

Improving Maine's forest trucking enterprises: A qualitative approach

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Introduction

- Secondary transportation: 20-50% of entire operational costs
- Secondary: from landing sites to the gate (processing facilities or manufacturers)



Secondary transportation

Road system



- Most common system
- Favored by vast infrastructure development

Rail system



- Operated by few big companies in Maine
- Practiced in Europe and southern US

Water system



- Federal clean water Act, 1972
- Maine 1976 Act for banning log drive

Forestry and Trucking in Maine

- Highest forested state in the US

(Jin and Sader, 2006)

- Estimated economic impact:

- \$8.5b to GDP

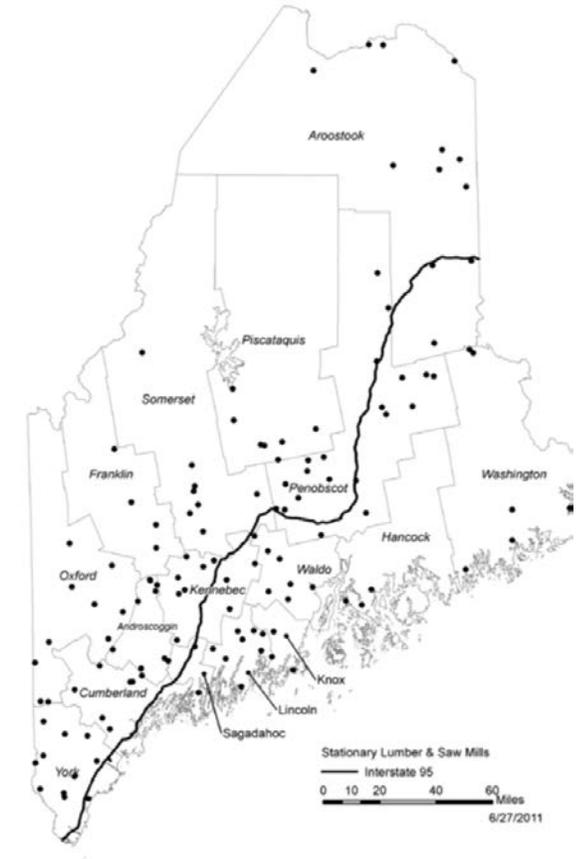
- 4.13% employment

(Anderson III and Crandall, 2016)

- 2300 loaded trucks per day
- 3000 log truck drivers out of total 8500 heavy truck drivers
(MFPC, 2013)
- Northeast states had higher transportation distance and cost

Rationale

- Five Mills closed in the last two years
- Problems faced are well-known
- Solutions involves multiple entities within the industry and government agencies
- Helps policy makers in comprehending the situation and formulating policies
- Even a small increase in trucking efficiency can be very productive in the long-run



(Lilieholm et al., 2010)

Objectives

- Document and rank challenges related to forest trucking in Maine
- Analyze field level suggestions from closely related stakeholders to solve challenges

Methods

- Document and rank challenges related to forest trucking in Maine

Cross-sectional survey

- NER COFE conference
- Tested average time: 10 to 13 minutes
- Mostly close-ended/some open-ended
- Main focus: Challenges



Survey on Challenges Faced by the Forest Trucking Industry



“Your information is very valuable”

As a part of identifying the major challenges faced in the forest trucking industry within the Northeastern region, we would like to acquire your thoughts and opinions to shape up possible solutions. This survey is expected to take only take 4-5 minutes to complete. We will not report individual responses, but rather, will only release summarized data (individual responses will be kept **strictly confidential**).

6) How available are skilled truck drivers today as compared to

5 years ago: Harder to find The same Easier to find Don't know

10 years ago: Harder to find The same Easier to find Don't know

Comments:

Results

- Total questionnaire: 285
- Response: 89 (31.22%)

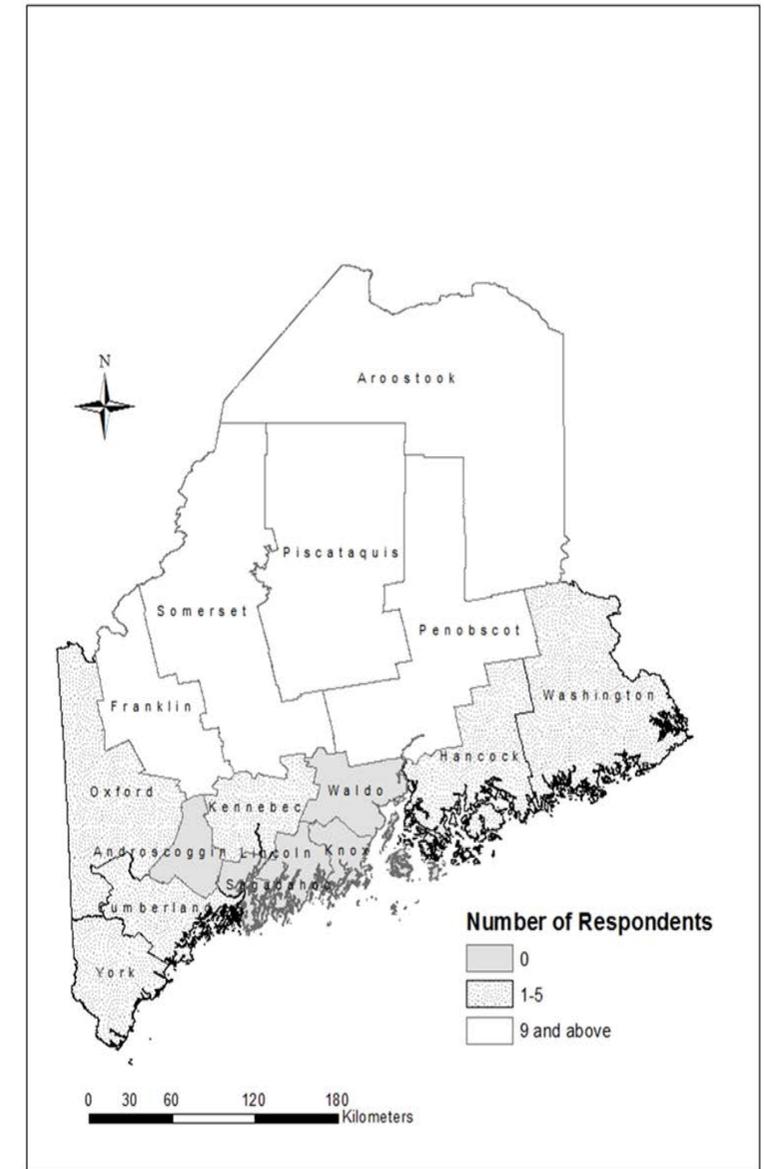
Respondents' Characteristics

Characteristics	Categories	Total n (%)
Affiliation	Company (pulp & paper enterprises, and land owning & Managing)	65 (73.1)
	State or federal agencies	13 (14.6)
	Contractor	6 (6.7)
	Others (Researchers, academics and unspecified)	5 (5.6)
Work experience in forestry sector	Less than 10 years	17 (19.1)
	10 to 15 years	12 (13.5)
	15 to 20 years	11 (12.3)
	20 to 25 years	14 (15.7)
	25 to 30 years	7 (7.9)
	More than 30 years	28 (31.5)
	Average work experience	22 years
Major forest products dealt with	Sawlogs/Speciality	36 (40.4)
	Pulp/groundwood	28 (31.5)
	Biomass (hogfuels)	13 (14.6)
	Wood chips	12 (13.5)

Results

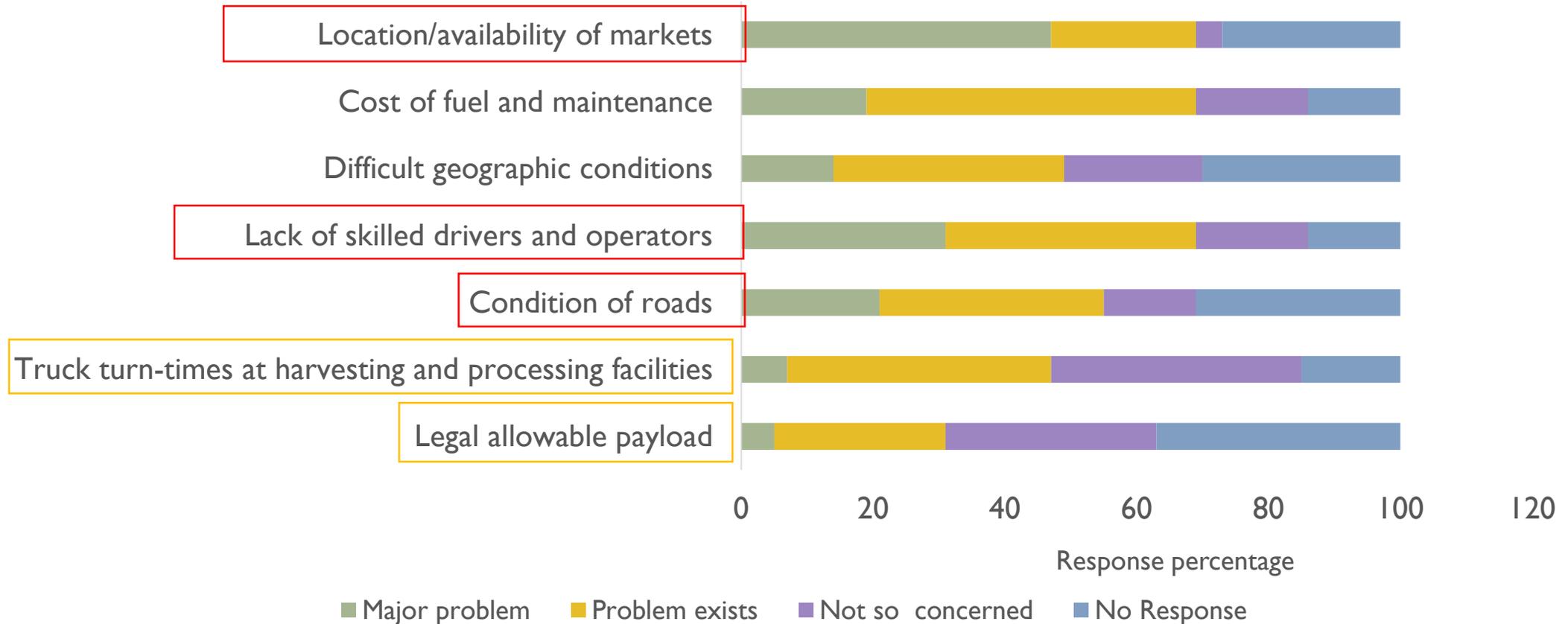
- 11 out of 16 counties of Maine represented
- Average distance travelled (one way): 97 Km ~ 60 miles

Forest products	Maximum (Km)	Minimum (Km)	Mean (Km)
Sawlogs	322	3.5	95
Pulpwood	322	3.5	109
Hog fuels	200	19	94
Woodchips	240	3.5	93



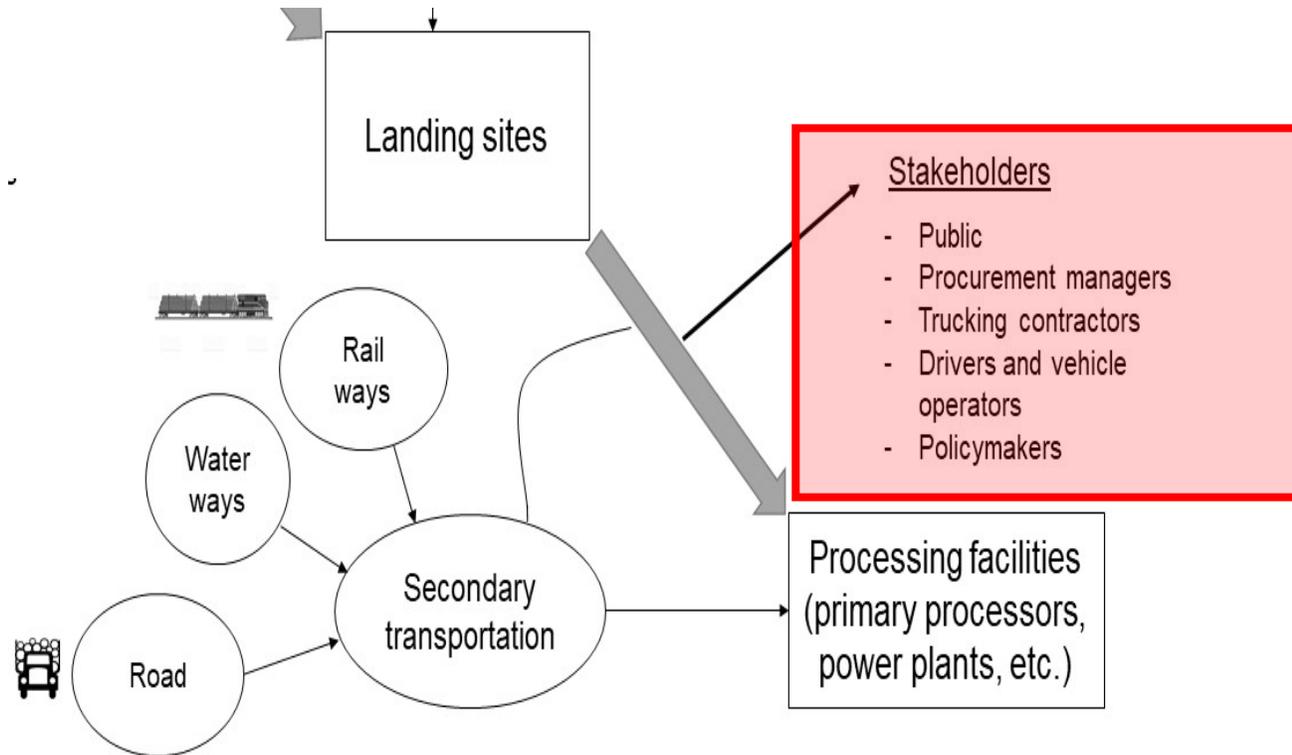
Results

Major challenges to the forest trucking sector in Maine:



Background & goals

- Analyze field level suggestions from closely related stakeholders to solve challenges



- Gain an in-depth understanding of stakeholders' perceptions of the problems related to trucking
- Identify possible measures to resolve them.

Methods

Qualitative case study:

- Semi-structured interview
- Interview protocol
 - 50 questions
(13 major with 4 probing each)
- Four themes:
 - Outlook of trucking
 - Challenges
 - Possible solutions
 - Applicability in Maine
- Participant selection
 - Criteria
- Saturation (Guest, 2006)
- NVivo II
 - Based on themes

Results

Participants description:

Stakeholder categories	Number of participants (by sub regions of Maine)	Average experience
Foresters (company based and consultant)	5 (Central = 3, North = 1, South = 1)	30
Truck owners/contractors	2 (All regions = 2)	28
Professional society representative	2 (South = 1, All regions = 1)	25
Procurement managers	4 (North = 3, South = 1)	19

- 13 Semi-structured interviews
 - Average of 51 minutes
- Age: 36 to 74 years
- All male and Caucasian

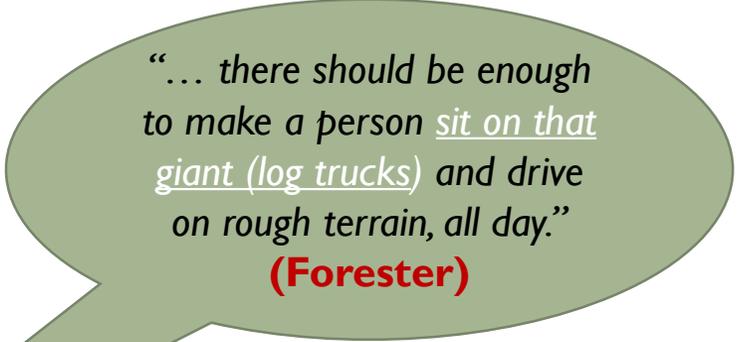
Results

Services

- Hiring trucking services through contractors

Employee benefits:

- Truck drivers' benefits (trucking companies):
 - Health insurance
 - Paid leaves and vacation plans
 - Discount for wood products
- Actual motivation was different



“... there should be enough to make a person sit on that giant (log trucks) and drive on rough terrain, all day.”

(Forester)

Results

Outlook of forest trucking business:

- Positive signs
 - Increased weight limit
 - Drastic drop in oil price
 - Increased trucks demand
 - Space for new business to enter in the market
- Negative signs
 - Quest for drivers
 - Very tight profit margin
 - High owning and operating costs
 - Trend of moving high volume of wood to make profit

Major challenges and suggestions

Shortage of drivers

Suggested solutions	Favoring stakeholder group (s)
Good benefits, proper training, more vocational schools.	All
More extension activities; showing young generation the modern technologies currently used in forest trucking	All
US forest service and Department of Transportation, as lead organizations to attract youths	Forester and professional society
Change in payment methods to truck drivers from load based to hour based	Forester
Ownership sharing mechanism to drivers (giving certain percentage of truck shares)	Forester and procurement manager
Flexible time schedule and independency to drivers	Forester and professional society
Developing a well maintained and disciplined trucking fleets	Professional society and forester

“...the forest service, DOT to promote truckers as a highly skilled profession is one of the best thing we can do.”
(Forester)

Major challenges and suggestions

Present market condition of the state

Suggested solutions	Favoring stakeholder group (s)
New technologies, new investments, and marketing new products	All
Opportunities to negotiate with new markets which was not accessible before	All
Favorable policies for startup businesses and subsidies in certain products	Trucking contractors and procurement managers
Attracting new investors; showing the potentiality of the state in terms of forest products	All

“...we will get through this. Maine is very resilient state, we have dealt with lot of issues in the past, take spruce-budworm outbreak.”

(Procurement manager)

“Maine has a forest-based economy; we need to become a business-friendly state. Policies should be in favor of startup forestry businesses”

(Trucking contractor)

Major challenges and suggestions

Road conditions

Suggested solutions	Favoring stakeholder group (s)
More federal and state budget for maintenance of public roads	Procurement managers and Foresters from North
Avoiding public roads (not interstate highway) as much as possible due to aesthetic issues	Forester and Professional society representative from South
East to west interstate highway in Maine	Professional society
Different measures to clean truck tires before entering public roads	Professional society and Foresters from south
Straight forest roads as much as possible	All
Minimize repeated maintenance of private forest roads by constructing them properly at the beginning	Trucking contractors and Foresters
Not increasing legal allowable payload in interstate highways to insure public safety and minimize impacts on the roads	Foresters and Professional society

“...for safety we must remember that my wife and daughter drive on that road. Big companies might have different views because if they can haul more amount of woods with same amount of fuel then it can be profitable for them. But they also want to be safe.”

(Forester)

Major challenges and suggestions

- Other challenges
 - Backhaul: concentration landings; dynamic trucks; proper coordination
 - Turnaround time: addition of more cranes and self-loading trucks
 - Seasonal: adopting new innovations, using trucks for other works
 - Dispatch issues: separating harvesting and trucking

Conclusions

- Trucking is a challenging business to operate.
- Decoupling trucking from harvesting could be productive.
- Constant collaboration among forest products companies, contractors, and foresters is important to resolve supply chain issues like trucks dispatching, turnaround times, and backhauling.
- Coordination with public and policymakers for issues related to public road conditions and safety is vital for better trucking business.

Contd...

- The location and availability of markets and manpower shortage were the biggest challenges at present for Maine.
- Suggestions like increasing benefits and extension activities for manpower shortage.
- Marketing of new forest products and adjustment in state level policies for forest products market condition of the state.

- Abbas D, Handler R, Hartsough B, Dykstra D, Lautala P, Hembroff L. A survey analysis of forest harvesting and transportation operations in Michigan. *Croat J For Eng.* 2014;35: 179–192.
- Anderson III J.L., Crandall M. Economic contribution of Maine's forest products industry 2014 and 2016 (estimated), in *Maine's Forest Economy*. Maine Forest Products Council. 2016;3-9
- Egan A, Taggart D. Who will log in Maine's north woods? A cross-cultural study of occupational choice and prestige. *North J Appl For.* 2004;21.
- Egan A, Taggart D. Public perceptions of the logging profession in Maine and implications for logger recruitment. *North J Appl For.* 2009;26.
- Goodman LA. Snowball sampling. *The annals of mathematical statistics.* 1961,1:148-70.
- Guest G. How Many Interviews Are Enough?: An Experiment with Data Saturation and Variability. *Field Methods.* 2006;18: 59–82. doi:10.1177/1525822X05279903
- Jin, S., Sader, S.A. Effects of forest ownership and change on forest harvest rates, types and trends in northern Maine. *For. Ecol. Manag.* 2006,228, 177–186. doi:10.1016/j.foreco.2006.03.009
- Leon BH, Benjamin JG. A survey of business attributes, harvest capacity and equipment infrastructure of logging businesses in the northern forest. *North For Logging Ind Assess Univ Maine Orono.* 2013
- Lilieholm, R.J., Lammert, P.R., Lord, G.R., Trospen, S.N. 2010 *Directory of Maine's Primary Wood Processors (Directory)*. Centre for Research on Sustainable Forests - University of Maine, Maine, United States. 2010
- Yin RK. *Case study research: Design and methods.* 5th ed. Thousand Oaks, CA, USA: Sage Publications Inc.; 2013

<https://bdn-data.s3.amazonaws.com/blogs.dir/37/files/2015/05/Log-Drive-1.jpg>

<http://www.rail.co.uk/images/8730/original/1-Timber-loading-at-Crianlarich-by-Phil-Marsh.jpg>

<http://www.tenfourmagazine.com/feature/2008/AprCvr2.jpg>

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