# Forestry in the Last Frontier: A Forest Products Industry Perspective in Alaska



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> (BBER) University of Montana



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### Bureau of Business and Economic Research

- The University of Montana, Missoula
- Research branch within UM School of Business Administration
- Regional economic analysis
- Survey research
- Industry analysis
  - Health care
  - Manufacturing
  - Energy
  - Forest products



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### Forest Industry Research Program

- Rocky Mountain Research Station (RMRS)
- Pacific Northwest Research Station (PNWRS)
- FIA Timber Product Output (TPO) data collection in the west
- Describe industry structure, capacity, condition and changes over time
- Logging utilization studies









### State-level Forest Industry Census

- <u>Mill type</u>, location, capacity, equipment, employment
- Timber harvest volume, use, species, size, county and ownership
- <u>Mill residue</u> volume and wood fiber use
- <u>Product</u> volume, sales and market locations







#### Alaska's Forest Products Industry & Timber Harvest

- BBER time series 2005, 2011, **2015**
- Flow of timber harvested
- Changes in the structure of the industry
- Quantify volumes and uses of wood fiber



Alaska's forest products in

#### ALASKA'S FORES

HARVEST HARVEST PART 1: TIMBER HARVEST BY KATE C MARCILLE ERIK C REP INTRODUCTION INTRODUCTION This Forest Industry Brief is part of a se findings from a Bureau of Business at (BBER) census of Alaska's primary fo Part 1 of this series presents inform timber harvested in Alaska during 2015 species and resource area. It also deswithin the state, across state lines ar outside the United States. ALASKA'S TIMBED DESOUDCE Coastal Alaska contains approxima timberland, varying in ownership ar from north to south (Miles 2017). Near timberland are publicly owned with th by USDA Forest Service holdings. Th includes 3.4 million acres of coastal Chugach National Forest encompasse acres of timberland. Additional federal account for approximately 77,000 acres The State of Alaska's Division of For ately 951.000 acres of timberland held timberland, including Native Co under the Alaska Native Claims Sett

#### ALASKA'S FOREST PRODUCTS INDUSTRY / HARVEST

#### PART 2: INDUSTRY SECTORS, CAPACITY AND OUTPUTS

BY KATE C. MARCILLE, ERIK C. BERG, TODD A. MORGAN AND GLENN A. CHRISTENSEN

This forest Industry Brief is part of a series of reports presenting finding from a Burcas of Business and Economic Research (BBER) census of Alaska's primary forest products industry. Part 2 of this series presents information on the forest products industry sectors that processed finders and mulradio into finished wood products during 2015. All closer functions that we been adjusted for inflation to constant 2015 dollars, unges otherwise noted.

#### ALASKA'S FOREST PRODUCTS INDUSTRY

The 2015 mill census identified 60 active primary forest products manufacturers in Alaska (Figure 1). The majority of these manufacturers are concentrated near the expansive and etween 2011 and 2015 was productive forest resources of Southeast (42 percent) and the fluctuations in active facilit coastal timber of Southcentral (35 percent) Alaska, A smaller (Berg et al. 2014; Halbrool proportion of primary processing facilities are located across census, six new facilities were Interior Alaska (20 percent), near the state-owned forests facilities previously active du of the Tanana Valley. Alaskan facilities produced an array of idle facilities maintained the process any timber. The nur products, including lumber, house logs, firewood, wood pellets, tonewood (wood used to make musical instruments) and cedar across all sectors of the fore products. In addition, residue generated from the production tonewood manufacturing, T of these primary products was repurposed into additional largest decrease in number products, including chips for heat or energy, landscape mulch in 2015, while the house lo and animal bedding. proportional decline (39 per

#### ALASKA'S FOREST PRODUCTS INDUSTRY AND TIMBER HARVEST

#### PART 3: SALES, EMPLOYMENT AND CONTRIBUTION TO THE STATE'S ECONOMY

BY KATE C. MARCILLE, CHELSEA P. MCIVER, ERIK C. BERG, TODD A. MORGAN AND GLENN A. CHRISTENSEN

#### INTRODUCTION

million in sales during 2015, is Total sales value in 2015 rs This Forest Industry Brief is part of a series of reports decrease from 2011, primaril presenting findings from a Bureau of Business and Economic arch (BBER) census of Alaska's primary forest product export volume. Log export industry. Part 3 of this series presents information on sales Alaska's forest industry and value and employment associated with primary wood products approximately 42 percent be manufacturing, the economic contribution of forest products products, such as lumber and manufacturing in the state and an analysis of the changes in the imary facilities were value broader forest industry over time. All dollar figures included board (f.o.b.) the producing have been adjusted for inflation to constant 2015 dollars, unless percent over 2011 primary otherwise noted There were 17 fewer facilit to 2011 (Berg et al. 2014). Th

#### ALASKA'S PRIMARY PRODUCT SALES VALUE AND MARKETS

rol The 2015 mill course identified 00 active primary forest products manufacturum of halds, producing an array of edu products including lumber and other away products, house he logs, free-od, tonewood (wood for making musical instruments), ecdar products and wood pullets. Alaksi's forest fore industry reported an estimated total alse's upder wood products, log exports and resides of more than \$114 err million, free on board (club), the producing mill (Table 1), elo This represented a 19 percent decrease from the \$141 million Pan in alse reported in 2011 (Erg et al. 2014). A million decline as a result of primary wood products manufacturing exceeded \$23 million during 2015. In contrast to the overall decline in total forest industry sales value, sales by Alaskan manufacturer increased approximately 28 percent over 2011 primary produc ales. The majority (66 percent) of wood products manufac tured within Alaska were sold within the state, a proportiona decrease relative to in-state sales during 2011 (73 percent umber and other sawn products accounted for more than hal (52 percent) of total primary product sales, Approximately 49 percent of all lumber produced in Alaska was sold within the tate, down from 56 percent in 2011, while sales of lumbe to other states accounted for 39 percent, up from 33 percent Finished lumber products sent to other countries declined between 2011 and 2015, from nearly 11 percent to 8 percent In 2015, a majority (86 percent) of the primary product other than lumber manufactured in Alaska were sold within the state. This represented a decrease from the proportion o other products - house logs, firewood, cedar products and

tonewood - sold in-state during 2011 (nearly 92 percent).

In 2015, out-of-state markets accounted for an

in sales value was observed from 2005 to 2011 and the total

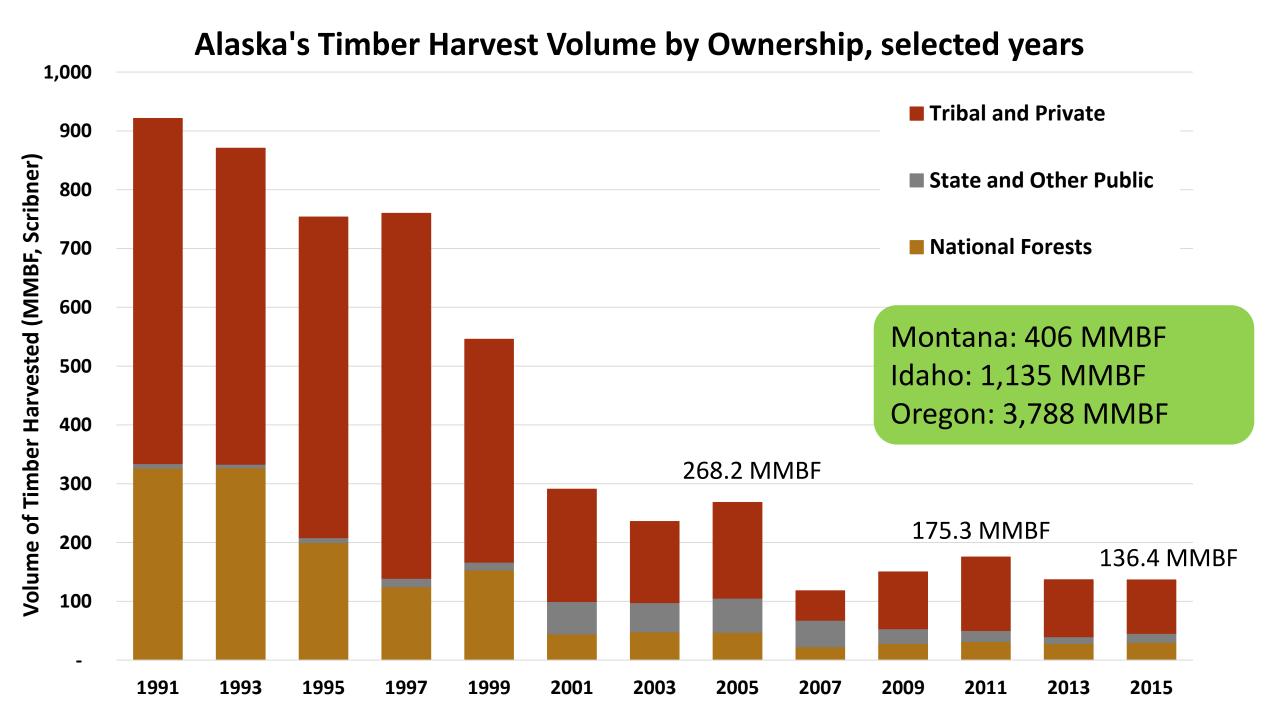
sales value in 2015 was approximately 35 percent lower than

Excluding residues and log exports, the sales value generated

n 2005 (Halbrook et al. 2009).

Data received for 51 of the identified 60 active facilities – 80% of harvest volume





### Timber Harvest in Alaska



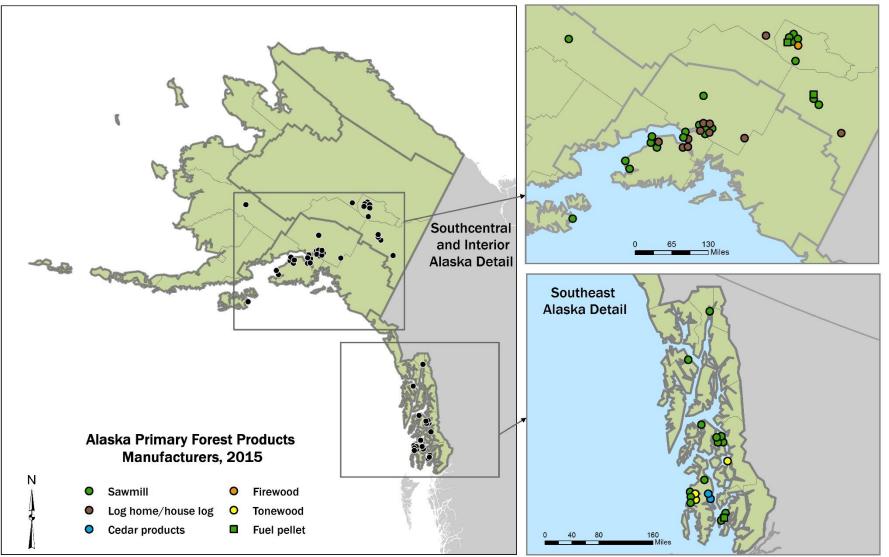
- <u>Ownership</u>: Private/Native Corp (67%); National Forest (22%); State (11%)
- Species: Sitka spruce (71%); W. hemlock (11%); W. redcedar; (10%); White spruce (6%)
- <u>Geographic Region</u>: Southeast (56%); Southcentral/Western (38%); Interior (6%)
- Product: Sawlogs (94%); houselogs (1%); fuelwood (4%); other (1%)
- BBER survey, USFS Cut & Sold, ANILCA reports, USITC, personal communication



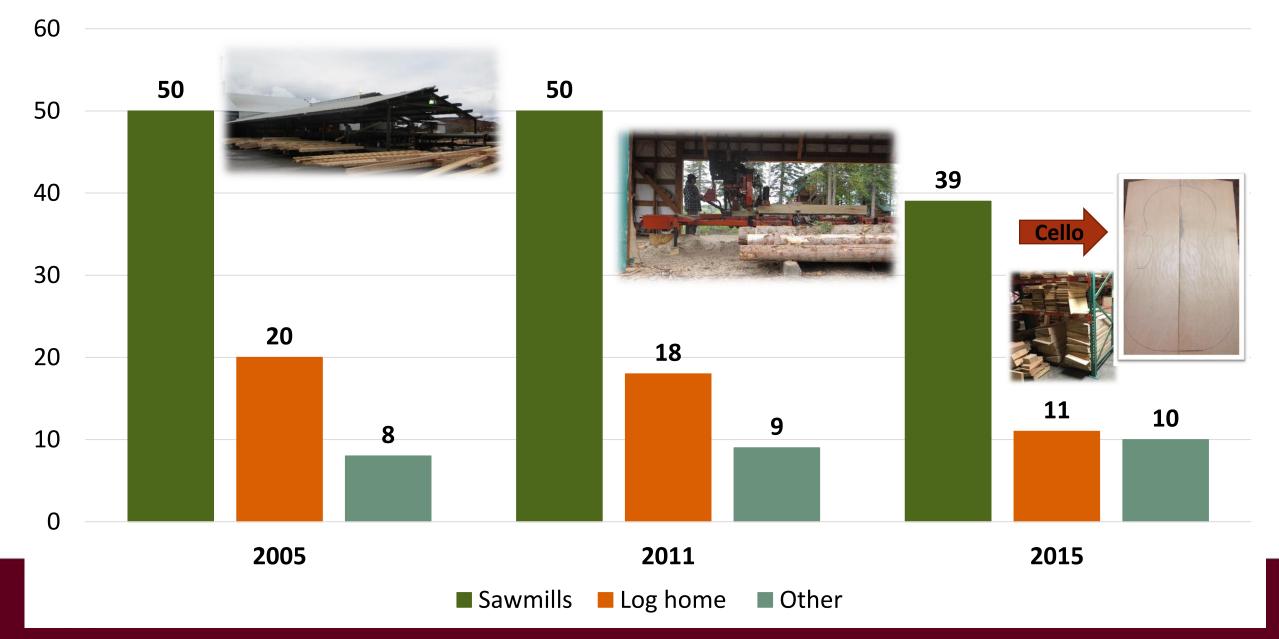
#### Alaska's Forest Products Industry

- 39 sawmills
- 11 log home manufacturers
- 10 "other" facilities
  - fuelwood/energy products
  - cedar products
  - tonewood





#### Composition of Alaska's Forest Products Industry



#### Timber Receipts & Flow

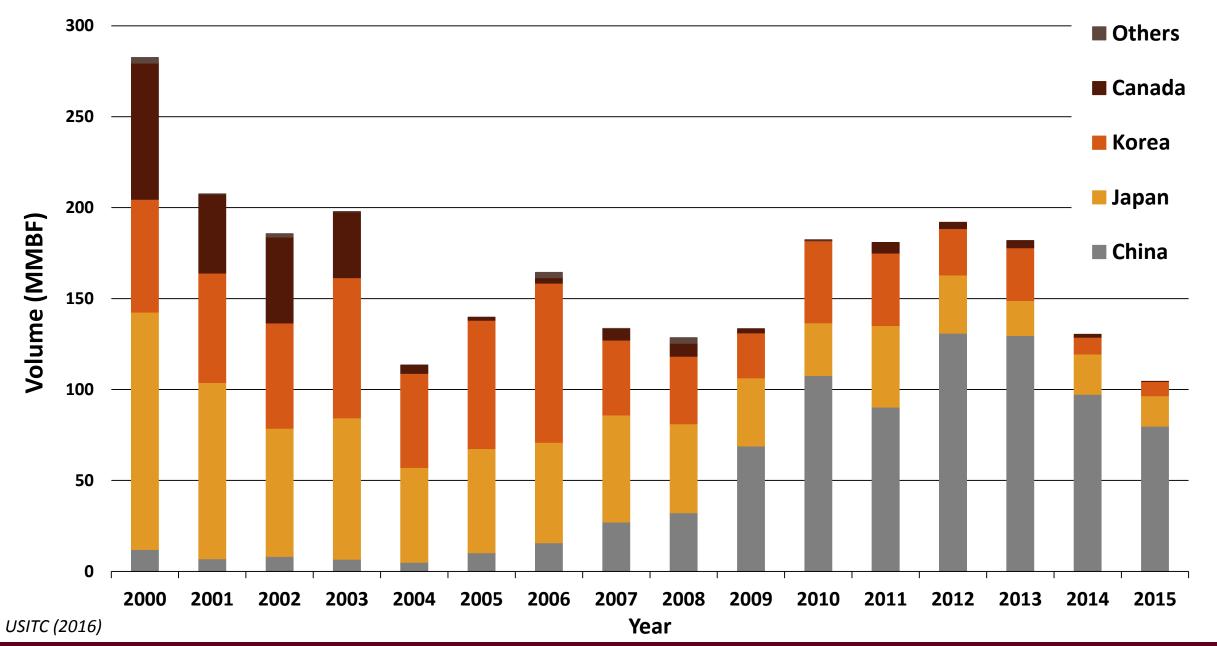
- Alaskan facilities received > 31 MMBF
- All timber originated in Alaska
- 54% came from USFS
- Western redcedar was most common species (35%)
- Nearly 67% of receipts originated in Southeast

Approximately 23% of total harvest was received by processing facilities.





#### Alaska Log Export Volume (MMBF) by Country



#### Alaskan Sawmills

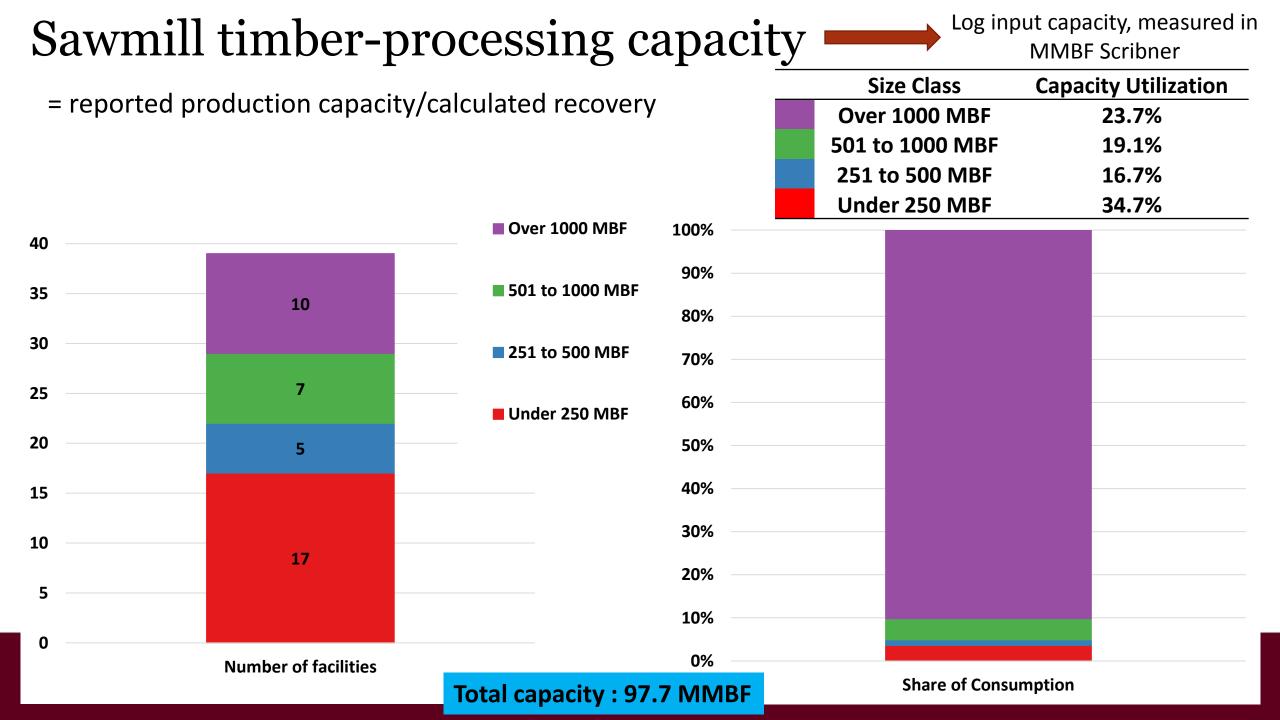
- Largest forest industry sector
- Received more timber in 2015 than 2011
- Produced > 30 MMBF lumber tally in 2015
- Generated over 38,000 BDTs of residue
- 39 total sawmills captured, varying sizes and capabilities





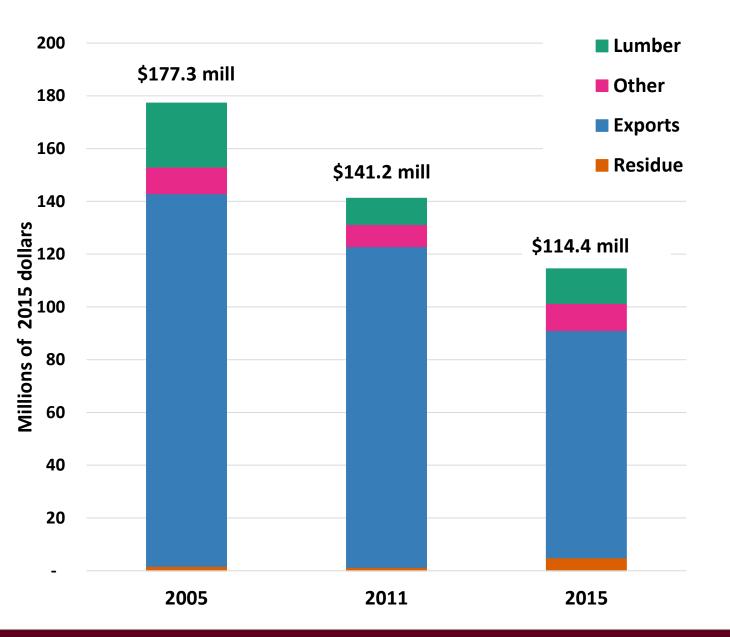






### Sales Value

- Sales value of primary products, residue and export logs has declined
- Residues consisting of a larger proportion of sales in 2015
- Log export volume/value decreased by nearly 30%
- Primary product sales increased (28%) as well as residue sales





### Employment & Labor Income

- 2015 total industry employment estimated at <u>1,213</u> full- and part-time workers
- Wood products manufacturing (58%)
- Total direct earnings of \$111 million
- Wood products manufacturing earned
  \$42 million and generated an additional
  \$76 million across other sectors

<u>Forest industry employment</u> in Alaska stimulates *additional economic activity and opportunities* through generated employment and wages spent throughout the state economy





### Removals from Forest Inventory



#### **FIA P-2 plots**

## Logging Utilization Studies

- State-by-state
- Sample 20-30 active logging sites
- Site information from loggers & foresters
- Measure approx. 25 felled trees per site
- Focus on growing-stock & use





## Logging Utilization Methods

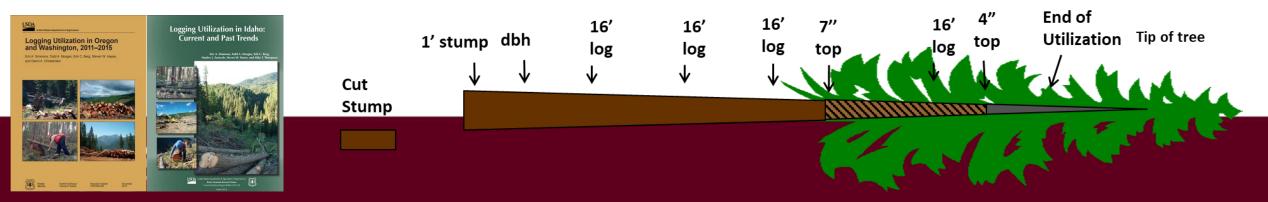
#### Felled tree measurements:

- Record species & cut stump height
- Measure diameters along bole at key points & sections  $\leq$  16' from ground to tip of main stem
- Identify each bole section as used (product) or not used (residue)



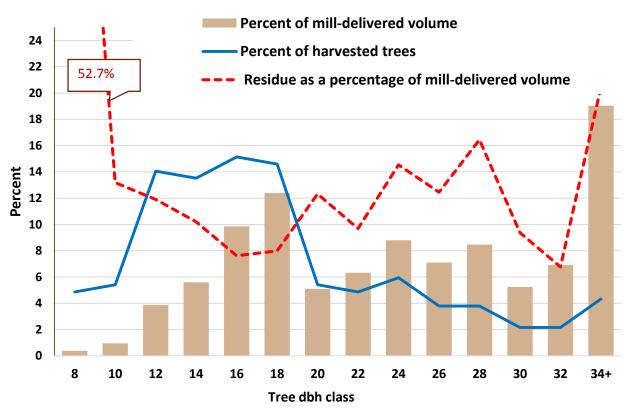


Biomass measures: 1<sup>st</sup> order branch, bark thickness

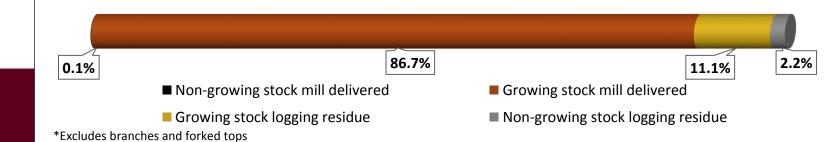


## Alaska Logging Utilization

- Data collection 2016-2019
- 10 sites in Southeast and Interior; 185 trees
- Private/Native Corporation, Tongass & State
- Next round of measurements Spring 2018
- Preliminary results indicate high logging residue factors



Alaska Harvested tree bole\* (portions of tree from cut stump to tip of main stem)



## Timber Product Output (TPO)

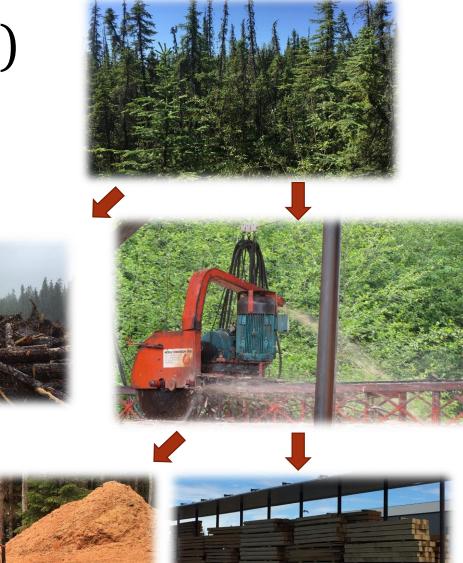
FIA data characterizing <u>removals</u> & <u>wood use</u>

- timber harvest for products
- associated harvest/logging residue
- mill residue

National data

- county level
- periodic updates (\*annual\*)







https://srsfia2.fs.fed.us/php/tpo\_2009/tpo\_rpa\_int1.php

### **Research Challenges and Limitations**

Survey response rates

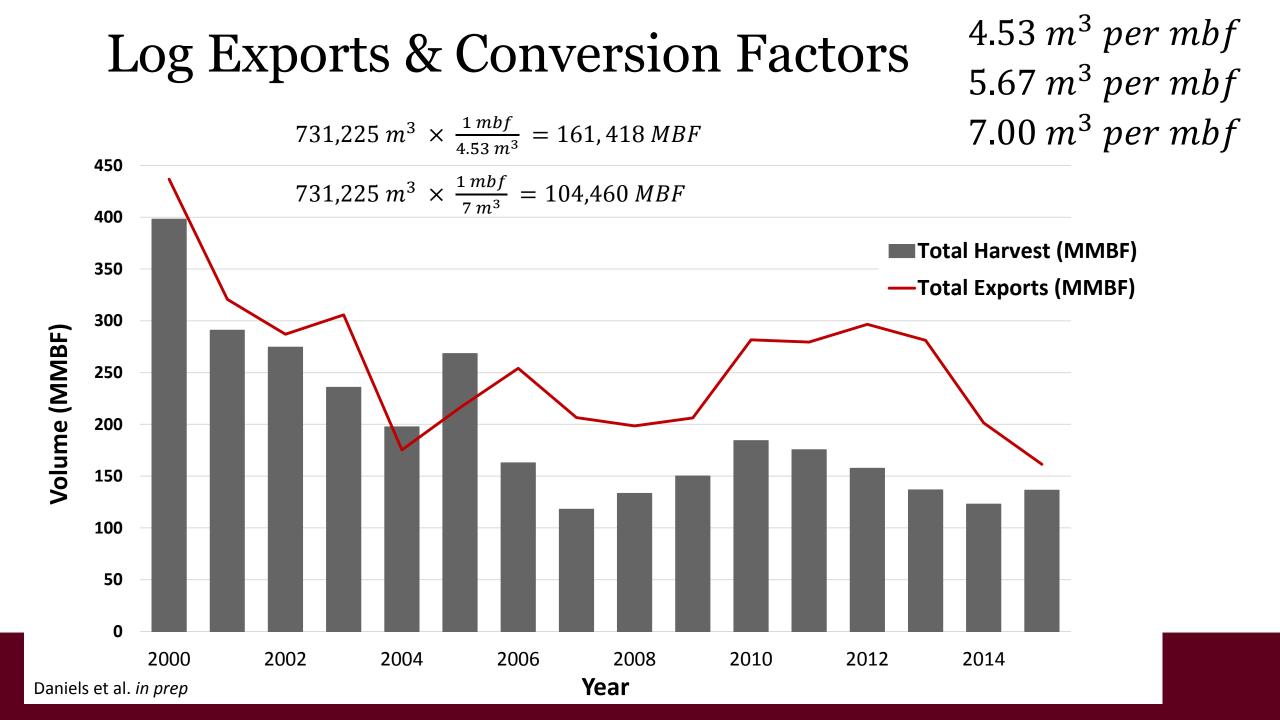
- dependent upon participation
- data accuracy
- relationship-building
- Multi-product producers
  - diverse business interests
  - year-to-year variability

Harvest data uncertainty

- USDA Forest Service Cut and Sold
- U.S. International Trade Commission (USITC)

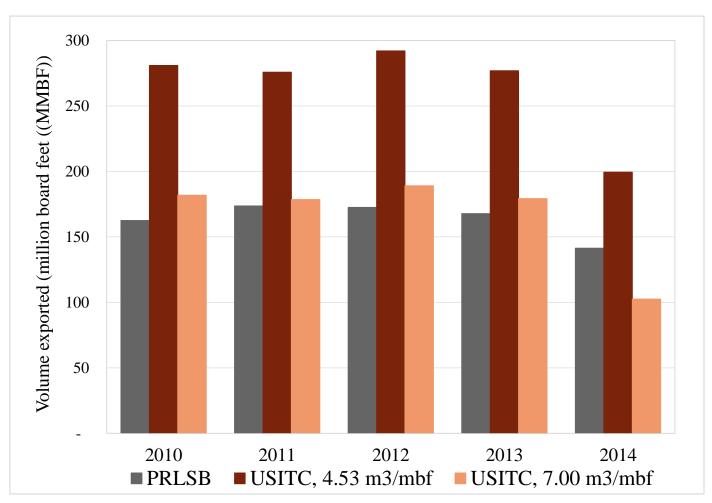






### Log Exports & Conversion Factors

- Dissimilar conversion factors may inflate MBF log export volumes
- Exports exceed harvest volume by an average of 55% from 2006-2011
- Increased difficulty for tracking AK timber harvest
- Difficult to estimate size and extent of timber markets
- Challenging for policy formulation & economic development





### Future of Forestry in the Last Frontier

**Forest** 

- Increased understanding/exposure to operations in Alaska
- Timber availability
- Transition to young growth timber
- Data uncertainties and policy implications
- Ongoing logging utilization study



**Export Ship** 

**Sort Yard** 



### **BBER Census of AK Forest Products Industry**

- Detailed, objective and accurate operational data be counted!
- Provide information and perspective by 3<sup>rd</sup> party
- Inform research entities/industry associations
- Inform policy makers and land managers
- Data for economic analyses and future scenarios



#### FOREST INDUSTRY TECHNICAL REPORT NO. 2

SUMMER 2017

#### TIMBER-PROCESSING CAPACITY NEAR NATIONAL FORESTS GRAND MESA UNCOMPANCE AND GUI

#### BY CHELSEA P. MCIVER, ERIC A. SIMMONS AND TODD A

INTRODUCTION

In order for land management agencies to meet societal ex goods and services, managers need accurate and up-to-date in sizes and variable quality. Timber harvesting also creates opp added products This series of fact sheets a through a cooperative agreement with Region 2 of the U.S.

The 2016 report on the health of Colorado's forests (Stat of Colorado 2017) identified 576.000 acres of forest impacted by the spruce beetle or western spruce budworm, the former ranking as the most widespread and damaging forest insect pest for the fifth consecutive year. Notable counties impacted by th insects include much of the Grand Mesa, Uncompanyre and Gunnison (GMUG) National Forests, Statewide, there are an estimated 834 million standing dead trees at risk of contributing

to large, intense wildfires To mitigate this risk, treatments desi ed to restore ecologic condition and function, and reduce fire hazard, will require the removal of a mix of timber valuable enough to offset some of the osts, along with smaller trees with limited value and markets The loss of milling infrastructure throughout the West and in Colorado raises questions about the industry's capability to rocess trees of various sizes (Keegan et al. 2005, 2006).

TIMBER HARVEST TRENDS IN COUNTIES CONTAINING GRAND MESA LINCOMPAHERE AND GUNNISON NATIONAL FORESTS NON-RE-SERVED TIMBERI AND

The Grand Mesa, Uncompany and Gunnison National Forest on-reserved timberland is located in seven Colorado countie **RIO GRANDE NATIONAL FOREST, COLORADO** BY CHELSEA P. MCIVER, ERIC A, SIMMONS AND TODD A, MORGAI

#### INTRODUCTION

FOREST INDUSTRY TECHNICAL REPORT NO.1

In order for land management agencies to meet societal expectations for wood products, wildfire risk reduction, and other goods and services, managers need accurate and up-to-date information on the ability of markets to utilize timber of various sizes and variable quality. Timber harvesting also creates opportunities to offset the cost of treatments while producing value added products. This series of fact sheets on timber-processing capacity were prepared as forest planning support documents through a cooperative agreement with Region 2 of the U.S. Forest Service.

TIMBER-PROCESSING CAPACITY NEAR NATIONAL FORESTS

RIO GRANDE NATIONAL FOREST
Acres of non-reserved timberland: 1,292,641
2016 Rio Grande National Forest timber harvest: 11,893 MBF, Scribner
Timber-processing area (TPA): 13 counties in two states
Number of active timber processors in TPA: 21
Total capacity to process timber in TPA: 81,388 MBF, Scribner

Colorado raises questions about the industry's process trees of various sizes (Keegan et al. 2005) TIMREP HARVEST TRENDS IN COUNTIE CONTAINING RIO GRANDE NATIONAL FOREST NON-RESERVED TIMBERLAND

Rio Grande National Forest non-reserved timberland is located in five Colorado counties: Conejos, Hinsdale, Mineral Rio Grande and Saguache (Figure 1). Nearly 90 percent of the non-reserved timberland in these five counties is owned and managed by the U.S. Forest Service (USFS). The total volume of timber harvested and processed into a value-added produc from all ownerships in the five-county study area was 6,297 thousand board feet (MBF), Scribner in 2012 (Sorenson and

SUMMER 2017



## Special thanks to

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**Glenn Christensen**, Forester, FIA, USDA PWN Research Station

**BBER** Forest Industry Research Program colleagues

Many hospitable Alaskans!





# Thank you!

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