

# Strengthening Logging Businesses in the Northern Forest – Assessment of Best Business Practices and Innovation Activities

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Report date: June 5, 2015

**Relationships within the logging community were strengthened through this research. Both best business practices and innovative activities were shared with contractors and foresters through regional workshops.**

Funding support for this project was provided by the Northeastern States Research Cooperative (NSRC), a partnership of Northern Forest states (New Hampshire, Vermont, Maine, and New York), in coordination with the USDA Forest Service.

<http://www.nsrcforest.org>

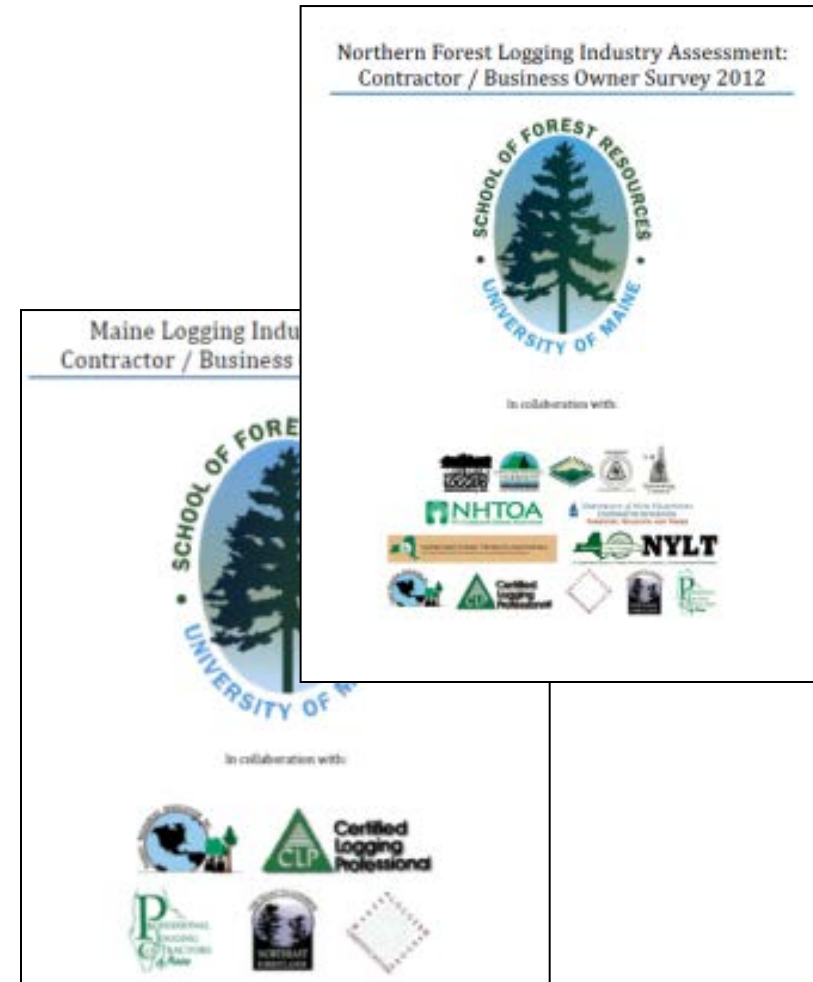
# Project Summary

The forest products supply chain in the Northern Forest states of Maine, New Hampshire, Vermont and New York includes many independent logging contractors. These loggers provide production services to a diverse group of landowners and mills by supplying raw material to multiple wood-using facilities. This sector of the supply chain faces an uncertain future with significant challenges aggravated by the most recent economic downturn. A select group of logging contractors maintains competitive advantage because they are committed to continuous improvement. These innovative and resilient contractors are successful in the face of rising performance standards associated with Best Management Practices and various certification programs. As such they can serve as valuable role models for the industry. Starting in the spring of 2013, we interviewed 18 logging contractors (5 in Maine, 5 in New Hampshire, 6 in New York, and 2 in Vermont) to determine how they have maintained a competitive advantage during these difficult economic times. Participants were selected from a list of contractors obtained through an online survey of industry representatives. This project has characterized business practices, personality traits, motivational skills, and other innovative activities common to successful logging contractors. A harvest planning model was calibrated and improved with particular emphasis on hourly machine costs, harvest system balance and productivity indicators, and analysis of process improvement data. Finally, a series of workshops were delivered to transfer best business practices and innovation approaches to other logging contractors in the region.

# Background and Justification

## Survey of Logging Contractors in Northern Forest Region

- NSRC funded research by Benjamin and Leahy (2010-2014) surveyed over 400 logging contractors to develop a baseline dataset of logging industry metrics for the Northern Forest region to better understand business attributes, business owner demographics, harvest methods, production and capacity, and equipment infrastructure.
- There was a need to further investigate a successful and innovative subset of that population.



# Rationale & Objectives

- Many logging contractors continue to succeed in the face of challenges to the industry because they are committed to continuous improvement. They develop innovative solutions to a wide range of issues – from communication with employees to increasing machine productivity. They systematically seek to understand the impact of their decisions on operational costs and production rates. Their approach to innovation and cost analysis is more important to the overall industry than the specific outcomes because each logging operation is unique.
- Specifically this project: 1) characterized best business practices and innovation activities of successful logging contractors with particular emphasis on their approaches to process improvement and cost analysis; 2) calibrated a recently developed harvest planning model called PATH (Planning and Analysis in Timber Harvesting) with particular emphasis on hourly machine costs, harvest system balance and productivity, and analysis of process improvement data; and 3) developed a series of workshops specific to the logging industry to transfer best business practices and innovation approaches to logging contractors throughout the region.

# Approach - Participant Selection

- We identified project participants by following a similar methodology as described in Stone et al. (2011) with the addition of an online survey of industry representatives. Survey participants were asked to list and rank the most successful and innovative logging contractors in their state and then to provide a reason why each contractor was identified.
- We selected contractors for the study based on how often they were mentioned in the survey, their rank, and the uniqueness of their innovation activities. We also selected contractors to ensure a wide range in firm size (owner operators to full-service contractors), harvest operations (manual to fully mechanized), and business model (stumpage contracts to logging services).



# Approach - Interviews

- 18 Contractors Selected
  - 5 Maine
  - 5 New Hampshire
  - 6 New York
  - 2 Vermont
- Detailed on-site interviews
  - ~2-3 hours each
- Research team summarized responses into themes and traits for further analysis.



# Results - Contractor Profiles

- Years in business
  - 60s & 70s (34%), 80s (44%), 90s+ (23%)
- Size of companies
  - # employees (avg 15, max 40, “outlier” 100)
- Background
  - ~50% family history, 25% advanced forestry training
- Harvest Systems
  - 78% whole-tree (75% biomass)
- Land Type
  - >50% industrial forests with the rest a mix of small private, state and federal lands

# Results – Themes and Traits

## “Top 10 List”

Theme	Trait
Forest Operations Management	<ul style="list-style-type: none"><li>- Maintain Equipment to Avoid Lost Productivity</li><li>- Have Pride in Work and Confidence in Abilities</li></ul>
General Business Practices	<ul style="list-style-type: none"><li>- Understand Key Financial Indicators</li><li>- Commitment to Continuous Improvement</li><li>- Understand the Importance of Diversification</li></ul>
Working with People	<ul style="list-style-type: none"><li>- Identify, Hire, and Reward Good People</li><li>- Develop Long Lasting Business Relationships</li><li>- Manage Stress and Responsibilities</li></ul>
Outreach and Service	<ul style="list-style-type: none"><li>- Engage in Industry and Community</li><li>- Value Family</li></ul>



# “Top 10 List” – Forest Operations Mgt

- Maintain Equipment to Avoid Lost Productivity
  - Highly mechanized operations
  - Committed to routine maintenance
  - 2 participants are now testing for oil quality
- Pride in Work – Confident in Abilities
  - *“At night, when you are leaving, driving out you can look and say we did something today, a nice job and I’m proud of that.”*

# “Top 10 List” – Gen. Business Practices

- Understand Key Financial Indicators
  - Success often attributed to capital and good credit.
  - *“The day I have to take a line of credit to buy firewood or put money back in my machine, I’m not managing my business correctly. What am I doing wrong in those ten months that I can’t survive two months?”*



# “Top 10 List” – Gen. Business Practices

- Commitment to Continuous Improvement
  - Focused effort to improve processes and increase production / reduce costs
  - By default: *“I never realized how lean I was. I won’t take a step in the woods unless it’s necessary.”*



# “Top 10 List” – Gen. Business Practices

- Understand the Importance of Diversification
  - Regardless of company size!!
  - *“If we were still just a logging company, we would not be here”*



# “Top 10 List” – Working with People

- Identify, Hire, and Reward Good People
  - Nothing is accomplished in the woods unless there is a motivated and skilled operator in the seat.
  - General sentiment that it is harder to find quality employees than in the past.
    - drug tests, lack of skills, not showing up for work



# “Top 10 List” – Working with People

- Identify, Hire, and Reward Good People
  - Some have been successful at employee retention
  - Employee involvement in decision making is key
  - *“It makes them feel a part of the team, if you are not part of the team, then how are you going to be a team player?”*



# “Top 10 List” – Working with People

- Develop Long Lasting Business Relationships
- Participants recognized the value of strong relationships with other loggers, foresters, equipment dealers, landowners, and mills. The strength of each relationship varied depending on the contractor, but they worked to improve those relationships.
- *“We don’t always all agree on everything, but we are able to sit down and talk about it. I always like to listen to the other guy. I may think I’ve got it figured out pretty good, but I like to listen to the other guy.”*

# “Top 10 List” – Working with People

- Manage Stress and Responsibilities
- It is a highly capital intensive business with low profit margins in an environment where many costs (e.g., fuel and repair parts) continue to rise.
- They have to hire, train and retain skilled workers from a shrinking pool of qualified applicants.
- State and federal laws, as well as forest certification initiatives result in increasing amounts of paperwork for each harvest operation.





# “Top 10 List” – Outreach and Service

- Engage in Industry and Community
- Participants are active members of professional organizations, serve on industry committees, are regular attendees of industry events, and active members of their communities.



# “Top 10 List” – Outreach and Service

- Value Family

- We forget that these men have personal lives.

- They go through the same struggles as everyone else.

- *“Sunday is a family day – if there is time away it is strictly with them. If I’m away from work, it should be with them.”*

- “I’m not going to ask people to do things I don’t want to do. I’m going to spend time with my family.”*

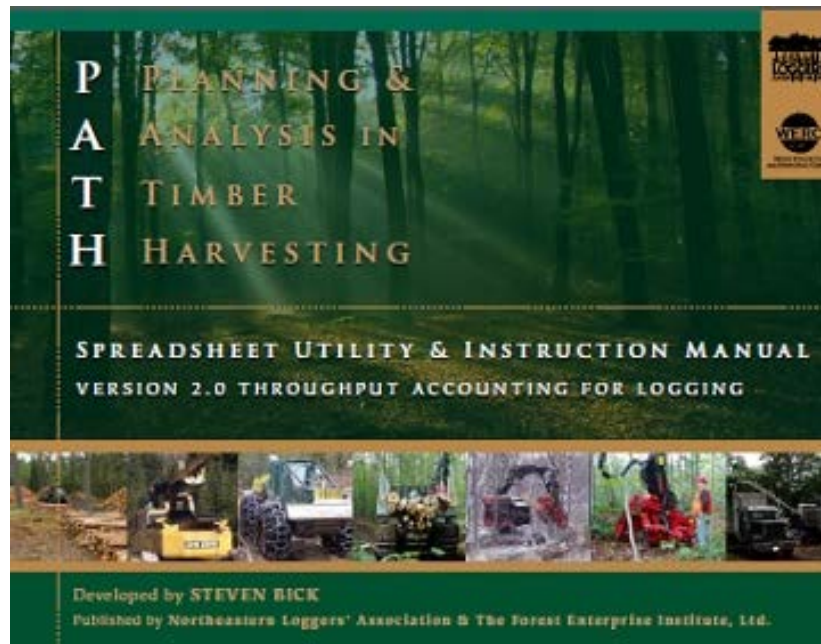
# “Top 10 List” – Summary

- Many ways to run a successful logging business.
- Diversity participants lends credibility to the similarities in themes and traits observed.
- Commitment to continuous improvement is key.

Theme	Trait
Forest Operations Management	- Maintain Equipment to Avoid Lost Productivity - Have Pride in Work and Confidence in Abilities
General Business Practices	- Understand Key Financial Indicators - Commitment to Continuous Improvement - Understand the Importance of Diversification
Working with People	- Identify, Hire, and Reward Good People - Develop Long Lasting Business Relationships - Manage Stress and Responsibilities
Outreach and Service	- Engage in Industry and Community - Value Family

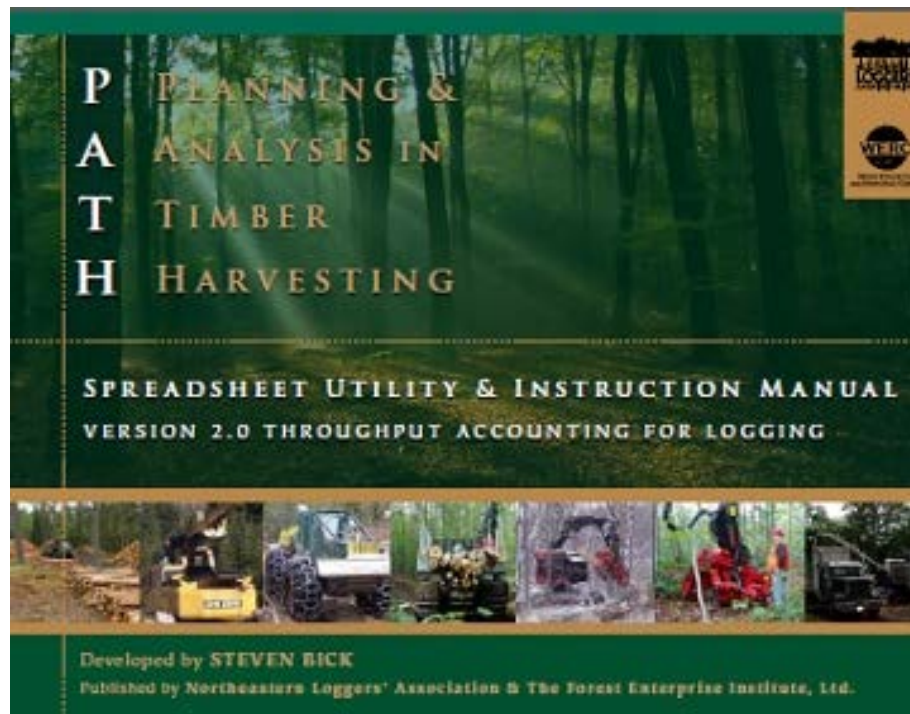
# Results – Model Calibration

- PATH 2.0 offers an updated format and a new approach to financial measurements. The financial calculations apply throughput accounting methods to provide information to help in operation level decision making.
- The incorporation of throughput accounting methods is a new approach to forest operations accounting, but is part of continuous improvement theory (also known as the Theory of Constraints).



# Results – Model Calibration

- PATH 2.0 calculates the functional hourly depreciation for each machine in an accelerated fashion. It is intended to match the actual loss of value that occurs in use.
- Logging contractors can make informed estimates about the profitability of potential harvesting jobs which promotes the viability of future operations.



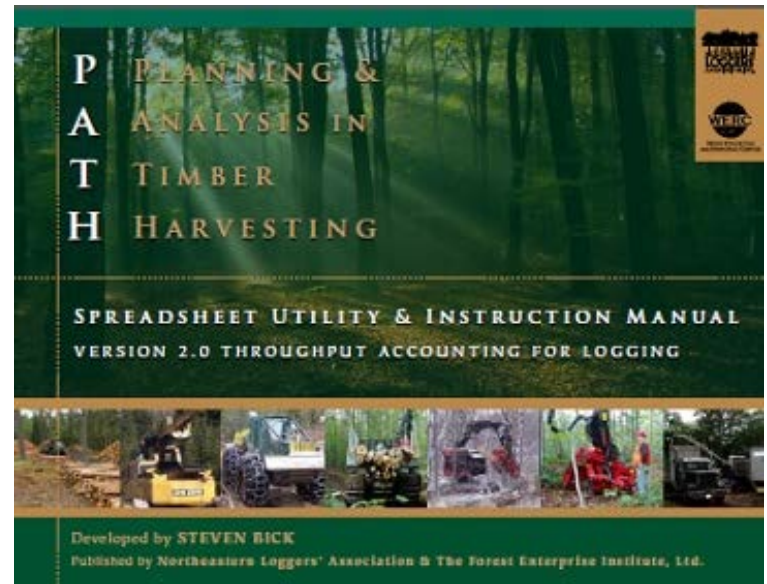
# Results – Logger Workshops

- The goal of SWAT is to get logging contractors to step outside of their day-to-day busy schedules and hectic activities, and to take a more objective look at how they manage their business.
- Over 8 workshops were delivered (2 in each state (ME, VT, NY, NH)) in 2014-2015 to over 120 participants.
- During each session, participants identified areas for improvement and/or innovation in their businesses and they developed a tangible, time-sensitive action plan to realize a vision for their company.



# Future Directions

Results and relationships from this research will continue to improve logging businesses through advanced process improvement activities, improved business management approaches and new throughput accounting practices.



# List of Products

## Publications (Graduate Students Underlined; \* Denotes Peer-Reviewed)

- \*Germain, R.H., S. Bick, M. Kelley, J. Benjamin and W. Farrand. 2015. A Case Study of Three High-Performing Contract Loggers with Distinct Harvest Systems: Are they thriving, striving or just surviving? *Forest Products Journal* (in print).
- Bick, Steven. 2015. Planning & Analysis in Timber Harvesting 2.0: User Manual. Old Forge, NY: Northeastern Loggers' Association. 43 p.
- Benjamin, J.G., S. Bick, W. Farrand, and R. Germain. 2014. Characteristics of Successful and innovative Logging Contractors in the Northeast US. Paper presented at the 37<sup>th</sup> Council on Forest Engineering: *Global Harvesting Technology*. Moline, IL. June 22-25, 2014.
- Germain, R., S. Bick, J.G. Benjamin, W. Farrand, and M. Kelly. 2014. Silviculture Matters! But Not Without Loggers. Paper presented at the 37<sup>th</sup> Council on Forest Engineering: *Global Harvesting Technology*. Moline, IL. June 22-25, 2014.



# List of Products

## Presentations (Graduate Students Underlined)

- Bick, Steven 2015. Adventures in Forest Operations Accounting. New England Regional Council on Forest Engineering - Spring 2015 Workshop. Orono, ME. March 9.
- Bick, Steven 2015. Logger Equity and Forest Operations. Forest Resources Association February Meeting. Brewer, ME. February 5.
- Bick, Steven. 2015. Logger Equity and Forest Operations: Investments in Logging Businesses. New York Society of American Foresters Winter Meeting. Syracuse, NY: January 22.
- Bick, Steven. 2014. Men of Mettle: Innovative Loggers of the Northern Forest. J. Claude Lecours Memorial Lecture. Old Forge, NY. March 28.
- Farrand, W.A 2015. *SWAT Strengthening What's Already There*. 17<sup>th</sup> Annual Women in Timber Luncheon-April 8, 2015 Kane, PA.
- Germain, R.H., S. Bick, M. Kelly, J. Benjamin and W. Farrand. 2015. Silviculture Matters! But Not Without Loggers. NY SAF Annual Conference, January 22-23, 2015. (>200 participants.)
- Benjamin, J.G., P. Hiesl, J. Hutton, and C. Lachance. 2014. Mechanized Harvesting – How Productive is Your Operations? New Hampshire Timberland Owners Association – Spring 2014 Workshop. Concord, NH. June 12.
- Benjamin, J.G., P. Hiesl, and J. Hutton. 2014. Stick with the Status Quo or Find the Best Flow. Productivity Improvement Workshop for Treeline Inc. Lincoln, ME. May 9.
- Benjamin, J.G. 2014. Operational and Economic Aspects of Biomass Harvesting: There is No Free Lunch in the Woods. New England Society of American Foresters – 2014 Winter Meeting: Resources – Resilience – Renewal – Restoration. Nashua, NH. March 25.
- Benjamin, J.G. 2013. Trends in the Northeast Logging Industry: Man, Machine and Money. 21<sup>st</sup> Loggers and truckers Convention – New Hampshire Timberland owners Association. Concord, NH. October 19, 2013.