex Timber contracts logging and transportation services to conduct its harvests.

Essex Timber Company has made a commitment to using well-trained, professional contractors. At a minimum, all contractors have been enrolled in a Sustainable Forestry Initiative approved program, with most contractors and their crews having completed their certification requirements.

#### **MARKETS & UTILIZATION**

When discussing regional markets in northeastern Vermont, one has to consider the greater northeast region. Most markets are located in northern New Hampshire, Maine, New York, and the Province of Quebec. Many sawmills in Quebec are closer to the land base than those in neighboring states.

Regional markets for all species and grades of sawtimber remain strong. Certain species and grades of sawtimber have been holding steady or increasing in value for a couple of years. The spruce and fir sawtimber market is a bit soft, though demand and pricing remains higher than five years ago.

There are several concentration yards that have been consistent buyers of ETC's hardwood sawlogs.

Markets for low-grade material have declined, particularly following the bankruptcy of American Tissue Corporation, which caused the closure of their Berlin/Gorham, New Hampshire mill. Other paper producers in the northeast have decreased demands for pulpwood, depressing those markets. Alternative markets are also in flux, including wood to energy plants and firewood markets.

#### **ROADS & ACCESS**

There are approximately 159 miles of access roads on the property. These can be divided into gravel surface roads providing year round access and unimproved roads providing winter access. This system of access roads is largely in good shape with suitable drainage and stream crossings. Gravel sources for road maintenance have been well developed on the property. Stream crossings consist of a combination of large culverts, timber bridges, and steel bridges.

Roads, gates and bridges are periodically inspected for condition. Much of this is accomplished during the course of other forest management activities, and immediately following spring break up and major summer storm events. Problems are documented and necessary repairs and maintenance take place at the appropriate time.

ETC will continue to cooperate with the Agency of Natural Resources on road maintenance issues and projects subject to public access.

A maximum culvert size of 48" in diameter will be used for all new stream crossings. Temporary or permanent bridges will be used whenever stream flows exceed that capacity in order to minimize impacts on stream ecology.

Stream crossings will be upgraded and or maintained during the period of July 1<sup>st</sup> to September 30<sup>th</sup> in order to minimize stream disturbance and impacts to spawning Salmonids.

All roads are maintained in accordance with AMPs.

#### **PUBLIC ACCESS EASEMENT**

Much of the road system is open to the public under the provisions of the Public Access Easement. Public access is governed by a long-term access plan developed co-operatively with the Vermont Agency of Natural Resources. These roads are managed and maintained co-operatively with the St. Johnsbury office of the Department of Forests, Parks and Recreation. Public access is not required on certain roads and Essex has management and maintenance responsibility for those roads. A system of gates is utilized to limit access to designated areas and to enforce seasonal road closures.

Public access is governed by the Long Term Access Plan for the Private Timberlands Portion of the Former Champion Lands, (the "LTAP") as provided for by the Public Access Easement. A copy of the plan is available from the State of Vermont, Department of Forests, Parks and Recreation.

The purposes of the Access Easement include:

- (1) Providing perpetual public access to the Property for traditional recreational purposes as well as other uses, which may not be traditional but are compatible with the purposes of the easement?
- (2) Limiting adverse impacts on Landowner's use of the Property, especially forestry use.
- (3) Providing dispersed, public access for traditional recreational uses while confining motorized, mechanized and equestrian access to mapped "Recreation Corridors."
- (4) Linking those Corridors to adjacent public lands and trails.
- (5) Encouraging cooperation between Landowner and the Holders in implementing access.
- (6) Effectively managing public access through an access plan and identified access managers.
- (7) Fulfilling the purposes of the Conservation Easement.

Public access will be limited or restricted in areas of active harvesting as permitted by the Public Access Easement.

ETC will continue to work co-operatively with the Agency of Natural Resources to manage access consistent with the purposes of the Public Access Easement and the LTAP.

#### HISTORIC and CULTURAL HERITAGE SITES

In 2001, the University of Maine produced "PEOPLE, LAND AND HISTORY: The Cultural Landscape of the Nulhegan District". The report focused on the public portions of the former Champion lands, but listed four historic sites on Essex Timber Company property, all of which are known to

management. They are: the railroad turntable at Moccasin Mill; the POW camp in East Haven; a portion of the Magog Rd. in Brunswick; and the former railroad right of way, much of which is now the East Branch Rd. There are no known Native American sites located on Essex land.

One lease camp located in East Haven is known to have been a fire warden's camp. Two other features of some historical significance have been located on the property, an old wagon frame and an antique car.

Archeological, historical and cultural heritage features and sites will be incorporated into forest assessment and inventory forms, and will be located on a cultural heritage mapping layer.

Appropriate protection and conservation measures will be taken during timber harvesting operations. ETC follows the guidelines published in the Vermont Division for Historic Preservation's "PROTECTING CULTURAL RESOURCES DURING LOGGING, Recommended Practices for Protecting Vermont's Historic and Archeological Resources During Logging, rev. 1999.

#### LEASING PROGRAM

Sixty-one camps are present on the property. Each site is leased by ETC, and the lessee owns any structures and improvements. The Conservation Easement permits a maximum of three new camps, with certain restrictions. Essex Timber Company envisions keeping all leases active. Preservation of lease camps with historical importance will be encouraged.

Lessees are required to maintain their structures and leased areas in accordance with the terms of their lease. These terms include ensuring that the sites are clean, pose a minimal environmental impact, and pose no fire hazard.

Where appropriate Lessees will be permitted to mow and clear in order to maintain the aesthetic appearance of their premises and provide minimal benefits of forest openings.

Lessees will be allowed to cut poor quality wood for firewood as needed for their lease camp, with a three-cord per year limit. When possible, lessees will be encouraged to utilize logging debris on landings for this purpose.

#### **FOREST PESTS**

The major forest pests in the region are monitored by the Agency of Natural Resources through annual, statewide forest health sampling. Monitoring is performed through aerial and ground surveys, and much of the Essex Timber Company land is included in these surveys. Forest pests of immediate concern that are known to occur in Essex County include pine shoot beetle (Tomicus piniperda) and spruce budworm (Choristoneura femiferana). Species of major concern outside of Essex County include brown spruce longhorned beetle (Tetropium fuscum), and Asian longhorned beetle (Anoplophora glabripennis). No major forest pest outbreaks are currently occurring.

Managers will remain vigilant in the detection of forest pests while performing other forest management duties. Any detected species will be reported to the proper agency at the Department of Forests and Parks, and action will be taken under their supervision.

#### Herbicide Use -

Herbicide use for silvicultural purposes in the northeast is typically limited to site preparation and the control of weeds relative to planting, and the removal of hardwood competitors in stands targeted for spruce and fir production. Though the previous owner planned on using herbicides for these reasons, there is no record of actual use. Some stands on the property may benefit from the application of herbicides, particularly in areas where hardwoods are competing with spruce and fir. However, given Essex Timber Company's objective of working with natural forest processes in order to promote good ecosystem health and land productivity, no herbicide use is planned.

Under the terms of the easement, herbicide use for the control of pest or disease outbreaks or for the control of exotic species will occur only under the recommendation and supervision of the appropriate State of Vermont Agency, and in compliance with the Conservation Easement.

#### Invasive Species -

While there are hundreds of non-native, exotic plant species in the region, most naturalize and blend in with existing natural vegetation. The four invasive species of greatest concern at present are

Invasive honeysuckles (Lonicera tatarica, L. morrowi), Japanese knotweed (Polygonum cuspidatum), Great reed or Phragmites (Phragmites communis), and Purple loosestrife (Lythrum salicaria). As of the date of this plan, there are some known sites of Phragmites on the Essex Timber Company Lands. These locations are limited to small patches (a few stems) along ditches. No other species have been detected but are known to occur in the region, particularly along the Connecticut River and its tributaries. All are most common on disturbed sites such as ditches, with the common mode of transport through vehicles and construction equipment.

Though none of these species pose a threat to timber productivity, these species can overcome native vegetation in wetlands and other areas, leading to the loss of native flora, species diversity, and wildlife habitat.

Managers will remain vigilant in the detection of invasive species while performing other forest management duties particularly along roadways and other access points to the property. With the detection of Phragmites, managers will establish a control program in cooperation with the Vermont Agency of Natural Resources, and immediate and appropriate action will be taken to control the species.

In an effort to slow or prevent the spread of invasive species onto the Essex Timber Company property, construction equipment such as bulldozers and excavators will be washed before performing work on the property. None of the current known sites with Phragmites are in areas that equipment has been operated during ETC's tenure of ownership.

#### WILDLIFE HABITAT & SPECIAL TREATMENT AREAS

The sub-division of the former Champion Lands was designed to limit the number of significant natural communities on the private ownership, placing these sites to the greatest extent possible in public ownership. Other properties adjacent to the Essex Timber Company property are also conserved through easements and/or ownership.

During field reconnaissance and inventory work, highly sensitive areas such as steep slopes and high elevation sites should be considered as reserve candidates.

ETC will cross-reference and thoroughly evaluate all harvests proposed in special treatment areas for easement compliance.

The Essex Timber Company property is said to be "rich in a diverse array of game and non-game species." (*Conservation Easement*, page 2). Truly, the property contains a variety of habitat types and species, in large part due to its size. This plan focuses on two important elements of wildlife management:

- An overall timber management approach of creating a mosaic of stand types managed on long rotations for a diversity of age classes, both within stands and between stands, creating the diversity which optimizes wildlife habitat management for the greatest number of species.
- Focusing on the identification of unique habitat values and altering management activities to protect and enhance those values through practices such as retention of cavity and den trees, providing for coarse woody debris, buffering wetlands, seeps and vernal pools, managing softwood inclusions, and retaining mast-producing stems.

The timber management approached is discussed in earlier pages of this plan. The identification of unique habitat values is accomplished through ongoing monitoring of the property and stand reconnaissance. Managers have also developed a timber harvesting protocol that provides for the identification of special resources and integrates them into harvest layout and GIS data layers maintained by managers (Appendix). ETC will continue to co-operate with the Vermont Department of Fish and Wildlife in managing natural heritage sites, as well as critical wildlife habitat. Natural heritage information will remain current through maintaining a natural heritage mapping layer

Managers provide for wildlife considerations in timber harvesting, including reservation of mast producing stems, retention of snag and den trees (2 or 3 per acre), wetlands protection, and water quality buffers. Course woody debris recruitment is incorporated into retention of snag and den trees, and exceptional debris that exists is avoided during harvesting operations.

Though much discussion occurs with respect to the impacts of forest management on wildlife species, it should also be noted that wildlife species can have major impacts on the management of forest resources. White tailed deer impacts on forest regeneration have been well documented in the literature in areas with excessive populations, with much of the work occurring in Pennsylvania and southern New England States. Moose have similar impacts in northern New England. These lands likely have the highest concentrations of moose in the State of Vermont. It is clear that some areas have had heavy browse damage and ETC will continue to advocate for a reduction in moose populations to levels at or near the 1996 level (See Moose Management Plan for the State of Vermont 1998-2007, Agency of Natural Resources)

#### Moose Browse Data:

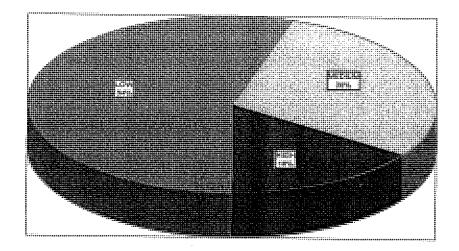
As noted above ETC has been very engaged in the discussions revolving around the reestablishment of a very active and viable moose population that is moving into its 4th decade in the Northeast Kingdom of Vermont. To that cause ETC committed in this updated inventory to gather data on moose habitat, browsing and the impact this activity is having on the forest's of this ownership and the region. ETC strongly believes that the large moose population is having a detrimental impact on the forest, especially in a manager's ability to properly and effectively nurture a viable and desirable regeneration class. Additionally ETC strongly believes these impacts are creating biological concerns such as affecting species composition and size class distribution across the ownership. ETC is also concerned that meeting the terms and conditions of the Heavy Cutting law and Use Value Appraisal Program, the compliance with the conservation easement, and the desire to maintain FSC certification may be jeopardized if the current levels of moose browse continue to occur. ETC will continue to cooperate with the Vermont Department of Fish & Wildlife to gain an understanding of where the population is, what its impact on the forest is, and finally work to support an effective means for limiting the impacts of the moose to a sustainable level. To that end ETC committed to the collection of the data presented in this plan and is also strongly supporting other efforts, such as the recently completed aerial infrared moose survey implemented by VT F&W.

To accomplish the collection of data that might bring some empirical data to the observations of the ETC management team as well as the reported observations of other managers and adjoiners was a crucial goal of the 2006 ETC inventory. To that end several levels of data were collected. The first group was observational and the second was empirical. Yet we believe that both observations as well as plot data combined provide an eye opening confirmation that these forests have a real problem with the current moose population levels. The following highlights the system utilized to gather this moose browse/damage data:

- On each point one of three observations were recorded.
  - Moose Browse Damage under the Insect & Disease data list
  - Winter Moose Yard under the Wildlife Habitat Categories
  - Moose Summer Habitat under the Wildlife Habitat Categories
- These observations were based on the cruisers ocular observations on and around point center.
  - o If there was evidence of moose browsing that was more than incidental, in other words leading to damage to living trees, or evidence that seedling, saplings or small poletimber mortality or loss of vigor was occurring then the Moose Browse Damage call was indicated for Insect and Disease Damage.
  - o If the area at or near the point sample was found to have evidence of winter yarding by moose then the Winter Moose Yard call was recorded for Wildlife Habitat. Typically these areas are found at higher elevation where the natural instinct for moose is to move high into deeper snow to avoid their one natural predator, the wolf. These areas are typically found with excessive browsing of species such as Balsam fir and Mountain ash. Heavy concentrations of moose dung are found in these areas.
  - The presence of ongoing and significant browse evidence in areas not deemed as winter use areas were tallied as Moose Summer Habitat. These areas had to have noticeable and protracted browse damage and a passing bit of moose feeding would never have achieved a tally. These areas could be very large in acreage; sometimes encompassing heavy browse levels across many acres.
  - The only conflict in the data collection for these observational calls if that a point could have a winter or summer call on the Wildlife side and a moose browse damage call on the Insect and Disease side as well. We can filter the data to avoid repetitions.
- To collect empirical data we utilized the same mil-acre regeneration plot that was employed for the tally of commercial and non-commercial regeneration levels. This process involved both an observational call and then a count to quantify the impacts of the browsing. The system was implemented as follows:
  - At each prism sample point a 1 mil-acre sample plot was established and then divided into 4 ¼ mil-acre quadrants. The quadrants were set starting at magnetic north and rotating NE, SE, SW, and NW with break points at the magnetic cardinal directions.
  - In each quadrant a visual observation was made to determine if there was evidence of moose browsing and if so at what level. These calls were made as none, low, medium and high.
  - If a quadrant was found to have L, M, or H moose browse observed then a tally of the seedlings and/or saplings was made. First the total number of stems in the quadrant that were not a component of the prism plot were counted, then from that sample the number of stems impacted by moose browsing was tallied.

These observations and tallies as presented in the following tables and charts provide for an interesting and enlightening set of data.

#### MOOSE BROWSE SEVERITY INDEX ESSEX TIMBER COMPANY 20061



The Chart Moose Browse Severity Index (MBSI) above indicates that of the samples collected at point center where moose browsing was in evidence, (954, or 25% of the 3816 ¼ mil acre plots in total) 46% were observed with either high or medium levels of damage based on the ETC developed MBSI. This as noted above was an ocular observation. While a 25% rate of observed browsing may seem insignificant in many instances there were no seedlings remaining to tally due to prolonged moose browsing leading to mortality and the complete loss of available seedlings for browsing.

Moose Browse Severity Index: The goal of the moose browse data collection was to develop a means for assessing in as unbiased and objective a means possible the impacts that nearly three decades of expanding moose populations have had on the forests of ETC. Observational, as well as studies and observations in other regions have demonstrated that prolonged and increasing levels of browsing are having a negative impact on the structure, vigor and stocking of the understory on ETC and other surrounding woodland ownerships. ETC and its inventory contractor LandVest, devised a multilayered approach to the collection of data indicating the level of moose damage on ETC lands. As noted above there were several means for collecting this data. The MBSI was created to allocate this data across a variety of data sets from point samples to elevation. The MBSI is comprised of this system:

In each quadrant of the mil-acre plot taken on all 954 sample points, two sets of data were potentially available for collection. The first was observational, the second a tally. In step one each quadrant was reviewed for the presence of browsing and scored none, low, medium or high. a quadrant was tallied as a L, M or H a tally of total understory stems (all stems not included n the 1 inch and up 10 factor basal area point sample) were tallied. To ascertain the damage level, a count of those stems showing evidence of browse was tallied. A percentage browsed for the point was developed. These two sets of data were then built into the MBSI in this manner.

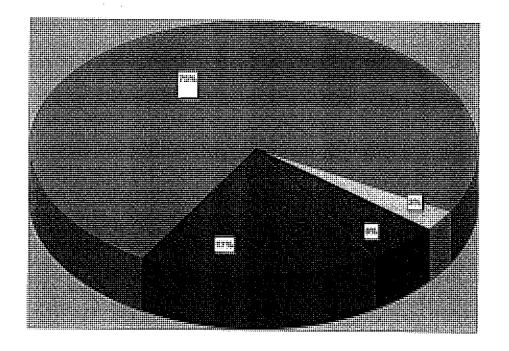
⊠ MED!UM ■ HIGH

Browse Observational	Level MBSI Score/Quadrant	Browse %for 4 Quadrant	s MBSI Score
None	0	0	0
Low	2	1-33%	2
Medium	4	34-65%	4
High	8	66% & up	8

The highest potential score would be 40 for a point sample. That would be for each quad being observed with a High level of browse (4 X 8= 32 total score), and the average for the 4 quadrants of stems impacted by browsing of 66% or more or a score of 8.

The goal of the MBSI was to create a data set that provided a reasonable and documented means for the development of an understanding of the impacts of moose browsing on the ETC landscape. This data is then presented both in chart and map formats in this plan and its appendixes.

#### PERCENT MIL-ACRE PLOTS BROWSED ESSEX TIMBER 2006



☑ 0% □ 1-33 % ■ 34-66% ■ 67-100%

This chart summarizes the percent of browsed seedlings in comparison to the total tallied on a ¼ mil-acre plot that was observed to have moose browsing. The practice was as follows: On the same 4 quadrant Regeneration Plot, we recorded information to document moose browsing levels. The methodology utilized is: 1) For each quad of the Mil-acre plot, record a yes or no for the evidence of moose browsing. 2) Next make an objective value judgment as to the level of browsing, light, medium, or heavy. Light damage would be evidence of browse, but no immediate danger to the loss of a viable regeneration class in the quad. Medium would be significant damage, but trees capable of recovery without further browsing occurring. Heavy damage is where the moose browsing activity has significantly altered the form and vigor of the available regeneration of any species and even with the removal of further browsing there is insufficient health and form to insure the regeneration will develop into a viable acceptable understory. 3) To get a numerical sense of the damage for each quad where there is indicated the presence of moose

browsing of any level, we count the total number of stems of regeneration of all tree species, commercial and non-commercial, then a tally of the number of those that have been impacted by moose browsing.

Therefore this chart shows that in the 25% of the plots that were observed to have browse damage was tallied as follows:

Heavy

649 quadrants

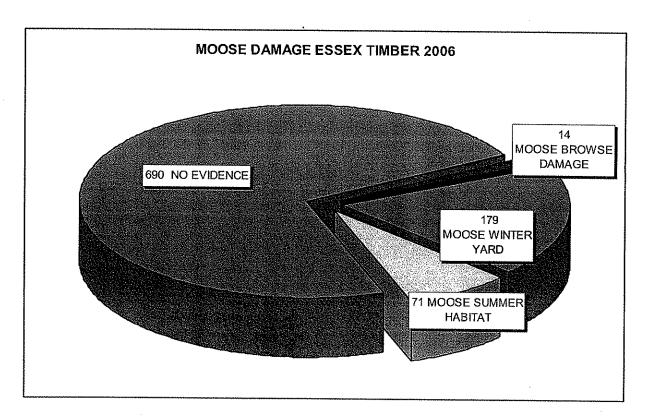
Medium

191

Light

114

While a 25% tally and then 32% of the browsed plots showing medium or light damage may appear to minimize the impacts of the moose damage on ETC, in fact this stratified inventory process demonstrated there is a broad range of damage across the ownership. A review of the mapping of the damage on an elevation basis, (see Average Severity Index by Elevation chart below) shows that moose are having a widespread impact on the resource. The browsing damage is now moving into its third decade on some acres. The regeneration class has been so damaged that there is no retained commercial regeneration available for browse. The tally methodologies would not work empirically in these areas, but are more significantly noted in general landscape observations as can be seen in the following chart.



This chart is based on visual evidence of moose browsing and damage in the area of a particular point sample. In this case damage was noted on nearly 28% of the point samples. When you look at a parcel of this size where the point samples were distributed to achieve an accurate stratified random sample, ETC would suggest that these observations along with the empirical mil-acre data demonstrates that while forest management can establish ample seedlings of commercial species it is becoming near impossible on many acres to establish a viable understory that will likely grow and develop into a new forest

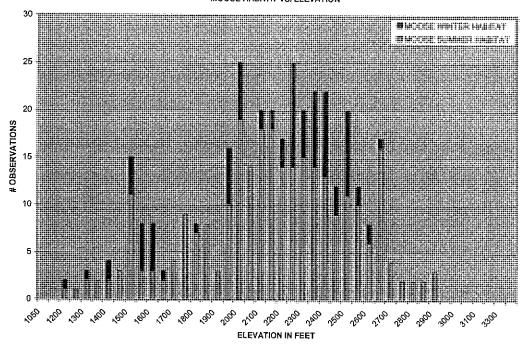
overstory. As we have recently learned through decades long research carried out by the USDA Forest Service and Yale University School of Forestry it may take up to 35 years for stands to reinitiate from dramatic site disturbance.

### Moose Browse Tally Summary of Findings:

- With a total of 25% of the 954 mil-acre plots established demonstrating some level of moose browse damage this data clearly demonstrates that manager's observations of a strong correlation to moose damage on ETC is in fact a reality.
- Out of the 25% of the points tallied with some level of moose browsing 68% of the plots had over 67% of the tallied stems in the plots browsed. In other words 2/3rds of the stems in a plot were found to have moose browse damage. With 68% of the plots demonstrating damage at these high levels the data clearly indicates that moose browsing, on selective sites is negatively impacting the capability of the forest to develop a viable and desirable regeneration class.
- Of the 954 total points sampled 27.7% of the points had some indication of moose browse damage or use. This again demonstrates wide spread moose browsing impacts across the landscape of ETC.
- While the cruise differentiated amongst summer and winter moose use this was somewhat subjective as to the season of use. Often the position on the landscape was a strong influence on the call. The species being browsed also had some influence as the classic winter habitat, as noted previously, is at higher elevations and often dominated by Balsam fir and Mountain ash. But the important consideration is that these observations were only tallied if the moose were negatively impacting the understory and the damage and level of browse was considered a limiting factor to future forest management opportunities.

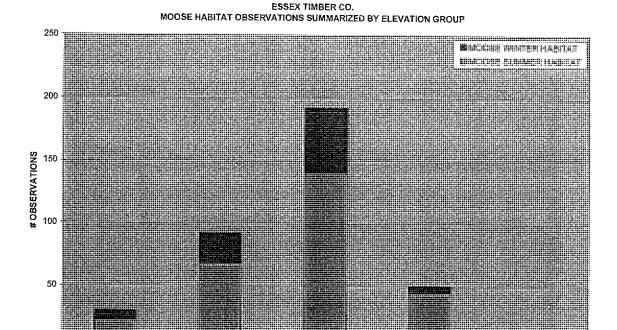
The following series of charts and tables provides a summary of the impacts of moose browsing on an elevational basis. We believe due to the data collected in the field as a component of the ETC 2006 inventory there is a strong correlation as to the levels of moose browses damage and elevation. This in turn provides for further evidence that moose are negatively impacting ETC and across a large and rather significant acreage. The heavy damage is occurring on over 36,000 acres and the moderate to heavy damage on an additional nearly 27,000 acres.

#### ESSEX TIMBÉR CO. MOOSE HABITAT VS. ELEVATION



This chart demonstrates the location and frequency of cruisers observations of general moose habitat impacts. Each point sample charted is a function of the number of calls for either winter or summer moose use (demonstrated by historical browsing and other moose impacts found at or near point center and the points vicinity). There is, for the most part, a lack of moose browse damage at elevations of less than 2000 feet and there is a significant drop off over 2700 feet of elevation. Most of the ETC ownership is in the range of 1800 to 2500 feet. From a management consideration this broad evidence of damage in the range of the most productive sites, both for hard and softwood poses a dilemma. Many of the recommended silviculture is to be implemented in this portion of the ownership, yet there is a problem with establishing regeneration that can develop into a viable understory as long as the moose damage continues..

When one looks at this table the data has a bit of "static" in it so that it does not demonstrate an even bell-shaped curve, but as will be seen below when the ETC landscape is divided into elevation groups and the data collected is distributed on average across the 5 selected groupings the data does demonstrate a correlation to elevation.



This chart summarizes the data shown in the previous chart into groups to more clearly demonstrate the elevation bias of the impacts moose are having on the lands of ETC.

2001 FT-2500 FT

**ELEVATION GROUP** 

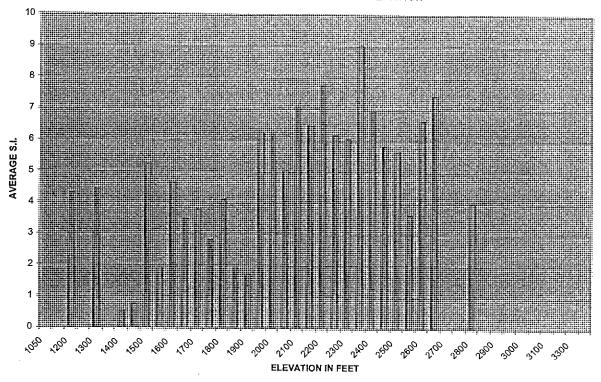
2501 FT-3000 FT

>3000 FT

1501 FT- 2000 FT

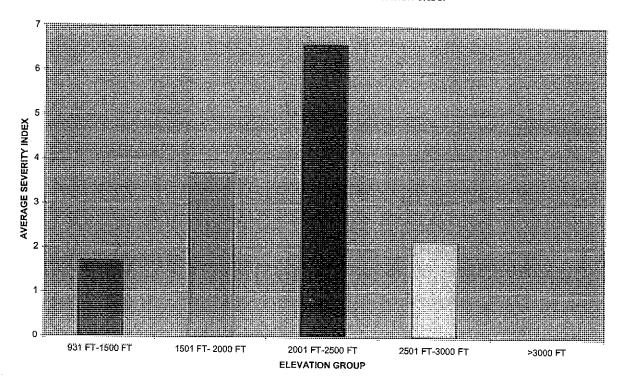
931 FT-1500 FT

## ESSEX TIMBER CO. AVERAGE SEVERITY INDEX VS. ELEVATION



This chart combines the severity index with the elevational data to demonstrate that not only is the browsing concentrated at the 2000-2500 foot band, but so are the severe impacts of browsing. We also believe from our observations that the identification of less general damage and less measured severe browsing at high elevations may in fact be related to historical trends and accumulated damage resulting in the absence of regeneration in those areas. Therefore, there is a lack of opportunities to observe recent browse or even relatively established browsing evidence. In some of these historical winter yards heavy browsing goes back decades and has removed the understory as a viable source of browse for the moose. We have seen a migration of moose down the mountainsides from traditional high elevation winter yards to mid slope areas where there is more acreage and a more viable browse source in that elevation range. This has moved the moose damage from a small and economically insignificant component of the forest to the most productive and valuable portion of many forested tracts in this region.

ESSEX TIMBER CO.
AVERAGE SEVERITY INDEX AVERAGED BY ELEVATION GROUP



This chart is designed to remove the "static" from the data to better relate the average severity of browse damage to elevation. The important consideration is that by acreage this represents a large component of the property in this most severe browsed condition.

Acreages by elevational group are as follows:

ELEVATION	
GROUP	ACRES
931 FT-1500 FT	12197.5
1501 FT- 2000 FT	26962.2
2001 FT-2500 FT	36364.4
2501 FT-3000 FT	9918.4
>3000 FT	839.8
TOTAL	86282.3

Inserted here will be the 11/17 format version of the topographic moose severity breakdown map.

#### SPECIAL TREATMENT AREAS:

The Conservation Easement on the property designates several special treatment areas. These are: Ferdinand Bog South America Pond and Mud Pond (Brunswick) Watersheds; the East Mountain and Willard Mountain old growth areas; the Ferdinand deer wintering area; and the Unknown Pond (Avery's Gore) shoreline/riparian zone buffer. The Conservation Easement also mandates a 50-foot no-harvest buffer zone around blue line streams and major wetland areas. Special considerations for individual special treatment areas can be found on the compartment maps.

At this time, no additional special treatment areas or reserves have been identified. However, it is anticipated that a portion of the land base, particularly high elevation areas (exceeding 2,500 feet in elevation) and excessively steep slopes will be considered.

The management standards for each STA are specified in the conservation easement. The following is a summary of the harvesting and management standards for each area and general forest management guidelines for Special Treatment Areas where management activities can occur.

- Move as quickly as the resource will allow to the implementation of uneven-aged management principles and systems
- Where the Conservation Easement limits openings to less than two acres in size, harvesting will
  only be implemented through the use of the Group Selection system. In some instances openings
  of larger than two acres are permissible with prior approval of the easement holder.
- Maintain appropriate no cut or limited access buffers along identified bodies of water and streams within the STA portions of ETC holdings.
- Where strata found on ETC are targeted for regeneration or OSR harvest treatments, these strata
  will not be treated with the highest priority modeled for locations within the STA. Instead these
  stands will be treated to develop an overstory over a longer period of time by using small salvage
  and regeneration treatments not exceeding the 2 acre eased limit.
- To address the ongoing loss of standing timber due to decline, disease and other environmental
  factors within the STA's, ETC will not preclude the use of salvage harvests, where appropriate
  even where guidelines require no openings over 2 acres in size. Pre-harvest planning will provide
  the necessary baseline data, suggested treatments, and desired outcomes where salvage
  operations are required to deal with timber losses in STA's.
- All thinning will be targeted to utilize individual tree selection wherever possible to maintain the maximum stocking levels conceivable.
- The pre-harvest assessment process will include a more detailed inventory to insure that all items
  addressed in the CE for a particular STA have been addressed and investigated. In this manner
  the current stand conditions will be clearly viewed and presented so that the easement holder can
  be fully informed as to what is on the ground prior to assessing the appropriateness of the
  suggested forest management treatment to be implemented.
- There needs to be a clear recognition that many acres of the various STA's will be incapable of treatment for the 10 year period of this plan due to the lack of sufficient stocking to allow for the low impact harvest and thinning operations required by the easement.
- Desired outcomes for all entries are always to work toward or retain an uneven-aged stand structure, maximize species diversity, and limit the aesthetic and physical changes to the forest within the STA.
- Extend rotations once the stands are fully stocked to provide for a more continuous forest cover in these areas as well as to target the preferred uneven-aged stand structure for the STA's

### Ferdinand Bog and South America Pond Watershed, Ferdinand

Provisions under conservation easement include (Conservation Easement IV (1), p. 8):

- Protection of watershed values given the highest priority in planning and conducting all harvest activity within the STA, and strict compliance with AMPs for timber harvesting,
- No forest management activities within 200 feet of South America Pond.
- Patch cuts, clear cuts, group size shall not exceed 2 acres in area, except as approved by easement holders for the purpose of timber salvage operations,
- All harvesting activities must occur between December 1 and March 31, except as approved by easement holders for purpose of forest regeneration.

#### Mud Pond Watershed, Brunswick

Provisions under conservation easement include (Conservation Easement, IV (1) p. 8):

- Protection of watershed values given the highest priority in planning and conducting all harvest activity within the STA, and strict compliance with AMPs for timber harvesting,
- No forest management activities within 200 feet of the wetlands associated with Mud Pond and Dennis Pond, including no non-harvesting disturbance of existing flora and fauna, or other physical alteration,
- Patch cuts, clear cuts, group size shall not exceed 2 acres in area, except as approved by easement holders for the purpose of timber salvage operations,
- All harvesting activities must occur between December 1 and March 31, except as approved by easement holders for the purpose of forest regeneration.

#### Ferdinand Deer Wintering Area, Ferdinand

This deer wintering area is a part of the larger 12,000 acre Nulhegan Basin deer wintering area that includes Vermont's Wenlock Wildlife Management Area. Within this special treatment area, all forest management activities shall be conducted in accordance with the "1990 Management Guide for Deer Wintering Areas in Vermont," published by the Vermont Department of Forests, Parks & Recreation and the Vermont Department of Fish & Wildlife. General considerations for this area as a whole will include:

- Using area regulation to ensure that at least 50% of the softwood stands within the wintering area provide functional shelter,
- Using an uneven aged managed system over the whole, by groups,
- Including travel corridors in harvest layout to ensure uninterrupted deer mobility and access by deer through the wintering area,
- Encouraging softwood regeneration and management in mixed wood types within the wintering area, where site conditions permit.

It is important to note that the Ferdinand Deer Wintering Area will be treated as outlined and modeled by strata for the stands located in that STA, except were modifications are deemed appropriate to satisfy the management guide for deer wintering areas.

The following Special Treatment areas are reserves where no management activities are allowed. No management strategies are planned outside of periodic visits to observe ongoing natural processes.

#### East Mountain Old Growth Area, East Haven

This stand is an example of an original montane spruce-fir forest, which contains spruce trees over 260 years old. Provisions under conservation easement include (Conservation Easement, IV (3) p. 9):

- No forest management activities, operation of any mechanized or motorized equipment, or physical alteration of the ground surface.
- No manipulation of natural watercourses, marshes, or other water bodies, or engage in other activities which would be detrimental to water purity, or which could alter natural water level or flow,

#### Mud Pond, East Haven

A remote, pristine, soft water pond and associated wetlands, surrounded by an undisturbed buffer of spruce-fir forest. Special protection provided under easement as an important surface water, with a required 50-foot buffer. For the purposes of this plan, the buffer shall be a minimum of 100 feet.

#### Seneca Mountain Bog, Ferdinand

This is a high elevation, pristine bog with a completely intact buffer. This includes a high quality poor fen natural community, part of which is an unusual sedge and liverwort flat. Special protection provided under easement as an important surface water, with a required 50-foot buffer. For the purposes of this plan, the buffer shall be a minimum of 100 feet.

#### Unknown Pond, Avery's Gore

This pond is a deep, remote coldwater pond with high dissolved oxygen content and a shoreline population of bog aster. This pond has also been identified as a potential loon nesting site. Provisions under conservation easement include (Conservation Easement, IV (3) p. 9):

- No forest management activities, operation of any mechanized or motorized equipment, or physical alteration of the ground surface within 200 feet of the shoreline,
- No manipulation of natural watercourses, marshes, or other water bodies, or engage in other activities which would be detrimental to water purity, or which could alter natural water level or flow,
- The existing road situated within the 200-foot buffer zone, located on the southwest side of the pond, may be utilized provided erosion is controlled using all erosion control devices and strict adherence to AMPs.

### Willard Mountain Old Growth Area, Brunswick

This area contains two small stands of native red pine that are approximately 170 years old. Provisions under conservation easement include (Conservation Easement, IV (3) p. 9):

- No forest management activities, operation of any mechanized or motorized equipment, or physical alteration of the ground surface.
- No manipulation of natural watercourses, marshes, or other water bodies, or engage in other activities which would be detrimental to water purity, or which could alter natural water level or flow,

#### Areas over 2500 feet in elevation

With over 10,000 acres in commercial forestland over 2500 feet ETC will be moving into a more active program of operating under Act 250 permitting as required for forest management above this elevation. The stands of Strata located above 2500 feet will be carefully assessed and the pre-harvest assessment process will include a more detailed inventory. In this manner the current stand conditions will be clearly viewed and presented to make certain that all factors related to Act 250 compliance are addressed. General considerations for these areas as a whole will include:

- Increased retention of large live cull and cavity trees
- Harvest planning and layout will occur during snow free conditions
- Access will be carefully considered with the location of haul roads and landings at lower elevations preferred
- Winter harvesting will be the preferred timing except in cases where ground conditions permit summer harvests and scarification for regeneration is desirable
- Whole tree harvesting will be avoided to the greatest extent possible, with hardwood tops and softwood limbs remaining in the stand
- Streams, wetlands, and other sensitive sites will be avoided and buffered wherever possible.

Many of these recommendations are made in the publication *Good Forestry in the Granite State:* Recommended Voluntary Forest Management Practices for New Hampshire. It is important to note the publication refers to high elevation forests as those areas over 2700 feet in elevation.

#### **BIOLOGICAL DIVERSITY**

By design, the Champion Lands sale limited the overall biological diversity on the Essex Timber Company property by placing lands with high regional biodiversity values under public ownership. Most of the ETC ownership lies between 1,000 and 2,500 feet in elevation, consisting of mid slope hardwood types dominated by sugar maple and yellow birch. Sites recognized as significant natural areas are designated in the Conservation Easement as Special Treatment Areas (see Special Treatment / Reserve Areas).

Much of this ownership has seen harvesting over the last 20 years, and substantial acreage has been heavily cut. Even-aged management techniques were used extensively. Today, approximately 13% of the ownership is in regeneration and sapling stands. The most common forest type on the property is northern hardwood or other hardwood mix. This type covers approximately 56 % percent of the land area. Mixed wood types, the majority of which have greater than 50% hardwood stocking, cover approximately

33% of the area. The spruce and fir type is limited to 5% percent of the land area. The remaining 6% includes roads, stream buffers, yards, landings, and other reserves.

Though the property is lacking in its diversity of forest types, it is surrounded by many of the types lacking within it. These include open water and wetland complexes associated with the nearby lakes, softwood stands in the bottomland areas of the lakes and major drainages, including the Nulhegan Basin, and early successional/old agricultural types associated with human influences around the property's perimeter, including the Connecticut River Valley.

Future management practices, as controlled by landowner goals and objectives, will increase the diversity over the parcel as a whole. Practices such as retaining and promoting softwood inclusions, retaining American beech and other mast producing stems, and promoting pockets of aspen as an early successional component will enhance diversity (see also Wildlife and Wildlife Habitat). Improving size class distribution is another important goal. Within stands this can be accomplished by converting existing even aged stands with adequate stocking and structure to uneven aged stands using individual tree selection harvests, and treating other stands on a group selection basis.

#### **NON-TIMBER FOREST PRODUCTS**

Essex Timber recognizes that non-timber forest products (NTFPs) are an essential element in sustainable forestry. As discussed in a report for the John D. and Catherine T. MacArthur Foundation (Best and Jenkins, 1999):

"Our analysis suggests that a sustainable forestry enterprise can succeed in monetizing non-timber forest values through one or a combination of [non-timber forest products], enhancing the competitiveness of sustainable forestry or making up any incremental difference in profitability there may be as compared to conventional forestry."

The authors cite traditional plant-derived NTFPs, but also include non-traditional NTFPs such as carbon sequestration and watershed services.

Essex considers its recreational leases and any other source of lease income as an NTFP. Revenue derived from such non-timber sources enhances timber management in the following ways:

- It reduces the pressure to harvest a given volume for the purpose of covering annual management, overhead and tax costs.
- It enables Essex to execute a greater percentage of its harvests during the winter months.
- It enables Essex to place silvicultural considerations first in its timber management decision-making.

All of these aid Essex in achieving its first Forest Management Objective, which is to return the timber resource to a well-stocked condition.

Essex Timber intends to continue its camp lease program, including those leases which it is under no obligation to renew. Essex Timber will evaluate new NTFP opportunities as they arise. Provided that such use of NTFPs facilitate the economically sustainable production of forest resources as described above, and minimize any negative impact on surface water quality, recreational benefits to the public, wildlife habitat, and other conservation values, they will be given serious consideration.

#### Langlais, Matt

From: ent:

Chris Fife [Chris.Fife@plumcreek.com] Tuesday, January 26, 2010 8:38 PM

j:

Dan Kilborn; Langlais, Matt; Greenwood, Richard; 'Billy Coster'

Cc:

Lemire, Kevin

Subject:

Plum Creek site visits

Thank you to each of you for your time and input today in the field. The interaction around our implementation of silvicultural prescriptions, AMP's, layout, and operations is very helpful for me as we move forward with management of this land base. I was glad that you were able to meet Kevin and hear his thoughts on the operations.

If you're like me, even though we saw a lot of good things today, the final stop on Welog's mechanical job will be what's consuming most of your thoughts. Please understand that Plum Creek takes our obligations seriously whether to UVA and the state of Vermont, the Conservation Easement, or the implementation of AMP's to protect water quality. These commitments drive how we do business each day as well as who we partner with to manage our land. Harvesting in brook buffers and cutting trees contrary to the silvicultural prescription for the block will not be tolerated. I met with Malcom Washburn this evening to explain the problems we found and we are meeting on the job first thing tomorrow morning.

Thanks for your cooperation in working through these issues. I'll keep you updated on our progress,

#### Chris Fife

Senior Resource Forester Plum Creek - Northern Kingdom Unit 303-237-8657 phone/fax 2-473-0866 mobile

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Agency of Natural Resources

[phone] 802-751-0110 [fax] 802-748-6687 [tdd] 800-253-0191

Chris Fife, Senior Resource Forester Plum Creek-Northern Kingdom Unit PO Box 260 Colebrook, NH 03576 April 27, 2010

Dear Chris:

On April 19, 2010, Agency of Natural Resources forester Gary Sabourin, Agency of Natural Resources Environmental Enforcement Officer Reginald Smith, and myself, along with Plum Creek representatives Mark Doty and you, made a site inspection of a property owned by Plum Creek, which has recently been harvested by Plum Creek, located off the Simms Hill Road system along the upper drainage of Clough Brook in the town of Lemington, Vermont. The subcontractor was Malcolm Washburn and his company WE-LOG of North Stratford, NH.

During prior visits, January 26, 2010 and February 9, 2010, ANR foresters had observed violations of the water quality laws of the State of Vermont, a failure to implement the AMPs (Acceptable Management Practices) and ongoing and past discharges of sediment into the waters of the state, coming off of the logged area. The violations they observed were discharges resulting from harvesting equipment cutting and operating in a stream buffer, discharges off the landing, and discharges from a skidder crossing a stream with no proper crossing structure in place. In addition there were several places where harvesting equipment had gone into ephemeral wetlands, and seeps near the headwaters of brooks. There were also a number of stream crossings that had been removed that needed to be properly closed out with waterbars installed and disturbed areas of soil seeded and mulched. Details on the AMP violations and remedial measures to be applied were discussed at the February 9<sup>th</sup> site visit and outlined in a letter dated February 18<sup>th</sup>, 2010.

On April 19, 2010, we found that you had hired a contractor, Alan Poirier, to perform the remedial work. We looked at all of the sites that we had identified and several others that had subsequently been located by ANR forester Matt Langlais. This letter is to inform you that on April 19, 2010, I observed that all of the major remedial actions relating to the AMP violations have been accomplished and that you are now in compliance with the AMP's. During our visit we identified several more waterbars, some seeding and mulching on waterbars on the main skid/truck road, and one crossing below the main landing that needs to be pulled and seeded and mulched. There were several ephemeral areas that we agreed would be best to stay out of. We also agreed that it would be best to leave in place the stream coming through the area that you had cut in the buffer near the landing (the first thing we looked at) rather than try to reroute it. Alan's work was very good and since he accompanied us on the entire site visit, we have every confidence that he will accomplish the remaining remedial work.





tate of Vermont
Jepartment of Forest, Parks & Recreation
1229 Portland Street, Suite 201

[phone] 802-751-0110 [fax] 802-748-6687

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[tdd] 800-253-0191

Gary and I believe that we had a productive conversation with you and we thank you for your work and attention to this matter. To reiterate the main points:

- 1. The need for pre harvest Water quality/AMP planning that specifically involves the crew on the ground that is doing the work. We understand that you and Gary will be working to put together a logger training session focusing on this subject.
- 2. The need for better oversight by Plum Creek. We understand that Plum Creek is hiring another forester to oversee operations in Vermont which should help.
- 3. Our concern that at the scale of harvesting that Plum Creek operates at and with the harvesting plans it has for the future in Vermont, that a higher level of AMP/water quality compliance be adhered to going forward.
- Our shared commitment to work together.

As in all of our AMP cases, our intentions are to enforce the law and to have you remediate the violations and rehabilitate the site in a timely manner. Please call me if you have any questions about this letter. Thank you for your cooperation concerning this matter.

cc. Reginald Smith, EEO 802-751-0119 Gary Sabourin Matt Langlais Sincerely, Jeff Briggs, Forester

Agency of Natural Resources



## Table 1.

Summary table of inventory findings.

### Plum Creek Table #1 Clough Brook North Basal Area Per Acre. Data Collected August and September 2011

Stand	Un-cut portion Alleged cut contrary		Stand total BA	Harvest Complete	
	Minimal	None	91.6 (26 points)	Yes	
34	83.33 (9 points/30 ac.)	28.48 (80 points/90 ac.)	47.44 (39 points)	No	
			73.51 (37 points)	No	
44	131.43 (7 points/29 ac.)	36 (10 points/6 ac.)	107.0 (10 points)	No	

## Table 2.

Stand #24 Plots for Stand Total and All Plots Taken in Stand.

Plum Creek Table #2 Stand #24 Plots for Stand Total and All Plots Taken in Stand

Plots for	TITTET	II	<u> </u>
II	Total		Total
Stand	Basal	All Plots in	Basal
Total	Area	Stand	Area
6	120	6	120
7	90	7	90
8	80	8	80
9	60	9	60
10	70	10	70
12	130	12	130
13	60	13	60
15	100	15	100
16	80	16	80
17	50	17	50
18	140	18	140
20	110	20	110
21	20	21	20
56	230	56	230
57	10	57	10
84	70	84	70
85	120	85	120
Average	St. Deviation	in	***************************************

Average St. Deviation

90.59 51.05

## Table 3.

Stand #34 Plots Used for Stand Total.

## Plum Creek Table #3 Stand #34 Plots Used For Stand Total

Plots For St	tand Total	Total Basal Area
		1
	2	
	G	
	83	_9 · · · · · · · · · · · · · · · · ·
<u> </u>	88	- Chinana Anna Canada I Santana Canada I
	89	
	90	_5
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	93	.S
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	95	
	108	
	115	
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	117	3
	118	8
·	119	
	120	· ·
and the second s	121	
The state of the s	122	<u> </u>
	123	
	125	
	128	
	129	
	130	
	131	
MENONSKY STATE OF THE SECOND	132	0
	135	
	136	
	137	20
	138	30
**************************************	139	90
***************************************	140	80
ONE CONTRACTOR OF THE CONTRACT	141 142	80
	142	10
		20
	144	30
Average		St. Deviation
	47.44	32.26

Table 4.

Stand #34 Alleged Cut Contrary.

### Plum Creek Table #4 Stand #34 Alleged Cut Contrary

	Basal Area	Alleged Cut Contrary	Basal Area
A-1	80	45A	. 1
A2	10	A45	
A3	30	IA46	
A4	20	A47	2
A5	0	A48	1
A6	30	A50	
B14	O	A56	
B15	20	A57	
B16 <sup>-</sup>	10	157A	9
B17	0	А58	COMPT
B18	10.	A59	6
B19	20	A61	
B20	30	A62	7
B21	0	A63	7
B22	10	A64	2
B23	70	A65	2
324	10	A66	5
025	20	A81	11
226	10	A82	4
327	70	<u> </u>	3(
228	20	A83	41
332	0	A84	70
D34	40	A85	1(
235	20	A86	36
236	20	IA87	20
237	10		
238			
39	20	Alleged Cut Contrary	Basal Area
240	20	13:	2
541	10	13	5
741	20	130	50
/+ <i>C</i>	0	13	7 20
		138	30
		130	
leged Cut Contrary		14(	
4	10	14	
83	50	142	
92	20	143	
93	30	144	
94	30		30
95	30	Average	St. Deviation
115	40	28.48	24.91
116	40	40.40	24.91
125	50		
128	50		
129	There is a supervision of the contract of the	the art of	الدامالة مناه منافرة (مرياز) أو مروفه به منهد القواء الميارير من هام جوا إنها الماسيدين به سند علاد عاد
130	20		***************************************
131	10	410-10-10-10-10-10-10-10-10-10-10-10-10-1	1

## Table 5.

Stand #34 Plots Taken in Un-cut Portion.

# Plum Creek Table #5 Stand #34 Plots Taken in Un=cut-Portion

	72.22	11.11	83.33	18.03
and the second transfer in a first to be had a great to the second of the second transfer in the second transfer i		Average	Average	St. Deviation
			haman da an	
122	60	20		
121	60	<sup>°</sup> 10		
120	70	0	70	
119	70	20	The same of the sa	
118	80	10		<del></del>
117	80	10	90	A 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
90	100	0	100	
89	30	20	50	for the second s
88	100	10	1	
Plots in Un-cut Portion	AGS Basal Area	UGS Basal Area	Total Basal Area	

Table 6. Stand #34 All Plots Taken in Stand.

### Plum Creek Table #6 Stand #34 All Plots Taken in Stand

All Plots in Stand		All Plots in Stand	Basal Area
1.	10	<u> </u>	(
2	30	B18	10
3	90	B19	2(
4	10		3(
83	50	B21	(
88	110	B22	10
89	50	B23	70
90	100	B24	10
91	30	C25	20
92	20	C26	10
93.	3.0	C27	70
94	30	C28	20
95	30	C32	O
108	90	C34	40
115	40	C35	20
116	40	C36	20
117	90	C37	10
118	90	C38	20
119	90	C39	20
120	70	C40	10
121	70	C41	20
122	80	C42	0
123	60	45A	10
125	50	A45	0
128	50	A46	10
129	0	Ã47	20
130	20	A48	10
131	10	A50	90
132	0	A56	0
135	0	A57	90
136	50	57A	10
137	20	A58	60
138	30	A59	50
139	90	A66	70
140	80	A65	70 70
141	80	A64	20
142	10	A63	20
143	20	A62	50
144	30	A61	10
A1	80	A81	rrrmrhiolause
A2	10	A82	40
A3	30	A83	30 40
Ā4	20	A84	·
A5	0	A85 I	70
A6	30	A86	10
B14	0	A87	30
B15	20	70/	20
B16	10	والمراجع والمراجع المراجع المر	

# Table 7.

Stand #43 Alleged Cut contrary and Plots Used for Stand Total.

Plum Creek Table #7
Stand #43 Alleged Cut Contrary and Plots Used for Stand Total

Alleged Cut Contrary	Basal Area	Regeneration	Plots for Stand Total	Total Basal Area
A8	50	A	5	50
A9	40	A	38	100
A10	20	A	52	70
A11	10	A	53	160
B12	40	A	58	100
B13	80	įΑ	<b>j</b> 59	60
C30	0	Α	60	100
C31	50	A	<b>i</b> 69	120
C33	10	Α	70	140
C43	10	A.	71	190
C44	20	A	79	20
A51	70	A	80	60
A52	60	A	81	40
A53	130	IA	82	0
A54	0	A	95	30
A55	130	Α	96	80
A67	20	A	97	160
A68	20	ÎŪ	104	120
A69	160	IA	105	30
73A	30	A	106	50
A74	140	U	107	130
A75	110	A	108	90
A76	50	A	109	60
A77	30	A	110	120
105	30	A	111	20
106	50	Α	112	40
108	90	A.	113	0
109	60	Α	114	60
110	120	U	124	50
111:	20	Α	126	0
112	40	A	127	60
113	0	Ā	133	30
126	0	A	134	40
127	60	Ā	145	20
133	30	A	146	30
134	40	A	147	200
1.45	20	A	148	90
146	30	Α		
147	200	A		Contraction of the American Contraction of the Cont
verage	St. Deviation		Average	St. Deviation
53.08	·	<u> </u>	73.51	52.61

# Table 8.

Stand #43 All Plots Taken in Stand.

## Płum Creek Table #8 Stand #43 All Plots Taken in Stand

All Plots in Stand	Basal Area	All Plots in Stand	Basal Area
5.	50.	C44	20
38	100	A51	70
52	70	A52	60
53	160	A53	130
58	100	A54	0
59	60	A55	130
60	100	A67	20
69	120	A68	20
70	140	A69	160
71	190	73A	30
79	20	A74	140
80	60	A75	110
81	40	A76	50
82	O.	A77	30
95	30	AND MAKE THE PARTY WAS A SECOND FOR THE PARTY WA	THE RESERVE OF THE PROPERTY OF
96	80	***************************************	
97	160		
104	1.20		***************************************
105	30		
106	50		***************************************
107	130		A CONTRACTOR OF THE PARTY OF TH
108	90		And the second s
109	60		
110	120		
111	20		
112	40		<del>a de mandre e e manuel e p</del> eriodo de la dela mandre e
113	0		
114	60		
124	50		
126	0		
127	60		· · · · · · · · · · · · · · · · · · ·
133	30		······································
134	40		1000/00 / Ad Cade
145	20		
146	30		The second secon
147	200		
148	90	The state of the s	The set of the second sequence and the second secon
A7	20		- A-A-A-Colored Invasion - A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-
A8	50		
A9	40		*
A10	20		and the second of the second o
A11	10		***************************************
B12	40		
B13 i	80 j		
C30 J	0		
C31 ]	50		
C33	10		
C43	10		

Table 9.

Stand #44 All Information.

# Plum Creek Table #9 Stand #44 All Information

				All Plots in	Basal
Alleged Cut Contrary	Basal Area	][			Area
78	50			61	140
98	50	a de l'emilia i bassimi i remain i regi fedito, ale processe a residente compe	ares, garges than of the causer's profession begins as some assessed officer	62	110
99	50			63	140
A70	20			75	150
A71	30		had been been been been been been been bee	76	110
A72	40	Constitution of the consti	The second secon	77	150
A73	30			78	50
A78	50			98	50
A79	30			99	50
A80	1.0			100	120
The same of the sa				A70	A70
	Average	St. Deviation		A71	A71
	36.00	14.30	).	A72	A72
					A73
				Hillian (1914 - 1914) and an arrange of the contract of the c	A78
	Total Basal			The the second s	an mandagada ka gala 11 gal 11 ya 11 Ma
Plots for Stand Total	Area			A79	A79
61	140			A80	A80
62	110			r an maissach	Section of the section of
63	140				
75	150				The second secon
76	110	***************************************			**************************************
77	150				transfer hade hands grouped property constraints in hands grouped by
78	50:				
98	50				****
99	50				
100	120				
	Average	St. Deviation			
	107.00	41.91			······
					and the state of t
Plots in Un-Cut	Total Basal				
Portion	Area			77.1	
61	140				
62	110	and a second sec	All Assessed in the Control of the C		terre ere colores a decidade de la companya establisha
63	140	The state of the s		· · · · · · · · · · · · · · · · · · ·	and the second s
75	150				
76	110	·	in the second se		·
andria est de la compania de la comp 77	150	***************************************	The state of the s	Maharana	
100	120	***************************************			- <del> </del>
	7 766				**************************************
	Average	St. Deviation			
الاستراك ويتأسيه فالإراقية والأوراق المراقية والمراقية و			mana hiyamandad an man'i malif a , haha daharangahangan an of mi' mi' ni ji ng angan sa	erbern ze enni i i izhiara manarara ani ananda i i i i i i i	
	131.43	17.73			

## Alleged Cut Contrary Area

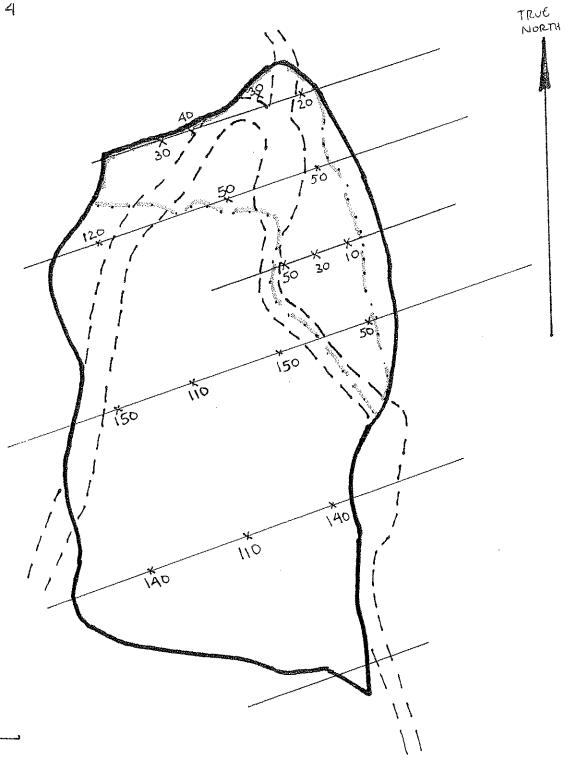
## Plum Creek

Clough Brook North Harvest Area Lemington, VT Stand #44 Basal Area Per Plot August/September 2011

FIGURE 4

1"= 3001







State of Vermont Department of Forest, Parks & Recreation 1229 Portland Street, Suite 201

St. Johnsbury, VT 05819-2099 www.vtfpr.org Agency of Natural Resources

[phone) 802-751-0110 [fax] 802-748-6687 [tdd] 800-253-0191

#### MEMORANDOM

To:

Ginger Anderson, Chief of Forest Management

From:

Matt Langlais, Caledonia/Essex County Forester

Date:

November 21, 2007

Subject:

Essex Timber Company UVA Plan

I have recently finished reviewing the Forest Management Plan for Essex Timber Company's holdings in Essex and Caledonia Counties and wanted to briefly apprise you of the goals and objectives of the plan. Since purchasing the former Champion holdings ten-years ago Essex Timber has taken a go-slow approach to its forest management with the idea that with time recovery would occur from the previous owners management practices. Essex's 2006 inventory completed by Landvest has shown however that the vast majority of the acreage is in fact declining. They feel that this decline is due to the past practices of high grading and poor logging practices as well as lasting impacts from the 1998 ice storm. To remedy this situation Essex intends to increase its harvest levels from an average of 7,000 cords per year to between 30,000 to 45,000 cords. The idea being that many of the stands carrying high levels of UGS in the overstory will be regenerated to put growth into the anticipated vigorous understory. This increased harvest level will result in an age-class distribution that will be skewed to the 0-20 year age class. It is anticipated that in 20 years nearly 43% of the acreage will be in this 0-20 condition. Currently the 0-20 age class represents 14% of the acreage. Most of this age class will actually be created in the next ten years as Essex intends to cover approximately 3,500 acres per year over the next ten years with regeneration/overstory treatments. After this initial ten year period harvest levels will decline to equal or less than growth and the ownership will enter a period where the regenerated and released understory stands are left to grow.

Essex Timber has chosen to utilize FPR's newly implemented Alternative Strategy for Large Landowners and therefore I will be looking at each harvest independently. This is especially important as the stratified sampling inventory completed did not inventory individual stands but extrapolated stand conditions based on photography. This system gives us the opportunity to look at each stand before harvest to see if the extrapolated data holds true. Please let me know if you have any questions or if I can provide you with any further information.



December 27, 2007

Mr. Wilhelm Merck Essex Timber Company, LLC 29 N. Main Street Ipswich, MA 01938

Dear Wil,

REGIONAL OFFICES Central Vermont 8 Bailey Avenue Montpeller, VT 05602 (802) 223-5234

8 Bailey Avenue

www.vlt.org

Montpelier, VT 05602 (802) 223-5234 (802) 223-4223 fax (800) 639-1709 toll-free

Champlain Valley P.O. Box 850 Richmond, VT 05477 (802) 434-3079

Northeast Kingdom P.O. Box 427 St. Johnsbury, VT 05819 (802) 748-6089

Southeast Vermont and Mountain Valley 54 Linden Street Brattleboro, VT 05301 (802) 251-6008

Southwest Vermont and Metrowee Valley 10 Furnace Grove Road Bennington, VT 05201 (802) 442-4915 Enclosed please find your signed copy of the Essex Timber Company's 2007 forest management plan. As you requested I have returned one copy to Matt Langlais and retained one copy for my records. Pieter and I would both like to extend our thanks to you and Jim for remaining positive and responsive to all our questions and concerns during the approval process. Please consider this letter your official forest management plan approval from the Vermont Land Trust, with the condition that timber harvest plans continue to be submitted for approval on an individual basis. This will allow for the presentation of specific data required in Section V (2) of the conservation easement and ensure that silvicultural treatments are customized to on the ground forest conditions.

Other activities prescribed in the plan may be performed without further review or approval by VLT. According to your easement, any changes to the approved FMP must be submitted to me for review and approval prior to conducting any timber harvesting or related activities. Also according to your easement, the FMP must be updated every ten years. An update of the plan should be sent to VLT by February 1, 2018.

I would like to take the opportunity to comment on several issues of significance that were outlined in the updated plan. I think it prudent to recognize the impacts that moose are having on the forest, and I commend you for your work in addressing the problem. Your efforts to increase our understanding of their impacts at the landscape level through collection of data during your forest inventory are admirable, and I hope that others will follow this example. I would also note however, that with the increased harvest levels outlined in the plan, there will likely be a large shift in the percentage of forest found in younger age classes that will be more susceptible to moose browsing. While efforts by VT F&W to control the moose population look promising, I know you agree that it will be more important than ever to closely monitor silvicultural success. It will also be imperative to adapt silviculture depending on that rate of success to ensure the forest is properly regenerated, and to ensure the forest remains balanced and capable of producing a sustained yield over time. I know this is as important to the Essex Timber Co. as it is to the easement holders. I think the





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Southwest Vermont and Mettowee Valley 10 Furnace Grove Road Bennington, VT 05201 (802) 442-4915

next forest management plan update will be very interesting and informative as there will be information on the actual age class distribution of the forest that can be compared to both the projected targets from this plan and the 2002 plan.

I would also like to acknowledge that the growth rates presented in the plan are notably higher than those referenced in Section V (3) of the conservation easement. While I am not in a position to dispute the accuracy of the higher rates, I feel it is worth noting this significant difference. While the information for the growth modeling was taken from similar forests in the northeast, it would be interesting to see specific results from your forest. As we learn more about the Essex Timber Co. forest, and all the services that it is capable of producing, these rates will likely change again in the future. Perhaps over time it would be possible to establish some sort of continuous inventory to determine the actual growth rates across all stand types on the property.

Again, thank you for your cooperation during the approval process. I look forward to working with you and Jim during the implementation of the new plan. And as always, if you have any questions I can be reached at the St. Johnsbury office address and phone number shown in the left margin of this page or by e-mail at dan@vlt.org. I hope you have had a wonderful holiday season and I wish you all the best in the New Year.

Sincerely,

cc:

Daniel Kilborn

Stewardship Forester

Jim Wood; North Country Environmental & Forestry

Mathwanguis Essex County Forester



State of Vermont Department of Forests, Parks and Recreation

103 South Main Street, 10 South Waterbury, VT 05671-0601 www.vtfpr.org

(fax) 802-244-1481

Agency of Natural Resources

[tdd] 800-253-0191

February 13, 2009

Dan Singleton Plum Creek Timberlands 49 Mountain Ave. PO Box 400 Fairfield, ME 04937

Dear Dan:

I am signing this Heavy Cut application on the strength of field work done by the Essex County Forester, Matt Langlais, and because I feel that Plum Creek needs to have a transition period as they learn about Vermont's regulations and settle into a relationship with FPR regarding UVA and Heavy Cut.

In future, I will not sign permits that have unexplained or obscure silvicultural terminology such as "cluster thinning." If you are using a silvicultural guide other than those commonly used in the Northeast, please send along a web reference or copy. Referring to the stand harvest history as "classic CIC," may mean something to your staff, but I need to know if the area had been subjected to a diameter limit cut or some other practice this designation connotes.

On this application, the number of plots sampled for both regeneration and inventory are not to standards. The TIMO UVA exemption was designed to allow applicants more time to produce detailed stand information including adequate field plots on which to base activity decisions. This system was designed to facilitate field operations, but it is an internal policy and can be rescinded in favor of a more detailed 10-year management plan for each stand on each enrolled parcel. This may be critical given the number of Heavy Cut applications that may be generated from your operations.

Stems MORE than 1" in diameter are not considered "regeneration" and should not be referred to or counted as such for the purposes of either UVA or Heavy Cut. They are considered as current stocking, but not as regeneration.

In reading the prescriptions, I was left with the impression that for several stands the major species of management interest are striped maple and pin cherry. We do not recognize these as acceptable commercial species. Certainly they are a concern, and the

treatments to control them should be discussed. Our interest is in understanding how the heavy cut activity will improve or produce acceptable growing stock in the stand.

Matt took the time to visit this area and walk the stands covered by this prescription so we did not have to reject this permit out of hand. It is not going to be possible or reasonable for him to spend this level of time to visit all Plum Creek proposed cuts in this detail in the future. We need good maps with clear activity descriptions, better plot information, and an understandable narrative of how the cut will result in an improvement of the future stand.

Please call me at 802-241-3675 if you would like to discuss this further. I look forward to working with Plum Creek.

Sincerely,

Virginia G. Anderson

Vusin Haudum

Chief, Forest Resources Management VT Dept. Forests, Parks and Recreation

Cc: Matt Langlais, Essex/Caledonia County Forester



State of Vermont Department of Forests, Parks and Recreation 1229 Portland Street, Suite 201 St. Johnsbury, VT 05819-2099 www.vtfpr.org

[png.e] 802-751-0110 [fax] 802-748-6687 [xdd] 800-253-0191 Agency of Natural Resources

REF: HC#05.04.09 Cone Head Road

### Notice of Determination

#### To the Town of Ferdinand:

10 the	town of Perdinand;					
confor	ant with the rules established under the Heavy Cut Provision of 10 VSA § 2622 and in ance with the Regulation of Heavy Cutting of 10 VSA § 2625, the following determination issued for land owned by Plum Creek Timberlands in the town of Ferdinand.					
EXEM	PTIONS:					
	Tarvest is not subject to regulations under provision of this law.					
	The proposed heavy cut is intended to carry out an agricultural conversion plan.					
	The proposed heavy cut is a conversion subject to regulation by a District Commission and the Environmental Board under 10 VSA, Chapter 151, Act 250, or by the Public Service Board, Tit! 60.					
$\boxtimes$	The proposed heavy cut is consistent with one of the following:					
	A forest management plan currently in effect and approved by the Department under the Current Use Assessment program,  A chip harvesting plan currently in effect and approved by the Department of Fish and Wildlife under a permit issued under 40 VSA Section 248,  A forest management plan currently in effect and approved by the Department under rules in effect at the time of approval of the plan.					
FOR I	ARCELS THAT DO NOT QUALIFY FOR AN EXEMPTION:					
	The proposal is in conformance with rules adopted by the Department and the cut may proceed.					
	The proposal is not in conformance with rules adopted by the Department and the cut may not proceed.					
<u> </u>	Chief of Forest Management Date					



#### **MEMORANDOM**

To:

Jonathan Wood, Commissioner

Through:

Ginger Anderson, Chief of Forest Management

From:

Matt Langlais, Essex/Caledonia County Forester

Date:

March 22, 2007

Subject:

Proposed Alternative UVA Plan Strategy for Selected Large Landowners

in Essex County

Regarding our February 23<sup>rd</sup> meeting and the ongoing issue of Landvest's Use Value Appraisal (UVA) Forest Management Plans for large landowners in Essex County not meeting the minimum requirements I'd like to propose an alternative strategy. The following strategy I believe finds middle ground between the requirements of the UVA Program and the limitations faced by Landvest in providing those needed requirements.

#### Background:

The majority of the forestland in Essex County has historically been owned and managed by a few large industrial landowners. Although relatively recently liquidated by such companies as Champion International and International Paper the lands have remained as fairly intact large contiguous holdings through conservation efforts. Historically these lands have not been enrolled in Vermont's Use Value Appraisal Program given the tax structure of the unorganized towns and gores. With the passage of ACT 60 this has now changed with all of the largest landowners now enrolled. Statewide the average parcel size for enrolled forestland is 110 acres whereas in Essex County it is 650 acres. This figure reflects the fact that four landowners own roughly 70% of the total 200,000 acres of enrolled forest land (with over half of this being enrolled in the last five years). The Use Value Program is now a necessary component for these lands to be economically viable for owners. Given the UVA program's statewide application, ownerships of tens of thousands of acres are held to the same standards as those applied to 25 acre parcels. Managers of these lands have shown that they cannot feasibly meet the minimum requirements of the program.

Landvest, the consulting firm for one of these ownerships (Heartwood Forest Land Fund II), has been engaged in the process of developing new and updated forest management plans for this 25,000 acre ownership and has to-date been unable to meet with the minimum program requirements. The main issue preventing the consultant from meeting the program standards is the stratified random sampling inventory system used to develop plans for large ownerships. This system is at odds with standards of UVA because UVA requires stand specific information and this system provides coarse information on forest types across an ownership. To move beyond the stalemate that has ensued, I'd like to propose the following alternative strategy for this ownership:

#### Proposal:

The proposed alternative strategy for this ownership would entail the landowner submitting a scaled down plan that the Dept of Forest, Parks & Recreation would approve "in concept". This plan would include the following components:

- 1. Map to standards with stands delineated and stand numbers assigned (no change)
- 2. For each broad forest cover type described from the stratified random sample:
  - a. Corresponding UVA type
  - b. Acreage
  - c. Forest Cover Type description
  - d. Management recommendations including area regulation scheme if even aged management is to be employed.
  - e. Silvicultural prescriptions to be employed and a description of stand conditions for which each prescription will be utilized

All individual stands are considered to have "no activity" under this conceptual plan. When a harvest is planned, the consultant will submit an amendment for approval. This amendment will include stand specific information and meet all of the "minimum standards for forest management" as described in the UVA Program Manual effective April 15, 2006. It will be recommended that the consultant submit all harvests for a given year at one time and provide enough lead time for possible site visits and revisions. If at all possible, it would make the most efficient use of time to set a yearly meeting between Landvest and the Department to combine this UVA review process with monitoring requirements of the Forest Legacy Program and the Heavy Cut application process.

In closing, this alternative strategy is not intended to subvert the established guidelines of the Use Value Program nor change in any way those established guidelines. It is intended to meet the needs of a specific situation. There remains some question as to the application of this process, whether it is feasible, whether it can or should be applied to other ownerships, and whether an acreage cutoff for ownerships be used or it utilized at the discretion of the county forester. Thank you and I look forward to learning what direction the Department wishes to take this.

Cc; Steve Sinclair, Jim Horton

Landvest UVA Planning Heartwood Forest Land Fund

Notes: 2/14/07 M. Langlais

#### Heartwood Ownership:

24, 534 Acres in 13 parcels ranging from 200 to 7000 acres. Towns include: Averill, Avery's Gore, Norton, Warner's Grant, Warren's Gore, Ferdinand, East Haven

#### Plan Status:

Norton- Plan on file is in effect until 2011. LV was contacted by S.S. when land transferred from GMO to HFF to have new owner sign old plan or to submit new plan. ML contacted RC via telephone on 3/1/06 to reiterate need for signed or updated plan. RC stated that plan would be here by 4/1. ML sent letter to LV dated 9/14/2006 giving a deadline of Oct 15 for plan to be submitted. Received plan middle Nov. Sent letter to LV on Dec. 6, 2006 asking for revisions. Rec'd revisions back end of Dec. Sent LV letter dated Jan 2, 2007 as revisions asked for in Dec 6 letter not made and further revisions needed as plan had changed again. Received latest version of plan on 1/24/07. Spoke with JS & RC shortly thereafter stating that problems still existed with plan and to go ahead with planned 07 harvest but that plan was not approved and that we would be in contact with LV to determine how to proceed with UVA plan issues.

Averill- Same issues as Norton

Avery's Gore- Same issues as Norton.

Warren's Gore- Parcel is new enrollment in 2005. "Interim Plan" submitted 12/29/05 to S.S. Steve left note on plan when retired stating that it was not a plan as it was not complete. Issues from this point fall in line with above parcels.

Warner's Grant- Same issues as Warren's Gore.

Ferdinand- Same issues as the Grant and the Gore.

East Haven- The current plan for East Haven has expired. Contacted RC on 3/1. Expected to receive plan by 4/1. Sent letter 9/14. Rec'd plan Nov. Sent letter Dec 6 asking for further revisions. Per C. Parker (logger) he is currently harvesting on this parcel for LV and we have not yet rec'd a plan.

#### Plan Overiding Issues:

Synopsis of a stand: Norton Parcel

- Stand 2172
- 20 Acres
- Northern Hardwood
- 103' ba/43'ags (a-line)
- 9" msd
- 65-80 years old with 100 yr rotation age

- History: Received OSR & group selection in 2000-2001
- Prescription: Intent is to regenerate a mix of tolerant and intolerant species with shelterwood treatment and "openings" greater than 3 acres. Appendix submitted with plan also states that this stand may be thinned, patch cut, group selection applied or clearcut.

This stand description and subsequent prescription makes no sense. There are hundreds of stands across this ownership that have similar discrepancies. Rather than continue to go back and forth with LV on the issues of details, I feel that we need to get to the crux of the issue which is the inventory data being used. LV is trying to fit a square peg in round hole by attempting to use their inventory system data to satisfy requirements of UVA program. LV appears to stratify stand data in a type system (H3B, HS3B etc). All stands of one type have the same msd and basal area figures and range of prescriptions. The data attributed to an individual stand simply does not adequately describe that stand. For the 7,000 acre Norton parcel there are over 350 stands and only thirteen basal areas.

I was able to prove this point on the 845 acre Inkel Beecher Pond Parcel (UVA & Legacy Parcel). I visited the parcel with the intent of running some cruise lines. I chose three stands that all had the same descriptions. In the plan LV had the stands described as NH, 7"msd, and 71" ba / 33 ags ba. The prescription for this stand was to thin it to 50". My inventory found three very distinctly different stands; a pioneer hardwood stand with 80" ba, a low quality nh stand with 60" ba, and a mature nh stand with good quality sm and wa with 110" ba. Not one of these stands was adequately described by the given information.

#### Other Issues:

Plan Format

Plan format is extremely cumbersome and difficult to read. Suggestions were made for changes however those suggestions were not taken.

Plan Maps

Norton Parcel has 47 stands under 5 acres. Some as small as four-hundreds of an acre. LV was asked to use a minimum stand size of 5 acres however they have chosen not to do so. Non-contiguous parcels are also located on same map.

Industrial Forest Management:

"Stands are too heterogeneous and do not conform to silvicultural guides"
"Not economically feasible to inventory the number of plots needed to get
good data"

# Alternative UVA Plans for Selected Large Landowners

The Use Value Appraisal Large Landowner Alternative Forest Management Plan Format is available for interested landowners with enrolled contiguous blocks of forestland 5,000 acres and larger. This planning format requires that eligible landowners submit a "10-year concept" plan to the Department of Forest, Parks & Recreation which would include the following components:

- 1. Map to standards with stands delineated and stand numbers assigned (as with all UVA plans)
- 2. For each broad forest cover type described from the stratified random sample:
  - a. Corresponding UVA type
  - b. Acreage
  - c. Forest Cover Type description
  - d. Management recommendations including area regulation scheme. Silvicultural prescriptions to be employed and a description of stand conditions for which each prescription will be utilized

All individual stands are considered to have "no activity" under this conceptual plan. When an entry or harvest or other activities is planned, the landowner will submit an amendment for approval. Approval must be received prior to commencement of harvest activities.

The amendment document will include stand specific information from a pre-sale cruise and meet all of the *minimum standards for forest management* as described in the UVA Program Manual effective April 15, 2006. This includes copies of maps with stands clearly delineated.

Activity plan amendments will be accepted for review twice a year: For fall/winter harvests by August 1, for summer harvests by April 1.

Managers should plan harvests for a year on any given block in which an amendment is submitted.

Harvesting and other activities that take place without the signed amendment from the County Forester will be considered in nonconformance with the filed UVA plan.

The schedule and requirements for the plan Conformance Inspection Reports (CIR's) any plan updates, other amendments or reporting changes are not affected by this procedure. Entry plans will cite both total and acceptable growing stock (AGS) residual Basal Areas as well as quadratic mean stand diameter (MSD) along with the appropriate Silvicultural Guides.

#### Signatures:

I certify that this signature page constitutes an addendum to my forest management plan. By signing below I have elected to utilize the alternative UVA planning format and understand and agree to the above requirements for continued eligibility in UVA.

Signature:		
	Date	
Approved:		
Forester, VT Dept. Forest, Parks & Recreation	Date	

#### Alternative UVA Plans for Selected Large Landowners

#### Background:

Some forestland in Vermont has historically been owned and managed by large industrial landowners. Although relatively recently sold by such companies as Champion International and International Paper, some of these lands have remained as fairly intact large contiguous holdings through conservation efforts, often managed by Timber investment and management organizations (TIMO's).

Historically, many of these lands have not been enrolled in Vermont's Use Value Appraisal Program. With the passage of ACT 60, this has now changed with all of the State's largest landowners now enrolled. Statewide the average parcel size for enrolled forestland is 110 acres although in Essex County, where ownerships are largest, it is 650 acres. This figure reflects the fact that four landowners own roughly 70% of the total 200,000 acres of UVA-enrolled forest land (with over half of this being enrolled in the last five years). The Use Value Program is now a necessary component for these lands to be economically viable for owners. Given the UVA program's statewide application, ownerships of tens of thousands of acres are held to the same standards as those applied to 25 acre parcels. Managers of these lands have shown that they cannot feasibly meet some of the minimum requirements of the program.

The main issue preventing the managers of these lands from meeting the program standards is the stratified random sampling inventory system commonly used to develop plans for large ownerships. This system is at odds with standards of UVA because UVA requires stand specific information and this stratified inventory system provides only coarse information on forest types across any land block. To enable large ownerships to participate in UVA with meaningful plans, an alternative to the plan inventory guidelines is needed.

#### Alternative Plans

The proposed alternative would require that the landowner submit a "10-year concept" plan for contiguous blocks of forestland 5,000 acres and larger. The Department of Forest, Parks & Recreation would approve these concept plans which would include the following components:

- 1. Map to standards with stands delineated and stand numbers assigned (as with all UVA plans)
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Silvicultural prescriptions to be employed and a description of stand conditions for which each prescription will be utilized

All individual stands are considered to have "no activity" under this conceptual plan. When an entry or harvest or other activities is planned, the consultant will submit an amendment for approval. Approval must be received prior to commencement of harvest activities.

The amendment document will include stand specific information from a pre-sale cruise and meet all of the *minimum standards for forest management* as described in the UVA Program Manual effective April 15, 2006. This includes copies of maps with stands clearly delineated.

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From:

Anderson, Ginger

Sent:

Wednesday, June 20, 2007 10:08 AM

To:

Bouton, Jon; Buzzell, George; Fice, Nate; Guenther, Bill; Hansen, Eric; Horton, Jim; Langlais, Matt; Leonard, Matt; Maciejowski, Jay; Moulton, Bill; Olson, Chris; Paganelli, David; Schneski,

Sam; Snyder, Michael; Tessmann, Jim; Toolan, Raymond; Vile, Chuck

Subject:

Attachments:

next draft of UVA for Timos Alternative3 UVA plans.doc

Here is the UVA draft I promised. If I have forgotten or inadvertantly left out an important correction or addition, please let me know! I have gotten to the point where I have several drafts of this hanging around, so I need to delete the old copies once I know I am confident this is the best draft to date.

Thanks! Ginger

#### Draft Alternative UVA Plans for Selected Large Landowners (06-18-07)

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From:

Guenther, Bill

Sent:

Wednesday, April 02, 2008 11:36 AM

To:

Langlais, Matt

Subject:

FW: Sampling -Inventory

#### Hi Matt

Here is Brian's response to Frosty's questions as to what sampling is required for an update.

Also I don't think that I have the final version of the Protocol for >5,000 acre tracts... could you please send me the

final version. Also I trust that Carol sent off the whole UVA Manual to you in WORD??

Cheers, Bill

William C. "Bill" Guenther
Windham County Forester
Vermont Department of Forests, Parks & Recreation
11 University Way, Suite #4
Brattleboro, VT 05301

Telephone: (802) 257-7967 bill.guenther@state.vt.us

From: Stone, Brian

**Sent:** Thu 12/1/2005 11:11 AM **To:** 'frosty@wagnerforest.com' **Cc:** Wood, Jonathan; Sinclair, Steve

Subject: UVA Question

#### Frosty,

I have reviewed your question with Jon Bouton and have discussed it with Jonathan and Steve. The upshot of those conversations and several responses from other county foresters boils down to the following.

In order to be eligible for Use Value Appraisal with a qualified management plan each parcel needs an inventory by stand to enroll and subsequently an inventory by stand for updates. The manual leaves it up to the forester's professional discretion how detailed an inventory process is needed to produce stand data that is an accurate reflection of stand conditions. It is also very important to understand that there is likely to be some variation between individuals as to what an "accurate reflection of stand conditions" might be. The bottom line is that inventories are required and that the inventories must be sufficient to allow the county foresters to make the determination that prescriptions in the plans and updates and the treatments that follow are in accordance with the rules and guidelines of the UVA program.

You should be aware that this provision does in no way change the requirements that existed before the most recent update of the UVA manual.

I hope this provides the answer you are looking for. Brian

Brian Stone Chief of Forest Management Vermont Dept. of Forests, Parks and Recreation 103 South Main Street, Bldg 10S Waterbury, VT 05676

email: <u>brian.stone@state.vt.us</u> Telephone: 802-241-3675

FAX: 802-244-1481

From:

Anderson, Ginger

Sent:

Thursday, September 06, 2007 9:01 AM

To: Subject: Langlais, Matt RE: TIMO UVA

Attachments:

Final TIMO UVA plans.doc

#### Matt,

I was sure I sent an attachment yesterday (in fact I attached before I wrote the message so I wouldn't forget!). But apparently, no one received it. So, I apologize. Here it is.

Ginger

From: Langlais, Matt

Sent: Thursday, September 06, 2007 8:54 AM

To: Anderson, Ginger Subject: RE: TIMO UVA

Hi Ginger,

Has the original draft proposal that I sent to you changed in any way? I'm not sure if you meant to forward an attachment with the email with the new protocol so I wasn't sure. Thanks again for following up on this. Best, Matt

From: Anderson, Ginger

Sent: Wednesday, September 05, 2007 4:25 PM

To: Bouton, Jon; Barrett, Russ; Fice, Nate; Guenther, Blli; Buzzell, George; Hansen, Eric; Langlais, Matt; Olson, Chris; Paganelli, David; Schneski, Sam; Snyder, Michael; Toolan, Raymond; Vile, Chuck; Maciejowski, Jay; Horton, Jim; Moulton, Bill

Subject: TIMO UVA

Today I was told to implement the protocol we were asked to develop regarding UVA plans from large landowners. If you have any UVA enrollees who qualify, please send them a copy of this. If they have any questions or need further accomodation, please have them send those to you via letter or e-mail and you can forward them to me. I would like to have a file on this issue and I want to have the written information (as opposed to a telephone exchange). While we are not going to broadcast this via news release, I think we know who qualifies and how this will affect both them and you. Please note that they can request activity approval twice a year, not at any time they wish.

Ginger

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From:

Fice, Nate

Sent:

Wednesday, August 19, 2009 4:40 AM

To:

Langlais, Matt; Snyder, Michael; Guenther, Bill; Barrett, Russ

Cc:

Anderson, Ginger; Sinclair, Steve; Maciejowski, Jav

Subject:

RE: Alternative Strategy-Large Landowners

Thanks Matt, that's the way I had understood it and I applaude your efforts for working hard to deal with a very tough issue. A couple more thoughts...

I'm assuming you still plan to meet with Ginger, Steve, and Jonathan about whether or not this is still a workable solution. Are you in need of additional support from the rest of us, in either direction?

There is one example already where we, actually PV&R, bend the rules for larger landowners, by not requiring landowners over 1,000 acres to produce a map to the 1:5,000 scale. In either case, I think I could argue that the figures of 1,000 and 5,000 are arbitrarily set and if I had 999 acres or 4,999 acres that I am being treated unfairly. The map issue is about size and the functionality of using a map in the field...I think. Somebody decided, and by the way, this rule helps us CFs too, that they didn't want to carry or work with a piece of paper bigger than what would hold a 1,000 acre parcel at 1:5,000 scale.

The sampling issue is about money, cost to the landowner...right? It's not that 5,000+ acres can't be sampled to the UVA standards and stand specific information given the first time around. It's that stratafied sampling is the preferred method of sampling for the consultants who have TIMO clients, because it gives them enough information for financial management purposes and keeps their costs down. It in no way helps us CFs, it in no way promotes better siviculture, it in no way makes it any easier for anyone except the consultant and the landowner.

Without starting a "class" war here, my number one solution is still to make everyone sample to the same standards and provide the same level of information the first time. If you are wealthy enough to own more than 5,000 acres, part of owning that large chunk of land and enrolling it in UVA, which is voluntary, is to submit a plan to UVA standards (period).

The other option, not so fun to think about, is to look at the stratafied sampling method. I'll admit, I don't know enough about this sampling method to know when it should be applied. Is it based on parcel size? Stand size? Stand variability? Or is it strictly a financial management tool. One, we could let all landowners have the choice of using stratafied sampling, because if I can barely afford to own 1,000 acres and look at my land as an investment, or not, then I should have the same opportunity to save money as someone who owns over 5,000 acres. Two, if there is research that says, once you have this number of acres you should consider stratafied sampling, then we should go with that number. In either case, the sampling system and the process needs to meet the goals of the program and should be feasible to administer by the CFs. If we are eventually requiring and receiving stand level data and information, then why not provide it the first time around?

I guess I have more questions that need to be answered, before I can raise more arguments or solutions... Thanks for listening to my thoughts.

Nate

Nate Fice

Agency of Natural Resources

Bennington County Forester

Department of Forests, Parks, & Recreation

nate.fice@state.vt.us

478 State Park Road Shaftsbury, VT 05262

(802) 375-1217 (phone) (802) 375-2408 (fax)

www.vtforest.com www.vtfpr.org From: Langlais, Matt

Sent: Tuesday, August 18, 2009 4:57 PM

To: Snyder, Michael; Guenther, Bill; Fice, Nate; Barrett, Russ

Cc: Anderson, Ginger

Subject: RE: Alternative Strategy-Large Landowners

Mike, Thanks for the comments. Please know that I didn't accept these plans (inherited). The changes came after I rejected the plans that came in for updates several times over for not meeting the standards. In trying to work through the reasons for rejecting the plans with the consulting firms sending them in I came up with this strategy. I was basically told that on these large parcels that the UVA standards were not feasible. So I never did accept a plan with stratified data until this process was in place. Thanks again, Matt

From: Snyder, Michael

Sent: Tuesday, August 18, 2009 1:36 PM

To: Langlais, Matt; Guenther, Bill; Fice, Nate; Barrett, Russ

Cc: Anderson, Ginger

Subject: RE: Alternative Strategy-Large Landowners

Thanks, Matt. My only lasting question then is why accept those plans that were submitted using stratified sampling and which seem to have caused this compromise to take place? That seems to be the point at which we began to have different standards for different landowners. Was there a reason you just didn't reject those plans on the basis that they didn't meet basic requirements?

Again, I do not mean to railroad you out of this. As I and others have said, if this has to be, then this (yours) is a good way to do it. I like it. I just don't like the idea of it and am wondering about its genesis particularly.

-- Mike

Michael Snyder Chittenden County Forester 111 West Street, Essex Junction, VT 05452 802/879-5694 michael.snyder@state.vt.us

From: Langlais, Matt

Sent: Tuesday, August 18, 2009 11:13 AM

To: Guenther, Bill; Fice, Nate; Snyder, Michael; Barrett, Russ

Cc: Anderson, Ginger

Subject: RE: Alternative Strategy-Large Landowners

Bill, Russ, Nate & Mike-

Thanks for taking the time to look this over and offer questions/comments. I certainly agree with each of your sentiments that having different standards for a specific segment is bad precedent. This alternative strategy was born from what I consider a compromise. These parcels/consultants had been submitting plans using stratified sampling. As we had accepted the plan and data we had no idea whether the silviculture on the ground was the right silviculture because it simply was not stand specific information we were reviewing. Not only did the numbers have no meaning, the prescriptions for a "strata" ranged from thinning to clearcut, therefore we had no way to asses the harvesting. My thought was that if we allowed the consultants/large landowners to continue sending us the stratified data but that we could somehow ensure that the silviculture on the ground was good we'd be meeting them in the middle. They still have to meet all of the standards of the program—just not on the same schedule as those parcels under 5,000 acres.

The jury is still out on whether this is a good thing or not. It is taking a tremendous amount of time but having the opportunity to review good stand specific data and prescriptions I do believe we are getting better work on the ground (mostly because after taking the time to review the data and walk the stand they end up changing their prescriptions).

I've attempted to answer each of your questions/concerns on the attached copy.

From: Guenther, Bill

Sent: Tuesday, August 18, 2009 9:44 AM

To: Langlais, Matt; Fice, Nate; Baron, Bill; Olson, Chris; Paganelli, David; Hansen, Eric; Anderson, Ginger; Maciejowski, Jay; Bouton, Jon; Leonard, Matt; Snyder, Michael; Patch, Nancy; Toolan, Raymond; Barrett, Russ; Schneski, Sam

Cc: Sinclair, Steve

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I would suggest that somewhere on the form be a space for the owner's name, as with just a scribbled signature it could be hard to discern who it belongs to.

Cheers, Bill

William C. "Bill" Guenther Windham County Forester

## Vermont Department of Forests, Parks & Recreation

11 University Way Suite #4 Brattleboro, VT 05301 Telephone: (802) 257-7967

<u>bill.guenther@state.vt.us</u>

From: Langlais, Matt

Sent: Wednesday, August 12, 2009 11:03 AM

To: Fice, Nate; Baron, Bill; Guenther, Bill; Olson, Chris; Paganelli, David; Hansen, Eric; Anderson, Ginger; Maciejowski, Jay; Bouton, Jon; Leonard, Matt; Snyder, Michael; Patch, Nancy; Toolan, Raymond; Barrett, Russ; Schneski, Sam

Subject: RE: Alternative Strategy-Large Landowners

#### Greetings all.

Attached is the re-worked Alternative Strategy for large landowners. If you could take a look at it and get comments back to me I would much appreciate it. I'd like to have these comments before Ginger, Steve & my meeting with Jonathan on this issue. There were some good questions being asked and ideas tossed around before we tabled this at our last meeting that I think are very important and should be raised at this meeting with the Secretary. Thanks for your time and I look forward to hearing back from you. Best, Matt

From:

Guenther, Bill

Sent:

Tuesday, August 18, 2009 5:18 PM

To:

Langlais, Matt; Snyder, Michael; Fice, Nate; Barrett, Russ

Cc:

Anderson, Ginger

Subject:

RE: Alternative Strategy-Large Landowners

HI Matt, thanks for your comments.... I can really feel for you knowing who one of your biggest headaches is..... I have mixed feelings about how we should proceed and often HQ defers to the local CF's and if we try to get folks to knuckle down then we at the local level are to ones to take the hit......given that we have not always been backed up I think that you have a reasonable compromise... albeit one that I'm not totally comfortable with..... C'est la vie!!

Cheers, Billy G

William C. "Bill" Guenther Windham County Forester

### Vermont Department of Forests, Parks & Recreation

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Anderson, Ginger

Subject:

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The jury is still out on whether this is a good thing or not. It is taking a tremendous amount of time but having the opportunity to review good stand specific data and prescriptions I do believe we are getting better work on the ground (mostly because after taking the time to review the data and walk the stand they end up changing their prescriptions). I've attempted to answer each of your questions/concerns on the attached copy.

From: Guenther, Bill

Sent: Tuesday, August 18, 2009 9:44 AM

To: Langlais, Matt; Fice, Nate; Baron, Bill; Olson, Chris; Paganelli, David; Hansen, Eric; Anderson, Ginger; Maciejowski, Jay; Bouton, Jon; Leonard, Matt; Snyder, Michael; Patch, Nancy; Toolan, Raymond; Barrett, Russ; Schneski, Sam

Cc: Sinclair, Steve

Subject: RE: Alternative Strategy-Large Landowners

Hi Matt, in looking this over I have put some comments/questions on your draft. I looked over all of Nate's points and essentially agree with him..... I do think that we may be setting a perilous precedent by allowing one group of landowners a different set of playing rules, but that being said, I do understand that there are some issues with these large parcels that smaller ones don't have... but if we have to have it, then I think that your document is on the right tract.

I would suggest that somewhere on the form be a space for the owner's name, as with just a scribbled signature it could be hard to discern who it belongs to.

Cheers, Bill

William C. "Bill" Guenther Windham County Forester

#### Vermont Department of Forests, Parks & Recreation

11 University Way Suite #4 Brattleboro, VT 05301 Telephone: (802) 257-7967 bill.quenther@state.vt.us

From: Langlais, Matt

Sent: Wednesday, August 12, 2009 11:03 AM

To: Fice, Nate; Baron, Bill; Guenther, Bill; Olson, Chris; Paganelli, David; Hansen, Eric; Anderson, Ginger; Maciejowski, Jay; Bouton, Jon; Leonard, Matt; Snyder, Michael; Patch, Nancy; Toolan, Raymond; Barrett, Russ; Schneski, Sam

Subject: RE: Alternative Strategy-Large Landowners

Greetings all,

Attached is the re-worked Alternative Strategy for large landowners. If you could take a look at it and get comments back to me I would much appreciate it. I'd like to have these comments before Ginger, Steve & my meeting with Jonathan on this issue. There were some good questions being asked and ideas tossed around before we tabled this at our last meeting that I think are very important and should be raised at this meeting with the Secretary. Thanks for your time and I look forward to hearing back from you. Best, Matt

From:

Patch, Nancy

Sent:

Tuesday, August 18, 2009 10:30 AM

To:

Guenther, Bill; Olson, Chris; Paganelli, David; Hansen, Eric; Bouton, Jon; Langlais, Matt;

Snyder, Michael; Fice, Nate; Toolan, Raymond; Barrett, Russ; Schneski, Sam

Subject:

RE: Alternative Strategy-Large Landowners

Matt,

I think this looks fine.

Nancy

From: Guenther, Bill

Sent: Tuesday, August 18, 2009 9:43 AM

To: Langlais, Matt; Fice, Nate; Baron, Bill; Olson, Chris; Paganelli, David; Hansen, Eric; Anderson, Ginger; Maciejowski, Jay; Bouton, Jon; Leonard, Matt; Snyder, Michael; Patch, Nancy; Toolan, Raymond; Barrett, Russ; Schneski, Sam

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Cheers, Bill

William C. "Bill" Guenther Windham County Forester

Vermont Department of Forests, Parks & Recreation

11 University Way Suite #4 Brattleboro, VT 05301 Telephone: (802) 257-7967

bill.guenther@state.vt.us

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802-751-0111 email: matt.langlais@state.yt.us

Richard Carbonetti Landvest 5086 US Route 5 Newport, VT 05855 April 3, 2008

Dear Richard,

Thank you for your letter dated March 26, 2008 and submission of the Piperville Forest Resources, Inc. & Black Hills Forest Resources, Inc. forest management plan. As you recognized in your letter, this parcel does not qualify for the Large Landowner Alternative UVA Plan Strategy as this strategy is limited to contiguous parcels greater than five-thousand acres. Given this ownership consists of ten parcels spanning four towns it I cannot accept this plan at this time. The 2006 UVA Minimum Standards for Forest Management Plans requires that sampling data be stand specific. Although you have provided good detail on the sixteen strata sampled, for UVA purposes a broad forest type across hundreds of acres and many noncontiguous parcels is not considered a stand. Please consider this letter as an extension approval to submit a new plan by September 1, 2008. I trust that four months will be sufficient time for you to supplement your 2006 inventory to provide the required stand specific data. With respect to your acknowledgement that the ability exists to not schedule activities in specific stands and amend the plan annually as you build a yearly cutting plan, I would ask that you take the opportunity when visiting each stand to consider its specific condition as it relates to Piperville/Black Hill's management parameters and schedule it for the appropriate treatment.

Thank you for your time and efforts and I look forward to hearing back from you.

Sincerely,

Matt Langlais Caledonia/Essex County Forester

Cc: Ginger Anderson Ed O'leary

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From: L

Langlais, Matt

Sent:

Tuesday, June 12, 2007 4:15 PM

To:

Olson, Chris

Cc:

Anderson, Ginger

Subject: FW: UVA large landowners

#### Chris,

Good points. I did assume that items not covered in the alternative strategy proposal were to remain the same. It does make sense to reaffirm that all else remains unchanged. Thanks, Matt

From: Olson, Chris

Sent: Tuesday, June 12, 2007 9:59 AM

To: Langlais, Matt

Subject: UVA large landowners

Matt - I think your proposal is fine.

#### Two thoughts:

1. Making it clear that the schedule and requirements for updates, CIR's, amendments, reporting changes in enrollment, etc will not be affected by the "alternative".

2. Retaining the requirement that a Silvicultural Guide be referenced, and that residual BA (Total and AGS) be cited in the harvest plan.

#### Chris

Chris W. Olson Addison County Forester 68 Catamount Park, Suite C Middlebury, VT 05753 802-388-4969 chris.olson@state.vt.us

From: Moulton, Bill

Sent: Wednesday, June 06, 2007 8:47 AM

To: Anderson, Ginger Subject: RE: UVA, Again

I agree that the likelihood of seeing much unevenaged management on industrial lands is probably remote, but there are some large private land owners in other parts of the state who manage primarily unevenaged. Myers 8000 acres, Bailey 6000 acres in our district. Once they figure out the potential savings in inventory (you no longer have to inventory all lands every 10 years, only the stands you will harvest) by using the new proposed system they might want to use it.

From: Anderson, Ginger

Sent: Wednesday, June 06, 2007 8:28 AM

To: Moulton, Bill Cc: Langlais, Matt Subject: RE: UVA, Again

#### Bill.

The even-age wording was from Matt's original proposal, and I believe he was thinking of the most likely scenario for the lands that he sees for cuts that would violate UVA. You are correct about area regulation for unevenaged stands, but my question is it a concern for this issue? Ginger

From: Moulton, Bill

Sent: Wednesday, June 06, 2007 7:50 AM

To: Anderson, Ginger Subject: RE: UVA, Again

#### Ginger

A forest regulation scheme also can be applied to unevenaged management. You lump all similar stands, for example site 1 and 2 northern hardwoods, and determine an entry schedule, say every 15 years. Take the total acres and establish a target per year to be averaged over 10 years. Reentry for site 3 might be every 30 years. At some point it might make sense to visit each company who wants to do this and discuss what a regulation plan is to better understand how they apply the concept so we don't have any surprises. I'm not suggesting we tell them how to apply it, just make sure we are talking about the same thing so we can explain it when VNRC and others come knocking on our door with the question.

From: Anderson, Ginger

Sent: Tuesday, June 05, 2007 4:09 PM

To: Wood, Jonathan; Sinclair, Steve; Barrett, Russ; Bouton, Jon; Buzzell, George; Fice, Nate; Guenther, Bill; Hansen, Eric; Horton, Jim; Langlais, Matt; Leonard, Matt; Maciejowski, Jay; Moulton, Bill; Olson, Chris; Paganelli, David; Schneski, Sam; Snyder, Michael; Tessmann, Jim; Vile, Chuck

Cc: Sabourin, Gary

Subject: UVA, Again

Oops!

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Sent:

Wednesday, June 06, 2007 7:50 AM

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Anderson, Ginger

Subject: RE: UVA, Again

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Cc: Sabourin, Gary Subject: UVA, Again

Oopsi

From:

Horton, Jim

Sent:

Wednesday, June 06, 2007 7:55 AM

Ťο:

Anderson, Ginger

Čc:

Langlais, Matt

Subject: RE: UVA - Large Blocks

#### Ginger,

I'll look over the proposal, but I did want to follow-up on a comment Matt has made before: That is this proposal has buy in from one large land owner's consultant I believe Matt's point is well taken and this should also be run by our other large landowner Essex Timber Company. Matt and I have meet with Jim Wood on a preliminary basis after the issue surfaced on the Heartwood Lands and this was with Jonathan's knowledge. However I do believe we should give Essex a chance to weight in after we have a proposal. Let's not create a process one firm can meet and another is going to have issue with later.

Jim

From: Anderson, Ginger

Sent: Tuesday, June 05, 2007 2:51 PM

To: Wood, Jonathan; Sinclair, Steve; Langlais, Matt; Barrett, Russ; Bouton, Jon; Buzzell, George; Fice, Nate; Guenther, Bill; Hansen, Eric; Horton, Jim; Leonard, Matt; Maciejowski, Jay; Moulton, Bill; Olson, Chris; Paganelli, David; Schneski, Sam; Snyder, Michael; Tessmann, Jim; Toolan, Raymond; Vile, Chuck

Cc: Sabourin, Gary

Subject:

Attached is a draft proposal for UVA plans for large timber blocks. Matt Langlais had put forward a proposal, discussed it with the Commissioner, then we talked about it further at our meeting in Bethel. I've taken the notes from that meeting to edit Matt's fine work outlining the proposal and changing it into a draft.

What I would like is for everyone to read through what I have done to see if it reflects what you understood from the meeting and /or addresses the concerns that you have about large block ownerships.

Even if you don't have blocks this size in your county, please look this over with a critical eye. Mark it up and send it back so that we can better address this issue.

Thanks, Ginger

## Proposed Alternative UVA Plan Strategy for Selected Large Landowners in Essex County

#### Background:

A large majority of the forestland in Essex County has historically been owned and managed by a few large industrial landowners. Although relatively recently sold by such companies as Champion International and International Paper the lands have remained as fairly intact large contiguous holdings through conservation efforts. Historically these lands have not been enrolled in Vermont's Use Value Appraisal Program given the tax structure of the unorganized towns and gores. With the passage of ACT 60 this has now changed with all of the largest landowners now enrolled. Statewide the average parcel size for enrolled forestland is 110 acres whereas in Essex County it is 650 acres. This figure reflects the fact that four landowners own roughly 70% of the total 200,000 acres of enrolled forest land (with over half of this being enrolled in the last five years). The Use Value Program is now a necessary component for these lands to be economically viable for owners. Given the UVA program's statewide application, ownerships of tens of thousands of acres are held to the same standards as those applied to 25 acre parcels. Managers of these lands have shown that they cannot feasibly meet the minimum requirements of the program.

A consulting firm managing one of these ownerships has been engaged in the process of developing new and updated forest management plans for a 25,000 acre ownership and has to-date been unable to meet with the minimum program requirements. The main issue preventing the consultant from meeting the program standards is the stratified random sampling inventory system used to develop plans for large ownerships. This system is at odds with standards of UVA because UVA requires stand specific information and this system provides coarse information on forest types across an ownership. To move beyond the stalemate that has ensued, I'd like to propose the following alternative strategy for this ownership as well as other large industrial ownerships:

#### Proposal:

The proposed alternative strategy for this ownership would entail the landowner submitting a scaled down plan that the Dept of Forest, Parks & Recreation would approve "in concept". This plan would include the following components:

- 1. Map to standards with stands delineated and stand numbers assigned (no change)
- 2. For each broad forest cover type described from the stratified random sample:
  - a. Corresponding UVA type
  - b. Acreage
  - c. Forest Cover Type description

- d. Management recommendations including area regulation scheme if even aged management is to be employed.
- e. Silvicultural prescriptions to be employed and a description of stand conditions for which each prescription will be utilized

All individual stands are considered to have "no activity" under this conceptual plan. When a harvest is planned, the consultant will submit an amendment for approval. This amendment will include stand specific information from a pre-sale cruise and meet all of the "minimum standards for forest management" as described in the UVA Program Manual effective April 15, 2006. It will be recommended that the consultant submit all harvests for a given year at one time and provide enough lead time for possible site visits and revisions.

From: Buzzell, George

Sent: Wednesday, June 06, 2007 2:05 PM

Anderson, Ginger; Wood, Jonathan; Sinclair, Steve; Barrett, Russ; Bouton, Jon; Fice, Nate; To:

Guenther, Bill; Hansen, Eric; Horton, Jim; Langlais, Matt; Leonard, Matt; Maciejowski, Jay; Moulton, Bill; Olson, Chris; Paganelli, David; Schneski, Sam; Snyder, Michael; Tessmann, Jim; Vile, Chuck;

Toolan, Raymond

Cc: Sabourin, Gary

Subject: RE: UVA, Again

#### Ginger:

We can each think of legitimate situations involving "time is of the essence"---because of weather, acts of God, small niche markets, etc", which could occasionally put a stick in the wheel of the twice yearly submittal dates, but I would think we could each handle such situations using common sense-including passing it by supervisors if we have doubts, etc. However, we may not wish to put these "situations or exceptions" in the basic rules (in writing) as it effectively puts the camel into the tent. Your second sentence appears more satisfactory "..harvesting/entries without signed amendment.....is in noncomformance...."

You can bet'chur boots that we WILL get requests to respond to (legitimate) "situations or exceptions".. Quickly, off the top of my head, it works for me...

#### George -

From: Anderson, Ginger

Sent: Wed 6/6/2007 12:03 PM

To: Buzzell, George; Wood, Jonathan; Sinclair, Steve; Barrett, Russ; Bouton, Jon; Fice, Nate; Guenther, Bill; Hansen, Eric; Horton, Jim; Langlals, Matt; Leonard, Matt; Maciejowski, Jay; Moulton, Bill; Olson, Chris; Paganelli, David; Schneski, Sam; Snyder, Michael; Tessmann, Jim; Vile, Chuck

Cc: Sabourin, Gary Subject: RE: UVA, Again

George, you raise two good points. Is the language on the twice yearly acceptance for plans enough to address. the first concern? We can add something to the effect that harvesting done without a signed amendment is in noncomfromance with UVA or some such language if you think it needs to be stronger.

As for the name of the plans, I'm happy to call them Activity Plans. Ginger

From: Buzzeli, George

Sent: Wednesday, June 06, 2007 9:58 AM

To: Anderson, Ginger; Wood, Jonathan; Sinclair, Steve; Barrett, Russ; Bouton, Jon; Fice, Nate; Guenther, Bill; Hansen, Eric; Horton, Jim; Langlais, Matt; Leonard, Matt; Maclejowski, Jay; Moulton, Bill; Olson, Chris; Paganelli, David; Schneski, Sam; Snyder, Michael; Tessmann, Jim; Vile, Chuck

Cc: Sabourin, Gary Subject: RE: UVA, Again

My repeated concern is (referring to one of the last paragraphs in the draft) "....All.....stands are considered to have no activity..." that the consultant will not be allowed the position of demanding or setting time constraints which will force the County Forester(s) to have to "jump and run". As some of us are painfully aware, a few consultants seem to operate by deciding today that they simply have to get started first thing in the morning, and if they don't hear from us by then they will take it as permission to go ahead.... If I remember correctly, we all agreed at the Bristol meeting that we weren't going to allow that tail to wag the dog. The twice yearly submittal dates seems to be adequate to address the concern.......

Concern # 2 --- "Harvest plans" will be accepted August & April....." I would suggest the term "Harvest plans" be replaced or supplemented with "Entry plans" and/or "Activity plans" (in the case of significant activities other than cutting) (semantics being a major part of some consultant manipulations--- "...oh, we aren't planning to do any harvesting...we're only going to have an intermediate entry...")

Sincerely

George

From: Anderson, Ginger Sent: Tue 6/5/2007 4:09 PM

To: Wood, Jonathan; Sinclair, Steve; Barrett, Russ; Bouton, Jon; Buzzell, George; Fice, Nate; Guenther, Bill; Hansen, Eric; Horton, Jim; Langlais, Matt; Leonard, Matt; Maciejowski, Jay; Moulton, Bill; Olson, Chris; Paganelli, David; Schneski, Sam; Snyder, Michael; Tessmann, Jim; Vile, Chuck

Cc: Sabourin, Gary Subject: UVA, Again

Oops!

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To: Anderson, Ginger; Wood, Jonathan; Sinclair, Steve; Barrett, Russ; Bouton, Jon; Fice, Nate;

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Cc: Sabourin, Gary

Subject: RE: UVA, Again

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Cc: Sabourin, Gary Subject: UVA, Again

Oops!

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#### Background:

A large majority of the forestland in Essex County has historically been owned and managed by a few large industrial landowners. Although relatively recently sold by such companies as Champion International and International Paper the lands have remained as fairly intact large contiguous holdings through conservation efforts. Historically these lands have not been enrolled in Vermont's Use Value Appraisal Program given the tax structure of the unorganized towns and gores. With the passage of ACT 60 this has now changed with all of the largest landowners now enrolled. Statewide the average parcel size for enrolled forestland is 110 acres whereas in Essex County it is 650 acres. This figure reflects the fact that four landowners own roughly 70% of the total 200,000 acres of enrolled forest land (with over half of this being enrolled in the last five years). The Use Value Program is now a necessary component for these lands to be economically viable for owners. Given the UVA program's statewide application, ownerships of tens of thousands of acres are held to the same standards as those applied to 25 acre parcels. Managers of these lands have shown that they cannot feasibly meet the minimum requirements of the program.

A consulting firm managing one of these ownerships has been engaged in the process of developing new and updated forest management plans for a 25,000 acre ownership and has to-date been unable to meet with the minimum program requirements. The main issue preventing the consultant from meeting the program standards is the stratified random sampling inventory system used to develop plans for large ownerships. This system is at odds with standards of UVA because UVA requires stand specific information and this system provides coarse information on forest types across an ownership. To move beyond the stalemate that has ensued, I'd like to propose the following alternative strategy for this ownership as well as other large industrial ownerships:

#### Proposal:

The proposed alternative strategy for this ownership would entail the landowner submitting a scaled down plan that the Dept of Forest, Parks & Recreation would approve "in concept". This plan would include the following components:

- 1. Map to standards with stands delineated and stand numbers assigned (no change)
- 2. For each broad forest cover type described from the stratified random sample:
  - a. Corresponding UVA type
  - b. Acreage
  - c. Forest Cover Type description

- d. Management recommendations including area regulation scheme if even aged management is to be employed.
- e. Silvicultural prescriptions to be employed and a description of stand conditions for which each prescription will be utilized

All individual stands are considered to have "no activity" under this conceptual plan. When a harvest is planned, the consultant will submit an amendment for approval. This amendment will include stand specific information from a pre-sale cruise and meet all of the "minimum standards for forest management" as described in the UVA Program Manual effective April 15, 2006. It will be recommended that the consultant submit all harvests for a given year at one time and provide enough lead time for possible site visits and revisions.

# Draft Alternative UVA Plans for Selected Large Landowners

#### Background:

Some forestland in Vermont has historically been owned and managed by large industrial landowners. Although relatively recently sold by such companies as Champion International and International Paper, some of these lands have remained as fairly intact large contiguous holdings through conservation efforts, often managed by Timber investment and management organizations (TIMO's).

Historically, many of these lands have not been enrolled in Vermont's Use Value Appraisal Program. With the passage of ACT 60, this has now changed with all of the largest landowners now enrolled. Statewide the average parcel size for enrolled forestland is 110 acres whereas in Essex County, where ownerships are largest, it is 650 acres. This figure reflects the fact that four landowners own roughly 70% of the total 200,000 acres of enrolled forest land (with over half of this being enrolled in the last five years). The Use Value Program is now a necessary component for these lands to be economically viable for owners. Given the UVA program's statewide application, ownerships of tens of thousands of acres are held to the same standards as those applied to 25 acre parcels. Managers of these lands have shown that they cannot feasibly meet some of the minimum requirements of the program.

The main issue preventing the managers of these lands from meeting the program standards is the stratified random sampling inventory system commonly used to develop plans for large ownerships. This system is at odds with standards of UVA because UVA requires stand specific information and this stratified inventory system provides only coarse information on forest types across block. To enable large ownerships to participate in UVA with meaningful plans, an alternative to the plan inventory guidelines is needed.

#### Alternative Plans

The proposed alternative would require that the landowner submit a "10-year concept" plan for contiguous blocks of forestland 5,000 acres and larger. The Department of Forest, Parks & Recreation would approve these concept plans which would include the following components:

- Map to standards with stands delineated and stand numbers assigned (as with all UVA plans)
- 2. For each broad forest cover type described from the stratified random sample:
  - a. Corresponding UVA type
  - b. Acreage
  - c. Forest Cover Type description
  - d. Management recommendations including area regulation scheme if even aged management is to be employed.

e. Silvicultural prescriptions to be employed and a description of stand conditions for which each prescription will be utilized

All individual stands are considered to have "no activity" under this conceptual plan. When a harvest is planned, the consultant will submit an amendment for approval. Approval must be received prior to commencement of harvest activities.

This amendment will include stand specific information from a pre-sale cruise and meet all of the "minimum standards for forest management" as described in the UVA Program Manual effective April 15, 2006. This includes copies of maps with stands clearly delineated.

Harvest plans will be accepted for review twice a year:

For fall/winter harvests-August 1

For summer harvests-April 1

Discontinuous blocks of land less than 5,000 acres in size will not be eligible for this alternative UVA plan, whether or not the owner/manager has other blocks that are.

# Proposed Alternative UVA Plan Strategy for Selected Large Landowners in Essex County

#### Background:

A large majority of the forestland in Essex County has historically been owned and managed by a few large industrial landowners. Although relatively recently sold by such companies as Champion International and International Paper the lands have remained as fairly intact large contiguous holdings through conservation efforts. Historically these lands have not been enrolled in Vermont's Use Value Appraisal Program given the tax structure of the unorganized towns and gores. With the passage of ACT 60 this has now changed with all of the largest landowners now enrolled. Statewide the average parcel size for enrolled forestland is 110 acres whereas in Essex County it is 650 acres. This figure reflects the fact that four landowners own roughly 70% of the total 200,000 acres of enrolled forest land (with over half of this being enrolled in the last five years). The Use Value Program is now a necessary component for these lands to be economically viable for owners. Given the UVA program's statewide application, ownerships of tens of thousands of acres are held to the same standards as those applied to 25 acre parcels. Managers of these lands have shown that they cannot feasibly meet the minimum requirements of the program.

A consulting firm managing one of these ownerships has been engaged in the process of developing new and updated forest management plans for a 25,000 acre ownership and has to-date been unable to meet with the minimum program requirements. The main issue preventing the consultant from meeting the program standards is the stratified random sampling inventory system used to develop plans for large ownerships. This system is at odds with standards of UVA because UVA requires stand specific information and this system provides coarse information on forest types across an ownership. To move beyond the stalemate that has ensued, I'd like to propose the following alternative strategy for this ownership as well as other large industrial ownerships:

#### Proposal:

The proposed alternative strategy for this ownership would entail the landowner submitting a scaled down plan that the Dept of Forest, Parks & Recreation would approve "in concept". This plan would include the following components:

- 1. Map to standards with stands delineated and stand numbers assigned (no change)
- 2. For each broad forest cover type described from the stratified random sample:
  - a. Corresponding UVA type
  - b. Acreage
  - c. Forest Cover Type description

Size of land plack not stacked managed

Time Frame - still unchear for large omerships 
would affect wagner at all -

sus tamble

d. Management recommendations including area regulation scheme if even aged management is to be employed.

e. Silvicultural prescriptions to be employed and a description of stand conditions for which each prescription will be utilized

12 Code or other?

All individual stands are considered to have "no activity" under this conceptual plan. When a harvest is planned, the consultant will submit an amendment for approval. This amendment will include stand specific information from a pre-sale cruise and meet all of the "minimum standards for forest management" as described in the UVA Program Manual effective April 15, 2006. It will be recommended that the consultant submit all harvests for a given year at one time and provide enough lead time for possible site visits and revisions.

Stratefield sampling U.S. land?

6ptim - Hurshold acres -- 5,000 -- contrguous - see how works 
- Henry cut for every thing(?) -
- Historical USE - Last entry -

- Yield- maximum as even. Place pagestation - underestand.

Stead conditions

- time year round schelule =

Sulvage 30 days -

Hanest schedule - due Jan 1 ; Amarona Man 1

due July 1 turnament, Sypt1

Pheenty not purhamest.

No idea of State Dunelship.

From:

Horton, Jim

Sent:

Wednesday, July 29, 2009 7:29 AM

To:

Anderson, Ginger

Subject:

RE: TIMO UVA Suggested change

The two main issues you mention are why I suggest adding a state lands person, who has had experience on large parcels. Not that state lands are exactly like TIMOs or REITs it is that they have faced some similar issues. I can relate to the inventory system that doesn't convey an accurate picture, and while state lands does not chase markets they do face other issues that drive timber management. Yes it would be a bit of role playing I admit, but someone who is not constantly thinking about the UVA rules of engagement may help.

I haven't had the time to sit down with all the past emails and notes from our discussions going back to AGS and Vigor, but I was my though was to start assembling it into some form of a diagram that would be useful. I also think no matter what you decide to do as far as getting this resolved I would be glad to sit down with Matt and work with him for an hour or so to try and get the issues assembled into a useable format so that a group could begin to look at this. It would save some of the group time to actually working on a solution.

I think the discussion has been just between my son and I after a long day in the field doing walk throughs.

Jim

From: Anderson, Ginger

Sent: Tuesday, July 28, 2009 2:48 PM

To: Horton, Jim

Subject: RE: TIMO UVA Suggested change

Jim.

I hope your son doesn't say this around Carbo, or he won't get a moment's peace, but the County Foresters except for Matt are wondering the same thing This is not a decision for FPR to make, but how we deal with UVA on large parcels is.

There are two main issues related to large landowners be they TIMO's, REIT's or other large industrial lands and UVA

-Inability to follow a ten-year plan for either cutting levels or area treatment in a world where market conditions change weekly or monthly

-inventory systems that do not convey accurate stand-specific data.

If you want to add a third, that would be the level of complexity possible for silvicultural prescriptions on landscape level treatments is much less than that for smaller ownerships with longer rotations..

Would a group of County Foresters with varying experiences be able to craft a fair and efficient system for reviewing and monitoring these ownerships? The questions would start with what criteria is needed to be considered under this program?

From: Horton, Jim

Sent: Tuesday, July 28, 2009 7:49 AM

To: Anderson, Ginger

Subject: RE: TIMO UVA Suggested change

Ginger.

Just a couple of thoughts after yesterday and from some observations over the years of how UVA has adjusted to meet the "average sized" landowner. Granted there are many more landowners who can meet the present standards then there are TIMO's in VT, but have we asked the right questions yet? I would suggest a smaller group just county

foresters, but a state lands forester with experience in large blocks work with devising a new TIMO if that is what is needed.

Also we need to break down the issues a little bit more now that we have had some experience with the landowners uphere. I would setup a small group and run it with Matt as the fact person (provide the background) and let the others try and break down the issues related to TIMO such as inventory, mapping, silviculture, ect. The group would need to understand that we may end up treating TIMO's differently.

My final observation comes from my son in that he doesn't see UVA fitting the large landowners as it is presently working. With that I think we need to as a Dept or as a State decide what role these lands play in our future landscape.

I would be glad to discuss more

Jim

From: Anderson, Ginger

Sent: Friday, July 24, 2009 12:48 PM

To: Horton, Jim

Subject: RE: TIMO UVA Suggested change

Jim.

Thanks for looking at this. At some point, I would like to have you take a look at the entire UVA manual, not for editing, but to make sure that we line up what we do on state lands with what we want folks in UVA to do.

I heard pretty clearly yesterday that we need to completely re-vamp the whole description of the Large landowner program. Matt had already realized that this description which was done more as a "White Paper" than a manual reference needed to be streamlined. What he hadn't realized is that this program could affect more than his district. He had originally proposed this procedure to make it easier for both himself and the managers of the properties to deal with the many sale activities that go on with the larger parcels

Carbo had asked that the Piperville Properties be managed this way and I had refused last year, as I had wanted to limit the treatment to large contiguous properties. My original thought was that the owners and consultants are laying a grid on these and inventorying them with the least amount of work and effort. I have no information to tell me that smaller, disjunct parcels are being evaluated differently, and we know that there are some areas on the large parcels that show up as discrete stands with 4 trees in them. It is hard to get good stand prescriptions on these sites. These lands also have a large number of heavy cut requests, which accompany the activities so from a workload standpoint, it makes sense to deal with these properties as "packages."

But Mike Synder asked an excellent question yesterday. He asked if Inventory method (stratified sampling) and the need for flexible cutting plans was the main driver for the procedure to deal with these properties differently, should there be an acreage restriction or should there be some other way to determine who participates in the "Timo" scenario? Again, he had broadened his thinking out to Green Crow, Yankee, etc.

Carbo talked to me and Steve this week and made his usual assertion that we treat other landowners differently from TIMO's, which is true (but we had thought it beneficial to large landowners). Carbo's main point is that feels that we are asking for more silvicultural information from large owners. He may be correct, but I think we ask for that not so much for the UVA function, but to satisfy the Heavy Cut piece.

So, this leave me wondering about how we categorize and deal with large land owners who present a different UVA workload to our staff because they:

- A. Require more flexibility in their plans because of frequent timber sale or other management activities
- B. Often trigger Heavy Cut activity with their operations,
- C. Use stratified sampling techniques that do not necessarily give us the detailed biometrics at the time their plans are being written for their entire enrolled parcel and
- D. Tend to have detailed easements from a third party or outside program that may dictate conditions beyond or in addition to UVA

I think Matt is thinking about this, but I would welcome any idea you might have.

Thanks, Ginger

From: Horton, Jim

Sent: Thursday, July 23, 2009 10:43 AM

**To:** Anderson, Ginger **Cc:** Sabourin, Gary

Subject: TIMO UVA Suggested change

Ginger,

Gary forwarded me the most recent TIMO UVA after he found out I an out-of- date copy. I noticed that we used consultant instead of landowner on page 2 see my comment on the attached. Maybe it is no big deal and it doesn't need to be changed. My thinking is that the way things get interpreted these days I could just envision a Landowner claiming they didn't know that their consultant had/hadn't submitted an amendment for approval.

I know you're looking at this with the Cty Foresters today so if you do make changes.

Jim

# HARVEST PRESCRIPTION FACT SHEET

**PROJECT CODE: 7086** 

CONTRACT NUMBER: LM-03-01-09

**FORESTER: JCH** 

TOWN: Lemington

PHOTO: 220264, 220260

**STANDS:** 24, 34, 43, 46, 54

ROADS: Simms Hill, Upper Clough Brook

JOB DESIGNATION: Upper Clough Brook North

TOTAL ACRES IN STANDS: +/- 471

CRES IN STANDS: 1/- 4/1

CRES IN STANDS TO BE TREATED: +/- 471 TOTAL ACRES IN STANDS TO BE TREATED: +/- 471

PROPOSED CONTRACTOR: (TBA)

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HARVESTING EQUIPMENT RESTRCTIONS OR REQUIREMENTS: The harvest can be accomplished by a mechanized crew with feller-buncher and grapple skidders or cut-to-length equipment.

CURRENT STAND CONDITION: \_ include moose browse here - for Dom

Stand 24 is a well stocked Softwood dominated mixed wood type with at total basal area of 110 ft2, of that 50 ft2 is acceptable growing stock. The stand is dominated by Balsam fir, Red spruce, White birch, Red maple and Yellow birch. The mean stand diameter is 7.9 inches. The stand is weighted towards the medium saw timber size class. The White birch is in severe decline and the majority of Balsam fir is mature. The understory is well stocked with Red spruce seedling and saplinas.

中型设备的连续转的对方。12超台被引起的特别。这些特别的被推荐的设备。 Stand 34 is a well stocked Northern hardwood type with a total basal area of 82 ft<sup>2</sup>, of that 35 ft<sup>2</sup> is acceptable growing stock. The stand is dominated by Sugar maple, Yellow birch, Beech, Balsam fir, Red Spruce. The mean stand diameter is 8.4 inches. The stand is weighted towards the medium saw timber size class. The current stand has a high level of residual stand damage and a fair about of crown die-back. The understory varies greatly in stocking of acceptable regeneration, with small pockets of Sugar maple seedling and saplings in a patchy distribution around the stand.

Stand 43 is a well stocked Hardwood dominated mixed wood type with a total basal area of 88 ft², of that 38 ft² is acceptable growing stock. The stand is dominated by Yellow birch, Balsam fir, White birch, Red spruce, Red maple. The mean stand diameter is 8.2 inches. The stand is weighted towards the medium saw timber size class. The White birch in the stand is in severe decline and the majority of Balsam fir is mature. The majority of the stand has good stocking in Red spruce seedlings and saplings in the understory.

Stand 44 is a well stocked Northern hardwood type with a basal area of 97 ft<sup>2</sup>, of that 42 ft<sup>2</sup> is acceptable growing stock. The stand is dominated by Sugar maple, Yellow birch, Beech, Balsam fir, Red spruce. The mean stand diameter is 7.6 inches. The stand is weighed towards the small saw timber size class. The stand has a fair amount acceptable stocking in the of small saw timber size class.

Stand 46 is a poorly stocked Northern Hardwood type with a basal area of 40 ft<sup>2</sup>, of that 8 ft<sup>2</sup> is acceptable growing stock. The stand is dominated by Sugar maple, Yellow birch, Beech. The mean stand diameter is 6.8 inches. The stand is weighted towards the large pole timber size class. The stand is well stocked with Sugar maple and Yellow birch seedlings and saplings mixed in with beech and striped maple.

Stand 54 is a moderately stocked Northern hardwood stand with a basal area of 72 ft<sup>2</sup>, of that 28 ft<sup>2</sup> is acceptable growing stock. The stand is dominated by Sugar maple, Yellow birch, Beech, Red spruce, Balsam fir. The mean stand diameter is 8.2 inches. The stand is weighted towards the medium saw timber size class. The understory is dominated by beech and striped maple. 

Stand 54 will receive a Seed Tree cut (STC) (even age UVA code 13). The stand has many pockets of acceptable regeneration established in openings from a previous entry, however small pockets of mature and at risk stems remain and do not have sufficient levels of regeneration to warrant an Overstory Removal. The pockets of remaining overstory will be removed and individual Yellow birch or clumps of Red spruce or Sugar maple will be left to provide seed.

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> Identify and protect streams and significant wetlands using blue flagging for the centerline of non-eased stream buffers and the side of the stream for eased buffers and wetlands.
>
> Identify any potential problems and address them with the contractor.

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(4). [1] "自体行动"等指数1. 考查数 免疫理法 的现在分词扩充

- Identify former skid trails that can be used in current operations and flag new trails where needed using orange
- Flag stream crossings will have two pink flags and will designate stream crossing method with written instructions on flagging at crossing location and shown on LV's stream crossing worksheet.
- Require Feller-Buncher to lay all felled wood in skid trails to limit damage to the advanced regeneration and residual stand.
- Minimize skid trails to limit site disturbance.
- Establish bounds of harvest in flagged in pink or pink with "Timber Harvest Boundary" printed in black letters. Where the unit adjoins the property line the unit will be marked in blue flagging.

#### **DESIGNATION OF TIMBER FOR HARVEST:**

All stands within this unit (30) will be marked in blue or orange paint and three slashes with a C to indicate that all trees within the paint are to be cut. Marked timber will utilize blue or orange paint. Slashes or spots on at least two sides of the tree and a stump spot indicate removal. Skid trails will be designated with orange flagging. Trees marked with a "W", "X", "LX" or "SB" should not be harvested since their designations refer to wildlife trees (w), no cut trees (x), no cut-line trees (LX) and stream buffer (SB).

#### STREAM / LEGACY BUFFER PRESCRIPTION:

Larger order "blue line" streams and will have a 50' buffer where no operation will take place and crossings will be very limited. The 50' buffer will also apply to wetlands and other riparian features when appropriate. Blue flagging will be used to identify the buffer on the large order eased streams, and lower order non-eased streams will have blue flagging to designate the estimated stream centerline.

TRUCK ROAD CONDITIONS: No road upgrades are needed

#### **SKID TRAILS:**

Trails will be established by LV staff and designated in orange flagging. Any unacceptable trails will be identified as unsuitable and new trails will be put in place where needed.

#### LANDINGS:

Existing landings will be utilized for the harvest.

#### **REGULATORY CONSIDERATIONS:**

N/A

#### PERMIT REQUIREMENTS:

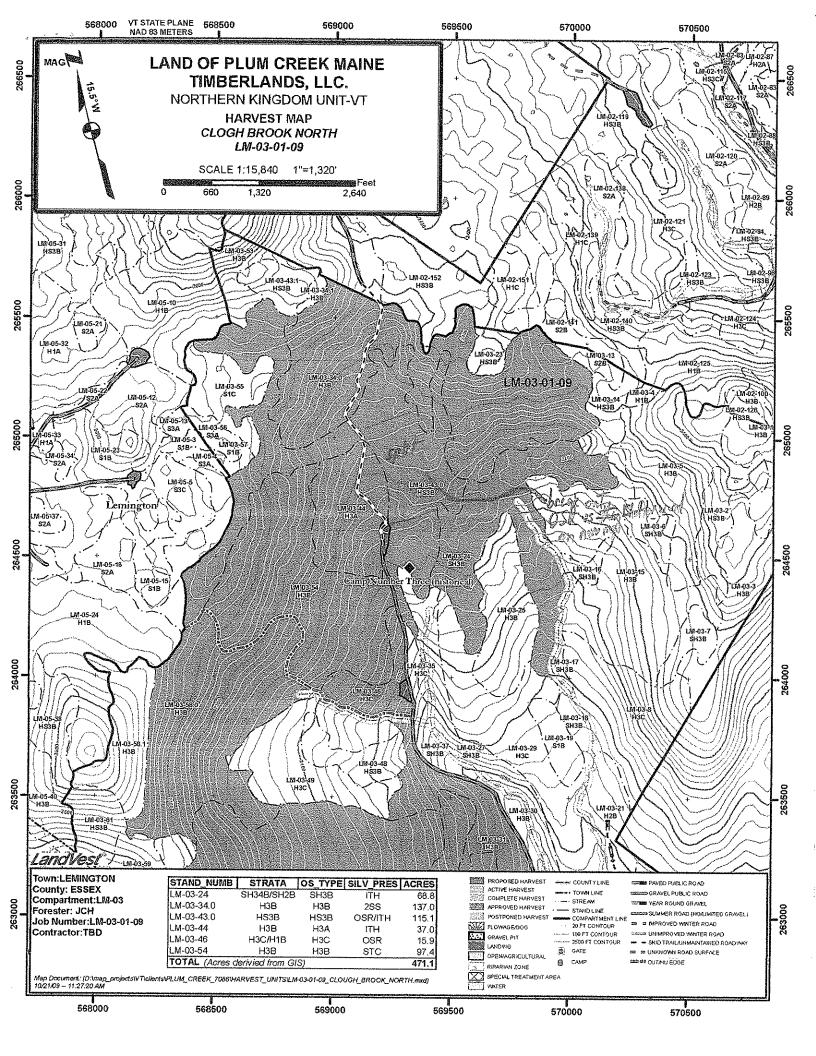
Heavy Cut (Act 15) notification required.

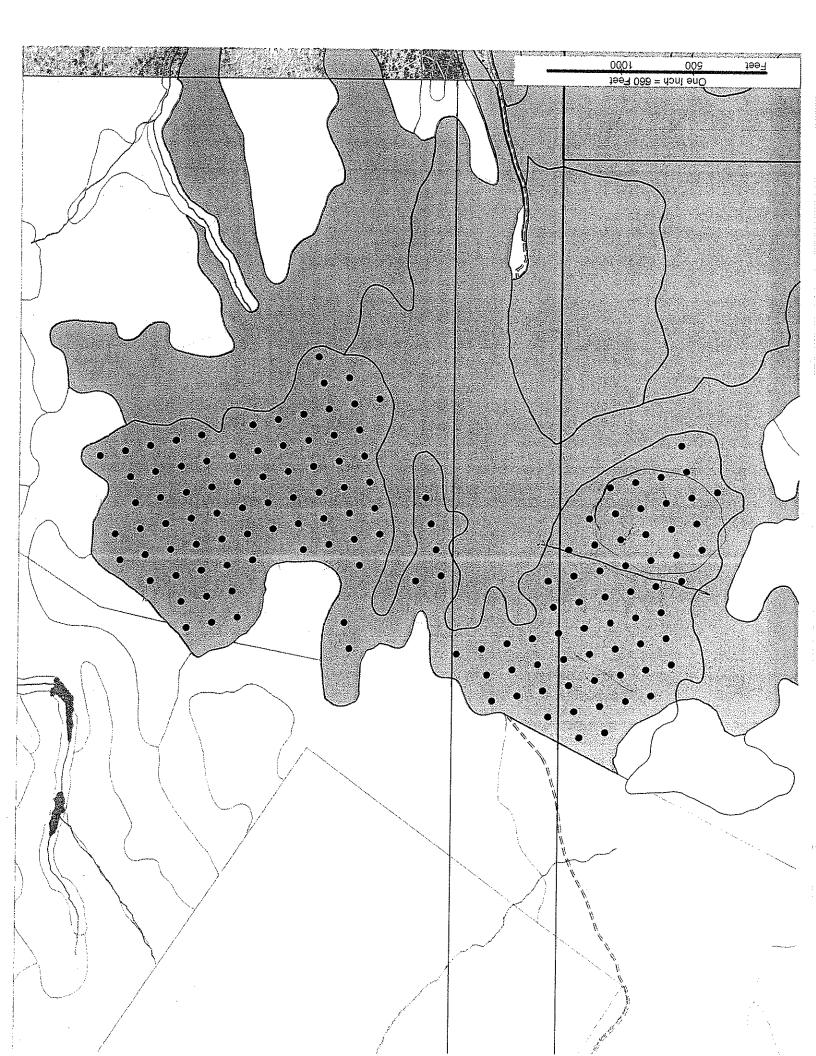
#### HABITAT RETENTION DESIGNATION

Retention will be utilized to retain native tree and vegetation species for the reoccupation of an implemented clear-cut or overstory removal. For information on implementation techniques see pages 51-53 of the Forest Management Plan, Nov. 2007.

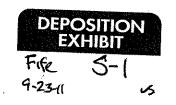
### **THREATENED & ENDAGERED SPECIES CONSIDERATIONS:**

N/A





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# Amended 10/27/09

# HARVEST PRESCRIPTION FACT SHEET

PROJECT CODE: 7086

CONTRACT NUMBER: LM-03-01-09

FORESTER: JCH

TOWN: Lemington

PHOTO: 220264, 220260

STANDS: 24, 34, 43, 46, 54

ROADS: Sims Hill, Upper Clough Brook

JOB DESIGNATION: Upper Clough Brook North

TOTAL ACRES IN STANDS: +/- 471

TOTAL ACRES IN STANDS TO BE TREATED: +/- 471

PROPOSED CONTRACTOR: (TBA)

HARVESTING EQUIPMENT RESTRCTIONS OR REQUIREMENTS: The harvest can be accomplished by a mechanized crew with feller-buncher and grapple skidders or cut-to-length equipment.

# CURRENT STAND CONDITION:

Stand 24 is a well stocked Softwood dominated mixed wood type with a total basal area of 110 ft², of that 50 ft² is acceptable growing stock. The stand is dominated by Balsam fir, Red spruce, White birch, Red maple and Yellow birch. The mean stand diameter is 7.9 inches. The stand is weighted towards the medium saw timber size class. The White birch is in severe decline and the majority of Balsam fir is mature. The understory is well stocked with Red spruce seedling and saplings.

Stand 34 is a well stocked Northern hardwood type with a total basal area of 82 ft<sup>2</sup>, of that 35 ft<sup>2</sup> is acceptable growing stock. The stand is dominated by Sugar maple, Yellow birch, Beech, Balsam fir, Red Spruce. The mean stand diameter is 8.4 inches. The stand is weighted towards the medium saw timber size class. The current stand has a high level of residual stand damage and a fair amount of crown die-back. The understory varies greatly in stocking of acceptable regeneration, with small pockets of Sugar maple seedling and saplings in a patchy distribution around the stand.

Stand 43 is a well stocked Hardwood dominated mixed wood type with a total basal area of 88 ft², of that 38 ft² is acceptable growing stock. The stand is dominated by Yellow birch, Balsam fir, White birch, Red spruce, Red maple, The mean stand diameter is 8.2 inches. The stand is weighted towards the medium saw timber size class. The White birch in the stand is in severe decline and the majority of Balsam fir is mature. The majority of the stand has good stocking in Red spruce seedlings and saplings in the understory.

Stand 44 is a well stocked Northern hardwood type with a basal area of 97 ft<sup>2</sup>, of that 42 ft<sup>2</sup> is acceptable growing stock. The stand is dominated by Sugar maple, Yellow birch, Beech, Balsam fir, Red spruce. The mean stand diameter is 7.6 inches. The stand is weighed towards the small saw timber size class. The stand has a fair amount of acceptable stocking in the of small saw timber size class.

Stand 46 is a poorly stocked Northern Hardwood type with a basal area of 40 ft<sup>2</sup>, of that 8 ft<sup>2</sup> is acceptable growing stock. The stand is dominated by Sugar maple, Yellow birch, Beech. The mean stand diameter is 6.8 inches. The stand is weighted towards the large pole timber size class. The stand is well stocked with Sugar maple and Yellow birch seedlings and saplings mixed in with beech and striped maple.

Stand 54 is a moderately stocked Northern hardwood stand with a basal area of 72 ft<sup>2</sup>, of that 28 ft<sup>2</sup> is acceptable growing stock. The stand is dominated by Sugar maple, Yellow birch, Beech, Red spruce, Balsam fir. The mean stand diameter is 8.2 inches. The stand is weighted towards the medium saw timber size class. The understory is dominated by beech and striped maple.

REGENERATION: Does not include non-commercial species or Beech

Stand	Seedlings per Acre	1"-3" Stems per Acre	Total Stems per	Dominate Acceptable Species
LM-03-24	364	217	581	Red spruce
LM-03-34	198	92	290	Sugar maple
LM-03-43.	290	120	410	Red spruce:
LM-03-44	128	66	194	Sugar maple
LM-03-46	310	88	398	Sugar maple, Yellow birch
LM-03-54	120	33	153	Sugar maple, Yellow birch

**ELEVATION & TERRAIN:** Elevation ranges from 1700-2500 ft. with poorly drained soils. The ground is gradual in slope, but increases on the far western side of the harvest unit.

SURROUNDING LANDSCAPE: The unit is located at the end of Sims Hill Road and abuts the Lemington Town forest. The proposed activities are consistent with accepted forest management activities in the region and pose no adverse affect to adjacent biological communities. The harvest unit is not visible to the public.

#### DESIRED GOAL OF HARVEST:

- · Capture value in declining timber
- Retain good quality trees as seed source and retained value for the long term
- Improve stand quality and provide openings for natural regeneration to occur where it is deficient
- Protect and release desirable advanced regeneration
- Protect riparian zones and wetland habitat.

## RECOMMENDED TREATMENT PRESCRIPTION:

Stand 24 will receive a Two Staged Shelterwood (2SS) (even age UVA code 3) and an Overstory Removal (OSR) (even age UVA code 4). The Shelterwood will target the at-risk and mature stems in areas of the stand the have higher stocking in acceptable growing stock. The target residual basal area is 60 ft<sup>2</sup>. The harvest will release quality growing stock and provide gaps to promote regeneration. The final cut will take place once acceptable levels of regeneration are established. Approximately 30–40% of the stand will receive this treatment. The remaining 60-70% of the stand will receive an Overstory Removal releasing the advanced Red spruce regeneration underneath an unacceptable and mature overstory. Care will be taken during layout to avoid the destruction or damage of regeneration.

Stand 34 will receive a Two Stage Shelterwood (2SS) (even age UVA code 3). The stand lacks an acceptable amount of regeneration and the majority of the overstory is unacceptable growing stock. A low density shelterwood with a residual basal area of 30-40 ft<sup>2</sup> will be utilized to discourage the establishment of beech in the understory. The shelterwood will be irregular in distribution and will target Sugar maple and Yellow birch with large crowns to provide shade and seed distribution. The portions of the stand will also receive 1-2 acre patches where quality and stocking are not insufficient for a Shelterwood. The patches will not affect the overall stand residual basal area of 30-40 ft<sup>2</sup>.

Stand 43 will receive a Two Staged Shelterwood (2SS) (even age UVA code 3) and Overstory Removal (OSR) (even age UVA code 4). 30-40% of the stand will receive an Overstory Removal where the overstory is in severe decline and the understory is well stocked with seedling and sapting sized Red spruce. The remaining portion of the stand will receive a Shelterwood. The harvest will target the at-risk and mature stems. The target residual basal area is 60 ft<sup>2</sup>. The harvest will release quality growing stock and provide gaps to promote regeneration.

Stand 44 will receive an Intermediate Thinning (ITH) (even age UVA code 2). The stand is well stocked with small saw timber, however many of the medium and large saw timber stems are in decline. The thinning will target the at-risk and mature stems and leave a target residual basal area of 60 ft<sup>2</sup>. This release the small saw timber size class and open up gaps for regeneration.

Stand 46 will receive and Overstory Removal (OSR) (even age UVA code 4). The overstory is in decline and the current stand conditions warrant removal. The understory has good stocking in Sugar maple and Yellow birch seedlings and saplings mixed within Beech and Non-commercial species. Care will be taken during layout to reduce the disturbance of the advanced regeneration. In small areas that do not have sufficient levels of acceptable regeneration a seed tree will be left to ensure regeneration. Yellow birch, Red Spruce or clumps of Sugar maple will be targeted as seed trees:

Stand 54 will receive a Seed Tree Patch cut (STC) (even age UVA code 5). The stand has many pockets of acceptable regeneration established in openings from a previous entry, however small pockets of mature and at risk stems remain and do not have sufficient levels of regeneration to warrant an Overstory Removal. The pockets of remaining overstory will be removed and individual Yellow birch or clumps of Red spruce or Sugar maple will be left to provide seed. Seed Tree

# Pre-harvest layout will include:

- Identify and protect streams and significant wetlands using blue flagging for the centerline of non-eased stream buffers and the side of the stream for eased buffers and wetlands.
- Identify any potential problems and address them with the contractor.
- Identify former skid trails that can be used in current operations and flag new trails where needed using orange
- Flag stream crossings will have two pink flags and will designate stream crossing method with written instructions on flagging at crossing location and shown on LV's stream crossing worksheet.
- Require Feller-Buncher to lay all felled wood in skid trails to limit damage to the advanced regeneration and Minimize skid trails to limit site disturbance.
- Establish bounds of harvest in flagged in pink or pink with "Timber Harvest Boundary" printed in black letters. Where the unit adjoins the property line the unit will be marked in blue flagging.

# DESIGNATION OF TIMBER FOR HARVEST:

All stands within this unit (30) will be marked in blue or orange paint and three slashes with a C to indicate that all trees within the paint are to be cut. Marked timber will utilize blue or orange paint. Slashes or spots on at least two sides of the tree and a stump spot indicate removal. Skid trails will be designated with orange flagging. Trees marked with a "W", "X", \*LX" or "SB" should not be harvested since their designations refer to wildlife trees (w), no cut trees (x), no cut-line trees

# STREAM / LEGACY BUFFER PRESCRIPTION:

Larger order "blue line" streams and will have a 50' buffer where no operation will take place and crossings will be very limited. The 50' buffer will also apply to wetlands and other riparian features when appropriate. Blue flagging will be used to identify the buffer on the large order eased streams, and lower order non-eased streams will have blue flagging to

TRUCK ROAD CONDITIONS: No road upgrades are needed

#### SKID TRAILS:

Trails will be established by LV staff and designated in orange flagging. Any unacceptable trails will be identified as

#### LANDINGS:

Existing landings will be utilized for the harvest.

REGULATORY CONSIDERATIONS: N/A

## PERMIT REQUIREMENTS:

Heavy Cut (Act 15) notification required.

## HABITAT RETENTION DESIGNATION

Retention will be utilized to retain native tree and vegetation species for the reoccupation of an implemented clear-cut or overstory removal. The retention will occur in the form of corridor retention along blue line and non blue line streams as well as through standing dead and coarse woody debris recruitment. These stands also feature sensitive hydrological features that will be avoided thus contributing to retention. For information on implementation techniques see pages 51-53 of the Forest Management Plan, Nov. 2007.

# THREATENED & ENDAGERED SPECIES CONSIDERATIONS: N/A

# SIGNAGE / NOTIFICATION REQUIREMENTS:

Intent to cut notification to FP&R and VLT due to the CE & UVA

# CONSERVATION EASMENT CONDITIONS:

As addressed in page 2 of the Champion Working Forest Conservation Easement it is required that two 16" or greater logs per acre of standing dead or downed trees be established or retained. This includes the recruitment of course woody debris by selecting trees that have the possibility of fulfilling the requirement in the future. For more detail see page 54 of the Forest Management Plan, Now 2007.

## CLOSE OUT REQUIREMENTS:

Refer to contract for specs.

VT Dept. of Forests, Parks & Recrea	VT Dept. of Forests, Parks & Recreation - USE VALUE APPRAISAL FOREST MANACEMENT BY AND	THE TAX IN THE STATE OF
Applicant Name: Plum Creek	Address: 49 Mountain Aye Appli	Applicant Phone: 802-334-8402
		Applicant e-mail: ihorton@landvest com
	Fairfield, Maine 04937	
	Grand List Description:: 86,262	
Acres Site	Stand Description	Long Range Objective
	EVEN-AGE X	
	Or	EVEN-AGE Management
Stand History: Harvested by	UNEVEN-AGE	Present Stand Age: 70-75
Champion Paper Co. approximately 20-		Rotation Age: 80
25 years ago.	Forest Type: H3B	
	₹.	Scrieduled Treatment
	Stocking Level: B-line	(1) ype and xear): Shelterwood (3)
	Quadratic MSD: 8.4	
	Total BA 820 ACS BA 22/	
	*	
Forest Health Conditions: The stand has high residual stand damage. Beech bark Nectria complex.	UNEVEN-AGE MANAGEMENT (Complete diameter distribution table and/or Q information)	UNEVEN-AGE Management Species Objectives: Cutting Cycle:
	BA 6-10" AGS UGS Cull	Residual BA: Diameter Objectives:
	BA 12-14" AGS UGS Cull	Schednied Treatment
	BA 16"+ AGS UGS Cull	(Type and Year): EXHIBIT
	Q Factor: Present Future	Fife S-2
Description of Stand Condition		9-7.2

growing stock. The stand is dominated by Sugar maple, Yellow birch, Beech, Balsam fir, Red Spruce. The mean stand diameter is 8.4 inches. The stand is weighted towards the medium saw timber size class. The current stand has a high level of residual stand damage and a fair about of crown die-back. The understory varies greatly in stocking of acceptable reguneration, with small pockets of Sugar maple seedling and saplings in Description of Stand Conditions Stand 34 is a well stocked Northern hardwood type with a total basal area of 82 ft2, of that 35 ft2 is acceptable

No. of Points/Plots Sampled 8 Sampling Date(s): 10/13/09

3

VT Dept. of Forests, Parks & Recreation -	tion – USE VALITE APPRAISAT FODEST MANNACEMENT III	TO BE STATE OF THE PARTY OF THE
Applicant Name: Plum Creek	Address: 49 Mountain Ave Appli	Applicant Phone: 802-334-8402
		Applicant e-mail: ihorton@landvest com
T T.		
n der	Grand List Description: : 86,262	
Acres Sife	Stand Description	Long Range Objective
Class Di	EVEN-AGE	
<u>-</u>	1	EVEN-AGE Management
Stand History: Harvested by	UNEVEN-AGE	Present Stand Age: 70-75
Champion Paper Co. approximately 20-		Rotation Age: 80
25 years ago.	Forest Type: H3B	Scheduled Treatment
	Stocking Level: B-line	(Type and Year): Shelterwood (3),
		1107(4) 1207
	Quadratic MSD: 8.2	
	Total BA 88 AGS BA 38	
The state of the s		
Forest Health Conditions: The stand has high residual stand damage. Beech	UNEVEN-AGE MANAGEMENT (Complete diameter distribution table and/or Q information)	UNEVEN-AGE Management Species Objectives:
odra ivecinia complex.	BA 6-10" AGS UGS Cull	Residual BA: Diameter Ohiectives:
	BA 12-14" AGS UGS Cull	Scheduled Treatment
	BA 16"+ AGS — UGS — Cull —	(Type and Year):
	Q Factor: Present Future	
Description of Stand Conditions Stand 43	Description of Stand Conditions Stand 43 is a well stocked Hardwood dominated mixed wood the contractions	

88 ft², of that 38 ft² is acceptable growing stock. The stand is dominated by Yellow birch, Balsam fir, White birch, Red spruce, Red maple. The mean stand diameter is 8.2 inches. The stand is weighted towards the medium saw timber size class. The White birch in the stand is in severe decline and the majority of Balsam fir is mature. The majority of the stand stocked Hardwood dominated mixed wood type with a total basal area of has good stocking in Red spruce seedlings and saplings in the understory.

Stand Cruise Data: Prism Factor/Plot size ..

Sampling Date(s): 10/13/09 No. of Points/Plots Sampled

Applicant Name: Plum Creek & Recreation – Applicant Name: Plum Creek	USE VALUE APPRAISAL FOREST I	MANAGEMENT PLAN - Form 2, Page 1
	ox 400	Applicant e-mail: jhorton@landvest.com
The second secon	eld, Mame 04937	
II	Grand List Description: : 86,262	The second secon
37 Olle	Stand Description	Long Range Objective
	EVEN-AGE X	
4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	J	EVEN-AGE Management
Stand History: Harvested by	UNEVEN-AGE	Present Stand Age: 70-75
Champion Paper Co. approximately 20-		Rotation Age: 80
22 years ago.	Forest Type: H3A	Schodulod Two
	Stocking Level: B-line	(Type and Year): Shelterwood (3)
	Quadratic MSD: 7.6	
	Total BA 97 AGS BA 42	
Forest Health Conditions: The stand	UNEVEN-AGE MANAGEMENT	
has high residual stand damage. Beech bark <i>Nectria</i> complex.	(Complete diameter distribution table andor Q information)	UNEVEN-AGE Management Species Objectives:
	BA 6-10" AGS UGS Cull	Cutting Cycle: Residual BA:
	BA 12-14" AGS UGS Cull	Diameter Objectives:
	BA 16"+ AGS UGS Cull	Scheduled Treatment (Type and Year):
	Q Factor: Present Future	
Description of Stand Stand 44 is a well stocked	locked Northern hardwood two with a basel and a second	

mean stand diameter is 7.6 inches. The stand is weighed towards the small saw timber size class. The stand has a fair acceptable growing stock. The stand is dominated by Sugar maple, Yellow birch, Beech, Balsam fir, Red spruce. The amount acceptable stocking in the of small saw timber size class.

Stand Cruise Data: Prism Factor/Plot size 10

No. of Points/Plots Sampled 5\_ S

Sampled 5 Sampling Date(s): 10/13/09

# MANAGEMENT SCHEDULE USE VALUE APPRAISAL FOREST MANAGEMENT PLAN

Stand 24 will receive a Two Staged Shelterwood (2SS) (even age UVA code 3) and an Overstory Removal (OSR) (even age UVA code 4). The Shelterwood will target the at-risk and mature stems in areas of the stand the have higher stocking in acceptable growing stock. The target residual basal area is 60 ft. The harvest will release quality growing stock and provide gaps to promote regeneration. The final cut will take place once acceptable levels of regeneration are established. Approximately 30-40% of the stand will receive this treatment. The remaining 60-70% of the stand will receive an Overstory Removal releasing the advanced Red spruce regeneration underneath an unacceptable and mature overstory. Care will be taken during layout to avoid the destruction or damage of regeneration.
Stand 34 will receive a Two Stage Shelterwood (2SS) (even age UVA code 3). The stand lacks an acceptable amount of regeneration and the majority of the overstory is unacceptable growing stock. A low density shelterwood with a residual basal area of 30-40 ft² will be utilized to discourage the establishment of beech in the understory. The shelterwood will be irregular in distribution and and seed distribution. The portions of the stand will also receive 1-2 acrepatches where quality and stocking are not insufficient for a Shelterwood. The patches will not affect the overall stand residual basal area of 30-40 ft². Stand 43 will receive a Two Staged Shelterwood (2SS) (even age UVA code 3) will receive an Overstory Removal where the overstory is in severe decline and the understory is well stocked with seedling and sapling sized Red spruce. The target the at-risk and mature stems. The target residual basal area is 60 ft² regeneration.

STAND NO.	YEAR	MANAGEMENT PRACTICES TO BE ACCOMPLISHED DURING NEXT 10 YEAR PLAN:	Silvicultural Guide or Tech Ref.
44	2011	Stand 44 will receive an Intermediate Thinning (ITH) (even age UVA code 2).  The stand is well stocked with small saw timber, however many of the medium and large saw timber stems are in decline. The thinning will target the at-risk and leave a target residual basal area of 60 ft <sup>2</sup> . This release the small saw timber size class and open its conditions.	if appropriate Guide:
		de de la company	
46	2011	Stand 46 will receive and Overstory Removal (OSR) (even age UVA code 4). The overstory is in decline and the current stand conditions warrant removal. The understory has good stocking in Sugar maple and Yellow birch seedlings and saplings mixed within Beech and Non-commercial species. Care will be taken during layout to reduce the disturbance of the advanced regeneration. In small areas that do not have sufficient levels of acceptable regeneration a seed tree will be left to ensure regeneration. Yellow birch, Red Spruce or clumps of Sugar maple will be targeted as seed trees.	Guide:
54	2011	Stand 54 will receive a Seed Tree Patch cut (STC) (even age UVA code 5). The stand has many pockets of acceptable regeneration established in openings from a previous entry, however small pockets of mature and at risk stems remain and do not have sufficient levels of regeneration to warrant an Overstory Removal. The pockets of remaining overstory will be removed and individual Yellow birch or clumps of Red spruce or Sugar maple will be left to provide seed. Seed Tree Patches will not exceed 25 acres in size across the stand.	

LANDOWNER SSIGNATURE	DATE:
PREPARED BY: Ionathan Horton	Tomorium application and appli
14. The second s	DATE: 10/14/09
CL. (IIFIED BY:	
	DATE:

MANAGI	EMENT	MANAGEMENT PLAN SUMMARY FORM	MARY FOR	M □ new □ update¹ ⊠ amendment² □ "FP&R COUNTY FORESTER USE ONLY"	update	amendmen	2 Change	☐ change of ownership Page 1 of 2	f2 FORM 4
Year of Plan	or Data E	rarcel 1D For Data Entry (by state)#Year of Plan					<b>.</b>	Year of Entry Year of Last Inspection	try ion
1) Landown	er Name (	1) Landowner Name (last name, first name) _	ame) Plum Creek	reek				The state of the s	
2) Landown	er Addres	2) Landowner Address (Street, PO Box)	ζ) 46 Mountain Avenue.	Avenue, P.O. Box 400	001				
(Town)	Fairfield	5)	(State) ME		(Zip Code	04937			
3) Town That Pa exclusions)	it Parcel I ions)	3) Town That Parcel Is Located In <u>Fer</u> exclusions)	Ferdinand 4) To:	4) Total Forestry Acres in Parcel 86,262	in Parcel 86	ļ	d list acreage, m	_(Grand list acreage, minus agricultural or non-productive land and	uctive land and
5)PlanPrepa	ırer (last ;	5) Plan Preparer (last name, first name)	Horton, Jonathan	athan	() E	revious Ow	6) Previous Owner (last name first name)	first name)	
7) Signature	ture		e federre mengleberrere per en landele erre manadalan menen menen harian	. 8) Dat	Date signed			, and tiutile)	
9) Stand info	rmation:	Stand information: (this information is for data entry only	is for data entr		and does not override what is in actual plan)	nat is in act	ıal plan)		
Stand#	Acres	Even-aged <sup>(1)</sup> Uneven-aged <sup>(2)</sup>	Predominant Site Class	Timber Type	Quadratic M.S.D	Total BA	AGS	Mgmt. Activities S	Scheduled Date
		(Auriena)	(1, 2, 3  or  4)				{		(≠ 3 yrs.)
LM-01-24	68.8		2-1		0 1	110	50	7/8	
LM-01-34	137	A Parent	1-2	90	8.4	c co	35		1107
LM-01-43	2		7-1		8.2	88	38	77/5	
10.00	),		7-1	0.0	9./	16	47.		7017
LM-01-40	0]		7-1	00	6.8	40.	. 8	7	7011
+C-10-M-7	76		1.2	90	8.3	72	28	5	2011
		77.00						THE PARTY OF THE P	
				1000				The state of the s	
				The state of the s			<del>V dag i ma man</del> a ya <sub>Y</sub> a		
Update of an existing plan that includes all	stino njan t	that includes all							

Update of an existing plan that includes all new stand descriptive data. Generally done on a 10-year cycle.
Change to an existing plan, generally due to purchase or sale of a portion of the property, or a change in prescription. Does not change the 10-year cycle of the existing plan. If this forms filed with an amendment, indicate the amended information in the appropriate stand, and write an explanation in section 13. Amendments must be signed by the landowner(s).

#### STATE OF VERMONT

SUPERIOR COURT Essex Unit

CIVIL DIVISION

Docket Nos. 72-12-10 & 19-4-11 Excv
294-12-11 & 76-4-11 Oscv
(consolidated)

IN RE:APPEAL BY PLUM CREEK MAINE TIMBERLANDS, LLC

# NOTICE OF DEPOSITION AND SUBPOENA DUCES TECUM

NOW COMES the State of Vermont by and through the Office of the Attorney General, and pursuant to authority under V.R.C.P. 30(b) and V.R.C.P. 45, commands Chris Fife, of Plum Creek Maine Timberlands, LLC, to appear for a deposition at the Offices of Cheney, Brock & Saudek, P.C., 159 State Street, Montpelier, Vermont 05602, at 9:00 A.M. on September 23, 2011, and continuing each day thereafter until completed, in connection with the above-entitled matter, and to bring with him and to produce and permit inspection and copying of all documents, related to any forest management plans and other documents, including Use Value Appraisal management forms and forest stand surveys and inventories and cruises conducted by or on behalf of Plum Creek Maine
Timberlands, LLC., related to the harvesting of timber on the Upper Clough Brook North tract in the Town of Lemington, Vermont, while owned by Plum Creek Maine

WARNING, FAILURE BY ANY PERSON WITHOUT ADEQUATE EXCUSE TO OBEY A SUBPOENA SERVED UPON THAT PERSON MAY BE DEEMED IN CONTEMPT OF THE COURT FOR WHICH THE SUBPOENA IS ISSUED.

### Rule 45(c) Protection of Persons Subject to Subpoenas.

- (1) A party or an attorney responsible for the issuance and service of a subpoena shall take reasonable steps to avoid imposing undue burden or expense on a person subject to that subpoena. The court for which the subpoena was issued shall enforce this duty and impose upon the party or attorney in breach of this duty an appropriate sanction, which may include, but is not limited to, lost earnings and reasonable attorney's fees.
- (2)(A) A person commanded to produce and permit inspection and copying, testing, or sampling of designated electronically stored information, books, papers, documents or tangible things, or inspection of premises need not appear in person at the place of production of inspection unless commanded to appear for deposition, hearing or trial.
- (B) Subject to paragraph (d)(2) of this rule, a person commanded to produce and permit inspection, copying, testing or sampling may, within 14 days after service of the subpoena or before the time specified for compliance if such time is less than 14 days service, serve upon the party or attorney designated in the subpoena written objection to producing any or all of the designated materials or inspection of the premises--or to producing electronically stored information in the form or forms requested. If objection is made, the party serving the subpoena shall not be entitled to the requested production or to inspect, copy, test, or sample the materials or inspect the premises except pursuant to an order of the court for which the subpoena was issued. If objection has been made, the party serving the subpoena may, upon notice to the person commanded to produce, move at any time for an order to compel the production, inspection, copying, testing, or sampling. Such an order to compel shall protect any person who is not a party or an officer of a party from significant expense resulting from the inspection, copying, testing, or sampling commanded.
- (3)(A) On timely motion, the court for which a subpoena was issued shall quash or modify the subpoena if it
  - (i) fails to allow reasonable time for compliance;
  - (ii) requires a resident of this state to travel to attend a deposition more than 50 miles one way unless the court otherwise orders; requires a nonresident of this state to travel to attend a deposition at a

place more than 50 miles from the place of service unless another convenient place is fixed by order of court, or

- (iii) requires disclosure of privileged or other protected matter and no exception of waiver applies, or
- (iv) subjects a person to undue burden

## (B) If a subpoena

- (i) requires disclosure of trade secret or other confidential research, development, or commercial information, or
- requires disclosure of an unretained expert's opinion or information not describing specific events or occurrences in dispute and resulting from the expert's study made not at the request of any party, or
- (iii) requires a person who is not a party or an officer of a party to incur substantial expense to travel more than 50 miles one way to attend trial, the court may, to protect a person subject to or affected by the subpoena, quash or modify the subpoena or, if the party in whose behalf the subpoena is issued shows a substantial need for the testimony or material that cannot be otherwise met without undue hardship and assures that the person to who the subpoena is addressed will be reasonably compensated, the court may order appearance or production only upon specified conditions.

# (d) Duties in Responding to Subpoena.

- (1)(A) A person responding to a subpoena to produce documents shall produce them as they are kept in the usual course of business or shall organize and label them to correspond with the categories in the demand.
- (B) If a subpoena does not specify the form or forms for producing electronically stored information, a person responding to a subpoena must produce the information in a form or forms in which the person ordinarily maintains it or in a form or forms that are reasonably usable.
- (C) A person responding to a subpoena need not produce the same electronically stored information in more than one form.
- (D) A person responding to a subpoena need not provide discovery of electronically stored information from sources that the party identifies as not reasonably accessible because of undue burden or cost. On motion to compel discovery or for a protective order; the person from whom discovery is sought must show that the information sought is not reasonably accessible because of undue cost. If that showing is made, the court may nonetheless order discovery from such sources if the requesting party shows good cause, considering the limitations of Rule 26(b)(1). The court may specify conditions for the discovery.
- (2)(A) When information subject to a subpoena is withheld on a claim that it is privileged or subject to protection as trial preparation materials, the claim shall

be made expressly and shall be supported by a description of the nature of the documents, communications, or things not produced that is sufficient to enable the demanding party to contest the claim.

(B) If information is produced in response to a subpoena that is subject to a claim of privilege or of protection as trial-preparation material, the person making the claim may notify any party that received the information of the claim and the basis for it. After being notified, a party must promptly return, sequester, or destroy the specified information and any copies it has and may not use or disclose the information until the claim is resolved. A receiving party may promptly present the information to the court under seal for a determination of the claim. If the receiving party disclosed the information before being notified, it must take reasonable steps to retrieve it. The person who produced the information must preserve the information until the claim is resolved.

DATED at Montpelier, Vermont, this 19th day of September, 2011.

STATE OF VERMONT WILLIAM H. SORRELL ATTORNEY GENERAL

Michael O. Duane

**Assistant Attorney General** 

109 State Street

Montpelier, Vermont 05609-1001

(802) 828-2345

WILLIAM H. SORRELL ATTORNEY GENERAL JANET C. MURNANE DEPUTY ATTORNEY GENERAL WILLIAM E. GRIFFIN CHIEF ASST. ATTORNEY GENERAL



TEL; (802) 828-3171 FAX: (802) 828-2154 TTY: (802) 828-3665 CIVIL RIGHTS: (802) 828-3657

http://www.atg.state.vt.us

#### STATE OF VERMONT OFFICE OF THE ATTORNEY GENERAL 109 STATE STREET MONTPELIER, VT 05609-1001

September 19, 2011

David L. Grayck, Esq. Cheney, Brock & Saudek, P.C. 159 State Street Montpelier, VT 05602

RE: Appeal by Plum Creek Maine Timberlands Docket Nos. 72-12-10 & 19-4-11 Excv and 294-12-11 & 76-4-11 Oscv (consolidated)

Dear David:

Thank you for delivering Mr. Holleran's expert report to my office on Friday, September 16, 2011 in advance of his deposition scheduled for Friday, September 23, 2011 at your office.

As Chris Fife is not being called as an expert witness by you, I wanted to ensure that he brings his relevant files to the deposition scheduled also scheduled for the 23rd. Therefore, enclosed please find a notice of deposition and subpoena decus tecum for Chris and his Upper Clough Brook North tract files.

In the spirit of our mutual cooperation in the absence of a discovery order from the court, I was wondering if you wanted me to have Matt Langlais bring his Plum Creek "file box", which I described to you when we met on Friday, to his deposition scheduled for October 3, 2011 ay my office in Montpelier in the event you did not have an opportunity to travel to Matt's office in Saint Johnsbury before the 3rd. Please let me know what your preference is with regard to that matter.

Sincerely,

Michael O. Duane

**Assistant Attorney General** 

#### STATE OF VERMONT

SUPERIOR COURT ESSEX UNIT

CIVIL DIVISION DOCKET NO. 72-12-10 & 19-4-11 Excv 294-12-11 & 76-4-11 Oscv (consolidated)

IN RE:

¥

APPEAL BY PLUM CREEK MAINE TIMBERLANDS, LLC

DEPOSITION

OF

#### CHRISTOPHER FIFE

Taken on behalf of the State of Vermont on Friday, September 23, 2011 at the law offices of Cheney, Brock & Saudek, Montpelier, VT.

#### **APPEARANCES:**

MICHAEL O. DUANE, ESQ., THEA J. SCHWARTZ, ESQ., of the office of the Attorney General, 109 State Street, Montpelier, VT 05609-1001, appeared and represented the State of Vermont.

MEGHAN A. PURVEE, ESQ., of the State of Vermont, Department of Forests, Parks & Recreation, 103 South Main Street, 10 South, Waterbury, VT 05671-0601, appeared and represented the State of Vermont.

DAVID L. GRAYCK, ESQ., of the firm Cheney, Brock & Saudek, P.C., 159 State Street, Montpelier, VT, 05602, appeared and represented the Appellant.

COURT REPORTER: Virginia L. Simmer, RPR

GREEN MOUNTAIN REPORTERS
P.O. Box 1311
Montpelier, VT 05601
(802) 229-9873 (802) 288-9578
(800) 595-9873

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#### **STIPULATIONS**

It is hereby STIPULATED and AGREED by and between the attorneys of record for the respective parties hereto, as follows:

- 1. That the testimony of CHRISTOPHER FIFE may be taken and treated as taken pursuant to notice and order to take deposition, and that all formalities of notice and order are waived by the parties and the signatures to this Stipulation are, in like manner, waived;
- 2. That all objections, except as to matters of form, are reserved until the deposition or any part thereof is offered in evidence;
- 3. That the deposition may be signed by the said CHRISTOPHER FIFE before any Notary Public.

(Commencing at approximately 9:06 a.m.) 1 Being first duly sworn by a Notary Public to tell the truth, CHRISTOPHER FIFE: 2 deposés and says as follows: 3 MR. DUANE: We're stipulating that all 4 objections, except as to form, are 5 reserved for trial, except I would submit 6 objections with regard to privilege. 7 Okay. MR. GRAYCK: 8 9 **EXAMINATION BY MR. DUANE:** would you state your name for the record, 10 Q. please? 11 Christopher Fife. 12 Α. May I call you Chris? 13 Q. 14 You may. Α. Thank you. And where do you work? 15 Q. I work out of the Colebrook office and I work 16 Α. 17 in New Hampshire and Vermont. And you work for Plum Creek? 18 Q. I do. 19 Α. How long have you worked for Plum Creek? 20 Q. I've worked for them for since 2001 so --21 Have you ever had your deposition taken 22 0. before? 23 24 Α. No. Have you ever testified in court before? 25 0.

1 | A. No.

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- Q. I'm going to ask you a series of questions.

  And if my questions aren't clear, please let me

  know that and I'll try to rephrase it to make it

  clear.
  - A. Okay.
  - Q. What did you do to prepare for the deposition this morning?
    - A. Reviewed my files.
- 10 | Q. Did you speak with anybody?
- 11 | A. My attorney.
- 12 Q. Did you speak with anybody at Plum Creek?
- 13 | A. Yes.
- 14 Q. And who did you speak with?
- 15 A. Our attorney Rosemary. You've met.
- 16 Q. I have met. Did you speak with anyone other 17 than Rosemary at Plum Creek?
- 18 | A. No.
- Q. Did you speak at anyone at Landvest with regard to your deposition today?
- 21 A. No.
- 22 Q. Okay. Thank you.
- A. I did speak with Mark Doty but that really wasn't in preparation for deposition I wouldn't say, more just speaking about the case.

- 1 Q. Okay. And Mark works for?
- 2 A. Plum Creek.
  - O. Plum Creek?
- 4 A. Yes.

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- Q. And when you started working for Plum Creek what was your job there?
- A. I was a senior resource forester so I worked in the woods responsible for logging operations, mapping, all those kind of related management, timber management type of activities.
- Q. And is there an area of the northeast that you were the forester for?
- A. No, when I started for Plum Creek I was actually in the south in Georgia and moved to Virginia.
  - Q. I'm sorry, this was in 2001?
- A. That's correct, yes.
- 18 Q. Sorry.
  - A. Yes. I had worked for Georgia Pacific before that who merged with Plum Creek. So the hesitation on the how long had you worked for, really had continuous employment for 17 years but the company changed in that timeframe.
- Q. And how long did you work in the south?
  - A. I worked in Georgia for approximately 3 years

- and then in Virginia for about 2 years and before that I was in Maine, after that I was in Maine.
  - Q. So before you went to Virginia and Georgia you worked in Maine?
  - A. I did.

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- Q. And who did you work for then?
- 7 A. For Georgia Pacific.
  - Q. And during that time you worked as a forester for the company?
- 10 | A. Yes.
- Q. And when did you move or locate to the northeast again with regard to the Colebrook office?
- A. Colebrook was in October of 2008 right after

  15 Plum Creek purchased the property.
  - Q. And you've been at the Colebrook office since October of 2008; is that correct?
  - A. In Colebrook, yes. We established the office there about a year and a half ago so before that I was working out of my home.
    - Q. And your home is where?
  - A. In Colebrook. So, yeah, the Colebrook office.
- Q. And since you've been at the Colebrook office what area of the northeast are you a forester for?

- A. I'm responsible for the activities on the
  Vermont holdings so that would be primarily Essex
  County and New Hampshire which is around the Errol,
  New Hampshire area, approximately 30,000 acres and
  then two townships, a partial township in western
  Maine.
  - Q. And are there other foresters working out of the Colebrook office that work in the Vermont, New Hampshire and western Maine holdings?
- 10 | A. Yes.

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- 11 | Q. How many?
- 12 A. There are four foresters total.
- 13 Q. Is there anyone who's the supervisor?
- 14 A. I'm the supervisor.
- 15 Q. That's you?
- 16 A. Yes. I wear two hats.
- 17 | Q. Chris, what's your educational background?
- A. I have a bachelor of science in forest
  management from the University of Maine in Orono.
- Q. And do you belong to any professional organizations?
  - A. The Society of American Foresters.
- Q. Have you ever held any positions in the organization?
- 25 A. I've been on the education committee and been

on their -- the convention committee.

- Q. Do New Hampshire and Maine have programs that are similar to Vermont's Current Use Program?
- A. No.

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- Q. Do you prepare Forest Management Plans for Plum Creek?
- 7 | A. Yes.
  - Q. And do you prepare them to present to the State of Vermont for the Current Use Program?
- 10 A. I have, yes.
- Q. Okay. Have you ever heard of the Upper Clough Brook North tract of Plum Creek?
- 13 | A. Yes.
- 14 Q. How have you heard of that?
- A. I was the forester responsible for Plum Creek
  on that sale.
- 17 Q. By "sale" what do you mean?
- A. Sale is what we would refer to a harvest series, so a harvest unit.
  - Q. What was the period of time that this sale was to take place?
- A. From -- it was really a winter so fall and winter harvest. It would have been '09, November timeframe, some time around November got started and move into the frozen conditions of winter in

- the early 2010.
  - Q. So November of 2009?
- 3 A. Yes.

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- Q. Prior to November 2009 had you ever been on the land that makes up the Upper Clough Brook North tract?
- A. Yes.
  - Q. And when was that?
  - A. In preparation for or in visiting with the state and the contractor who was working to write the plans and the -- who else was on that, the Land Trust to review the harvest prescription that was proposed for that area.
  - Q. Thank you. By "Land Trust" you mean the Vermont Land Trust?
- A. I do, yes.
  - Q. And the harvest prescription that was proposed for that area, was that something that was already in existence at the time of around November of 2000 --
    - A. Yes.
- Q. Just for the record you have to wait until I finish the sentence so the court reporter can get down my sentence with a period and a question before you answer and it happens to me all the

l time.

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- A. Okay.
- Q. All the time. It happens to everybody.

  Thank you. Who had prepared -- who was preparing the prescription for the tract?
  - A. A forester working for Landvest.
- 7 Q. And who was that?
  - A. Jonathan Horton.
    - Q. And was there a prescription for the tract prior to Mr. Horton developing a prescription if you know?
- 12 | A. No.
- 13 | Q. And was the land in Current Use?
- 14 A. Yes.
  - Q. And so why was there not a prescription for the land before Mr. Horton was preparing a prescription?
  - A. The land is enrolled with a 10-year management plan as all land in the program but the management plan effectively has -- authorizes no activity on the property. And then in order to perform any activity we have to submit individual prescriptions for each stand. So that's what Jonathan Horton was working on was the prescription for each of the stands in this harvest area or sale

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- Q. So based on your education and experience why didn't you prepare the prescription for the tract?
- A. Our -- my role was really in the role of supervisor somewhat like it is now so we brought on Landvest. Plum Creek made the decision to have Landvest provide the services of doing presale cruising, writing prescriptions, doing things that in other areas we would have our own foresters doing. So we were trying a different model using a contract service to provide that same expertise that in other states we would use our own foresters.
- Q. And why did you do that?
- A. It was a business decision by Plum Creek.
- Q. And in that situation did you review the work of Mr. Horton?
- A. I did.
- Q. Did you review his work before it was submitted to the state for approval under the Current Use Program?
  - A. I did.
- Q. Is that your normal practice with Plum Creek lands that are coming up for sale in which you use a contract forester?

- A. What do you mean by "coming up for sale"?
- Q. So if a harvest prescription or a Forest

  Management Plan needs to be developed because Plum

  Creek wants to do a sale --
  - A. Okay. Okay, I'm sorry, yes.

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- Q. Thank you for clarifying it. And if you want to use a contractor to write the plan or prescription, is that your normal practice that you would review what the forester did?
- A. It wasn't normal because this was the first time tried this setup of having a contractor do this but under that procedure, yes.
- Q. Do you know what the basis for the business decision was to contract out with a contracting forest company to do these plans for Plum Creek?
- A. I don't know all of it. I know part of the idea behind it.
  - Q. And what part of it do you know?
- A. The two foresters that were working on Plum Creek for Landvest had been working on this property previously for Essex Timber and so the idea was keep that continuity of knowledge of the land base and of the system of the different regulators that we work with, the relationships that were already built there and tried to have a

smooth process moving forward.

- Q. And in addition to Mr. Horton who was the other forester that you mentioned was working for Landvest but had some familiarity with the tract?
- A. Dan Singleton but he was not working for Landvest still at the time I don't believe. I would have to check that.

MR. DUANE: Thank you. Ginny, would you kindly mark this as State's Deposition Exhibit No. 1.

#### BY MR. DUANE:

- Q. Chris, let me show you what's been marked for identification as S-1. Have you ever seen that document before?
- A. Yes.
- Q. Could you please describe it for us?
  - A. That is what we refer to as a Harvest Prescription Fact Sheet. This is a supplementary document to the Use Value Appraisal Forms 2 and Form 4 that are required by the state and we did this along with those forms. If you look at the Current Use forms you'll see that there's quite a bit of copy paste between the two in the parts like stand condition that describes what's out there before the harvest and treatment prescription.

This also provides some additional information, a lot of it specifically related to the easement. So this would be addressing some of the exact information as Current Use but also addressing some additional information for the Vermont Land Trust.

- Q. And when you say "the easement," you mean the Vermont Land Trust conservation easement on the property?
- A. That's right, the working forest easement for the Champion lands.
- Q. Thank you. Who authored Exhibit S-1 if you know?
  - A. Jon Horton.
    - Q. So the initials up in the upper right-hand side that says JCH, that's Jon Horton?
- 17 | A. Yes.

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- Q. Was this filed with the State of Vermont Department of Forest and Parks if you know?
- A. Yes, they received a copy of that.
- Q. And was this part of the Forest Management Plan?
  - A. The Forms 2 and Form 4 are the amendment to the Forest Management Plan.
  - Q. Okay. And was this filed with the state as

- part of Plum Creek's responsibilities under the
  Current Use Program if you know?
- 3 A. No.

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- Q. Why was it filed?
- A. It's a supplementary document, kind of keep us all on the same page since the Vermont Land Trust, the state county forester, ourselves and in this case Landvest are all dealing with the same information in that way.
  - Q. Okay. But this document did get filed with the state?
- 12 | A. Yes.
- 13 Q. And when did that occur if you know?
- A. Boy, I believe that the Forms 2 and Form 4

  15 are dated -- I don't know the exact date. It would
- 16 have been -- I signed this form in November,
- 17 November 3rd. So it would have been early
- 18 November.
- Q. So when you say "this form" you're talking about the Form 4?
- 21 A. Form 2 and Form 4, the Current Use forms.
- Q. And you're looking at some documents there.
- 23 Are those documents from your file?
- 24 A. They are.
- Q. Thank you. And so just to be clear, this

- 1 Harvest Prescription Fact Sheet was filed along
  2 with the Form 2 and the Form 4?
  - A. Correct.
  - Q. Thank you. And did you approve Form 2 -excuse me, did you approve Exhibit S-1 before it
    was filed with the state?
- 7 | A. Yes.

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- Q. Had Mr. Horton prepared for you a draft harvest prescription fact sheet for you to look at?
- A. This is an amended Harvest Prescription Fact

  Sheet. There was a previous submission.
- Q. And when was that previous submission if you know?
- 14 | A. I don't know.
- 15 Q. Was it years before?
- 16 A. No, it would have been months.
- Q. And was this S-1 -- was the document that was prepared before S-1 something that had been filed with the state?
- 20 A. Yes.
- Q. And was there a Form 2 and a Form 4 that was also filed with the state earlier?
- 23 | A. Yes.
- Q. And how much earlier, do you know?
- 25 A. This was September. It would have been early

September. And I apologize for not being able to give you an exact date but could certainly try to figure that out.

- Q. Okay. So when it says "amended 10/27/09" up in the upper right-hand corner, S-1 is an amendment to an earlier document?
  - A. Yes.
- Q. Okay, thank you. And the earlier document had to do with the Upper Clough Brook North tract?
- 10 | A. Yes.

- Q. So why was it done twice in 2009 if you know?
- A. We submitted the Forms 2 and Forms 4 for UVA to the county forester, then we did a site visit with the county forester, the Vermont Land Trust forester, myself and the Landvest forester and I think the heavy cut forester as well, Richard Greenwood. And during that site visit which was normal practice to visit each of these before the approval we discussed what was on the forms that had been submitted. And the county forester and the Land Trust forester, we all came to agreement on some changes that would be appropriate. So those were the changes that were made and represented on the amended forms.
  - Q. Thank you.

- A. I know it gets confusing.
- Q. That's why I said thank you. Do you know approximately when that visit took place with the county forester -- and let me just ask you a question in the middle of my question, the county forester for the state is Matt Langlais?
  - A. Correct.

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- Q. So when you say the county forester, you're referring to Matt?
- 10 A. Matt, yes.
  - Q. Thanks. So when did the meeting or visit, site visit I guess we'll call it, take place with Matt, the Vermont Land Trust forester, the Landvest forester and yourself between the two document preparation events?
  - A. I don't have that exact date. I believe I can find that for you but I don't have it in front of me. It would have been very close to this amendment date.
  - Q. That amendment --
  - A. Within -- I would say it was probably on the 25th or 26th.
  - Q. Is October a good estimate of when that visit took place?
- 25 A. Yes.

- Q. Okay. So on the October visit and what I mean by that is the site visit that you went out, it was you, Matt, the Land Trust forester --
  - A. Dan Kilborn.

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- Q. Thank you, Dan Kilborn, K I L B O R N, I believe. The Land Trust forester, was that Mr. Horton?
- A. The Landvest forester.
  - Q. Excuse me, Landvest forester.
- 10 A. Yes, Jonathan Horton.
- Q. I have VL and LV on my notes here. So

  Jonathan Horton, Dan Kilborn, Matt and yourself,
  anvone else?
  - A. Richard Greenwood. And I don't recall if there was another Landvest forester on that visit. There may have been.
  - Q. What did you do?
    - A. We drove onto the site. We all kind of got together, decided which direction to head off into the woods, took off with maps in hand and prescriptions and proceeded to walk kind of a line through -- around the area, circuit around through the area that was proposed for harvest looking at the different site conditions, looking at how the prescription did or didn't make sense, any

- questions. It's kind of a chance to just air questions and to make sure that we're all on the same page about hopefully what we expect.
  - Q. Chris, the Deposition Exhibit S-1 says total acres in stand 471, is that the area that you went to, it was about a 471-acre tract?
- A. I have to correct. It's stands. That's the -- all of the stands together are 471 acres and, yes, that's the area that we visited.
- Q. S-1, if I may, has paragraphs and each one starts with a stand number. So there's stand 24, stand 34, stand 43, stand 44, stand 46, stand 54. Did you visit all of those stands?
- 14 A. Yes.

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- Q. Are there additional stands in the 471-acre tract if you know?
- 17 | A. No.
- 18 Q. Did you go to each stand?
- 19 | A. Yes.
- Q. How long were you folks out there?
- 21 A. The better part of a day.
- 22 Q. Really?
- 23 A. Yes.
- Q. Was it a nice day?
- 25 A. They're all nice days when you're in the

- woods. We got our feet wet but it wasn't a bad day.
  - Q. And were any changes made to -- well, were any changes made to the Harvest Prescription Fact Sheet as a result of your visit to the tract that day?
- 7 A. Yes.

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- Q. And if you can recall, what changes were made?
- 10 A. The prescription for 2 of the stands I 11 believe were changed.
- 12 | Q. And which ones were those if you know?
- A. Stand -- well, I do better to look back than rely on --
- Q. And would that help you to refresh your memory?
  - A. Yes. Stand 24 prescription was changed, stand 34 prescription was changed, stand 44 prescription was changed -- I apologize, not stand 44. Stand 43.
- Q. And how do you know that, Chris, from looking at your notes?
- A. This is the original Harvest Prescription
  Fact Sheet, the one we took to the woods.
- 25 Q. When you say "this," that's the document you

- have in your hands right now?
- A. This document, yes, and it's in your copy of my files. You're welcome to --
  - Q. Thank you, very much. This morning before we started you and Attorney Grayck gave me a stack of papers, correct?
- 7 A. Yes.

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- Q. And in this stack of papers is that Harvest Prescription Fact Sheet you mentioned, you were just talking about?
- 11 A. Yes.
- 12 Q. Okay. And I'm going to paw through here.
- 13 A. If you see these --
- 14 Q. By "these" you mean maps?
- A. Maps that look like this, they're pretty much just on blank pages. I believe it's behind those.
- 17 Q. So I'm looking at some maps.
- 18 A. There, that's it.
- Q. When you say "there, that's it" you're
  pointing to this document right here that I have in
- 21 | front of me?
- 22 A. That would be the original Harvest
- 23 Prescription Fact Sheet with the information that
- 24 was on the original Form 2 and Form 4 submitted to
- 25 | the Forest and Parks.

- Q. Thank you. And why were the prescriptions changed for stand 24 and 34 and 43 if you know?
- A. During that walk-through we discussed the silviculture to be applied out there. It was agreed upon among the group that that silviculture was better described as 2-stage shelterwood than an intermediate thinning or improvement thinning.
- Q. So here's a question for you. What's a 2-stage shelterwood?
- A. It's a regeneration type of harvest that when you -- it's designed to establish regeneration in 2 entries. So you --
- Q. What do you mean by regeneration?
- 14 | A. Small trees.

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- Q. Okay. And what do you mean by entries?
- A. Harvesting. Each time you come in to harvest is considered an entry into the stand.
- Q. Sorry to interrupt. So you were explaining to me what a 2-stage shelterwood is, so please continue if you can.
- A. So the focus of a 2-stage shelterwood is regeneration.
  - Q. And so the prescriptions for 24, 34 and 43 were changed from what?
- 25 A. From an improvement thinning.

- Q. What's an improvement thinning?

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- A. An improvement thinning would be removing low quality or short-lived species, more of -- sometimes referred to something like a cleaning, going in and taking out certain either species or trees, less focus on regeneration, more focus on what's there at the time, if that makes sense.
- Q. And so why was it decided to change it from an improvement thinning to a 2-stage shelterwood if you know?
- A. The condition of the stand as we walked through it as a group and started to look what was really there it was evident that there wasn't enough quality to leave which in an improvement thinning the idea would be you're not thinking about regeneration and creating light and things to get regeneration. You're thinking what do I have here, I want to take out the bad but there's enough good to leave that it will help that good. As we walked through we sort of -- my recollection is we started to say, well, we'd be taking that one and that one and that one, you know, and all of a sudden you're realizing you're taking too many trees and you really -- your focus becomes, okay, it's time to regenerate this stand, to regrow a new

forest from these small trees.

- Q. So when you say take this one, take this one, take that one, you mean take out trees that aren't of good quality?
- A. Harvest those trees or that are good quality but are mature. Maybe they're already saw log size and you don't want to let them turn into, you know, a habitat for a critter. You want them to go to a sawmill.
- Q. And does improvement thinning result in regeneration?
  - A. Certainly, yes, but it's not the focus.
- Q. And so how is a 2-stage shelterwood different?
- A. Shelterwood would give you lower -conceivably you have more range of residual basal
  area which is starting to get into pretty technical
  stuff I guess but you might take more trees out
  with a shelterwood because you might want more
  light. The whole thought process in trying to
  implement a shelterwood is regenerating. It's
  growing -- it's getting small trees established,
  where with the thinning you're not really thinking
  about those. If you get them, fine, that was a
  good outcome. In the northeast you will get them

- if you create a gap but really you're thinking about what do I have here and working with the stems that are already on the site.
- Q. Did anyone in particular of the group that went out suggest more than anyone else that it should be changed from improvement thinning to a 2-stage shelterwood?
- A. It was pretty collaborative in my recollection.
- Q. Did you agree?
- 11 A. Yes.

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- Q. And so the Harvest Prescription Fact Sheet was changed; is that correct?
- A. That and the forms, the UVA forms, yes.

MR. DUANE: Ginny, could you mark these as S-2, please.

(Recess)

18 BY MR. DUANE:

- Q. Chris, let me show you again S-1 and on the second page it says "Recommended treatment prescription," do you see that?
- 22 | A. Yes.
- Q. And I'm looking down at the second paragraph for stand 34 and it says, "The shelterwood will be irregular in distribution." What does that mean if

you know? Let me -- what does that mean?

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The condition of the stand to begin with is irregular areas and it's described a little bit on the UVA forms, that there's -- through past practices there's areas that are damaged or there's different amounts of regeneration in certain places from other places, small trees that are already established versus places that don't have any small trees established yet. So the implementation of this shelterwood will be irregular in the sense that, you know, here you might cut a heavier shelterwood, here you might cut a lighter shelterwood because the species mix is a little bit different, here you might open up a little patch because you've got all damaged trees and you want to establish regeneration in that opening. idea is that when you look at it after the harvest you aren't going to see this -- like a thinning of a plantation where, you know, you could take out every third tree and it would be very uniform. That would be the definition of uniform application. This is sort of the other end of the spectrum which would be the definition of a real irregular application of this treatment.

Q. And did you think that's what that meant for

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- A. Yes. Yes.
- Q. And the next sentence says, The portions of the stand, 34, will also receive 1 to 2-acre patches where quality and stocking are not sufficient for a shelterwood, what did you think that meant?
- A. There's a -- the grammar is poor in that sentence. I think you picked up on that.
- 10 | Q. No, I didn't.
- A. You changed sufficient -- insufficient to
- 12 | sufficient when you read it which is appropriate.
- 13 | It should be. It wasn't -- it was a mistake,
- 14 | probably a typo. But what this means -- so if I
- 15 | could read it?
- 16 Q. Sure, thanks.
- 17 A. It shouldn't say the portions.
- 18 Q. Okay.
- A. So if you read it, Portions of the stand will also receive 1 to 2-acre patches where quality and stocking are not sufficient for a shelterwood.
- Q. What are 1 to 2-acre patches?
- A. 1 to 2-acre patches are 1 to 2-acre areas
  where you would cut everything.
- Q. And why would you do that in a forest?

A. Well, because the quality of the trees that are there either because of ice storm damage perhaps, in this case that was one of the big things in a portion of this stand or stocking, if you only have a couple of trees in this area and they're both mature saw log trees that need to be harvested, that would be another reason you might create a patch there. In this case quality was probably the number one driver for where the patches were put.

- Q. And for stand 34 it says here in S-1, "A low density shelterwood with a residual basal area of 30 to 40 feet square." How do you determine whether you'll meet that residual basal area of 30 to 40 foot prescription?
- A. You would measure across the stand -- because this is talking about stand 34 so you basically would take plots, do an inventory across the stand after the harvest to see is it meeting this level that you've prescribed.
- Q. Now, directing your attention to the next paragraph, Stand 43 will receive a 2-staged shelterwood and overstory removal." What's the overstory removal that was prescribed for stand 43?
  - A. So in general a overstory removal would be a

treatment where you have regeneration in place, so the little trees and they may be really little but they're already there and there's bigger trees over them and you would take the bigger trees off.

You'd cut the bigger trees and that would release or allow those small trees to grow. You take the competition away. The bigger trees are either mature or ready to be harvested and the small trees that are there then take off and become your next forest.

- Q. And then for stand 43 the next sentence says, "The target residual basal area is 60 square feet." How would you determine at the end of the harvest whether or not you reached the target of 60 square feet?
- A. This is referring to the target residual basal area in the shelterwood portion. This has two prescriptions on it.
  - Q. Okay.

A. So you again would take plots. You would want the shelterwood areas to -- you would want the whole stand considering the overstory removal and the shelterwood to come out meeting this prescription so those plots should say that and it may end up a lower -- when you measure the whole

stand it may be lower than the 60 because the 60 is for the shelterwood areas but that -- you would measure that. You would take plots to see.

- Q. And is there a residual basal area for the other prescription?
- A. The residual basal area in an overstory removal would be assumed to be zero because there would be no big trees left. They're all little seedlings.
  - Q. So that assumption is in this paragraph?
- 11 A. That assumption is in that prescription, yes.
  - Q. And do you make that assumption because you're a professional forester?
- 14 A. Yes.

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- O. You know what that means?
- 16 | A. Yes.
  - Q. Okay, thank you. And then stand 44 says it will receive an intermediate thinning, what's that?
  - A. The intermediate thinning would be removing trees to provide space I guess is the easiest way to describe it. Again, an intermediate thinning is not focused on regeneration. It's focused on the trees that are there, call them bigger trees that are there on the site. And when I say big I just mean they aren't seedlings, they aren't in that

- understory. They're the trees that, you know, as you look you see in the forest. So the 4 inch and bigger type of trees.
  - Q. And then towards the bottom of that paragraph that begins stand 44 it says that the -- the last clause of the sentence says "and leave a target residual basal area of 60 square feet," and how would you determine whether or not you reached that target of 60 on stand 44?
  - A. Again, you would cruise. You'd take plots, measure plots across the stand and those would tell you what the basal area is across that stand.
  - Q. Is that analysis when you have intermediate thinning, the residual basal area analysis, is that analysis easier when you have an intermediate thinning prescription as opposed to a shelterwood prescription?
- A. No.

- Q. And in an intermediate thinning prescription is it not true that the stand is more evenly stocked with trees as opposed to patch cuts and clear cuts and overstory removal?
- A. To understand what it looked like you really want to look at the current stand condition that was described. And in all of these stands and

really what we find in most of the stands on this former Champion ownership because of past harvesting practices and things there's a lots of variability. So you create stands to kind of break things into more manageable units based on, you know, maybe harvest history, amount of hardwood versus amount of softwood in the stand. So you make these kind of -- really they are artificial lines, they aren't on the ground but they create a stand that then you work with moving forward.

And on this land base even within those stands there tends to always be this kind of variability because of the way maybe it was treated in the past or, you know, a natural event like the ice storm. So in answer to your question on stand 44, there still was a great amount of variability within that stand. It may have been less than another stand on the site but it -- the prescription doesn't really tell you about what the stand looks like. The prescription tells you about what you're trying to do with it, how you're trying to move it forward.

Q. So when you say look at the current stand condition, on the first page of the Harvest Prescription Fact Sheet S-1 there's a bolded

section called Current Stand Condition, is that what you were referring to?

A. Correct, yes.

Q. With regard to the variability of the stands --

MR. GRAYCK: Excuse me, were you finished with your answer?

MR. DUANE: I'm sorry.

- A. I was just going to point to the UVA forms because those also -- you know, like I said this is kind of supplemental, this Harvest Prescription Fact Sheet but the UVA forms actually for each stand also have something about the stand history and some of the health conditions. And for stand 44 the forest health conditions are noted as the stand has high residual stand damage, beech bark complex which is a disease that affects beech and there's beech in that. So that's what I'm -- that gives a little more description of the stand as well versus just relying on that paragraph about current stand condition. That's part of the overall condition.
- Q. Okay. You beat me to the punch. So let me show you what's been marked as -- it's good. It's good. I should have asked you a little more detail

- 1 about what you did to prepare for the deposition.
- 2 | I'm going to show you what's marked for
- 3 identification as S-2. Do you recognize this
- 4 document?
- 5 A. I do.
- Q. And it's a packet of documents I will represent and up on the upper right-hand side it
- 8 says Form 2 page 1, do you see that?
- 9 A. Yes.
- 10 Q. And earlier in your testimony you were
- 11 | referring to Form 2. Is this the Form 2 you were
- 12 | referring to?
- 13 A. It is.
- 14 Q. So the top page says Form 2 page 1.
- 15 A. I've picked up some lingo since I've been
- 16 working with the Current Use Program. I now just
- 17 say Form 2 and Form 4.
- 18 Q. And then there's another page. It says Form
- 19 | 2 page 1, do you see that?
- 20 A. Yes.
- 21 Q. That appears to be for additional stands,
- 22 | correct?
- 23 A. Correct.
- Q. There's another Form 2 page 1 for another
- 25 stand, correct?

1 Α. Yes. 2 So the first stand is 34; is that right? 0. 3 Α. Yes. 4 And the second page is stand 43, correct? 5 Α. Yes. 6 Q. And the third page of Form 2 page 1 is stand 7 44, correct? 8 Yes. Α. 9 Q. And then --10 MR. GRAYCK: You just said the first 11 page of the Form 2 page 1 was? 12 MR. DUANE: Stand 34 in this exhibit. 13 MR. GRAYCK: Okay. Not that there 14 weren't other Form 2 page 1's submitted? 15 There were. MR. DUANE: I can 16 represent that but for the purposes of 17 the deposition and S-2 I'm only showing 18 him Form 2 page 1 for stand 34, stand 43 19 and stand 44 and there were probably 20 three others. 21 MR. GRAYCK: That's fine, that's fine. 22 Thank you. 23 MR. DUANE: You're welcome. 24 BY MR. DUANE: 25 Chris, now I'll direct your attention back to

- 1 S-2 and on the fourth page of the packet there's a
- 2 Form 2 page 2, correct?
- 3 A. Correct.
- Q. And that has to do withstand 24, 34 and 43, correct?
- 6 A. On this page, correct.
- Q. Then there's a Form 2 page 2 that has to do with stand 44, 46 and 54, correct?
- 9 A. Correct.
- Q. And then finally in the packet there is a If Form 4, is that the Form 4 you were referring to
- 12 | earlier?
- 13 | A. It is.
- Q. So the Use Value Appraisal Form 2 and Form 4
  with regard to stands 34, 43 and 44 are contained
  in this document, correct?
- 17 A. Correct.
- 18 Q. Thank you. So, Chris, before I showed you
- 19 Deposition S-2 you were referring me to I think the
- 20 third page which has to do with stand 44; is that
- 21 | correct?
- 22 A. Correct, the Form 2 page 1 for stand 44.
- Q. So when you were looking at your notes
  earlier you were looking at this document, correct?
- 25 A. As long as this is the amended document.

1 Correct.

- Q. Okay. And the Form 2, Form 4, S-2, was there a draft of that done before you went out to the October site visit?
- 5 | A. Yes.
- Q. And did you folks take with you in the woods
  in the October visit the draft of the Form 2 and
  the Form 4?
- 9 A. Yes.
- Q. And like S-1, the Harvest Prescription Fact
  Sheet, were the Form 2 and Form 4's changed as a
  result of your October visit?
- 13 A. Yes.
- 14 Q. And did you concur with those changes?
- 15 | A. Yes.
- Q. And was that also made in a collaborative way?
- 18 | A. Yes.
- Q. And the changes that were made to the Harvest
  Prescription Fact Sheet with regard to the
  silviculture, is that reflected in S-2 that was
  filed with the state?
- 23 | A. Yes.
- Q. So you were explaining to me when you were talking about variability about the forest health

condition so I'm drawing you back to that. So what was it about the forest health condition in stand 44 that affects your view of variability in terms of what a stand looks like?

- A. I think what I was getting at is that you could have -- you very likely would have pockets, say, that were predominantly beech as a species. And the beech, as mentioned here, has this bark Nectria complex which is a disease that kills the trees over time. It's not a dead -- here today, gone tomorrow type of disease but it's that scaly looking bark.
- Q. Is that the white scaly gray powdery that's on my beech trees that kills them in my woods?
- A. That's it. So because of that we tend to not want a forest of beech as a commercial forest. So if you had a pocket like that, even though it's within an area that the overall prescription is to thin, you would take that pocket out and try to get a better component of something else, maybe yellow birch coming in that pocket.
- Q. So based on your education and experience with regard to variability is silviculture an art or a science or both in your opinion?
  - A. It's both.

Q. And why is it both?

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- 2 There's a science side of it which is the 3 taking the studies that have been done, taking the 4 textbook information, you know, when everything is 5 just a certain way. And then the art part comes in 6 I think in just what we were talking about, now you 7 take a site that doesn't meet a textbook description and how do you apply the right 8 silviculture to make that -- to move that forward 9 10 to something that's more quality, more value. 11 That's what you want down the road. So the art part is kind of implementing those small little 12 13 differences here and there to make it come out like 14 you want.
  - Q. Based on your education and experience could reasonable professional foresters reasonably disagree as to what the best prescription is for a forest stand?
- 19 | A. Yes.

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- Q. Could reasonable professional foresters reasonably disagree as to what the residual basal area is after a harvest has been completed?
- 23 A. No.
  - Q. And why not?
- 25 A. That is really determined by measuring plots.

Now, it could vary. There could be an acceptable level of variability. There would be because measuring plots is a statistical exercise. Try to gather enough information on a portion of the area to determine what is there for the whole. So you would expect not to get exactly the same answer but you would expect the answers to be within a range that agreed with each other.

- Q. And what is that range generally based on your education and experience?
- A. There's not a set range. It would depend on the statistics of the number of plots, the confidence that you wanted around the answer that you get, do you want to know within 80 percent certainty or a 95 percent certainty that your answer is right. The more confident you want to be then the wider your answer is going to end up being, especially with variable stands.
- Q. What do you mean the wider your answer's going to be?
- A. So you were talking about basal area and say that we get an answer of basal area that is 50 square feet but we know there's a range around that that it could be anywhere from 45 to 55 at 80 percent confidence, we're 80 percent confident of

1 that. If you wanted me to tell you, well, I want 2 to be 95 percent confident in the answer, the range 3 would move to a wider range. I would have to say, 4 well, then the answer really could be from -- I'm 5 just throwing out numbers here -- 40 to 60. 6 range gets broader because you're asking for more 7 confidence in the answer. 8 And could the plots taken be adjusted based 9 on the level of confidence? 10 MR. GRAYCK: Objection. 11 MR. DUANE: And the basis of the 12 objection is? 13 MR. GRAYCK: The form of the question. 14 MR. DUANE: Okay. Could you repeat **15** the question for me, please. 16 (Question read) 17 BY MR. DUANE: 18 Could the plots taken be adjusted based on 19 the level of confidence you're looking for in an 20 analysis of a residual basal area for a stand? 21 Do you mean the number of plots? Α. 22 0. Yes. 23 You could put more plots or less plots.

would call it plot intensity, is that what you're

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asking about?

Q. Is plot intensity a term of art in silviculture?

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- 3 Plot intensity is a term of science. We're 4 really moving away from talking about silviculture 5 which is how you harvest the trees to try to come out with a certain outcome and into the realm of 6 7 statistics and biometrics which is how do we 8 measure what's out there and determine with as much 9 certainty as possible what it is and how do we 10 assign values to that and all that. It's really 11 more statistical and mathematic. The art and 12 science applies really to the silviculture piece of 13 So they do interrelate. I don't mean to say they're totally disconnected but they are kind of 14 15 different disciplines. And I'm not a biometrician, 16 I'll say that right up front. If we get too deep into the statistics of it and stuff I'm going to 17 18 refer you to other smarter people than me.
  - Q. Thank you. And I think probably using the term of art was a bad term of art to use. So if you took more plots --
  - A. Yes, that would be intensity. So that would be referred to as plot intensity. More plots, higher intensity of cruise; less plots, lower intensity of cruise. They could be done on the

same area. To be an accurate cruise they would still both need to be randomly, you know, located plots. They would have to follow all the other rules of inventory but that one factor you could put more or less plots and that would affect the confidence in your answer.

- Q. And more -- does more plots hopefully lead to higher confidence?
  - A. Hopefully.
- Q. Okay. Thank you. So following the filing of Form 2 and Form 4 and the Harvest Prescription Fact Sheet that went along with it so that everyone was on the same page, did Plum Creek engage anyone to start cutting on the property?
- 15 | A. Yes.

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- 16 Q. Cutting trees on the property?
- 17 | A. Yes.
- 18 Q. And who was that?
- 19 A. We Log is the company name.
- 20 Q. And where are they from?
- A. They're out of Colebrook -- yes, they're out of Colebrook, New Hampshire.
- Q. Had you ever worked with them before?
- 24 A. No.
- Q. How did you come across -- did you contract

- with anyone else to contract with We Log?
- 2 | A. No.

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- 3 Q. So did you find We Log yourself?
- 4 A. Yes.
- 5 Q. And how did you go about doing that?
- A. Word of mouth through other foresters just asking references.
  - Q. Do you put out a bid or a request for bids when you're going to do a job like this? And when I mean you I mean Plum Creek.
- 11 A. No.
- Q. So We Log was chosen to harvest timber on the Upper Clough Brook North tract; is that correct?
- 14 A. Yes.
- Q. And about when was that in the context of having filed these Form 2's and Form 4's with the state?
- 18 A. November.
- Q. When you filed the Form 2 and Form 4 with the state that's for being -- is that part of being eligible for Current Use? Is that required to be eligible for Current Use?
- A. I'm not sure. I guess I'm not clear of your question.
- Q. Thank you. It wasn't clear. Why did you

file Form 2 and Form 4 with the state?

- A. Our 10-year management plan under Current Use, under Use Value approves no activities. So before we can do any harvest activity we have to submit an amendment which is what these are that says here's the activity we want to do for this stand, for this stand and we have to get in this case Matt's approval. And once Matt has given us his approval and the Vermont Land Trust has given us their approval and if a heavy cut's involved we have that approval, then we go ahead and contract with somebody, get the layout done and start harvesting.
- Q. So Form 2 and Form 4 were submitted to Matt?
- 15 | A. Yes.

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- 16 Q. And did he approve them?
- 17 | A. Yes.
- 18 Q. And does he sign off on them?
- 19 A. He does.
- Q. He actually signs one of the documents I believe; is that correct?
- A. Yeah, sometimes he'll sign this and we'll get it back, sometimes he'll sign -- and by "this" I mean Form 4 and then we'll get it back. And sometimes he'll sign Form 2 page 2 which would be

- 1 | the bottom here and we'll get that back.
  - Q. When you say "that" you're pointing to page 5?
    - A. Form 2 page 2 the signature page.
- 5 Q. Right, which is page 5 of S-2, correct?
- 6 A. Correct.

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- Q. Okay, good. And so did Matt do that?
- A. He did approve it. I cannot find in my file his signed copy.
- Q. But were you confident or did you understand that he did sign off on the plan?
- A. Yes, because I have the heavy cut approval
  which follows Matt's approval. Because when we do
  the heavy cut it's a -- what's the wording I'm
- looking for. It's on the heavy cut. It requires
- 16 | the county forester to have approved the
- 17 | silviculture you've proposed. So this has to be
- 18 approved before the heavy cut forester will approve
- 19 the heavy cut. It's an exemption is the word I'm
- 20 looking for.
- Q. That's the right word if I may interject.
- 22 | what's the heavy cut if you know?
- 23 A. In this instance?
- Q. Well, you said you filed approval for a heavy cut so my question is what's a heavy cut if you

know?

- A. In this instance the heavy cuts would have been related to the overstory removal and the patches we talked about, even the low density shelterwood. So cutting below the C line which is a measure of stocking would constitute a heavy cut and those prescriptions almost -- not all of them but a number of the ones we looked at and have been talking about are heavy cut prescriptions.
- Q. Thank you. Chris, if you could and I know I only have marked as exhibit inclusion documents 34, 43 and 44 but were stands 43, 44 and 34 heavy cut prescriptions if you know?
- A. The heavy cut doesn't require -- like the permit or in this case the exemption which are on the same form doesn't require you to break out the stand acres so there's -- how many acres will be heavy cut is the question but in answer to your question -- so not -- what I'm getting at is you could have a stand that has some heavy cut and some nonheavy cut in the results and that would be an acceptable outcome. Stand 24 would have heavy cut included.
- Q. So, Matt -- excuse me, not Matt. Chris, with regard to the form you sent to Matt, where on

- that -- and you're looking at S-1, correct, the harvest prescription?
  - A. I am. I can look at either.
  - Q. No, that's fine, just for the record. So you're looking at the Harvest Prescription Fact Sheet.
  - A. Yes.

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- Q. That's Exhibit S-1. Where are you basing your opinion or belief that the stand you're talking about would be heavy cut?
- A. It's not an opinion because it's based on a stocking guide which is pretty -- again, we're talking about the science.
  - Q. Thank you.
    - A. So stand 24 says it will receive an overstory removal. So we know at least a portion of that stand will have conceivably 0 residual basal area. That's well below the C line for hardwood. Stand 34 says that it will have an overall across the stand residual basal area of 30 to 40. That's below the C line so that --
      - Q. Why is that below the C line?
- A. The C line for hardwood stocking for a hardwood stand, it's on a table. You can just look at the table and say okay, that's where the

- stocking for C line is. That 30 to 40 square feet is below that. Is that what you're asking?
  - Q. Yes. And that's science?

- A. Yes. Those are measured numbers that it is or it isn't. Stand 43 has overstory removal as a portion of it. That's heavy cut. Stand 44 60 square feet would be at -- that would not be a heavy cut. Stand 46 would be a heavy cut, and stand 54 would be a heavy cut.
  - Q. And stand 46 would be a heavy cut why?
- A. Overstory removal. O would be the expected or close to O would be the expected residual basal area.
- Q. Does it depend on how many acres are prescribed for overstory removal to constitute a heavy cut?
- A. In our case because we have other heavy cuts close by and in general we're operating large enough acreages at one time we almost always would fall under no matter how many acres we were bringing below the C line needing to meet the heavy cut requirements.
- Q. So Plum Creek also filed the heavy cut forms with the state before cutting on the Upper Clough Brook North tract; is that correct?

1 Yes. Α. 2 Q. And who filled out those forms for Plum 3 Creek? Α. Landvest. 5 And would that have been Mr. Horton if you Q. 6 know? 7 Α. I would assume it was. 8 And that's a separate approval process than Q. 9 the Forest Management Plan for Current Use? With the state? 10 Α. 11 Q. Yes. 12 I'm not sure. It's all within the same Α. 13 department I believe but we have to do both so --14 Do you know if Matt signed off on the heavy 15 cut application? 16 MR. GRAYCK: Objection. 17 BY MR. DUANE: 18 Heavy cut application. Q. 19 MR. GRAYCK: Objection. Signed off? 20 Yeah, I didn't like that MR. DUANE: 21 word either. 22 BY MR. DUANE: 23 Do you know if you -- did you hear back from Q. anybody at the state with regard to the heavy cut 24

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approval process?

1 A. Yes.

- Q. And what did you hear back from the state?
- A. We get a copy signed of that permit or exemption in this case and it's in the file that you have.
- Q. Could there be stands of timber that are prescribed for overstory removal for which you would not file a heavy cut approval form?
- A. I don't think so -- for Plum Creek I don't think so but I'm not -- I don't know.
- Q. Based on your experience as the supervising forester for Plum Creek up here in Vermont if you had one stand that was less than 40 acres and for some reason Plum Creek wanted to harvest that and that less than 40-acre stand was prescribed for overstory removal, would you apply for a heavy cut permit or exemption?
- A. I would call Richard Greenwood and say, hey, Dick, do you think I should put it in. And I've asked him that in the past and he's said you should probably just put it in to be safe so I would say yes, that I would apply for it just to be safe.
- Q. Thank you. So Plum Creek hired We Log to harvest the Upper Clough Brook North tract?
- A. Correct.

- Q. And was anyone from Plum Creek or on Plum Creek's behalf overseeing their work?
- A. Yes.
- O. And who was that?
- l A. Me.

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- Q. How about anybody from Landvest, were they involved at all?
- A. Yes.
- 9 Q. And who was that?
- 10 A. Jonathan Horton, Kevin Lamere.
  - Q. So did you go out -- tell us or tell me what did you do when you first hired We Log with regard to this tract?
  - A. Met with him -- of course negotiate rates. Once we had settled on that and had a contract in place, went out to the site, looked at the access roads is usually the first thing you look at, do we need to do anything here, you know, improvements usually. When you haven't accessed a place for, you know, 5 or 10 years the roads start to grow in, so if nothing else grading the roads and maybe a little reditching, fix a culvert that's out. So talked about access roads, talked about access. So those would be leading into this piece as well as on the piece and then, okay, what other additional

roads might we need to make an efficient harvest here, looked at those.

Then do a walk-through of the site, look at where landings will be located, go over the AMPS, you know, basically the rules that we're working under just to make sure everybody's on the same page with that. Our expectations on the site, how the layout will be done, what they should expect to see. We're doing this with the owner of the company.

Q. You did it with the owner?

- A. Correct. And then following that we would do as operations began, as things started to -- wood started to be harvested weekly inspections, at least weekly inspections that would be looking at, you know, are they following the instructions, are there any issues, you know, if things are good, everything's satisfactory or do we need to do some things a little different here so that facilitates communication with the logging contractor.
- Q. Did you do weekly inspections when they started, when We Log started harvesting on the tract?
- A. Between myself and Landvest, yes.
- 25 Q. And did you show the We Log folks the Harvest

- Prescription Fact Sheets or the Forest Management Plan?
- A. Yes, the Harvest Prescription Fact Sheet and the map that's associated with it, it's part of the amendment, is made a part of the contract and the map is actually used as Exhibit A in the contract, the map of the property to show the area that's being contracted for and the treatments that are going to happen in that area.
- Q. Do you know whether or not We Log ever harvested land in Vermont in accordance with a Forest Management Plan?
- 13 A. I don't know.
- Q. Did you ask them if they had ever harvested a land in Vermont in accordance with a Forest Management Plan?
- 17 | A. No.

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- Q. Did We Log ever ask you with respect to Forms

  2 and 4 or the Harvest Prescription Fact Sheet what

  are these documents?
- 21 | A. No.
- Q. Did you go over Form 2 and Form 4 and the
  Harvest Prescription Fact Sheet with anybody from
  We Log?
- 25 A. I went over the Harvest Prescription Fact

- 1 | Sheet, part of the -- that's more geared towards,
- 2 as I said, the Land Trust but also the logger.
- 3 There's things in there about marking and what they
- 4 | should expect to see. Form 2 and Form 4 are not
- 5 made a part of the contract.
- 6 Q. Mr. Horton's amendment Harvest Prescription
- 7 Fact Sheet is dated October 27th, '09 and the Form
- 8 | 2 is dated October 13th, '09, so when do you think
- 9 | We Log started on the job?
- 10 A. It was mid to late November.
- 11 | Q. '09?
- 12 | A. Yes.
- Q. Did you go out the first week -- I know it's
- 14 mid to late November '09 but do you think you went
- 15 out there at all mid to late November yourself when
- 16 | they started?
- 17 | A. Yes.
- 18 Q. And did you go every week yourself?
- 19 A. I'm not sure. Unless I was on vacation, yes.
- Q. And when you met with the folks from we Log
- 21 to go over the contract and the Harvest
- 22 | Prescription Fact Sheet, was the Vermont Land Trust
- 23 | forester with you?
- 24 A. No.
- 25 Q. Do you know whether or not Dan Kilborn or

- anyone else from the Land Trust met separately with We Log regarding the harvest?
- A. No.

- Q. No, you don't know or no, Dan didn't?
- 5 A. No, I don't know check that question.
  - Q. Do you know whether or not Dan Kilborn or anyone else from the Land Trust went out to inspect when the logging job began in the end of 2009?
  - A. No, I don't.
  - Q. Did there come a time after mid November or late November of '09 when you had any conversations with Matt Langlais regarding any concerns Matt had about the harvesting job?
- 14 | A. Yes.
  - Q. And when was that?
    - A. On January -- I think I know this date by heart -- 26th I believe it was we met together to do a review of harvests, harvest areas. Dan Kilborn, myself, we invited Matt Langlais, Dan invited Billy Costner, the Landvest forester Kevin Lamere, myself and Richard Greenwood and this isn't an unusual thing. We try to get together. Dan Kilborn and I will or the forester will review almost every active operation. So this was sort of a chance to invite some other people along too if

their schedules fit.

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We went out and we walked 2 jobs that day. We walked a job in the morning, then we went to this We Log -- to this Clough Brook North job in the afternoon.

- Q. What was the job in the morning?
- A. That was also in Lemington on kind of the other side of the mountain. Job number -- it was willard Stream is kind of the job name over there.
- 10 | I can't remember the exact number.
- 11 | Q. And prior to January 26th, 2010, correct?
- 12 A. Correct.
- Q. Had you had any conversations with Matt
  Langlais about the Upper Clough Brook North tract
  job?
- 16 A. After it started?
- 17 Q. Yes, thank you after it started.
- 18 A. No.
- Q. Had you had any conversations with Dan
  Kilborn from the Land Trust prior to the January
  21 26th visit after the job started?
- 22 A. I don't recall.
- Q. Did you yourself based on the Forest

  Management Plans have any concerns about how the

  job was complying with the plans prior to the

- meeting on January 26th?
- 2 | A. No.

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- Q. And so who initiated the meeting on the 26th, was that you or Dan?
- A. Dan and I, one of us probably sent an e-mail to the other and honestly I can't remember who it would have been but Dan and I initiated that.
- Q. And this was part of just sort of regular normal procedures as to how you on behalf of Plum Creek work with the Land Trust and the state?
- A. Yes.
- Q. And had you had those kinds of meetings before with any of the cast of folks that were there on the 26th?
  - A. Yes.
- 16 Q. On other jobs?
- 17 A. Other jobs, yeah.
- Q. How many times do you think you've had those kinds of get-togethers?
  - A. With that group -- well, never with that group. That was the first time Billy Costner had been to the woods but with the core, if you want to call them the core cast of characters which would be myself, Matt Langlais, a Landvest forester that was sort of responsible on that job and Richard

Greenwood -- did I mention Dan Kilborn?

- Q. Yes. I think you said Landvest and Land Trust but that's okay.
- A. That would have been -- I would say probably we had done that 4, maybe 4 times before. It's a guess but --
- Q. Thank you. And so in the morning you went over to the other side to the Willard Stream area and then in the afternoon you went to the Upper Clough Brook North tract; is that correct?
- A. Correct.

- Q. And I'm glad you used cast of characters.
  What did you and your cast of characters do on that afternoon?
- A. Similar to the initial meeting before any harvesting began the idea was to just have an overview, gain an overview of the operation, how things were progressing. We started in what would be I guess the southeast portion of the harvest area, walked through some of the harvest there, just talked about, you know, how things were going, what did different people think, again just a chance to exchange ideas or impressions, from my point of view a chance to head off issues, you know, if there's something that always better to

- have more people, more input on it. And then we ended up up on the -- it would be the northwest kind of portion of the stand or the area, I'm sorry.
  - Q. And when you say "area" you mean the --
- A. North Clough Brook harvest area.
  - Q. The 471 acres?
  - A. The approved area, yeah.
- Q. Okay. And did anyone in the group on that date raise any concerns about whether or not the Forest Management Plans were being followed?
- 12 A. Yes.

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- Q. And who raised concerns?
- 14 A. Matt raised concerns.
- Q. And how about anyone from the Vermont Land
  Trust or the Vermont Housing and Conservation
  Board?
- 18 A. No.
  - Q. And what did Matt say if you can recall?
    - A. Matt was concerned about AMPs. We'd had a very heavy rain the day before so even though we were in the middle of winter streams had opened up in different places and he had concerns around AMPs. And he was concerned about the harvesting in a portion of stand -- I apologize. I have to look

- 1 at -- I get tangled up in these too because the numbers are almost the same.
  - Q. Please take your time.
- 4 A. In stand 34.

- Q. And do you recall what he said about stand 34?
- A. Again, the focus was more on the AMP issues
  that he felt were there. I think he was concerned
  the residual basal area was low.
- 10 Q. Did Dan say anything regarding Matt's 11 concerns if you can recall?
- 12 | A. No.
- 13 Q. Did Dan say he did not have any concerns?
- 14 A. No.
- Q. How about Billy, did he say he had any concerns?
- 17 | A. No.
- 18 Q. Billy's not a forester though, is he?
- 19 A. No, he's not.
- Q. I'm laughing because I'm picturing Billy going through the woods.
- A. He actually goes through the woods quite well.
- Q. Oh, good. I'm glad to hear that. And did
  you respond at all to what Matt said --

A. Yes.

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- Q. -- regarding his concerns?
  What did you say, Chris, if you can remember?
- A. I guess I remember my actions more than what I said at the time. We discussed -- I asked what the concerns were, tried to gain an understanding of that and so that we could move forward trying to address those.
  - Q. And were you able to gain an understanding?
  - A. I think for the most part, yes.
- Q. Did you have any concerns regarding whether the harvest was being done in accordance with the Forest Management Plan on that date?
- A. Yes.
  - Q. And what were your concerns?
- A. The residual basal areas.
  - Q. What did you think of the residual basal areas that were possibly present on that day?
  - A. My concern was around the one specific area, that the residual basal area was too low and could affect the overall stand and, therefore, the ability to meet the prescription.
  - Q. Did you and Matt come up with any kind of resolution or solution or plan regarding the concerns you both had?

- A. No. Around -- I'm sorry, can I ask a clarifying question?
  - Q. Please.
  - A. Around the AMPs or the basal area?
  - O. Around the basal area.
  - A. No.

- Q. And why not?
- A. Matt seemed to be wanting to follow up which I suppose we both would. There's -- you can't just look at an area and say this is not right without getting data on it. So I think we both probably understood that. He knew I think because I had told the group that we would take care of any potential AMP concerns then, that those were going to get taken care of. So that side of things I think people were comfortable would be addressed immediately.

The other side of it, the basal area is more of a long term -- you know, you need to stop what you're doing so that you have, you know, a place to measure and see where you're at. To get that -- you're kind of a snapshot at that point but you really can't get an answer.

Q. Did Matt say he was going to come back out to the tract and gather more data?

- 1 A. Yeah.
  - Q. And did you and he make any plans for you to go along with him?
  - A. No.

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- Q. Did he set a date that he was going to come back out when he was there with you on the 26th?
- 7 A. No.
  - Q. And did you get -- so you were in stand 34, correct, on the 26th?
- 10 A. Correct.
- 11 Q. Were you in stand 43 on the 26th?
- 12 | A. Yes.
- 13 Q. And were you in stand 44 on the 26th?
- 14 A. No, we went by it. The road goes through 15 that one so we went through it.
- Q. Did Matt voice any concerns about stand 43 with respect to compliance with the Forest
- 18 | Management Plan?
- 19 | A. NO.
- Q. And how about stand 44?
- 21 A. No.
- Q. And did anyone from the Vermont Land Trust voice any concerns about stand 43 or stand 44 when you were all there on the 26th?
- 25 | A. No.

- Q. And so after the 26th of January 2010 what's the next contact you had from either Matt Langlais or anyone from the Land Trust regarding the tract?
- A. We met with the Vermont Land Trust and Matt and Ginger Anderson separately, two separate meetings. We met with the Land Trust here and the Forest and Parks staff in St. Johnsbury in February. I'd have to look through my notes to find the exact date, early February for follow-up meetings.
- Q. And who was at the Vermont Land Trust meeting?
- A. Dan Kilborn, Billy Costner. I apologize, I
  cannot remember his name. He was Dan's boss at the
  time, probably still is.
- 16 Q. Gil Livingston?
- 17 A. No.

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- Q. Okay. And when you say "here" you mean montpelier?
- 20 A. Yes, at the VHCB office.
- Q. Which is right around the corner here?
- 22 A. Up the hill.
- 23 | Q. Up the hill.
- A. I'm sorry, not -- yeah, the VHCB office, right? That's the VLT office up on the other side

- of town, Billy Costner's office in the basement up there.
  - Q. The brick building up on the hill?
- 4 A. Yes.

- Q. And what happened at that meeting?
- A. We discussed the inspection of the 26th, the concerns around that, how we wanted to move forward, some new policies that Plum Creek had
- 9 implemented both just before that happened, this
- 10 visit and also post-visit to try to address
- 11 concerns that had been raised by the Land Trust and
- 12 ANR.
- Q. Did Dan Kilborn at that meeting in early
- 14 | February voice any concerns to you regarding
- 15 whether or not the Forest Management Plan for the
- 16 | tract was being complied with?
- 17 | A. Yes.
- 18 Q. And what did Dan say?
- 19 A. He was concerned that the Forest
- 20 | Management -- that the approved Forest Management
- 21 was not being complied with.
- Q. Was that with regard to AMPs, basal area or both?
- 24 A. Both.
- Q. And what were his concerns regarding the

1 | basal area?

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- A. He from that site visit on the 26th felt that the basal area was not adequate to meet the prescription.
- Q. Did he discuss it in the context of individual stands or in general or what if you recall?
- A. Individual stands. So in the -- just like it is in the Harvest Prescription Fact Sheet and the Forms 2 and 4, you know, each of these applies to a stand.
- Q. Did you go through the Harvest Prescription
  Fact Sheet and forest plans when you met up at the
  VHCB office in early February?
- 15 A. No.
  - Q. Were stand 34, 43 and 44 specifically mentioned by Dan?
- 18 | A. Stand 34 was.
- Q. And so then you met with Ginger and Matt up
  in the St. Johnsbury ANR office around the same
  time?
- 22 A. The same day in the afternoon.
- Q. And who else was there at that meeting besides Ginger and Matt and you?
- 25 A. Tim Doral who was my boss at the time and

- Mark Doty who's our director of something, manager of community relations and government affairs. I think I have that right.
  - Q. Is Mark a forester?
  - A. He is.
- Q. And Tim is a forester?
- 7 | A. He is.

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- Q. And what did you talk about with Matt and Ginger up at St. Johnsbury at that meeting in early February?
- A. We were asking them about the process, what we should expect as far as communication from them on the different concerns that Matt had expressed on site.
- Q. Did Matt express any additional concerns at the meeting in early February regarding stands 43 and 44?
- A. That was when Matt or Ginger gave us a copy of the draft of the cut contrary inspection.
- Q. Do you know whether or not Matt had gone out to the tract between January 26th, 2010 and your meeting in St. Jay in early February 2010?
- A. I believe he had. I haven't pieced the dates together from the -- but he gave us the draft. I believe he had revisited the site before he began

- to put the draft together.
  - Q. Did he say that he had been back out after the 26th?
    - A. I don't remember.
  - Q. And did you expect him to be giving you a draft of a cut contrary document at the meeting?
    - A. No.

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- Q. And what did you think when you got that document?
- A. I was surprised.
  - Q. Why were you surprised?
- A. I was under the impression that we would be working together to try to address the issues that he had concerns over or the state had concerns over.
- Q. And did you discuss the draft of the cut contrary at the meeting in St. Jay in early February?
- A. We went through it with Ginger and Matt.
  - Q. Did the draft of the cut contrary have any data as to what the state believed was the residual basal area in stands 34, 43 and 44?
  - A. Yes, but not -- I guess I should clarify. In the cut portions of those stands.
- Q. And did you agree or disagree with the

- residual basal area calculations that Matt had in his draft cut contrary?
- A. They seemed reasonable for the cut areas of those stands but I really had no basis at that point for agreeing or disagreeing.
  - Q. And what do you mean they seemed reasonable?
- A. From just standing looking out over the area as a forester, you know, you can kind of guess, oh, I'd say this is between this basal area and this basal area and you probably, you know, have a pretty good guess about it. So they weren't surprisingly out of line with what I would have guessed standing on the site on the harvested areas.
  - Q. When you were there on the 26th?
- A. Correct.

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- Q. So when you say standing looking at the site you meant -- did you mean on the 26th of January 2010?
- A. Or at any time. I mean, in general if you walked onto the site or a site you could be able to get a gut feel for what could be out there.
  - Q. How long did the meeting last do you think?
- 24 A. In St. Johnsbury?
- 25 Q. Yes.

- A. Probably a little over an hour.
- Q. would you describe it as a friendly meeting?
- A. Yes.

- Q. When the meeting ended was there any plan between the state and Plum Creek as to any next steps with regard to the Forest Management Plan for the tract?
- A. No. Honestly we were a bit shellshocked and they were giving the impression that it really was kind of out of our hands at that point.
- Q. So did Plum Creek do anything to go back out and check out the tract to see if Matt was on base or off base with regard to his cut contrary?
- A. Prior to receiving the draft of the cut contrary we had Landvest go out as a result of the inspection on the 26th and do an intensive inventory on stand 34 which was where the concern had been, the stand that had concern expressed over the basal area to see what the basal area was. They stopped the harvesting in that stand on the 26th, the evening of the 26th so nothing else would be cut so we would have that preserved, that snapshot to look at and see where we were for compliance or not and how we could move forward with the harvesting of that stand or not. So

- 1 Landvest did that intensive inventory for us and 2 gave us that data back.
  - Q. Was there anything about the meeting on the 26th out at the site that caused you to engage Landvest to do this investigation of the tract?
    - A. Yes.

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- Q. And what was that?
- A. We discovered trees that had been harvested, more than just a few trees with blue Xs which were an indication they were supposed to be left. So it was a mark -- this was marked to leave which means that that area where We Log was cutting was marked Xs on the trees that were supposed to be left on the site.
  - Q. Who would have done that marking?
- 16 A. Landvest would have.
  - Q. And when would they have done that marking?
- 18 A. Probably within the week to two weeks prior 19 to the harvesting.
  - Q. After the Forest Management Plans Forms 2 and 4 and Harvest Prescription Fact Sheet were filed?
    - A. Yes.
    - Q. But before We Log began the cutting?
- 24 A. Correct.
- 25 Q. And when you said you saw trees harvested,

where were they?

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- A. They were on the landing which is where -this is a mechanical operation so there's a machine
  cutting the trees and laying them in bunches and a
  skidder is dragging them out with the limbs and
  everything still on, they're processed on the
  landing tree length so the tree is still there but
  the limbs are taken off, piled up and in that pile
  on some of the logs on the -- the trees on the side
  of the pile we saw these blue Xs.
- Q. And when you say "we" was that you and anybody else that you know?
  - A. The group.
- Q. Was there any discussion amongst the folks in the group that you're aware of regarding trees with blue Xs in the landing pile?
- 17 A. Yes.
  - Q. And what did anyone say if you can recall?
  - A. I -- as foresters we all knew the intent was that those were supposed to be left so it raised concern. And the discussion would have been around why are these trees getting cut, how many trees are there, has this occurred, you know, in a wide area or is it just a few trees.
    - Q. Was this a particular landing for a

particular stand?

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- A. Two stands would have been coming to this landing.
  - Q. And which two if you know?
- A. 34 and 43.
- Q. I apologize for my admittedly vague question but were there a lot of trees with blue Xs on them in the pile?
- A. Well, to a forester 1 is too much. I believe that we saw like 5 or 6 which considering that you're cutting thousands of trees, no, but it's still a serious implication to follow up on.
- Q. And do you know whether or not at the time you went there on the 26th of January 2010 that timber had been taken off of landings and taken to mills?
- A. Yes.
  - Q. Were you concerned that some of the trees that had been taken off the landing and taken to mills may have had Xs on them?
    - A. Yes.
      - Q. How are you doing there, Chris?
- A. I'm buzzing. I apologize.
- Q. In the packet that you and Attorney Grayck
  gave to me this morning, and I'm pawing through it

right now, there is some data behind some maps that say 550 Plum Creek Clough Brook North stand 34, there's a date on the bottom left-hand side that says February 5th, 2010 and there are -- there's another page and it has plot numbers and basal area, columns and tally trees and stand 34 again and I'll represent stand 34 again and then there's another one that says stand 34 again, are these the data that Landvest gathered when you engaged them to go back out to take a look at the tract?

A. Yes.

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MR. DUANE: So I am going to have this marked as S-3, please.

### BY MR. DUANE:

- Q. Chris, let me show you what's been marked for identification as Deposition Exhibit S-3 and it is I will represent to you and you can see me do this, there's page 1 of 1 and then 1 of 3, 2 of 3, 3 of 3 and then 1 of 6, 2 of 6, 3 of 6, 4 of 6, 5 of 6, 6 of 6, correct?
- A. Yes.
- Q. And you ever seen this before?
- 23 A. Yes.
- Q. And what is it?
- 25 A. This is the output for the processing of the

1 | cruise that Landvest did.

- Q. As I look at this document, and please clarify it for me if I'm incorrect, it all says stand 34; is that right?
  - A. That's right.
- Q. Is that the only stand that was inventoried by Landvest?
- A. Yes.

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- Q. Is inventoried the right word?
- 10 A. Yes, cruised, inventoried, it's the same.
- 11 Q. Why was only stand 34 inventoried?
- 12 A. This was a stand that the concern had been 13 expressed on site.
- Q. And there's a lot of numbers on here and so in your capacity as a forester and based on your education and experience did this inventory arrive at a residual basal area for the inventory that was done for stand 34?
- 19 A. Yes.

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- Q. And where is that shown or represented?
- A. I apologize, I'm finding the parts but not the whole.
  - Q. Thank you. That's why I'm asking you.
- 24 MR. DUANE: Are we off for a minute?
- MR. GRAYCK: Yes.

1 (Discussion off the record) 2 MR. DUANE: Virginia, could you mark 3 this as S-4 for me, please. 4 BY MR. DUANE: 5 Chris, we had a question pending regarding 6 the basal area and perhaps if I show you S-4 that 7 might be helpful to the answer. So let me show you 8 what's been marked S-4. Do you recognize that 9 document? 10 Α. I do. 11 Q. Is this a map of an area, is this the tract? 12 Α. This is a portion of the approved harvest 13 area. 14 Done by Landvest? Q. 15 Α. Yes. 16 So the first page is a map, big map second 17 page is an 8 by 11 little map, and the third page 18 is another map with some dots on it, and the fourth 19 page is a We Log Lemington map with some magic 20 marker writing on it. 21 This is not -- this doesn't apply to 22 any of this. This was separate in the file. 23 Okay, so page 4 --0. 24 Α. Page 4.

-- is separate than page 1, 2 and 3?

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Q.

- A. Correct. And page 3 is something that I generated out of our mapping system.
  - Q. Page 3 with all the black dots on it?
  - A. With the black dots on the gray.
  - Q. Does either page 1 or page 2 of Exhibit S-4 help you to show me where the residual basal area conclusion or result was with regard to the inventory that was done by Landvest after January 26th, 2010?
  - A. Yes, these are representing plots and they're the same on both of these maps. These white lettered with a black number written above them.
    - Q. On page 1?

A. Each of those on page 1 would be an indicated place that a plot was contended to be taken. And this black dotted line -- this is stand 34. These cover basically the extent of stand 34. The black dotted line in the eastern portion of the stand is the boundary of the harvested portion. So harvested would be to the west, unharvested would be to the east. So this portion of the stand has not had any harvesting occur.

Initially Landvest -- we had Landvest go out there and do these plots in the harvested portion to the west. Within a couple of days we said no,

- do the whole thing. So initially it was laid out
  with plots across it but --
- Q. I'm sorry, when you say whole thing you mean all of stand 34?
- A. The entire stand, measure the entire stand.

  We need to know where we're at. So this -- there's

  two portions to this -- really three portions to

  this report and I believe the last page is

  showing --
- 10  $\mid$  Q. And the last page of S-3?
- A. S-3 shows the basal area per acre for the entire stand 34 at 35.
- Q. Okay. So it says "Basal area per acre mean 35.0," correct?
- 15 A. Correct.
- 16 Q. And that's for the entire stand 34?
- 17 A. Correct.
- 18 Q. Harvested and unharvested?
- 19 A. Correct.
- Q. And did Plum Creek do the same thing for
- 21 | stand 43 and 44?
- 22 A. No.
- Q. And why not?
- A. There hadn't been a concern expressed about those two stands at that time.

- Q. And when you met with Ginger Anderson and Matt in St. Jay in early February did you bring copies of S-3 and S-4 with you?
  - A. I don't recall discussing it then.
  - Q. Mark Doty was at that meeting?
  - A. He was.

- Q. Was Mark aware of this data contained in S-3 and S-4 if you know at the time of that meeting?
- A. I don't know.
- Q. Did anyone from Plum Creek, either you or Mark or Tim I believe say that Plum Creek had gone out and done an inventory of stand 34?
- A. Part of my response on the 26th was that we would inventory this right away to see where we were at. And I made that response formally after the visit to everybody that was on the visit. So I actually sent a letter to Matt, to Billy Costner, to Dan Kilborn that one of the things that I identified as follow-up was that we would do this in stand 34.
- Q. And at the meeting in early February did anyone from Plum Creek say that Plum Creek has data regarding stand 34?
- A. I'm not sure -- I don't know.
- Q. Okay. There's a date on the bottom left-hand

- side of S-3 and it says February 5th, 2010, is it safe to assume that the meeting in St. Jay took place after February 5th, 2010?
  - A. I'm not sure. That's why I'm hesitating.

    What the February 5th means on S-3 is the date that this was run by Landvest through their cruise program. It does not necessarily mean that it was provided to Plum Creek on February 5th, although I don't see any reason it would have been withheld.
    - Q. Thank you for clarifying that. So that's just -- the bottom left hand date Friday, February 5th, 2010 is just a date, that's not -- that could mean --
      - A. It's not a date of delivery or --
    - Q. Okay. Thank you. It could be the date it was printed out on the printer; is that correct?
    - A. It could be. I'm not familiar enough with that cruise program to say.
    - Q. Do you agree that the residual basal area of stand 34 based on this data was 35.0?
      - A. Yes.

- Q. Does the residual basal area of 35.0 for stand 34 meet or not meet the requirements of the Forest Management Plan for stand 34?
- A. It meets them.

Q. And why does it meet them?

- A. Because the stand 34 on form -- on S-2, Form 2 page 2 for stand 34 it says that the residual basal area of the stand will be between 30 and 40 square feet.
  - Q. What's the residual basal area if you know of stand 34 with regard to the cut portion of the stand?
  - A. This inventory showed it to be 19.59 square feet.
  - Q. Do you agree or disagree with Matt Langlais' cut contrary determination with regard to the Clough Brook North tract?
  - A. I disagree.
    - Q. And why do you disagree?
  - A. The whole concept of the management of forest in this scenario is stands. We break things into stands as I described earlier, we submit that as a master plan if you will, 10-year plan that's approved. Part of what's approved is these stands as these lines indicate. Those stands are then the basis for our management going forward and when we make a prescription, a silvicultural prescription like we did on Form 2 it's to the stand. So when you come in when only part of the activity is

1 completed and try to judge the portion, especially in a variable type of prescription with variable 3 stand and try to judge it at that point, you're not 4 looking at the true picture. I mean, you have to look at the stand. We looked at the stand together 6 to start with. We all understood the variability. We all agreed upon the prescription. 8 approved for the stand and then partway through the 9 stand you say, oh, you're not in compliance. You 10 can't do that. It's got to be across the stand, 11 otherwise it would be difficult, if not impossible 12 to manage under a program like Use Value, you know, 13 with these type of areas.

> Because why? Q.

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- Because you have to be able to describe -you have to be able to describe what you're going to do, have it approved and then be able to go out and complete the project and have it assessed at that point. If it can be assessed at any point, then you could come in when just this was done and say it's not compliant.
- Just for the record, when you say "just this" you're referring to --
- Like say a 10 acres' little corner over here of a 120-acre stand or something.

- Q. On Deposition Exhibit S-4 page 1?
  - A. As an example, yes.
  - Q. Thank you. Just for the record so that when you say "this" you're talking about this map that's kind of a large map on S-4, correct?
    - A. Correct.
  - Q. Okay. And you've read the Adverse Inspection Report that Matt wrote with regard to the tract, correct?
- 10 | A. Yes.

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- Q. And although you don't have data, and correct me if I'm wrong, similar to S-4 and S-3 for stands 43 and 44, do you agree or disagree with the department's conclusion that stands 43 and 44 were cut contrary to the plan?
  - A. I completely disagree.
- Q. Why do you completely disagree?
- A. Because the harvest has followed the
  variability set forth in the prescriptions to date
  and when it's completed it will meet the
  requirements.
  - Q. Other than any reports that have been done by Mr. Robbo Holleran regarding the tract does Plum Creek have any other data regarding stands 43 and 44 if you know?

- A. No. You mean this type of data?
  - Q. This type of data with regard to S-4 and S-3.
- 3 A. No.

- Q. No, thank you. Did you ever speak with Matt regarding his Adverse Inspection Report cut contrary determination after the meeting in early February in St. Jay?
- A. No.
  - Q. And when was the next time you had any contact with Matt or Ginger following the meeting in St. Jay in early February 2010?
  - A. I would have to review my planner. We continued to submit harvest plans and work with Matt to have those approved. So other than this the day-to-day activities still continued so that we could harvest in other areas. We just said we won't do anything right here until we know where we're at and have agreement on how we want to move forward.
  - Q. And by -- with regard to "that" you mean the Upper Clough Brook North tract?
- A. Yes.
- Q. So do you recall whether you had any conversations with Matt or Ginger regarding the Upper Clough Brook tract, the north tract after

- your meeting in St. Jay in early February 2010?
- 2 | A. No.

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- 3 Q. No, you didn't?
- 4 A. No, I didn't.
  - Q. In reviewing Matt's and now the department's Adverse Inspection Report do you know whether or not he or the department employed any silvicultural standards in coming to their conclusion regarding the basal area?
- 10 | A. I do not.
- Q. Does it appear like they followed any standards?
- A. They refer to silviculture standards in the
  Adverse Inspection Report. I'm sorry, I'm not
  thinking of the Adverse Inspection Report. I'm
  thinking of the commissioner's decision.
- 17 | Q. Okay.
- A. No, I would say there's no reference to texts
  or anything in the Adverse Inspection Report.
  - Q. What's your opinion of Matt Langlais as a forester in terms of his professional capability?
- A. I'm probably not the best one to judge. I
  mean, I think he's a -- he seems like a fine
  forester. You know, we've attended meetings
  together and we seem to be able to have intelligent

1 discussion about forestry issues together so as far 2 as I can tell he seems competent to do his job. 3 MR. DUANE: I have no further 4 questions for the witness. 5 MR. GRAYCK: None for me. 6 MR. DUANE: I think the deposition is 7 concluded as soon as we get the exhibits 8 to Virginia which I have as S-1 and S-2 9 and S-3 and S-4. 10 MR. GRAYCK: Would you have any 11 objection to me making copies of those right now and the stickered ones will go 12 13 to Virginia and would you like a set of 14 those, Michael? 15 MR. DUANE: That would be fantastic. 16 MR. GRAYCK: Then if you'll let me go 17 work my photocopy magic. 18 MR. DUANE: So we're done. 19 MR. GRAYCK: Okay, if you're done I'm 20 done. 21 MR. DUANE: okay. 22 (Whereupon, the deposition was 23 adjourned at 11:36 a.m.) 24 25

1	SIGNATURE PAGE
2	I have carefully read the foregoing
3	deposition and the answers made by me are
4	true.
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6	Mufl
7	CHRISTOPHER FIFE
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11	STATE OF VERMONT.
12	COUNTY OF <u>ESSEX</u> .
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	$\sim c_{N} a/N c_{N}$
14	At <u>CANAAN</u> in
14 15	said County, this <u>19th</u> day of
15 16	said County, this <u>19th</u> day of
15 16 17	said County, this <u>19th</u> day of <u>MARCH</u> , 2013, personally appeared
15 16 17 18	said County, this <u>lath</u> day of <u>MARCH</u> , 2013, personally appeared the above-named CHRISTOPHER FIFE, and made
15 16 17 18	said County, this <u>lath</u> day of <u>MARCH</u> , 2013, personally appeared the above-named CHRISTOPHER FIFE, and made oath that the foregoing answers, subscribed by
15	said County, this day of, 2013, personally appeared the above-named CHRISTOPHER FIFE, and made oath that the foregoing answers, subscribed by CHRISTOPHER FIFE, are true.
15 16 17 18 19	said County, this day of, 2013, personally appeared the above-named CHRISTOPHER FIFE, and made oath that the foregoing answers, subscribed by CHRISTOPHER FIFE, are true.
15 16 17 18 19 20	said County, this 19th day of MARCH , 2013, personally appeared the above-named CHRISTOPHER FIFE, and made oath that the foregoing answers, subscribed by CHRISTOPHER FIFE, are true.  Before me,
15 16 17 18 19 20 21	said County, this 19th day of MARCH, 2013, personally appeared the above-named CHRISTOPHER FIFE, and made oath that the foregoing answers, subscribed by CHRISTOPHER FIFE, are true.  Before me,  Motary Public
15 16 17 18 19 20 21 22 22	said County, this 19th day of MARCH , 2013, personally appeared the above-named CHRISTOPHER FIFE, and made oath that the foregoing answers, subscribed by CHRISTOPHER FIFE, are true.  Before me,

1 CERTIFICATE 2 I, Virginia L. Simmer, Registered Professional 3 Reporter, certify: 4 That the foregoing proceedings were 5 reported stenographically by me at the time 6 7 and place herein set forth; 8 That the foregoing is a true and correct 9 transcript of my shorthand notes so taken; 10 That the witness was sworn by me as a Notary Public for the State of Vermont; 11 That I am not a relative or employee of 12 any attorney of the parties nor financially 13 14 interested in the action. The certification of this transcript does not apply 15 to any reproduction of the same by any means unless 16 17 under the direct control and/or direction of the 18 certifying reporter. 19 20 21 Virginia L. Simmer 22 23 My Commission expires February 10, 2015.

24

### **ERRATA SHEET**

TO: Christopher Fife
DATE: September 27, 2011
RE: Appeal by Plum Creek

FROM: Green Mountain Reporters, P.O. Box 1311,

Montpelier, VT 05601

Please read through the enclosed transcript. Any changes which you believe should be made to the deposition are to be reflected below, indicating the page number, line number, the change and the reason for the change. PLEASE DO NOT MARK ON THE TRANSCRIPT, AND UNDER NO CIRCUMSTANCES TAKE APART OR TAMPER WITH THE ORIGINAL TRANSCRIPT. After reading through the transcript, sign it on the signature page in front of a Notary Public, enclose this Errata Sheet, and RETURN IT TO THE ATTORNEY CONDUCTING THE DEPOSITION unless the transcript needs to be sealed or directed by the Court to the contrary.

Page #	Line #	Change	Reason
58	5	Change strike "check that question	" Not stated by me .
58	21	change "Lamere" to "Lem	iere" Incorrect spelling
69	25	change "Doral" to "Dorrell"	Incorrect spelling.
80	15	change "contended" to "inten	ded" Incorrect recording.

I have read and understand the above information.

Christopher Fife

# **Inventory of Plum Creek Timberlands**

### Attachment B: Inventory Cruise Specifications

### **General Procedures**

- 1) Plum Creek Timber Company (PCTC) will provide the contractor with a shapefile of the plot locations to be cruised. Contractor is to flag the cruise line starting location at a readily identifiable landscape feature with the distance and bearing to the first point center written on the flagging.
- 2) Contractor will hang flagging where cruise lines cross major features (skid roads, pickup truck roads, property line, stream, etc.) and mark it with the direction and distance to the nearest point.
- 3) Clearly mark point centers on the ground with a surveyor's type flag (stick, or similar), and also mark with flagging tied at eye level to make it clearly visible from a distance. Mark the flagging with the unique point identifier, the cruiser's initials and date.
  - a) Two types of plots will be taken for this cruise Prism plots and fixed area plots.

i) Prism plots:

(1) Use a 5 BAF prism.

(2) Plot spacing by grid with a plot every 2 acres - see shapefile

ii) Fixed area plots:

(1) 1/1000 acre fixed plots

(2) Plot Spacing by grid with three plots per acre.

- 4) Send or deliver all completed point data from the previous work week (cruise batches), in digital format (the form) as defined by PCTC.
- 5) All batches will be audited to the description on Exhibit E. Plum Creek will provide feedback on the results of the audit within two weeks of receiving a batch from the contractor. All batches that have passed auditing will be processed for invoice payment. All failed batches will be subject to re-cruise. In these cases payment will be withheld until such batch passes.
- 6) Completion of all plots Send all completed point data in the digital format (the form) as defined by PCTC and all field tallies, notes, maps, and data that are property of PCTC.

### Specific--Individual Tree Specifications,

### All Prism Plots

- 1) A prism shall be employed to select all trees on a point.
- 2) Tree Measurements
  - a) Begin tree measurements at each point with the first tree (mark as #1 or flagged at dbh) to the east of north and proceed in a clockwise direction.
  - b) Tally all species 1.0 -inch dbh class and larger.
  - c) The 1-inch dbh classes will be defined as shown in the following example. The 6-inch dbh classes will range from 5.60 to 6.59 inches.
  - d) Record trees forked below 4 1/2 feet as two separate trees.
  - e) Mark all trees with a paint stick at the point dbh was measured.
  - f) Measure all borderline trees for limiting distance and mark those determined as "out" with an X at dbh facing plot center.
- 3) For each live tree on each point, record species, dbh, acceptable or unacceptable growing stock and total height on every tree; to the top of the live crown.

### All fixed area plots:

1) A fixed radius plot encompassing 1/1000th of an acre from a fixed plot center

Exhibit C - Species codes

Species Code	Common Name
BT	Bigtooth Aspen
BW	Basswood
BE	American Beech
RO	Northern Red Oak
CE	Northern White Cedar
HE	Eastern Hemlock
LA	Larch (Exotic)
BA	Black (Brown) Ash
WA	White Ash
YB	Yellow Birch
HM	Sugar Maple
QA	Quaking Aspen
RM	Red Maple
BF	Balsam Fir
TA	Tamarack (Native Larch)
BS	Black Spruce
RS	Red Spruce
WS	White Spruce
JP	Jack Pine
RP	Red Pine
WP	White Pine
BC ·	Black Cherry
OH	Misc Hardwood
GB	Gray Birch
HH	Hophornbeam
NS .	Norway Spruce
WB	White Birch
OS	Other Softwood

### Michael Duane

From:

Rick Peterson [Rick@vlt.org]

Sent:

Thursday, April 19, 2012 12:18 PM

To:

Michael Duane

Cc:

dgrayck@cbs-law.com; Dennis Shaffer; Dan Kilborn

Subject:

Plum Creek

Mike,

You have asked whether there has been any communication between VLT and Plum Creek concerning the data provided to you by VLT pursuant to subpoen ain early February. Following inquiry, I can provide the following from Dan Kilborn:

"We noticed that they did not collect one piece of information in the agreed upon format, Acceptable Growing Stock vs. Unacceptable Growing Stock, a measure of the quality of the residual overstory trees. We asked them to have the contractor go back and collect the data, but at the time winter was closing in and finding the exact point locations was going to be impractical under the snow, so we put it on hold until spring. Now that the roads are becoming passable again, I've recently touched base with them to find out if it is being scheduled or if we need to have a conversation about it. I haven't heard back yet."

I hope this is responsive to your request.

Rick Peterson Project Counsel Vermont Land Trust 13 Jolina Court P.O. Box 850 Richmond VT 05477 (802) 434-3079 x314 (802) 434-2953 (fax) www.vlt.org WILLIAM H. SORRELL ATTORNEY GENERAL JANET C. MURNANE DEPUTY ATTORNEY GENERAL WILLIAM E. GRIFFIN CHIEF ASST. ATTORNEY GENERAL



TEL: (802) 828-3171 FAX: (802) 828-2154 TTY: (802) 828-3665 CIVIL RIGHTS: (802) 828-3657

http://www.atg.state.vt.us

# STATE OF VERMONT OFFICE OF THE ATTORNEY GENERAL 109 STATE STREET MONTPELIER, VT 05609-1001

February 3, 2012

Rick Peterson, Esq. Vermont Land Trust, Inc. PO Box 850 Richmond, VT 05477

RE: Appeal of Plum Creek

Dear Rick:

On February 2, 2012 Vermont Land Trust Vice-President Dennis Shaffer kindly provided me with a volume of written materials in response to the subpoena that the State had served on the Vermont Land Trust on January 19, 2012. Mr. Shaffer was also kind enough make arrangements to have the documents sent to me electronically through an "e-mail" link.

In reviewing the materials produced by Vermont Land Trust there are no documents showing any correspondence between the Vermont Land Trust and any other parties pertaining to the forestry inspections, cruises or inventories which were conducted in 2011 and 2012 that were the subject of the subpoena. I would have expected there would be at least some written or electronic documents in existence reflecting communications pertaining to the development and presentation of the materials and data to the Vermont Land Trust. In addition, one of the documents produced is entitled "Attachment B Inventory Cruise Specifications" (which I believe is the same document labelled "Exhibit B" in the electronic version), and another document is entitled "Exhibit C". "Attachment B" also refers to "(Exhibit E and F)" and to "(The Form-Exhibit D)". I cannot find any Exhibits D, E, or F in the documents produced, and I am wondering whether or not there is an Attachment A or an Exhibit A, or any other documents related to the information produced.

Please let me know what may be a convenient time for me to call you to discuss this matter further, or please give me a call at your convenience. Thank you for your time and attention to this matter.

Sincerely.

Michael O. Duane

Assistant Attorney General



WILLIAM H. SORRELL
ATTORNEY GENERAL
JANET C. MURNANE
DEPUTY ATTORNEY GENERAL
WILLIAM E. GRIFFIN
CHIEF ASST. ATTORNEY
GENERAL



TEL: (802) 828-3171 FAX: (802) 828-2154 TTY: (802) 828-3665 CIVIL RIGHTS: (802) 828-3657

http://www.atg.state.vt.us

# STATE OF VERMONT OFFICE OF THE ATTORNEY GENERAL 109 STATE STREET MONTPELIER, VT 05609-1001

January19, 2012

Dennis Shaffer Vice President for Conservation and Stewardship Vermont Land Trust, Inc. 8 Bailey Avenue Montpelier, VT 05602

Dear Mr. Shaffer:

Enclosed please find a subpoena duces tecum for the production of certain documents in the possession, control or custody of VLT pertaining to Plum Creek lands in the Towns of Lemington, Averill and Brighton, Vermont. Also enclosed is an acceptance of service form for your signature.

If you have any questions about the subpoena or the production of the requested documents please do not hesitate to have attorney Peterson contact me. Thank you.

Sincerely,

Michael O. Duane

Assistant Attorney General

cc: Rick Peterson, Esq. David L. Grayck, Esq.

### STATE OF VERMONT

SUPERIOR COURT Essex Unit CIVIL DIVISION

Docket Nos. 72-12-10 & 19-4-11 Excv
294-12-11 & 76-4-11 Oscv
(consolidated)

IN RE:

APPEAL BY PLUM CREEK MAINE TIMBERLANDS, LLC

## SUBPOENA DUCES TECUM

NOW COMES the State of Vermont, by and through the Office of the Attorney General, and pursuant to the authority of Rule 45 of the Vermont Rules of Civil Procedure, commands the Vermont Land Trust, Inc. of 8 Bailey Avenue, Montpelier, Vermont, to produce and permit inspection and copying of any document, including electronically stored information, in its possession, control or custody pertaining to the forestry inspections, cruises or inventories of lands owned by Plum Creek Main Timberlands, LLC (formerly known as the Champion Lands or Conservation Fund Lands), of which the Vermont Land Trust, Inc. is a grantee of the development rights and perpetual conservation easement restrictions, conducted at the request of, or at the direction of, or with the agreement of the Vermont Land Trust, Inc., in the towns of Lemington, Averill and Brighton, Vermont in 2011 and 2012 at 10:00 AM on February 2, 2012 at the offices of the Vermont Land Trust, Inc. on 8 Bailey Avenue in Montpelier, Vermont.

# Rule 45(c) Protection of Persons Subject to Subpoenas.

- (1) A party or an attorney responsible for the issuance and service of a subpoena shall take reasonable steps to avoid imposing undue burden or expense on a person subject to that subpoena. The court for which the subpoena was issued shall enforce this duty and impose upon the party or attorney in breach of this duty an appropriate sanction, which may include, but is not limited to, lost earnings and reasonable attorney's fees.
- (2)(A) A person commanded to produce and permit inspection and copying, testing, or sampling of designated electronically stored information, books, papers, documents or tangible things, or inspection of premises need not appear in person at the place of production of inspection unless commanded to appear for deposition, hearing or trial.
- (B) Subject to paragraph (d)(2) of this rule, a person commanded to produce and permit inspection, copying, testing or sampling may, within 14 days after service of the subpoena or before the time specified for compliance if such time is less than 14 days service, serve upon the party or attorney designated in the subpoena written objection to producing any or all of the designated materials or inspection of the premises--or to producing electronically stored information in the form or forms requested. If objection is made, the party serving the subpoena shall not be entitled to the requested production or to inspect, copy, test, or sample the materials or inspect the premises except pursuant to an order of the court for which the subpoena was issued. If objection has been made, the party serving the subpoena may, upon notice to the person commanded to produce, move at any time for an order to compel the production, inspection, copying, testing, or sampling. Such an order to compel shall protect any person who is not a party or an officer of a party from significant expense resulting from the inspection, copying, testing, or sampling commanded.
- (3)(A) On timely motion, the court for which a subpoena was issued shall quash or modify the subpoena if it
  - (i) fails to allow reasonable time for compliance;
  - (ii) requires a resident of this state to travel to attend a deposition more than 50 miles one way unless the court otherwise orders; requires a nonresident of this state to travel to attend a deposition at a place more than 50 miles from the place of service unless another convenient place is fixed by order of court, or
  - (iii) requires disclosure of privileged or other protected matter and no exception of waiver applies, or
  - (iv) subjects a person to undue burden

## (B) If a subpoena

- (i) requires disclosure of trade secret or other confidential research, development, or commercial information, or
- (ii) requires disclosure of an unretained expert's opinion or information not describing specific events or occurrences in dispute and resulting from the expert's study made not at the request of any party, or
- (iii) requires a person who is not a party or an officer of a party to incur substantial expense to travel more than 50 miles one way to attend trial, the court may, to protect a person subject to or affected by the subpoena, quash or modify the subpoena or, if the party in whose behalf the subpoena is issued shows a substantial need for the testimony or material that cannot be otherwise met without undue hardship and assures that the person to who the subpoena is addressed will be reasonably compensated, the court may order appearance or production only upon specified conditions.

# (d) Duties in Responding to Subpoena.

- (1)(A) A person responding to a subpoena to produce documents shall produce them as they are kept in the usual course of business or shall organize and label them to correspond with the categories in the demand.
- (B) If a subpoena does not specify the form or forms for producing electronically stored information, a person responding to a subpoena must produce the information in a form or forms in which the person ordinarily maintains it or in a form or forms that are reasonably usable.
- (C) A person responding to a subpoena need not produce the same electronically stored information in more than one form.
- (D) A person responding to a subpoena need not provide discovery of electronically stored information from sources that the party identifies as not reasonably accessible because of undue burden or cost. On motion to compel discovery or for a protective order; the person from whom discovery is sought must show that the information sought is not reasonably accessible because of undue cost. If that showing is made, the court may nonetheless order discovery from such sources if the requesting party shows good cause, considering the limitations of Rule 26(b)(1). The court may specify conditions for the discovery.
- (2)(A) When information subject to a subpoena is withheld on a claim that it is privileged or subject to protection as trial preparation materials, the claim shall be made expressly and shall be supported by a description of the nature of the documents, communications, or things not produced that is sufficient to enable the demanding party to contest the claim.

(B) If information is produced in response to a subpoena that is subject to a claim of privilege or of protection as trial-preparation material, the person making the claim may notify any party that received the information of the claim and the basis for it. After being notified, a party must promptly return, sequester, or destroy the specified information and any copies it has and may not use or disclose the information until the claim is resolved. A receiving party may promptly present the information to the court under seal for a determination of the claim. If the receiving party disclosed the information before being notified, it must take reasonable steps to retrieve it. The person who produced the information must preserve the information until the claim is resolved.

DATED at Montpelier, Vermont, this 19th day of January, 2012

STATE OF VERMONT WILLIAM H. SORRELL ATTORNEY GENERAL

Michael O. Duane

Assistant Attorney General

109 State Street

Montpelier, Vermont 05609-1001

(802) 828-3178

cc: V.R.C.P. 45(b)(1) David L. Grayck, Esq.

# ACCEPTANCE OF SERVICE

Dennis Shaffer hereby acknowledg	es and accepts service of the subpoena
duces tecum served on the Vermont Land	Trust on January, 19, 2012 by the Office of
the Vermont Attorney General.	γ, γ τε τ <u>ε το</u> ς ατο σσο σ,

Dennis Shaffer Vice President for Conservation and Stewardship Vermont Land Trust, Inc.

(Date)

# **ACCEPTANCE OF SERVICE**

Dennis Shaffer hereby acknowledges and accepts service of the subpoena duces tecum served on the Vermont Land Trust on January, 19, 2012 by the Office of the Vermont Attorney General.

**Dennis Shaffer** 

Vice President for Conservation and Stewardship

Vermont Land Trust, Inc.

(Date)

From:

Chris Fife

Sent:

Thursday, May 27, 2010 4:47 PM

To:

Tim Dorrell; Mark Doty; Paul Davis

Subject:

Clough Brook UVA Violation letter

Importance: High

Attachments: Clough Brook Recommendation Langlais.pdf; Sinclair Clough Brk letter.pdf

Attached are the letters that I received from ANR today. Matt's investigation found 139.54 acres cut contrary on the Clough Brook sale. Steve Sinclair indicates that they have recommended to the Tax department that "the property" be removed from UVA. I have calls in to both Matt and Steve to get some clarification on what "the property" means.

#### Chris Fife

Senior Resource Forester Plum Creek - Northern Kingdom Unit 603-237-8657 phone/fax 802-473-0866 mobile

Build responsibly. Choose wood from well-managed SFI\*forests.



Matt Langlais, Caledonia/Essex County Forester Department of Forests, Parks & Recreation

1229 Portland Street, Suite 201 St. Johnsbury, VI 05819-2099

[phone] 802-751-0111 [fax] 802-748-6687

www.vtfpr.org

[email] matt.langlais@state.vt.us

Chris Fife Plum Creek Maine Timberlands, LLC PO Box 260 Colebrook, NH 03576

April 27, 2010

Dear Chris,

Please find enclosed a copy of a report sent to Ginger Anderson, Chief of Forest Management, recommending that lands owned by Plum Creek Maine Timberlands, LLC be removed from the Use Value Appraisal Program. Inspection of the 2009-10 harvesting operations found that 139.54 acres had been cut contrary to the forest management plan on file. This recommendation for discontinuance is also predicated upon the failure of Plum Creek to implement the minimum acceptable standards for maintaining water quality (AMP's) during forest management operations. After a parcel of managed forest land has been removed from Use Value Appraisal due to an adverse inspection, a new application for Use Value Appraisal will not be considered for a period of five years, and then shall be approved by the Department of Forests, Parks & Recreation only if a compliance report has been filed with the new application certifying that appropriate measures have been taken to bring the parcel into compliance with minimum acceptable standards for forest management. If you wish to aggrieve the decision that your property has been cut contrary you may appeal to the Commissioner of the Department of Forests, Parks, & Recreation. Please do call if you have any questions.

Regards,

Matthew Langlais

Caledonia/Essex County Forester

Marthan & Lylas

Cc: Ginger Anderson Kathy Decker Dan Kilborn





Matt Langlais, Caledonia/Essex County Forester Department of Forests, Parks & Recreation

1229 Portland Street, Suite 201 St. Johnsbury, VT 05819-2099

[phone]802-751-0111 [fax] 802-748-6687

www.vtfpr.org

[email] matt.langlais@state.vt.us

#### **MEMORANDUM**

To:

Ginger Anderson, Chief of Forest Management

From:

Matthew Langlais, Caledonia/Essex County Forester

Subject:

UVA Violation: Plum Creek Maine Timberlands, LLC 139.54 acres cut contrary

Date:

April 26, 2010

Landowner:

Plum Creek Maine Timberlands, LLC

999 Third Avenue, Suite 4300

Seattle, WA 98104

SPAN#:

348-108-10039

Parcel Town:

Lemington (contiguous with lands in Bloomfield, Averill, Avery's Gore, Lewis, Brighton, Morgan &

Brunswick)

The purpose of this memorandum is to report an adverse inspection of the Plum Creek Maine Timberlands LLC property that is enrolled in the Use Value Appraisal Program in Essex County. Please find attached a map detailing those acres considered cut contrary (139.54 acres). Violations include cutting contrary to the approved forest management plan as well as failure to implement AMP's, discharge resulting (see attached letters).

- 1. Clough Brook North Harvest (LM-03-01-09), Stand LM-03-34
  - a. Management Plan Data/Prescription
    - Northern Hardwood; 8.4 MSD; 82/35 AGS/UGS BA; Two stage shelterwood prescribed with 30-40 square feet residual basal area.
  - b. <u>Inspection Findings</u>
    - i. Stand has been cut contrary to prescribed silviculture. Stand inventoried on 2/10/2010 and 2/12/2010. Residual basal area across 90.91 acres of the stand reduced to 19.7 square feet (36 inventory points with 2.63 standard error).
    - ii. AMP Violations-discharge resulting include:
      - 1. Landing located within 50'stream side protection zone (AMP # 16)
      - 2. Unnecessary crossings—3 crossings installed on one brook whereas none actually needed (AMP #9)
      - 3. Protective strip not maintained (AMP #14)
      - 4. Machinery operated/skid trails placed within 25' streamside protection buffer (AMP #14)
      - 5. Stream channel excavated/altered to allow for the movement of water (AMP # 10)
      - 6. Equipment in headwater stream and or headwater wetland causing rutting (AMP # 10)

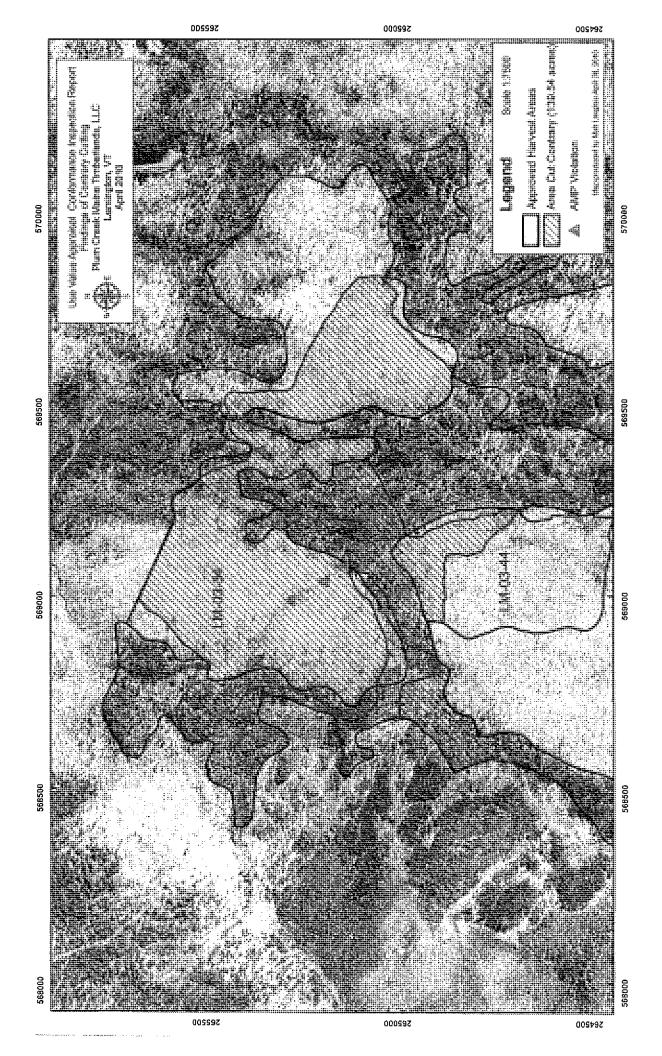


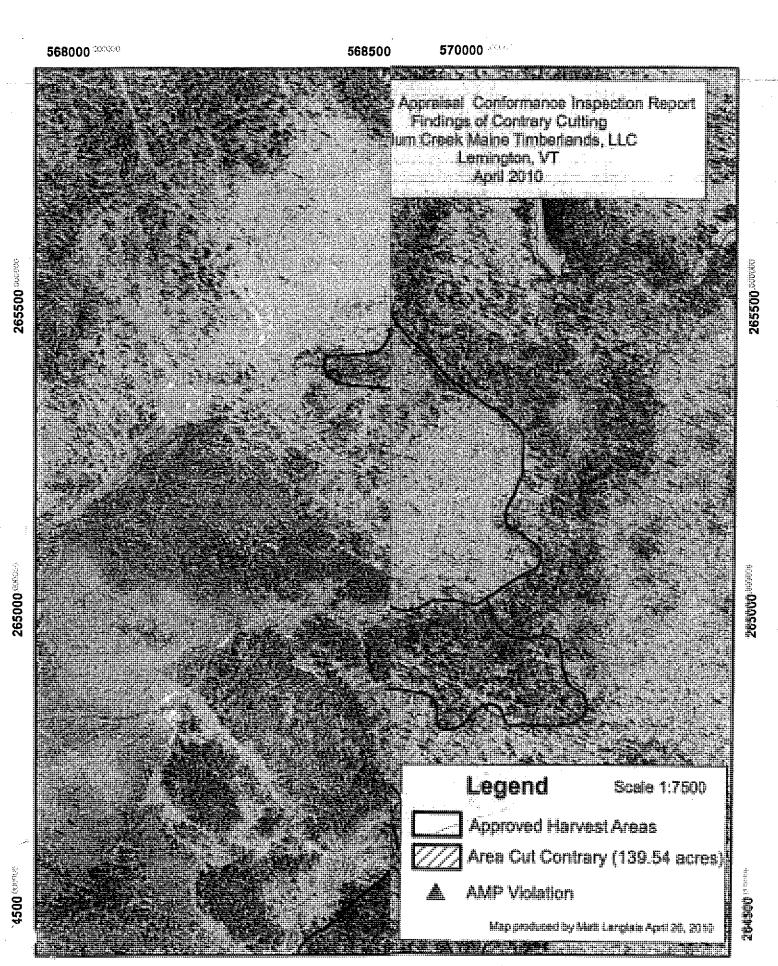


- Clough Brook North Harvest (LM-03-01-09), Stand LM-03-43
  - a. Management Plan Data/Prescription
    - i. Mixed wood; 8.2 MSD; 88/38 AGS/UGS BA; 410 Stems per acre regeneration; Two stage shelterwood prescribed with 60 square feet residual basal area and overstory removal on 30-40% of the stand where understory is well stocked with seedling and sapling sized red spruce.
  - b. Inspection Findings
    - i. 40.15 acres of stand cut contrary to plan. Stand inventory on 3/17/10 and 4/13/10 found 23.3 square feet of basal area and 15.38% of regeneration plots stocked (39 inventory points with 4.18 standard error). Neither regeneration plots nor residual stand basal area describes successful implementation of prescribed silviculture.
    - ii. AMP Violations-discharge resulting include:
      - 1. Protective strip not maintained (AMP #14)
      - 2. Machinery operated/skid trails placed within 25' streamside protection buffer (AMP #14)
      - 3. Equipment in headwater stream/wetland causing 1-2 foot rutting (AMP # 10)
      - 4. Equipment crossing brooks without crossing structures in place (AMP #10).
      - 5. Two unnecessary stream crossings (AMP #9).
- 3. Clough Brook North Harvest (LM-03-01-09), Stand LM-03-44
  - a. Management Plan Data/Prescription
    - i. Northern Hardwood; 7.6 MSD; 97/42 AGS/UGS BA; Intermediate thinning to residual basal area of 60 square feet.
  - b. Inspection findings
    - 8.47 acres of stand cut contrary to plan. Stand inventory on 3/26/10 found 16.3 square feet of basal area (8 inventory points with 4.60 standard error).

Cc: Kathy Decker Jeff Briggs Dan Kilborn









State of Vermont Department of Forests, Parks and Recreation

Department of Forests, Parks and Recreation 103 South Main Street, 10 South

Waterbury, VT 05671-0601 www.vtfpr.org [fax] 802-244-1481

[tdd] 800-253-0191

May 20, 2010

Chris Fife, Senior Resource Forester Plum Creek Timber Co. P.O. Box 260 Colebrook, NH 03576

Dear Chris:

The field work on the site of the suspected violation is complete, and a write-up by Matt Langlais, the County Forester, has been completed. This write-up, along with copies of maps and plans which were posted April 30, was forwarded to the Waterbury Office for review. They were sent to the Department of Taxes, Property Valuation and Review, recommending that the property be removed from UVA for harvesting contrary to the management plan.

Until all actions related to the potential UVA violation are completed, FPR will not be in a position to approve any new activities in the area referred to as Clough Brook North. Matt will be working on the plans and requests that have been submitted for any other Plum Creek harvest areas as well.

If you have any questions, please call me at 802-241-3680.

Sincerely,

Steven J. Surdan VOA
Steven J. Sinclair, Director of Forests

cc: Matt Langlais, Essex/Caledonia County Forester Meghan Purvee, General Counsel Kathleen Decker, District 5 Forest Manager Dick Greenwood, Heavy Cut Forester, D-5



Agency of Natural Resources

From:

Dan Kilborn [Dan@vlt.org]

Sent:

Wednesday, April 28, 2010 10:56 AM

To:

Chris Fife

Subject: Clough cruise data

Hi Chris,

Unfortunately, today is the first chance that I have had to sit down and review my notes from the walk we took on Upper Clough Brook last week. I am wondering if you will have the cruise data (and plot data) available to look at tomorrow? As you know, the cutting that was not consistent with THPs was much more extensive than I was aware from our first visit (at least twice the acreage), so the data may help me understand the bigger picture more quickly.

I think we should still discuss possible next steps, and while I don't think that we will be in a position to narrow in on closure at tomorrows meeting, it will be helpful to discuss things. Thanks, dan

Dan Kilborn, Stewardship Forester Vermont Land Trust PO Box 427, 1129 Main St., 2nd Fl. St. Johnsbury, VT 05819 Phone - (802) 748-6089 Fax - (802) 746-2346

From:

Dan Kilborn [Dan@vlt.org]

Sent:

Tuesday, August 30, 2011 10:08 AM

To:

Chris Fife

Subject: Cruise specs

Hi Chris:

I wanted to touch base again and ask if you could send along the most recent version of the specs for the the Averill/ Brighton/Lemington cruise. Thanks, dan

**Daniel Kilborn**, Stewardship Forester Vermont Land Trust P.O. Box 427 – 1129 Main Street, 2<sup>nd</sup> Floor St. Johnsbury, VT 05819

T: (802) 748-6089 F: (802) 748-2346 dan@vlt.org www.vlt.org

From: Dan Kilborn [Dan@vlt.org]

Sent: Thursday, July 07, 2011 7:55 AM

To: Chris Fife

Subject: Lemington Inventory

Hi Chris:

I did hear back from Bill, and he had some good thoughts. I've pasted a few of his comments below. It seems that recording all the species in a milacre plot, and then noting a "dominant" or "free to grow" stem would inform on what species should take control on the site. The trick will be on plots that don't have a clear dominant stem. Perhaps in this case we note that, and make notes of competing non-commercial species such as overtopping hobblebush.

In Northern Journal Applied Forestry 24(3), 2007 we put together a paper based on about a 50-year regen record. It showed that the best predictor of species success was found by tallying the one dominant stem per milacre up through sapling size (Accuracy of Regeneration Surveys in New England Northern Hardwoods). (For example, a 3-inch dbh beech over 20 1-foot-tall SM will always win out). Sometimes, we also record the presence of species of special interest (oak, white pine, etc). We also sometimes record the dominant commercial stem in addition to a larger noncommercial stem since noncommercials such as pin cherry will gradually disappear (but striped maple could last 60-70 years). In another study, we found some free-to-grow effects from openings of about .01 acres and larger; that would be about a 20-foot-square.

As for measuring damage, this still seams important. I haven't had a chance to read it closely, but Bill referenced Journal of Forestry, December, 1969, Growth and Development of Deer-Browsed Sugar Maple Seedlings by Rodney Jacobs. Bill also noted, "I don't believe forks and crooks are a problem. We see problems, I think, when repeated browsing produces those bushes without any true leader. In general, browsed seedlings, if left alone, do much better than we might think." We would have to think about the particulars of how it is recorded, but perhaps a 3 option call would be appropriate; 1-no browse, 2-browsed but still available to produce a leader, 3-browsed beyond the point of producing one leader. Thought on that?

I would have liked to have put a bit more thought into this myself, but wanted to get back to you quickly and not hold up this process any longer. I'll look forward to the cruise specs from you and JP when they are ready. In the meantime, if it makes sense for us to connect and talk about this more try my cell. I'm haying over the next few days and may not be very available, but if you leave a message maybe we can connect early next week. Thanks, dan

From: Briggs, Jeff [Jeff.Briggs@state.vt.us]

Sent: Monday, May 17, 2010 3:08 PM

To: Chris Fife; Langlais, Matt; Sabourin, Gary; Smith, Reg; Dan Kilborn

Cc: Tim Dorrell

Subject: RE: Clough Brook North AMP close out

Thanks Chris and be sure to let Alan know we were pleased with his work.

ieff

From: Chris Fife [mailto:Chris.Fife@plumcreek.com]

Sent: Monday, May 17, 2010 9:07 AM

To: Briggs, Jeff; Langlais, Matt; Sabourin, Gary; Smith, Reg; Dan Kilborn

Cc: Tim Dorrell

Subject: Clough Brook North AMP close out

The AMP close out work is now complete on the Clough Brook North job in Lemington. The AMP contractor, Alan Porier, finished up and moved out last week. The additional waterbars and seeding and mulching that we identified on April 19<sup>th</sup> were taken care of as were some additional areas of rutting and 2 stream crossings identified on April 22<sup>nd</sup> when Dan Kilborn and I walked the entire sale area. I will continue to monitor the area as the summer progresses to make sure that the installations are functioning and that no additional work is needed.

Thank you all for your time and input in closing out this site correctly. I wish the circumstances could have been different, but working together on this has laid a strong foundation for AMP compliance on all of our jobs moving forward.

#### Chris Fife

Senior Resource Forester Plum Creek - Northern Kingdom Unit 603-237-8657 phone/fax 802-473-0866 mobile

Build responsibly. Choose wood from well-managed SFI\* forests.

From:

Chris Fife

Sent:

Monday, May 17, 2010 9:07 AM

To:

'Briggs, Jeff'; 'Langlais, Matt'; Sabourin, Gary; Smith, Reg; 'Dan Kilborn'

Cc:

Tim Dorrell

Subject: Clough Brook North AMP close out

The AMP close out work is now complete on the Clough Brook North job in Lemington. The AMP contractor, Alan Porier, finished up and moved out last week. The additional waterbars and seeding and mulching that we identified on April 19<sup>th</sup> were taken care of as were some additional areas of rutting and 2 stream crossings identified on April 22<sup>nd</sup> when Dan Kilborn and I walked the entire sale area. I will continue to monitor the area as the summer progresses to make sure that the installations are functioning and that no additional work is needed.

Thank you all for your time and input in closing out this site correctly. I wish the circumstances could have been different, but working together on this has laid a strong foundation for AMP compliance on all of our jobs moving forward.

#### Chris Fife

Senior Resource Forester Plum Creek - Northern Kingdom Unit 603-237-8657 phone/fax 802-473-0866 mobile

Build responsibly. Choose wood from well-managed (SFI\*forests,

From:

Dan Kilborn [Dan@vlt.org]

Sent:

Wednesday, September 07, 2011 4:02 PM

To:

Chris Fife

Subject:

RE: Cruise specs

Follow Up Flag: Follow up

Red

Flag Status: Hi Chris,

Thanks for making these additions, I think we are getting there. How do you see the dominance variable being recorded? Is the assumption that all AGS stems are free to grow, otherwise they are recorded as UGS-Suppressed?

I like the addition of the Yes/No for available seed source. I noticed the 400' seed dispersal distance for red spruce. I know that Bill Leak had referenced the birch and maple distances, and the silvics manual has an 80-200' dispersal distance for fir, but I'm just curious where the 400' for spruce came from. And thanks for checking with JP on the stem sizes. I should point out that the specs reference a 15 BAF prism, but below you mention a 10 BAF.

Thanks, dan

From: Chris Fife [mailto:Chris.Fife@plumcreek.com]

Sent: Tuesday, August 30, 2011 11:09 AM

To: Dan Kilborn

Subject: RE: Cruise specs

Sorry, I forgot I hadn't sent them.

I asked JP about the prism factor with small stems and he felt the 10 BAF would be ok for this cruise due to the range of stem sizes and densities expected on these plots.

Chris

Christopher Fife Resource Supervisor Plum Creek - Northern Kingdom Unit 603-237-8101 office - 802-473-0866 mobile

Build responsibly. Choose wood from well-managed (3) SFI\* forests.

From: Dan Kilborn [mailto:Dan@vlt.org] Sent: Tuesday, August 30, 2011 10:08 AM

To: Chris Fife

Subject: Cruise specs

Hi Chris:

I wanted to touch base again and ask if you could send along the most recent version of the specs for the the Averill/ Brighton/Lemington cruise. Thanks, dan

Daniel Kilborn, Stewardship Forester Vermont Land Trust P.O. Box 427 – 1129 Main Street, 2<sup>nd</sup> Floor St. Johnsbury, VT 05819

T: (802) 748-6089 F: (802) 748-2346 dan@ylt.org

www.vlt.org

From:

Dan Kilborn [Dan@vlt.org]

Sent:

Wednesday, September 22, 2010 10:28 AM

To:

Chris Fife

Subject: FW: Lemington - Brighton follow up assessment

Hi Chris,

Any forward movement on this. I see in my email below that I indicated I would send a map of the areas that should be evaluated. I will get that out ASAP, or have you begun the work already? Thanks, dan

Dan Kilborn, Stewardship Forester Vermont Land Trust PO Box 427, 1129 Main St., 2nd Fl. St. Johnsbury, VT 05819 Phone - (802) 748-6089 Fax - (802) 748-2346

From: Dan Kilborn

Sent: Wednesday, August 11, 2010 10:23 PM

To: 'Chris Fife'

Cc: Dale Covey; Tim Dorrell

Subject: RE: Lemington - Brighton follow up assessment

Hi Chris.

In general, VLT would like an inventory of the areas that were cut contrary to the approved THPs that determines current species and stocking levels for both the overstory and regeneration components of the stands. In addition it may be helpful to assess the possible seed sources from adjacent stands and stream buffers.

The overstory component of the inventory should be pretty straight forward, just the usual for trees > 4.5"; species, size class, BA, stems/acre, quality, etc.

We would like the regeneration component to address trees < 4.5" DBH. It will be important to have information on species, # of stems/acre by size class, a measure of quality (incorporating moose browse and other factors), a measure of competition from non timber species (hobblebush, inhibiting ferns, striped maple, pin cherry, etc), and a measure of dominance (free to grow status).

Being able to show the percentage of the plots with desirable free to grow stems will be important.

The literature we have seen seems to reference plots that are between 1/1000 and 1/700 of an acre, and placed at an intensity of two plots/acre.

I will work on putting a map together that we can look at to discuss exactly where the inventory should take place. It will be in portions of Stands 34, 43, and 44 on the Clough Brook North job, Stand 58 on Clay Hill Brook East, and perhaps Stand 93 on Clay Hill Brook.

Hope you have a good vacation, drop me a line when you get back. Best, dan

From: Chris Fife [mailto:Chris.Fife@plumcreek.com]

Sent: Monday, August 09, 2010 5:35 PM

To: Dan Kilborn

Cc: Dale Covey; Tim Dorrell

Subject: RE: Lemington - Brighton follow up assessment

Thanks for understanding. I'll look for your email.

Chris Fife

Senior Resource Forester Plum Creek - Northern Kingdom Unit 603-237-8657 phone/fax 802-473-0866 mobile

Build responsibly. Choose wood from well-managed SFI\*forests.

From: Dan Kilborn [mailto:Dan@vlt.org]
Sent: Monday, August 09, 2010 12:33 PM

To: Chris Fife

Cc: Dale Covey; Tim Dorrell

Subject: RE: Lemington - Brighton follow up assessment

Hi Chris, I received your voicemail from this morning, thanks for following up. I had forgotten the audit was this week. I will send an email in the next few days with VLT's thoughts on follow up and we can touch base when you are back from vacation. Inventory work in September sounds good. Thanks, dan

From: Chris Fife [mailto:Chris.Fife@plumcreek.com]

Sent: Friday, August 06, 2010 3:47 PM

To: Dan Kilborn

Cc: Dale Covey; Tim Dorrell

Subject: RE: Lemington - Brighton follow up assessment

Hi Dan,

I didn't receive an email from you about the cruising, but I haven't forgotten about it either. Unfortunately, I am booked solid next week with the SFI audit and then am on vacation until the 19<sup>th</sup>. If you could email your thoughts and the information that you are looking for, along with which stands or portions of stands you think need to be cruised, we can discuss it internally and get back to you by email next week. At least that would set the stage for moving ahead with taking plots by September. Does that sound workable?

#### Chris Fife

Senior Resource Forester Plum Creek - Northern Kingdom Unit 603-237-8657 phone/fax 802-473-0866 mobile

Build responsibly. Choose wood from well-managed (SFI\* forests.

From: Dan Kilborn [mailto:Dan@vit.org]
Sent: Thursday, August 05, 2010 10:03 PM

To: Chris Fife

Subject: Lemington - Brighton follow up assessment

Hi Chris,

I am not available tomorrow, but next week I would like to connect with you to follow up on next steps from the easement violations in Lemington and Brighton last winter. I know that after our meeting in Montpelier I was to send you VLT's thoughts on inventory parameters for assessing the areas cut contrary to the THPs. This was to be used to help design an inventory that would be conducted by an independent third party. I had the discussions with Pieter, and thought that I had sent our thoughts along to you, but as I look back through my emails I am concerned that I never did send it. It was right around the time that Jackson was born, so I am afraid it got lost in the shuffle. Can you confirm that you did not receive this from me?

I will re-organize my thoughts early next week so we can connect and keep things moving forward.

Have a good weekend, dan

Dan Kilborn, Stewardship Forester Vermont Land Trust PO Box 427, 1129 Main St., 2nd Fl. St. Johnsbury, VT 05819 Phone - (802) 748-6089

From:

Dan Kilborn [Dan@vlt.org]

Sent:

Wednesday, August 11, 2010 10:23 PM

To:

Chris Fife

Cc:

Dale Covey; Tim Dorrell

Subject:

RE: Lemington - Brighton follow up assessment

Follow Up Flag: Follow up Flag Status:

Completed

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Chris Fife

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Build responsibly. Choose wood from well-managed ( SFI forests.

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#### Chris Fife

Senior Resource Forester Plum Creek - Northern Kingdom Unit 603-237-8657 phone/fax 802-473-0866 mobile

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To: Chris Fife

Subject: Lemington - Brighton follow up assessment

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Have a good weekend, dan

Dan Kilborn, Stewardship Forester Vermont Land Trusl PO Box 427, 1129 Main St., 2nd Fl. St. Johnsbury, VT 05819 Phone - (802) 748-6089 Fax - (802) 748-2346

From: Greenwood, Richard [Richard.Greenwood@state.vt.us]

Sent: Friday, June 24, 2011 5:06 PM

To: Chris Fife

Subject: RE: PC Sale Status Spreadsheet

Chris,

I would like to visit the Clough Brook area Monday to take plots on the 140 acres cut contrary. It may take two days to complete the plots for a heavy cut survey. I will try to contact you Monday before leaving the office. I realize this is short notice, so let me know if you would prefer if we started another day.

Have a good weekend.

Dick

**From:** Chris Fife [mailto:Chris.Fife@plumcreek.com]

Sent: Tuesday, April 05, 2011 4:48 PM

To: Langlais, Matt; Dan Kilborn; Dale Covey; Greenwood, Richard

Subject: PC Sale Status Spreadsheet

Thanks to all of you for your great input and ideas today. I am really encouraged about the sale submission/approval process going forward.

Attached is the spreadsheet with the data that we added today.

Chris

Christopher Fife I Resource Supervisor I Plum Creek - Northern Kingdom Unit 603-237-8101 office I 603-237-8657 home office I 802-473-0866 mobile

Build responsibly. Choose wood from well-managed SFI forests.

From:

Dan Kilborn [Dan@vlt.org]

Sent:

Monday, March 21, 2011 11:09 AM

To:

Chris Fife

Subject:

RE: Shapefile for cruise area

Follow Up Flag: Follow up Flag Status:

Completed

Hi Chris,

Thanks for following up on this. Yes, a paper copy of the photo is fine, or an emailed pdf would work well too (hopefully our email can accept the larger file attachments now). If you go paper, feel free to drop it by the house or in the mail, whichever is more convenient. I'll be working from home some this week, but if you stop by and I'm not there just leave it somewhere on the porch and I will find it.

Thanks for the update on the winter jobs. I had hoped to get out on the jobs one last time with you and Dale, but March got away from me. Seems like a fairly leisurely wind down this year.

I've been expecting to hear from Lou on an annual meeting date for the larger group. Should we wait and see when that is scheduled and work from there? We had mentioned the possibility of holding it on a separate day so we had more time, but it is not clear to me if that is necessary yet. Do you have thoughts on that?

I'll look forward to hearing about Indonesia, hope the trip went well. dan

**From:** Chris Fife [mailto:Chris.Fife@plumcreek.com]

Sent: Friday, March 18, 2011 4:21 PM

To: Dan Kilborn

Subject: RE: Shapefile for cruise area

Hi Dan. I just talked with Jp and after trying multiple avenues he found that we don't have the capability to clip our photos so you could bring them up in your GIS. If you're you ok with low tech I can print a map with the cruise boundaries (the file I sent) on the photo and give you a hard copy to review. Will this work for you? If so I'll drop them by your house next week.

Just FYI, the Berry's cleaned up on the Henshaw road piece and moved out this week. Dan Ouimette has one load to haul, but he finished skidding last week. We weren't able to cut much on Twin Ponds South because the road into the piece became too much of a problem for the trucks (very icy and the skidder was having trouble pushing the trucks, a recipe for disaster). Lafoe is wrapping up in Bloomfield and should be out of there next week.

Any thoughts on a date for the annual meeting?

See you at the NESAF conference, if not before.

Chris

Christopher Fife I Resource Supervisor I Plum Creek - Northern Kingdom Unit 603-237-8101 office | 603-237-8657 home office | 802-473-0866 mobile

Build responsibly. Choose wood from well-managed (3) SFI\* forests.

From: Dan Kilborn [mailto:Dan@vlt.org]
Sent: Monday, February 21, 2011 2:40 PM

To: Chris Fife

Subject: RE: Shapefile for cruise area

Hi Chris,

Thanks for taking the initiative to do this. At first glance it seems reasonable based on my notes and the how I remember the riparian areas on the photo, but without the 2010 photo to reference with the shapefiles, I can't be definitive. Maybe when you have a chance you could mail or email a map with the shapefile over the 2010 photo. We can receive larger email attachments now, so that may eliminate the map emailing problems we had in the past.

Thanks, dan

**From:** Chris Fife [mailto:Chris.Fife@plumcreek.com]

Sent: Friday, February 18, 2011 2:33 PM

To: Dan Kilborn

Subject: Shapefile for cruise area

I removed the major stream buffers and the road on Clough Brook.

Chris

Christopher Fife I Resource Supervisor I Plum Creek - Northern Kingdom Unit 603-237-8657 office I 802-473-0866 mobile

Build responsibly. Choose wood from well-managed SFI\* forests.

From:

Dan Kilborn [Dan@vlt.org]

Sent:

Thursday, July 28, 2011 3:32 PM

To:

Chris Fife

Subject: RE: VT cruise specs

Chris:

Thanks for forwarding these along. With my initial read I don't see where the specifications for the regen fixed area plots will record any data on free to grow status/stem dominance, or quality/browse damage. As we discussed VLT feels these aspects will be critical components of the inventory. Perhaps you could forward again once these are incorporated and I'll provide more comment.

Thanks, dan

From: Chris Fife [mailto:Chris.Fife@plumcreek.com]

Sent: Thursday, July 28, 2011 7:57 AM

To: Dan Kilborn

Subject: FW: VT cruise specs

Dan,

Attached are the proposed cruise specs. Please comment.

Thanks for your patience.

Chris

Christopher Fife Resource Supervisor Plum Creek - Northern Kingdom Unit 603-237-8101 office - 802-473-0866 mobile

Build responsibly. Choose wood from well-managed SFI\*forests.

From: Jp Kennedy

Sent: Wednesday, July 27, 2011 2:43 PM

To: Chris Fife

Subject: VT cruise specs

Attached is a draft of the cruise specs for VT.

Review and let me know what you think.

JP

From: Dan Kilborn [Dan@vlt.org]

**Sent:** Wednesday, June 29, 2011 12:49 PM

To: Chris Fife

Subject: regen inventory

Chris,

I wanted to let you know that I have sent an email to Bill Leak to see if he has thoughts on our "free to grow" discussion. I will be in touch when I hear back from him. dan

**Daniel Kilborn**, Stewardship Forester Vermont Land Trust P.O. Box 427 – 1129 Main Street, 2<sup>nd</sup> Floor St. Johnsbury, VT 05819

T: (802) 748-6089 F: (802) 748-2346 <u>dan@vlt.org</u> <u>www.vlt.org</u>

From:

Dan Kilborn [Dan@vlt.org]

Sent:

Friday, February 18, 2011 9:21 AM

To:

Chris Fife

Subject:

VLT letter

Follow Up Flag: Follow up

**-** ::

Flag Status:

Completed

Chris:

Wanted to give you a heads up that the letter summarizing the current state of the 2010 violations went out in the mail to you today. It is being sent certified mail.

Dan Kilborn, Stewardship Forester Vermont Land Trust PO Box 427, 1129 Main St., 2nd Fl. St. Johnsbury, VT 05619 Phone - (802) 748-6089 Fax - (802) 748-2346

# Robbo Holleran

# Forester

211 Green Mountain Tpk Chester, VT 05143 (802) 875-3021 Fax: 875-2 Providing a complete forest management service since 1982

David L. Grayck, Esq. Cheney, Brock & Saudek, P.C. 159 State Street Montpelier, VT 05602

Re: Plum Creek

September 22, 2011

David:

I have reviewed the summary printouts and plot data which Assistant Attorney General Michael Duane provided on September 15, 2011 (the "State Plot Data"). The State Plot Data is attached as Exhibit 9. I have paginated Exhibit 9 as 9-1 through 9-19. I have also attached an Excel spread sheet that I prepared of the State Plot Data.

In general, my review of the State Plot Data does not change my original conclusion: (1) the North Clough Brook harvest area presently meets the required residual basal area and regeneration requirements, and would easily continue to do so if the harvest proceeded to completion; and (2) compliance must be measured across the entire stand, not just the partially harvested areas of stands 34, 43, and 44.

Generally, the two data sets confirm the stands' respective variability, as I would expect, given the stands' pre-harvest variability and authorized harvest prescription requirements. **Exhibit 1-13 and 1-14**. It is also my conclusion that, to the extent that the State Plot Data and the data I collected are divergent, the divergence can be resolved through a joint cruise by the parties, and that such a joint cruise should be undertaken as soon as possible. The plots which are the basis for my September 15, 2011 report (the "Holleran Report") are locatable, numbered and re-measurable.

As set forth below, I address three categories in response to the State Plot Data: plot data and variability (all stands); regeneration data (stand 43); and tree selection for inventory (all stands).

# I. Plot data and variability.

A cut contrary decision needs to be based on whether the authorized timber harvest prescription has been accomplished as set forth in the Management Activities to be Accomplished (Exhibit 1-13). The management activities are stated for each stand, and each stand has allowed or required variability in the resulting treatment. The State Plot Data shows variability comparable to what I found. The State Plot Data shows the variability that we would expect in compliance with the prescriptions, given the stands'

3

respective baseline variability conditions. Where the State Plot Data and the Holleran Report data differ is with respect to total residual basal area in the harvested areas (as the State Plot Data does not report any values for the un-harvested and un-contested portions of stands 34, 43, and 44).

With respect to variability, the State Plot Data provides the same level of variability as the data in Figures 1-4, and Tables 2-9 of my Holleran Report, although the Holleran Report has different total average values. With the State Plot Data, it is now clear that the State's standard error and the Holleran Report's standard error are comparable, as I reported standard deviation which is a different calculation than standard error.

#### A. Stand 34.

Stand 34 has allowed variability for low-density shelterwood and patch cuts, with an overall average residual basal area of 30-40 for the entire stand. Exhibit 1-13. The threshold for compliance is a minimum of 30 across the entire stand. We would expect to find some portions of the stand below 30, and some above 30. In reviewing the State Plot Data, there are fifteen out of 36 plots with a BA of 30 or more, with an average of 19.7.

In comparison, for the same portion of Stand 34 as cruised by the State, I found 33 plots out of 78 with a BA of 30 or more, with a total BA of 28.5. Holleran Report, Figure 2. While the State Plot Data reports a lower basal area than I found, the divergence is within what should be expected for low-density shelterwood and patch cuts. This is a significant difference if we just consider the harvest area, because this portion is near or below the desired average for the entire stand. However, by reviewing across the stand, it is apparent that the overall average residual basal area of 30 is present now, and can be attained if completed. This difference in findings may be attributable to the lack of measurement of small trees (see below). If this difference is significant enough, then a joint cruise should be undertaken to resolve the difference.

My review of the State Plot Data does not alter my conclusion that stand 34 meets the required residual basal area prescription requirements, and it would easily achieve compliance if the harvest proceeded to completion.

#### B. Stand 43.

Stand 43, by the approved prescription, should have an expected residual basal area at or above 36, as an average across the stand. This is based on at least 60% of the stand to be treated with a shelterwood cut to a BA of about 60, and the remainder to be patch cuts and overstory removal with a BA as low as zero. **Exhibit 1-13**. The State Plot Data also shows the variability we would expect, with plots over 60 BA and under 60 BA. Again, while the State Plot Data reports a lower basal area than I found, the divergence is more a matter of whether this portion should be considered overstory removal or shelterwood. If this has to meet a standard for overstory removal, then the basal area, by the state's summary data, should be acceptable, and a regeneration survey should be re-done. If this is to be considered shelterwood, or a combination as required in the approved

prescription, then it should be considered acceptable, or a joint cruise should be undertaken to resolve any difference.

#### C. Stand 44.

The State Plot Data for the alleged cut contrary portion (8 acres) of stand 44 also shows variability, with very low density plots in the approved patches or gaps, and moderate stocking in other portions, for a total of 16 BA. In comparison, the Holleran Report plot data (Figure 4) also shows the variability, with a total of 36 BA. The Holleran Report shows several plots at 50, and the State Plot Data shows only one plot as high as 40. Since the State Plot Data reports a lower basal area than I found, with a significant difference, the divergence is significant enough that a joint cruise should be undertaken to resolve the difference.

Notwithstanding the State Plot Data, stand 44 presently easily meets the required residual basal area prescription requirements, given that 75% of stand 44 was not harvested. Further, stand 44 would easily achieve compliance of 60 BA total, if the harvest proceeded to completion.

In consideration of the three stands, the State Plot Data, though it finds a lower total basal area with respect to the alleged cut-contrary portions of stands 34, 43, and 44, does not alter my conclusion that the harvested areas have variability as allowed and required by the respective prescriptions. In addition, the plots which are the basis for the Holleran Report are locatable, numbered and re-measurable. The divergence is significant enough that a joint cruise should be undertaken to resolve the difference.

#### II. Regeneration data and protocol.

The Adverse Inspection Report (Exhibit 6, p. 2) and Decision Memo (Exhibit 4, p. 3), allege that 15.38% of the regeneration plots are stocked, and that regeneration does not meet the goal for the overstory removal prescription for stand 43. Finding adequate regeneration (young trees) and evaluating it correctly are important in determining that the stand meets the harvest prescription.

The state provided a revised summary of the regeneration data (25% stocked), plus the original field notes and a "survey protocol" for evaluating the regeneration. State Plot Data (Exhibit 9), p. 9-16.

Under the protocol, 15 seedlings of northern hardwoods, or 5 seedlings of spruce would be needed for the plot to be considered "adequate" stocking. These are 1/385<sup>th</sup> acre plots, so this stocking would suggest 5775 northern hardwood trees or 1925 spruce trees per acre for minimum acceptable stocking.

However, the survey protocol at Exhibit 9-16 is not the same as required for Use Value Appraisal. Under the Program Manual, "For newly regenerated stands, the successful establishment of acceptable species must not be less than 350 stems per acre well

distributed around the stand three years after the regeneration cut is made...average spacing of 11'." Program Manual (Exhibit 5), p. 29.

It is not clear whether Mr. Langlais used the protocol at Exhibit 9-16, or if he used another method. The top of the data sheets (Exhibit 9-9 through 9-14) makes a note of "Regen 1/700" which implies a 1/700<sup>th</sup> acre plot, which has a radius of 53.4", in variance to the attached protocol. There is reference to specific species, sizes, or numbers of trees (or none) in the regeneration column of his plot data, but it is not clear how to interpret the data.

In contrast, what my team did for the Holleran Report was to review the immediate surroundings of the basal area plot for approximately a 20' radius, and record the dominant regeneration species, as abundant, adequate, sparse, or none. The threshold for adequate is one tree per 11', which gives the 350 trees per acre required. Most of our plots (92%) showed adequate or abundant regeneration. Only one plot out of 40 was indicated as "sparse", and two were inadequate, in heavy shade. It is clear that regeneration is abundant and compliant with the prescription for Overstory Removal, or Shelterwood in stand 43.

We come to very different conclusions as to regeneration stocking. Our analysis was not subjective, or barely meeting the threshold for effective regeneration. To the extent there is disagreement over regeneration, it can be resolved through a joint review by the parties. Furthermore, the Program Manual is clear that regeneration should be analyzed three years after the harvest.

#### III. Trees selected for measurement.

Field foresters need to make determinations on which trees to measure in data collection. Correct selection of trees is critical to determining total stocking for a cut-contrary decision. The number of trees allocated to the plots can determine compliance with the prescription's residual basal area requirements.

According to the State Plot Data, the State did not measure any trees smaller than 8" in the harvested portion of stand 34. The data does show one 6" tree measured in stand 44, and several trees as small as 2" in stand 43. This seems to be an inconsistent protocol for data collection across the three stands.

All three stands are even aged or two aged. Under such circumstance, according to the Program Manual, for inventory on even aged, or two aged stands, all trees in or touching the main crown canopy are counted, excluding suppressed trees. **Program Manual** (Exhibit 5), p. 33, ¶ 10e. We measured many of these smaller trees in all stands. Many of these small trees are main canopy trees now that they are released. It is not clear to me whether the State did not find any smaller trees in those sample plots, or decided not to measure them.

The State Plot Data shows small trees measured in stand 43, and at least one noted as suppressed (which should not be counted since it is not a "main canopy tree"), and the others as canopy position 1 or 2 (main canopy). This indicates that crown position was being recorded. In stand 43, many of these smaller trees would be considered as released understory, and they should be counted, as was done by the State. This confirms my conclusion that a portion of this stand should be considered as Overstory Removal harvesting. (The collection of regeneration data also confirms that part of this was considered overstory removal.) The Management Activities to be Accomplished (Exhibit 1-13) indicate a combination of Overstory Removal, Shelterwood and group cutting as appropriate and approved for this stand. If the State considers this 40-acre portion of Stand 43 as overstory removal, then the required basal area could be as low as zero, and this would be within the allowed 46 acres of overstory removal for this stand.

In stand 34, the State Plot Data did not include any trees smaller than 8". Stand 34's prescription is for a low density shelterwood with patch cuts. Exhibit 1-13. Clearly, with a low density shelterwood or patch cuts, these smaller trees are released, and should have been measured. If they were found but not included, then there is an incorrect bias toward a lower stand density. The non-counting of these small trees would be inconsistent with the State Plot Data measurements in Stand 43, which also called for a portion as Shelterwood treatment or patch cuts. In reviewing the data which is the basis for the Holleran Report, our plot data found about 7 sq ft of BA as attributed to trees smaller than 8", which would almost close the gap between the State's finding of 19.7 BA and our finding of 28.5 BA.

As to why there are these differences, it is possible that no smaller trees were found, but not likely. We found trees smaller than 8" on 38% of our plots in stand 34, for example. If the State has rejected measuring these small trees, and used inconsistent protocol for tree selection, then it improperly biases the data toward a lower basal area. Since the State Plot Data shows that the total basal area in these portions of the stands is lower than the required average for the stand, then this conclusion would be altered by including the full number of appropriate trees. Even though this is just a portion of the stand, additional basal area, properly counted, would give a higher certainty of compliance. If discrepancy remains over which trees should be counted in each plot, then it can be resolved through a joint cruise by the parties.

#### IV. Summary.

After reviewing Exhibit 9, my conclusions are:

With respect to the State Plot Data, the recorded variability confirms the variable nature of the harvested portions of stands 34, 43, and 44, and that such variability is in conformance with the authorized prescription activities in these portions of the stands. The State consistently found less basal area than I did, but these differences are not significant to the overall question of compliance as measured across the stand. To assess these limited portions of the stand, there is significant difference between my findings

and the State's findings for the total basal area. This could be resolved by joint remeasurement.

With respect to regeneration, the State did not follow its own protocol for regeneration measurement (in terms of three years after the harvest) and may not have measured to a standard of 350 seedlings per acre. The State's findings differ from my own in a significant way. There is adequate and abundant regeneration, and this will be further self-evident in 2012, after the third growing season. Re-measuring sample plots will make this apparent.

With respect to the trees selected for measurement, there appears to be inconsistent tree selection which may have biased the State Plot Data toward a lower basal area, particularly for stand 34, and possibly stand 44. The extent of the biased result is accentuated by the State' methodology of just relying on the partially harvested areas of stands 34, 43, and 44, notwithstanding that the prescription makes compliance a function of average residual basal area across the entire stand.

My review of the State Plot Data does not alter my original conclusion that stands 34, 43, and 44 are compliant with their approved prescriptions when reviewed across the stand, and that the portions alleged to be cut contrary are within the allowed and required variation of the prescriptions.

Respectfully submitted,

\_Robbo Holleran

Robbo Holleran

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OFFICE OF THE ATTORNEY GENERAL
109 STATE STREET
MONTPELIER, VT
05609-1001

September 15, 2011

David L. Grayck, Esq. Cheney, Brock & Saudek, P.C. 159 State Street Montpelier, VT 05602

RE: Plum Creek Maine Timberlands

Dear David:

As a follow up to your email communication to me of August 24, 2011 enclosed please find the plot and points notes from Matt Langlais, as well as maps related thereto, regarding the adverse inspection report in this matter.

Although these documents are available for Plum Creek's inspection and copying in response to your formal request for production of documents, I am happy to provide them to you at your request outside of that context for your convenience.

Sincerely,

Michael O. Duane

Assistant Attorney General

Run: 04-26-2010	Verm	ont Division of Forestr	· ·	Page 1
Forest 932	Surfc A	DmgA	Туре	
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8 1.3	3.6	•	•	32.8
10 7.5	13.9	•	•	164.3
12 3.8	4.8	•	•	74.5
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16 1.3	0.9	•	. •	23.8
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8 1.3 3.6		1.3 3.6		
10 7.5 13.8 .		6.3 11.5 1.	3 2.3	•
12 3.8 4.9		3.8 4.8		•
14 1.3 1.2		1.	3 1.2	
16 1.3 0.9		· · · 1.	3 0.9	
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Porest					Surfc A				DmgA	-		Туре					
Block	0				В				В			Wild A	i				
Comp	0 Field D	Date	4/13/20	10	С				Stok			В				Endang	ered
nd.	1 Site	Эy	-,,		D				Levl			C	•			Rabi	tat:
24	40 Acres	-			E				Cond			. ם	)				
ACCEBS:					F				Bl:			E	:				
Reprodu	ction A: *)	ONE			· B1:			**	B2:			E	ndangere	d Specie	1 B 1		
Notes					192				C:								
	DBH						- Tot	al Stand,	per Acre	. Values							
	Class	В	asal Ar	cea	Numb	er Stamm		Cords	:	Board	Feet	Culle	Cords	QC 1,3	2+3+Tops	(CF)	
0	- 4.9		3.3			73.5							. •		137.8		
	6		2.8			14.4									49.B		
	В.		3.1			8.8									59.9		
	10		3.6		•	7.1									67.7		
•	12		3.1			3.9									56.5		
	14		2.3			2.1									42.9		
	16		1.8			1.3									35.0		
-	18		1.0			0.6									20.1		
	20		1.0			0.5			•						21.3		
	22		0.3			0.1									5.7		
. 2	4 & UP		Ď.B			0.1									31,0		
	TOTALS		23.3		1	12.3									527.8		
			le: 298		12 53 b Line: 23 2 QC All	0	able Me	oc 1.	Dia. CP 1+2		les, 67% CP 1+2	QC 3,	26 S	ള്ള വാധ്യാത്തു വാധ്യാഗ്യാഗ്യാഗ്യാഗ്യാഗ്യാഗ്യാഗ്യാഗ്യാഗ്യാഗ	95 <b>%</b> CP 1+2	CP 1+2	
п			Codom.		ibressed		ead		ptable		ceptable		ull	Mature	QC 5	QC 6	
	ASS BA		Stems	BA/A	Stems				_	BA/A	Stems	BA/A	Stems	A/AE	BA/A	BA/A	
0 -			5 <b>5</b> .8	О.В	17.6			2,1	50.0	1.3	23.5						
6			23.1	0.3	1.3		٠.	2.1	10.4	0.8	3.9					,	
В			B.8					2.1	5.9	1,0	2.9						
10			7.1	,				3,6	6.6	0.3	0.5	•			٠		
. 12			3.9					2.3	2.9	0.8	1.0						
14			2.1					2.1	1.9	0.3	Đ.2		•	,		•	
16			1.3					1.5	1.1	0.3	0.2	•		•			
18	1.	o	0.6					1.0	0.6			•	•	•	•	-	
20	1.	0	0.5					0.3	0.1	0.8	0.4	•	•	•	•	•	
22	0.	3	0.1							0.3	0.1	•	•	•	•		
24 &	UP O.	В	0.1			•		•		0.8	0.1	•	•	•	•	•	
TOT	ALS 22.	3	93.4	1.0	18.9	•		16.9	79.5	б.4	32.B	•	•			•	
Speci	es		To	otal St	and (CP	1+2) Per	cent Ba	al Arca			Cull	Only (C	TP 1+2, (	2C 3) Per	cent BA		
Code N	ame	<5	6	8	10 1	2 14	16	LB 20	>21 Tot	. <5	8 8	10	12 1	4 16	18 2	0 >21	Tot
2 Fir.	Balsam	5.5	1.1	5.5	5.5 2.	2 .	•		19.8						*	•	•
	ce, Spp.	4.4	6,6		2.2 2,	2 5.5	2,2		23.1			-	•.		٠.		•
-	h, Paper				•		. 1	,ı ·	1.1	. •		,	•		•		•
	h, Yellov	1.1	2.2	6.6	7.7 6.	6 3.3		.3 3.3	3.3 42.9				•		•		•
17 Mapl	e, Red	3.3	1.1	1.1	1.1 2.	2 '	•	- 1.1	1.1 11.0	) ·			•		•		•

Run: 04-26-2010							Ψ.	e precont	: Divi	gion	of For	estry									Pag	ge 1A
Porest 932				Sur	ric A					Do	ng.A				Type							
Block 0					В						В `				Wild	A						
Comp. 0 Field	Date 4	(/13/2	010		С					St	ok					В						
nd 1 Site	By				D					Le	v1					C						
sa 40 Acres	Cut:				E					Co	nd					D						
Species				Total	Stand	Stem	per	Acre	-						QC 1	only	W BA	er Ac	re			
Code Name	<5	6	8	10	12	14	16	18	20	>11	Tot	<5	6	8	10	12	14	16	18	20	>21	Tot
2 Fir, Balsam	14.7	1.3	3.7	2.4	0.7						22.7	1.3	0.3	1.3	2.3	0.5						4.6
7 Spruce, Spp.	29.4	7.8		0.9	0.7	1.2	0.4	-			40.3	0.3	1.5		0.5	0.5	1.3	0.5				4.6
14 Birch, Paper								0.1		,			,						0.3			0.3
15 Birch, Yellow	2.9	2.6	4.4	3.3	2.0	0.7	0.9	0.4	D.4	0.1	17.8	_	0.3	0.8	1.5	0.8	0.5	1.0	0.8	0.3		5.9
17 Maple, Red	26.4	1.3	0.7	0.5	0.7		,		0.1		29.8	0.5			0.3	0.5	•					1.3
18 Maple, Sugar		1.3				0.2					1.5	,			• • • •		0.3					0.3
														_	_			_				
Species			CP		2 - }		_								1 and			Perce				
Code Name	<5	6	В	10	12	1.4	16	10	20	>21	Tot	<5	6	8	10	12	14	16	18	20	>21	Tot
2 Fir, Balsam	1.3	0.3	1.3	1.3	0.5	•		•	٠		4.6	5.5	1.1	5.5	5.5	2.2	•		•		•	19.8
7 Spruce, Spp.	1.0	1.5		0.5	0.5	1.3	0.5		٠		5.4	4.4	6.6	•	2.2	2.2	5.5	2.2				23.1
14 Birch, Paper		٠						0.3	•		0.3	•		-	•		•	•	1.1	•		1.1
15 Birch, Yellow	0.3	0.5	1.5	1.8	1.5	0.8	1.3	0.8	0.9	0.8	10.0	1.1	2.2	6.6	7.7	6.6	3.3	5.5	3.3	3.3	3.3	42.9
17 Maple, Red	0.8	0.3	0.3	0.3	0.5		٠.	•	0.3	0.3	2.6	3.3	1.1	1.1	1.1	2,2	•	٠	•	1.1	1.1	11.0
18 Maple, Sugar		0.3	•	•		0.3			. •		0.5	•	1.1	•	٠.	•	1.1	•	•	•	•	2.2
Species			CP 1	and :	2 - A1	1 OC 8	tems.	ከድኮ <i>ክ</i> ረ	rite.													
· Code Name	<5	6	В	10	12	14	16	18	20	×21	Tot	<5	6	В	10	12	14	16	18	. 20	>21	Tot
2 Fir, Balsam	14.7	1.3	3.7	2.4	0.7						22.7											
7 Spruce, Spp.	29.4	7.8		0.9	0.7	1.2	0.4	_			40.3								•1			
14 Birch, Paper						- · ·		0.1			0.1											
15 Birch, Yellow	2.9	2.5	4.4	3.3	2.0	0.7	0.9	0.4	0.4		17.8			_						_		
17 Maple, Red	26.4	1.3	0.7	0.5	0.7	0.,	0.9	0,4	0.1		29.8	·									_	
18 Maple, Sugar		1.3		٠.٠		0.2		·	0,1	0.1	1,5											
ia napie, sugat	•	1.3	•	•	·	0.2	•	•	•	•	1.5		•	•	•					•		-
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ESTABLISHED INADEQUATE NONE

7.69 76.92

LM-03-43 Date: Forester: Landowner: Other Mil Ac 1/700 Regen: BAF: 10 20 Other Notes: Plm. (longh Ags/Ugs | Regeneration DBH Point Spp 43 18 4019 413 32 30 18 4B A MB 14 RS ØF 7" S\$ . VIS Said 20 3620 43 A YB 16 पढ 4081 W An 72 50 142, 11 1 BF 10 5-140-5 BF 49 St. 111 Actes 77 10 1B 516 U 24 Exhibit 9-9

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Landown			Forest		Date:	Othor
BAF: 10	20	Other	Reger	ı; 1/700	Mil Ac	Other
Notes:					. 14	and the second
. /	<b>N</b>	A 1.1	1/2/10	Clough	r.l.	
\	<u> 건 / ~ </u>	(reek	4/2/10			
Point	Spp	DRH	Ags/Ugs	Regeneratio	11	
29	BW	12	[4]	<i>- P</i>		
22	1B	18	Α	<u> </u>		
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3025	YB	6	<u> </u>	<b>-</b>	······································	
	ÝB	12	<u> 4</u>	<del>  (                                   </del>		
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2429	5 <u> </u>	8	<u></u>	18 KM 21	1 Multisten	ued
	BE	6	14	browkl	heavily	
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			<u> </u>	A	11	
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1728	BF	4	<u>A</u>	3 6F	1 RS	150
	<u> 165</u>	<u> </u>	A	<u> </u>		<del>- 1 '/</del>
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BAF: 1		Other	Rege		Mil Ac	Other
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1						
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Point	Spp	DBH	Ags/Ugs	Regeneratio	n	*****
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Landov	vner:		Fores		Date:	·····
BAF: 1	10 20	Other	Rege	n: 1/700	Mil Ac	Othe
į						
				•		
Point	Spp	DBH	Ags/Ugs	Regenerati	ion	
2158	BF	12	A			·
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	BF.	8	p		0 6	~~~~
	BF	10_	٨		Show put	·
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20	- North-Carlot	10	<u> </u>	J'erge.		
	YB	12	A	A WATE		
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LH-05-43

Date: Forester: Landowner: Mil Ac Regen: 1/700 Other BAF: 10 20 Other Notes: 3/17/16 from Crock : Cloub BK Ags/Ugs DBH Regeneration Point Spp 25 Now 48 Įõ VB 14 Now - Struck 43 **6** 12 6 82 Now 76 Ş g 46 U PT in som Buff 15 14 YB 20 A YB 10 939 0 14 ۸ R'S 113 Ŀ 12 12 4 RM 931 1B. A 10 don's overband his YB 731 12 V 120 115 3 p. **R**5 14 <u>u 7</u> 5.11 A 14

Landowner: Forester: Date: Mil Ac Other 1/700 BAF: 10 20 Other Regen: Notes: Ags/Ugs Regeneration DBH Point Spp Just 2" KS pided icha <u> 2</u> 60 RS 5-p. 14 5m Of (very old exp 40 BF 8 B. A D XB 1 RM overbraged 2 14 5 1 1 34 46 8 1 5 17 YB

Run: 10-12-2010				_			V	ezmont	Divi		of For	евсту			_						Pag	e LA
Block 0				Sur	fc A					Dπ	_		•		Type Wild							
Comp. 0 Field	Daha	4 /2 2 /2 /			B						В				W110	В						
and 1 Site	By	4/13/20	LO		. D					St Le						C C						
ea 40 Acres	-				E					Co	-7,					D						
ON TO RELEB	CUL.									20	110					,						
Species				Total	Stand	Steme	per	Acre							QC 1	only	t BA	er Ac	re			
Code Name	<b>&lt;</b> 5	6	8	10	12	14	16	16	20	>21	Tot	<5	6	8	10	12	14	15	18	20	>21	Tot
2 Fir, Balsam	14.7	1.3	3.7	2.4	0.7						22.7	1.3	0.3	1.3	1.3	0.5		. •				4.6
7 Spruce, Spp.	29.4	7.8		0.9	0.7	1.2	0.4				40.3	0.3	1.5		0.5	0.5	1.3	0.5	•			4.6
l4 Birch, Paper								0.1	,		0.1								0.3	-		0.3
15 Birch, Yellow	2.9	2.6	4.4	3.3	2.0	0.7	0.9	0.4	0.4	0.1	17.8		0.3	0.8	1.5	О. Н	0.5	1.0	0.8	0.3	•	5.9
17 Maple, Red	26.4	1.3	0.7	0.5	0.7				0.1	0.1	29.8	0.5		•	0.3	0.5	•	•	•		•	1.3
18 Maple, Sugar	•	1.3	•	•		0.2		•			1.5			•	•	•	0.3	•	•	•	•	0.3
Species			CP	1 and	12 - 3	71 OC	BA po	er Acr	æ					CP	1 and	2 - 2	u1 00	Perce	nt BA			• ,
Code Name	<5	5	6	10	12	14	16	10		>21	TOT	<5	. 6	В	10	12	14	16	18	20	>21	Tot
2 Fir, Balsam	1.3	0.3	1.3	1.3	0.5						4.6	5.5	1.1	5.5	5.5	2.2						19.8
7 Spruce, Spp.	1.0	1.5		0.5	0.5	1.3	0.5				5.4	4.4	6.6		2.2	2.2	5.5	2.2				23.1
14 Birch, Paper	,						•	0.3			0.3								1.1			1.1
15 Birch, Yellow	0.3	0.5	1.5	1.9	1.5	0.8	1.3	0.8	0.8	0.8	20.0	1.1	2.2	6.6	7.7	6.6	3.3	5.5	3.3	3.3	3,3	42.9
17 Maple, Red	0.8	0.3	0.3	0.3	0.5				0.3	0.3	2.6	3.3	1.1	1.1	1.1	2.2				1.1	1.1	11.0
18 Maple, Sugar		0.3				0.3			,		0.5		1.1				1.1		٠.			2.2
Species			CP 1	and :	2 - Al	1 00 6	tema	ner s	rre													
Code Name	<5	6	В	10	12	14	16	18	20	>21	Tot	< <b>5</b>	6	8	10	12	14	16	18	20	>21	Tot
2 Fir Balsam	14.7	1.3	3.7	2.4	0.7						22.7											•
7 Spruce, Spp.	29.4	7.8		0.9	0.7	1.2	0.4				40.3											
14 Birch, Paper				•	•			0.1			0.1											
15 Birch, Yellow	2.9	2.6	4.4	3.3	2.0	0.7	0.9	0.4	0.4	0.3	17.8				٠.							
17 Maple, Red	26.4	1.3	0.7	0.5	0.7	•			9.1		29.8											
18 Maple, Sugar		1.3				0.2					1.5											

Commercial Reproduction

Rating	t 5amples
ADEQUATE	2.56
ESTABLISHED	5.13
INADEQUATE	10.25
NONE	74.36
SAPLING	7.69

25% plats stacked

#### Advance Regeneration

Determine advance regeneration possibilities within the 6-foot radius sub-plot using the same center point as both the overstory prism plot and the 26.4-foot radius ground vegetation sub-plot. Additional regeneration data can be collected 1/2 way between overstory plots if necessary to meet the needs of a particular inventory effort. Advance regeneration consists of those species of woody vegetation that will meet a timber objective in the future. This variable uses a weighted count.

#### A. Advance Regeneration

- 1 established
- 2 adequate
- 3 inadequate
- 4 none
- 5 unable to sample
- 6 sapling

#### Established

Northern Hardwoods & 2 trees - 4.5' & taller

Pioneer Hardwoods

Spruce-Fir

Oak White Pine

Hemlock

5 trees - 4' & taller

5 trees - 6" & taller

1 tree - 4.5' & tailer 2 trees - 4.5' & taller

### Adequate\*

Northern Hardwoods

15 trees

Pioneer Hardwoods

5 trees

Spruce-Fir

5 trees - < 6\* tall

(Count trees over 12" as 2)

Oak

10 trees < 4.5'

White Pine

5 trees <4.5'

Hemlock

5 trees <4'

Black Cherry

10 trees

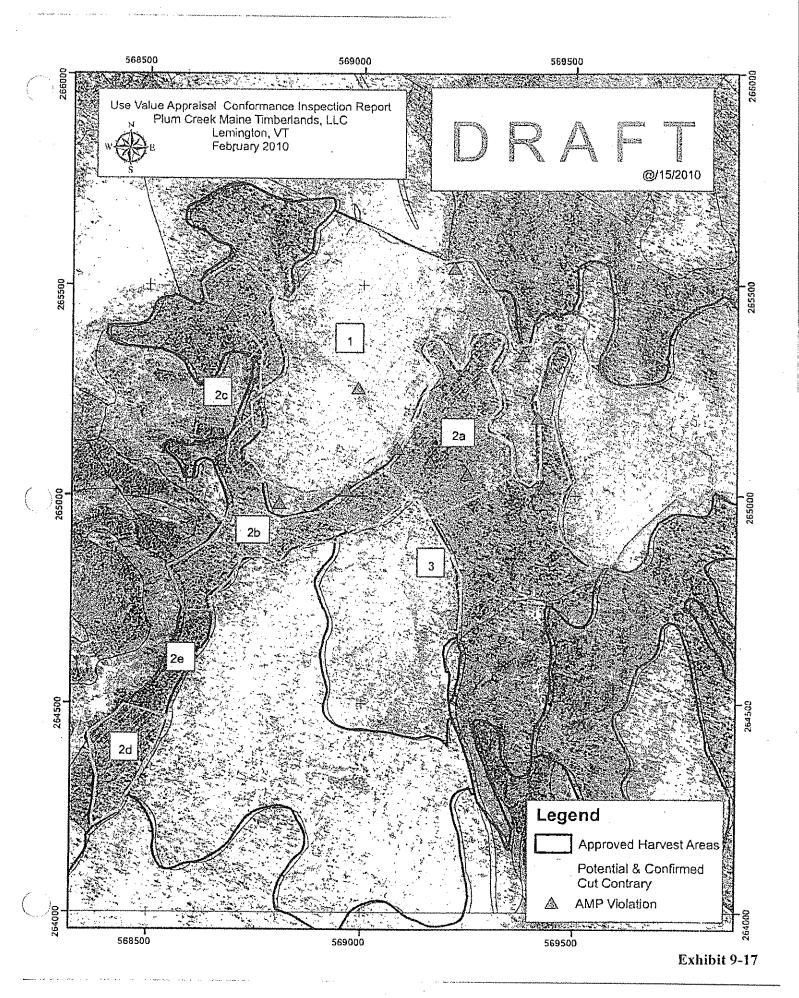
\* do not count trees less than 2" tall, those that have fewer than 2 natural sized leaves or those that still bear cotyledons. Seedlings between 2" and 12" tail are counted as 1 seedling. Seedlings over 12" tall are counted as 2 seedlings.

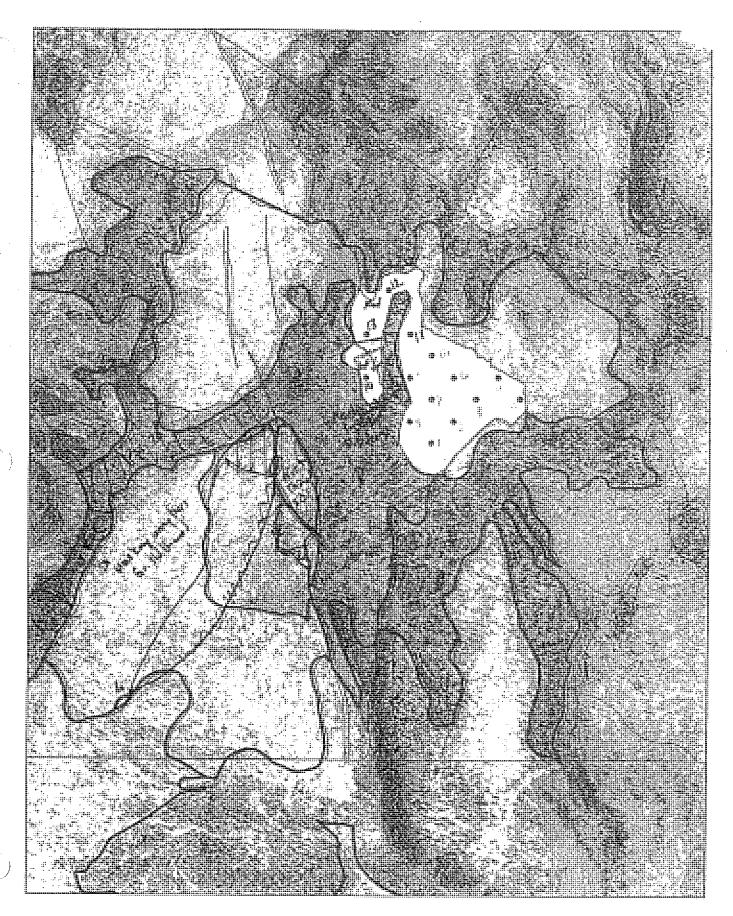
Established regeneration refers to the presence of desired species in enough numbers and with sufficient height and vigor to out compete other species so that they may persist within the stand. Adequate regeneration refers to the presence of desired species in enough numbers to make up a viable component of the future stand.

- B,C. Species. Enter the appropriate species code for advance regeneration noted above. Species codes are listed in Appendix K. B and C are offered so that two species may be entered, if necessary.
- D. Competing Vegetation. Measured in the 6 -foot radius plot. Enter yes or no based on the following criteria. Be sure to check appropriate guides as to what constitutes competing vegetation in the community or stand described.
  - \* this data is also gathered through herbaceous and short and tall woody vegetation layer sampling. Record here if you prefer this method.
    - 1 yes
    - 2 no

Woody - the presence or absence of woody competing vegetation is a weighted count. Count all stems less than 1 foot tall as one stem. Count all stems over 1 foot tall as 2 stems. Count clumps of beech root suckers that originate from the same node as one

A plot with a weighted count of 12 stems will be determined to have competing vegetation and checked as yes in D above.





	State mean	and standard e	rror by Exce	el calculatio	n	
20	State mean	and standard c	ITO, by Exo	T Odiodiano	••	
10				o		
.10				40		
30				20		
				10		
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# Robbo Holleran Forester

211 Green Mountain Tpk Chester, VT 05143 (802) 875-3021 Fax: 875-2337 Providing a complete forest management service since 1982

David L. Grayck, Esq. Cheney, Brock & Saudek, P.C. 159 State Street Montpelier, VT 05602

Re: Plum Creek Regeneration Survey

October 16, 2012

#### David:

This letter is my report on the successful regeneration of stands 43 and 44 in the Clough Brook North ("CBN") harvest area. This report is based on data I collected on August 30, 2012 from my regeneration field survey of alleged 'cut contrary' portions of stands 43 and 44. At the invitation of Plum Creek, State of Vermont County Forester Matthew Langlais observed my field survey until he left prior to the end of the day's work.

As explained below, the survey data results confirm the successful regeneration of stands 43 and 44. Successful regeneration is best understood within the general concepts of silvicultural methods:

Silviculture deals with the cutting and cultural treatments applied to stands of trees. The objective usually is to produce stands of commercially valuable trees. . . . Silviculture includes the application of cutting and cultural treatments to produce wildlife habitats. Forests are managed on a stand-by-stand basis, but management is planned in a larger context. The larger landscape context periodically takes into account the habitat conditions that exist in adjacent stands, so that successive stand treatments enhance habitat diversity, and therefore potential wildlife diversity over time.

Silvicultural cuttings commonly are classified as regeneration cuttings or intermediate cuttings.

Regeneration cuttings are designed to regenerate the stand naturally by providing for seedling (or vegetative stem) establishment or development, or both. Four techniques are

mentioned in this book: two for producing even-aged stands and two for maintaining uneven-aged stands:

- stems in the stand. Strip cutting is a form of clearcutting. (2) Shelterwood cutting is the removal of the understory and lower crown canopy trees to allow the new stand to regenerate under shade. Subsequent removal of the overstory occurs in one or several cuts within a few years or sometimes up to several decades later (deferred shelterwood).
- Uneven-aged: (1) Single-tree selection is the removal of trees singly or in groups of two or three, which maintains a continuous cover and an uneven-aged or uneven-sized mixture. (2) Group selection is the removal of trees in groups usually 1/10 to 2/3 acre in size, but sometimes up to 1 to 2 acres on large properties. Group selection can be applied in combination with single-tree selection between the groups.

Intermediate cuttings: Intermediate cuttings are applied in the culture of even-aged stands and are normally noncommercial (no products sold) or commercial thinnings (timber sold) designed to favor certain species, sizes, and qualities of trees by removal of competitors. Thinnings designed to grow quality timber commonly maintain a closed canopy; however, low-density thinning (50 to 70 percent residual crown cover) can be used to hasten diameter growth and stimulate understory development for wildlife purposes. At rotation age, the stand is considered to be mature, and a regeneration cutting is applied to produce a new stand.

"Technical Guide to Forest Wildlife Habitat Management in New England," DeGraaf, Yamasaki, Leak, and Lester, University of Vermont Press (2006) at p. 85-87.

Simply put, what and how a forest regenerates after a timber harvest is a function of existing conditions, proposed silvicultural practices, and nature. Existing conditions are themselves reflective of past silvicultural practices, and can be quite variable, as is the case with stands 43 and 44 at CBN. These stands have been periodically harvested by previous owners for various goals, mostly 'extractive', creating variation in tree species, size and quality. This explains the variable treatments recommended and approved for stand 43 in the "Management Prescriptions to be Accomplished" (Form 2 page 2) such as "Two Stage Shelterwood, Overstory Removal, and Gaps for regeneration". Similarly at

stand 44, the recommended and approved treatment is for Intermediate Thinning and Gaps for regeneration. Silvicultural practices influence, but do not necessarily control, how forestland regenerates after a timber harvest. The silvicultural methods used, along with the variables of nature (soil type, wildlife impacts, ground disturbance, seed-source, weather, and the passage of time), combine to determine the regeneration outcome. Ultimately, while nature will have the upper-hand, foresters direct the outcome through silvicultural practices: changes in sunlight/shade, ground disturbance, seed-trees and the timing of these changes. The resulting regeneration can be measured through standard forestry methods. The forestry methods measure success (or failure) through the collection of empirical evidence, that is, which species, sizes and quantities are present at three growing seasons following the timber harvest in the prescribed stand.

As I report below, the harvest of stands 43 and 44 at CBN met the regeneration goals set forth in the timber harvest prescription, the forest management plan, and UVA program manual. My conclusion is based upon the data I collected. The data collected is my observation and measurement of regeneration stems in accordance with standard forestry practices. The regeneration stems can be readily observed by the Court during a site visit. I highly recommend that the Court take a site visit to confirm my findings and conclusions that the harvest of stands 43 and 44 at CBN meet all applicable regeneration requirements.

#### Procedure:

On August 30, 2012, I met State of Vermont County Forester Matt Langlais at the Clough Brook Upper, exterior gate. We continued to the harvest area for the purpose of measuring regeneration sample plots, with Mr. Langlais observing. The procedure applied standard (See Silvicultural Guide for Northern Hardwood Types, page 16) milacre (1/1000 acre, 44.7" radius) plots distributed on a 200' by 200' grid, taking approximately one plot per acre throughout the alleged "cut contrary' portions of stands 43 and 44. Plot centers were located with Garmin 76 handheld GPS, graphically located via the map screen within 5 feet. This type of GPS is generally accurate within 10 meters, so most of the plots should be within 35 feet of proposed locations. A map of plot locations is attached. Copies of raw data sheets are attached. I note that Mr. Langlais observed the data collection for most of the day, but left at approximately 3 p.m. After Mr. Langlais departed, 1 continued data collection until approximately 6 pm.

At each plot, the plot center was located with a stake, and radius was determined with a cord marked at 44.7". The dominant "Free to Grow" tree was identified and recorded for species and height. All seedlings, saplings or sprouts of commercial species were counted and recorded within the plot. A 1/10 acre area (approx 37' radius) was noted for crown cover percent, browse damage, and competing vegetation.

Several plots from the initial grid were rejected as being in riparian zones, residual overstory sections, or outside the margin of the applicable stand. With narrow mapped areas and 200' plot spacing, several plots were right near the edges, and were recorded if they were within the alleged "cut contrary" area. 5 plots were rejected. Overall, 50 plots

were recorded. After Mr. Langlais left for the day at approximately 3 p.m., I continued my field survey. Plots were then marked with a pink ribbon on or near the dominant tree, in case Mr. Langlais wanted to revisit these plots. Plots observed by Mr. Langlais were not flagged, since he was available to confirm my observations. No plots were offset for truck roads, landings or skid trails, though some were right at these edges.

#### Results:

Stand 43 had 41 sample plots. 39 plots were stocked with commercial species, and 38 plots had a dominant "Free to Grow" commercial tree. 2 plots were not stocked with commercial trees, and one was stocked, but not "free to grow". Having a commercial tree "free to grow", over the competing vegetation, is a forestry consideration, but is not required under the UVA Program Manual. With 95% of milacre plots stocked, this indicates at least 950 trees per acre, well distributed. Plots averaged 12.9 commercial seedlings, saplings or sprouts per acre, indicating total stocking of 12,900 trees per acre.

Dominant species included: Red maple 29%, spruce or fir 24%, yellow birch 22%, sugar maple 10%, plus small amounts of beech and paper birch as dominant commercial species. Mountain ash, shad, and willow were also noted, creating good species diversity. Stand 43 had 54% of the dominant trees over 3' tall. No fresh seedlings were observed as tall as three feet.

The dominant spruce averaged almost 10' tall, clearly indicating that these were saplings, released from the understory. Since this is a hardwood dominated mixedwood stand, regeneration of a mix of hardwoods and softwoods is desirable and expected, and complies with the prescription for stand 43. I also observed that a high proportion of the regeneration exceeded 3 years of age, and must have been present at the time of overstory harvest.

Stand 44 had 9 sample plots. All plots were stocked with commercial species. One was dominated by non-commercial species, but had 24 commercial seedlings present on the 1/1000 acre. With 100% of plots stocked, this indicates at least 1000 stems per acre, well distributed. Plots averaged 15.6 commercial seedlings, saplings or sprouts, which indicates a stocking level of 15,600 commercial trees per acre.

Dominant trees were 33% yellow birch, 33% red maple, and 22% sugar maple. Other commercial species noted were balsam fir and beech. 60% of the overall count was sugar maple seedlings, which have better potential to develop in the shade of competing vegetation of *Rubus*, shrubs and other trees, so sugar maple can potentially make up more than 22% of the final stand. I found a very desirable species mix in accordance with the stated objectives of hardwood management, and the specific prescription for parts of stand 44. Stand 44 had 78% of the dominant trees over 3' tall. No fresh seedlings were observed as tall as three feet. I also observed that there was no clear distinction between the harvested portion of stand 44 and adjacent stand 43. Both areas had released spruce saplings, and a mix of hardwoods and softwoods, though hardwood regeneration was more prevalent in stand 44.

#### Discussion

The "Management Practices to be Accomplished" (Form 2 Page 2) for **stand 43** calls for a combination of Two Stage Shelterwood to promote new regeneration, and Overstory Removal, to release existing advance regeneration. Gaps for regeneration are also recommended. The purpose of all approved treatments in stand 43 is to regenerate a new, even aged stand of commercial species. (See Silvicultural Guide for Northern Hardwood Types, Pages 14-15 and 27) This was a hardwood dominated mixedwood stand, according to the approved harvest prescription. Regeneration, at this time, is clearly dominated by commercial hardwoods, with a spruce and fir component, as expected. It is also clear that regeneration has been effectively established, via a combination of overstory removal, and variable density shelterwood sections, in accordance with approved harvest prescriptions. These areas are variably distributed through the alleged "cut contrary" portion of stand 43, as expected.

Examination of the regeneration indicated a high proportion of seedling sprouts, sapling sprouts, and seedlings of spruce or fir, which are all more than 3 years old. This indicates that advance regeneration was present, and successfully released, as called for in the management prescription for stand 43. Stand 43 had 54% of the dominant trees over 3' tall. No fresh seedlings were observed as tall as three feet. 30 of the 41 plots in stand 43 noted taller saplings (5'-25' tall) of spruce, fir or hardwoods retained and released in the proximate area (1/10 acre), further confirming that overstory removal and shelterwood treatment successfully regenerated this stand via a combination of new seedlings, existing seedlings and released saplings or seedling sprouts from advance regeneration.



Figure 1: Stand 43, Regeneration plot 23 Photo 001 8-30-12

In Figure 1 above, please note several small balsam fir trees. The tallest is about 12 inches, on the far left. Many of these are over 3 years old, as noted by the number of whorls of branches. These would be considered 'understory' seedlings, effectively released by the overstory harvest. Since they were only a few inches tall, they may have been missed in the initial survey. The pink tag marks the plot center, and the measuring cord is draped over the high stump. (Also attached are photos 1-18 from 8-30-12 and 9-4-12 with descriptive index.)

The harvest prescription (stand 43) notes decline in white birch, maturity of balsam fir, and *Nectria* canker in beech. This would not normally be evenly distributed throughout a stand. It also notes only 38 sq. ft. of acceptable growing stock on average. While the variability of the stand is not specifically enumerated, 40% of the stand was prescribed for overstory removal, and 60% for shelterwood. Also the low level of AGS and health issues noted, imply tremendous variability. This variability was noted in the residual stand condition and in the regeneration.

My understanding is that Mr. Langlais has agreed that various parts of stand 43 could have overstory removal treatment if the regeneration were adequate. My understanding of his position is that directly after the harvest, adequate regeneration was not obvious. I understand that he also disagrees that 350 stems per acre is the appropriate threshold for determining 'adequate' regeneration. However, the UVA program Manual (2006) clearly states at page 29:

### "Regeneration:

For newly-regenerated stands, the successful establishment of acceptable species must be not less than 350 stems per acre well distributed throughout the stand three years after the regeneration cut is made or for initial eligibility (350 stems/acre equals an average spacing of 11')."

My understanding is that Mr. Langlais' review of regeneration in stand 43 was accomplished in March and April of 2009, which would have been within a few months after the CBN harvesting operation terminated. Given the timing and weather, it is possible that snow, debris, or tree branches obscured his observation. His observations seem to indicate that 25% of the mil-acre plots were stocked, which give a total of 250 trees per acre, and he did not count seedling sprouts. However, after two growing seasons, we found abundant regeneration on 92% of the plots. Our more specific, quantitative review, with three growing seasons after harvest, clearly indicates abundant natural regeneration in accordance with UVA program standards and specific "Management Practices to be Accomplished" (Form 2 page 2), and much of it was on the site before and directly after the harvest.

Stand 44 portions alleged to be cut contrary are along adjacent portions of stand 43 and a riparian buffer (retained). Both of these edges seem to be transitional zones from hardwood (the core of stand 44) and mixedwood, at these edges. The "Management Practices to be Accomplished" (Form 2 Page 2) for stand 44 specifies a combination of Intermediate Thinning to 60 BA and gaps for regeneration. Treatment in this area is

transitional between the intermediate thinning and the gaps, as called for in the harvest prescription. It also is transitional to stand 43 as a mixedwood, with even aged regeneration treatment recommended. There is no clear edge between these two forest types. This was also a busy spot, with converging skid trails, two landings, and two main truck roads, which account for low overstory stocking. Mr. Langlais has not provided regeneration data for these areas. Our review showed adequate, abundant regeneration in all plots, with over 15,000 commercial stems per acre. The regeneration component clearly complies with the management prescription for the gap-cut portions of stand 44, or a transitional boundary with regeneration harvesting in similar portions of stand 43.



Figure 2: Stand 44/43 edge, near Regeneration plot 9. Photo 010 9-4-12

Figure 2 shows a gap cut at the edge of stand 44/43, with the riparian protection strip in the background. On the right side, saplings of both hardwood and softwood are visible and effectively released. New regeneration and seedling sprouts were observed growing through the raspberries and other native plants in the lower vegetation.

We did not sample **stand 34**, as we do not think there is any controversy over the regeneration. Low density shelterwood with gaps/groups is a reliable way to regenerate desirable hardwoods. My review after the second growing season confirmed abundant regeneration of commercial species in that stand. A site visit would easily confirm effective regeneration in Stand 34.

Since this study reviews the condition of the forest after three growing seasons, it complies with the 2006 UVA Program Manual requirements, quoted previously. Mr. Langlais' review, before the first growing season, found far fewer trees per acre. Our initial inventory, after two growing seasons, showed abundant natural regeneration on a wide majority of plots. After the third growing season, we found 12,900 trees per acre in stand 43 and 15,600 per acre in stand 44. It is obvious that three years made a big difference in regeneration abundance and its empirical measurement. Likewise, a site

visit by the Court in June of 2013 would verify successful regeneration in all harvest areas.

## Summary:

Stand 43 and 44 were observed to have abundant natural regeneration of commercially desirable species present. Over 12,000 trees per acre far exceed the required threshold of 350 trees per acre of commercial species, well distributed. Stands 43 and 44 comply with the regeneration requirements set forth in the stand 43 and 44 harvest prescriptions, approved management plan, and UVA program manual. My conclusions can be easily verified by a site visit to stands 43 and 44.

Respectfully submitted

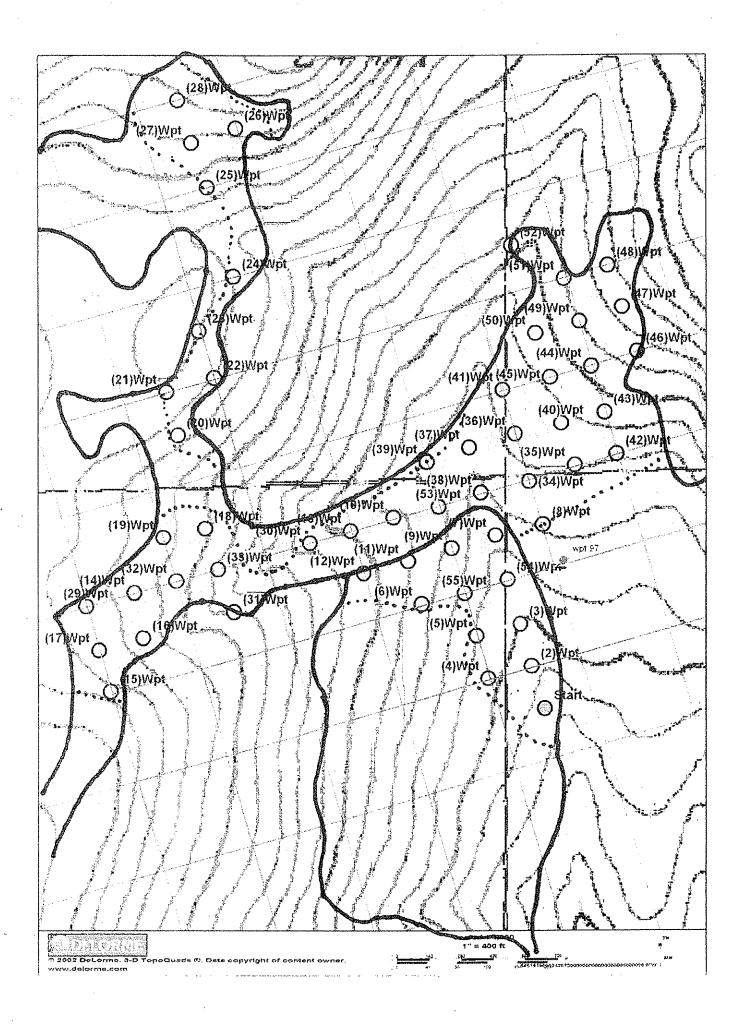
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Attached: field data sheets and plot locations

Photos 1-18, 8-30-12 and 9-4-12

Photo descriptive index



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skid trail, Riparian leave strip in background	HW regen. Quality HW retained trees.  Low density hardwood shelterwood with groups, skid trails.	Low density hardwood shelterwood with groups. Abundant	Stream crossing: uncut riparian zone	Stream crossing: cleaned out, stablized and revegetated	and raspberries	Release softwood and hardwood saplings, abundant sprouts	stocking on sides w/ gaps. Stand 44 hardwood behind, uncut.	View up winter truck road, natural revegetation. Irregular HW	Released spruce regen and hardwood sprouts.	Riparian leave strip in background.	Regen gap cut with released sp and hardwood. Typical of st 43.	Riparian leave strip back and RT, prolific regen.	Intermediate stocking with gaps, quality trees retained.	Skid trail, Riparian leave strip on RT	natural revegetation.	Effective waterbar in winter truck road. Illegal ATV use,	and sprout regen.	Patchy overstory removal and retention, released understory	Hardwood shelterwood cut with riparian leave strip on LT.	Released spruce regen and hardwood sprouts.	Low density shelterwood, released spruce and hardwood regen.	and hardwood regen.	Scattered retained overstory, patch cuts, released spruce	effectively released, may not have been obvious first year	Balsam fir regen over 3 years old, with hardwood sprouts:	