

Sawtimber Procurement Pressure and Sustained Yield Management on Non-industrial Private Forestlands of the Northern Forest

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Introduction

- Non-industrial private forestlands (NIPF) make up the majority of forestlands in the Northern Forest and their management has broad implications for the region.

- Little is known about the prevalence of sustained yield management on NIPF in the Northern Forest.

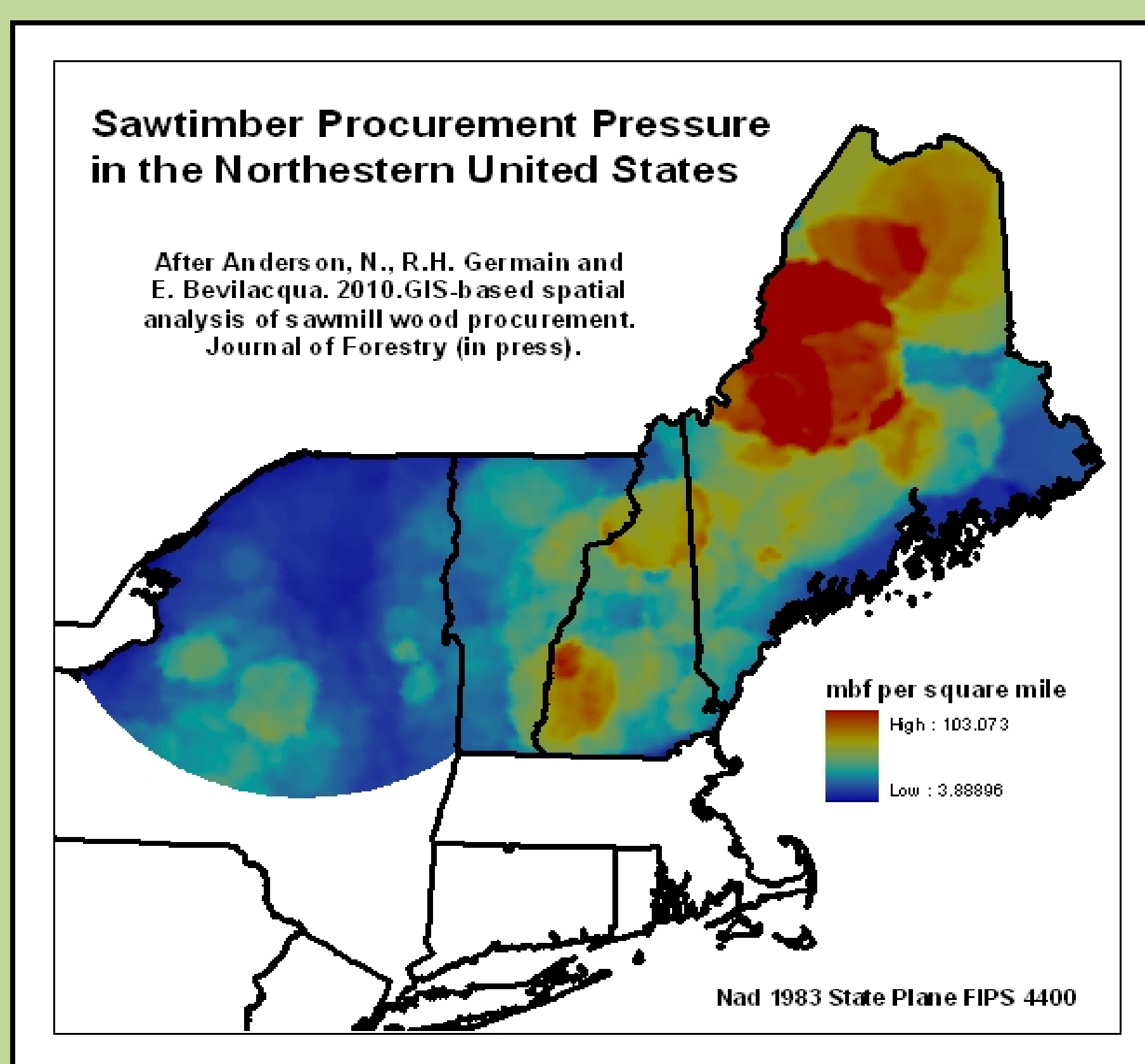
- To create a sustainable Northern Forest we must better understand those factors that influence sustained yield management on NIPF.

Objectives

- This study explored the relationship between sawtimber procurement pressure and sustained yield management on NIPF in a four county region of Vermont's Northern Forest.

- The results will help managers, outreach personnel, and policy makers to better understand how markets drive management decisions on NIPF and their implications for the sustainability of the Northern Forest.

Forest Cover Type	% of properties	Mean BA/Acre	Mean Trees/Acre	Mean Quadratic Stand Diameter
Mixedwood	42%	96 sq. ft.	347	7.1 in.
Northern Hardwood	29%	80 sq. ft.	371	6.4 in.
White Pine	14%	121 sq. ft.	352	8.7 in.
Spruce/Fir	7%	119 sq. ft.	652	6.2 in.
Black Spruce/Tamarack	3%	141 sq. ft.	757	6.6 in.
Easter Hemlock	3%	90 sq. ft.	210	8.7 in.
Red Pine	2%	149 sq. ft.	242	10.6 in.



Methods

- Mailers were sent to 2144 NIPF owners, requesting the participation of those who had recently harvested their woodlots.

- A response rate of 5.3% provided 113 participants, of which 59 properties were sampled.

- Field measurements were made on each sampled property to judge forest stocking and implementation of Acceptable Management Practices for Water Quality (BMP).

- Measures of stocking and BMP implementation were used to create four sustained yield management scores for each property. Forest stocking scores were on a scale of 0 to 1, with 1 indicating the presence of sustained yield management; and BMP scores (for landings, skid trails, and water diversion devices) were on a scale of 0 to 3 with 3 indicating full adherence to BMP guidelines.

- Procurement pressure was determined for each property using geographic data and properties were grouped into low (<27 mbf/sq mi) and high (≥27 mbf/sq mi) procurement pressure zones.

- Landowner surveys were conducted to determine if landowners participate in Vermont's Use Value Appraisal Program (UVA) and if their recent harvests were administered by foresters

- Sustained yield management scores were compared between low and high procurement pressure zones, between UVA participating and non-participating properties, and between harvests administered by a forester and those not administered by a forester. Stocking scores were analyzed using Wilcoxon-Mann-Whitney tests, as were BMP scores for UVA comparisons. All other comparisons were analyzed using unpaired t-tests.

- Sampled properties were located in a variety of forest cover types, representative of forests in the study region.

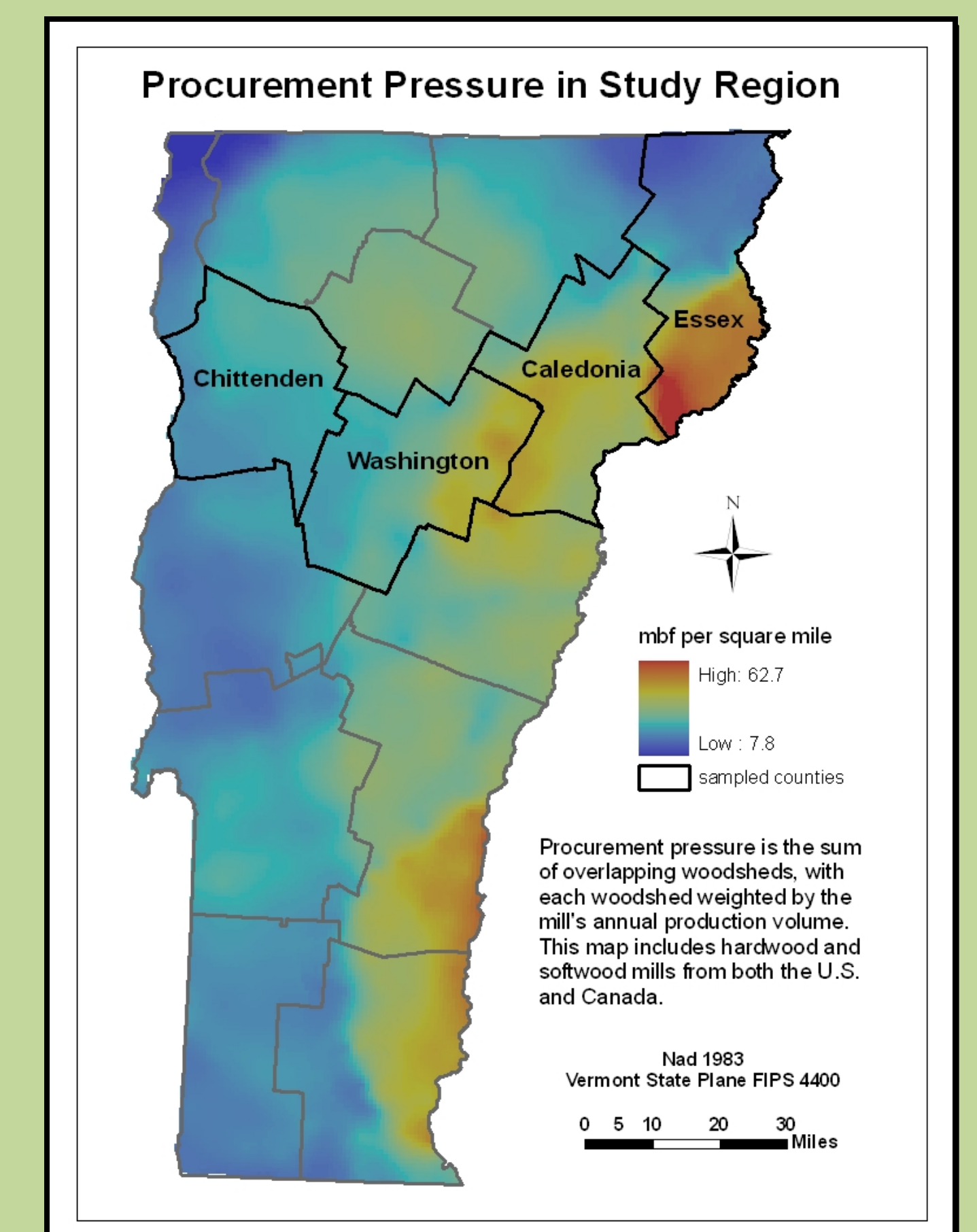
- For preliminary analysis, stocking scores were only calculated for even-aged Mixedwood and Northern Hardwood cover types.

- BMP scores were analyzed for all applicable properties in the sample.

Sustained Yield Indicator	Procurement Pressure Group	Sample Size	Mean Score	Standard Error of the Mean	P-Value
Stocking	Low	15	0.520	0.084	0.705
	High	16	0.506	0.069	
BMP – Landings	Low	22	2.754	0.067	0.135
	High	35	2.588	0.086	
BMP – Skid Trails	Low	22	2.322	0.095	0.257
	High	35	2.180	0.080	
BMP – Water Diversion Devices	Low	22	1.118	0.18	0.544
	High	35	0.988	0.11	

Sustained Yield Indicator	Administered by forester?	Sample Size	Mean Score	Standard Error of the Mean	P-Value
Stocking	No	19	0.484	0.054	0.813
	Yes	11	0.518	0.11	
BMP – Landings	No	27	2.573	0.10	0.199
	Yes	27	2.734	0.072	
BMP – Skid Trails	No	29	2.186	0.093	0.397
	Yes	26	2.291	0.081	
BMP – Water Diversion Devices	No	29	1.051	0.16	0.899
	Yes	26	1.026	0.11	

Sustained Yield Indicator	UVA?	Sample Size	Mean Score	Standard Error of the Mean	P-Value
Stocking	No	11	0.418	0.074	0.193
	Yes	19	0.542	0.070	
BMP – Landings	No	16	2.482	0.13	0.046
	Yes	39	2.721	0.065	
BMP – Skid Trails	No	15	1.967	0.11	0.011
	Yes	40	2.336	0.069	
BMP – Water Diversion Devices	No	15	0.653	0.16	0.013
	Yes	40	1.184	0.11	



Results

- With an alpha-level of 0.05, we found no significant differences between low and high procurement pressure zones for any of the sustained yield indicators.

- No significant differences were observed between harvests administered by a forester and those not administered by a forester for any of the indicators.

- Significant differences were observed between UVA properties and non-UVA properties for all BMP indicators, but not for the stocking indicator.

Conclusions

- It appears that sawtimber procurement pressure is not a significant determinant of sustained yield management use.

- The use of sustained yield management seems to be more closely related to outreach programs and incentives that promote sustained yield forestry, such as Vermont's UVA program .

Acknowledgements

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