University of Idaho
College of Natural Resources

IDAHO FOREST ECONOMICS

Greg Latta
POLICY ANALYSIS GROUP

IFRP Webinar May 18, 2020

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e-newsletter and **reports**
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CNR POLICY ANALYSIS GROUP

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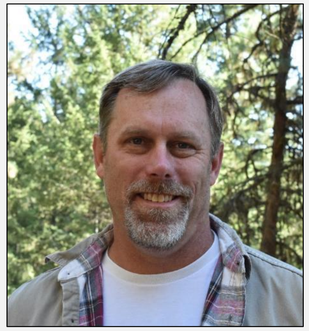

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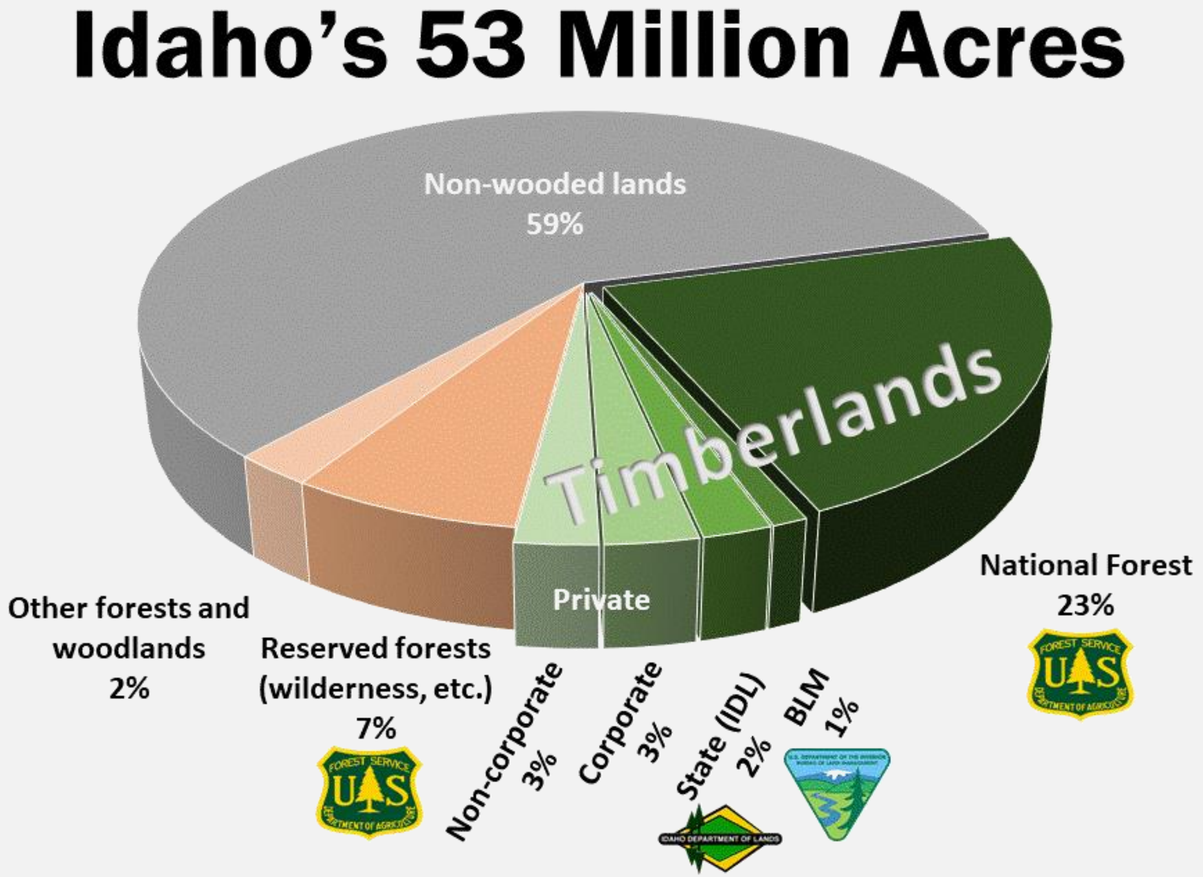
IDAHO'S FORESTS

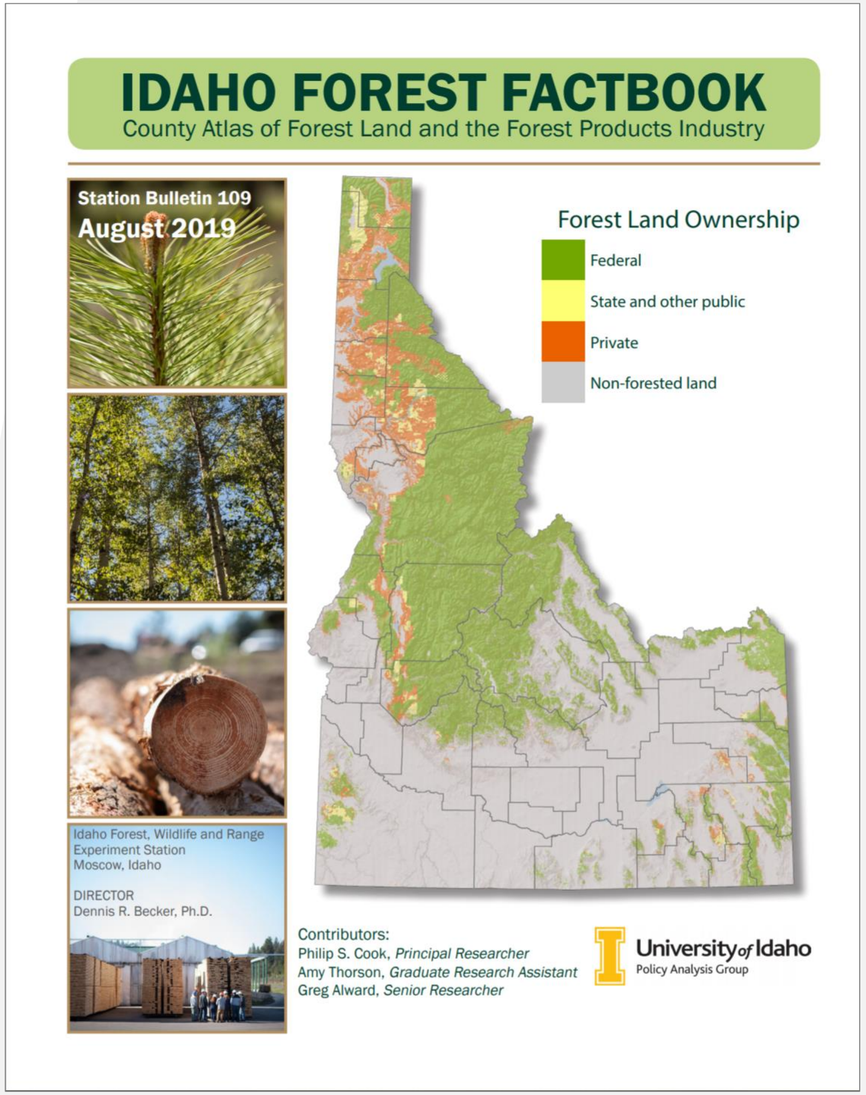
- National Forest System Lands
  - 12.0 million acres of timberlands
- State Endowment Lands
  - 1.1 million acres of timberlands
- Private forest lands
  - 2.8 million acres of timberlands

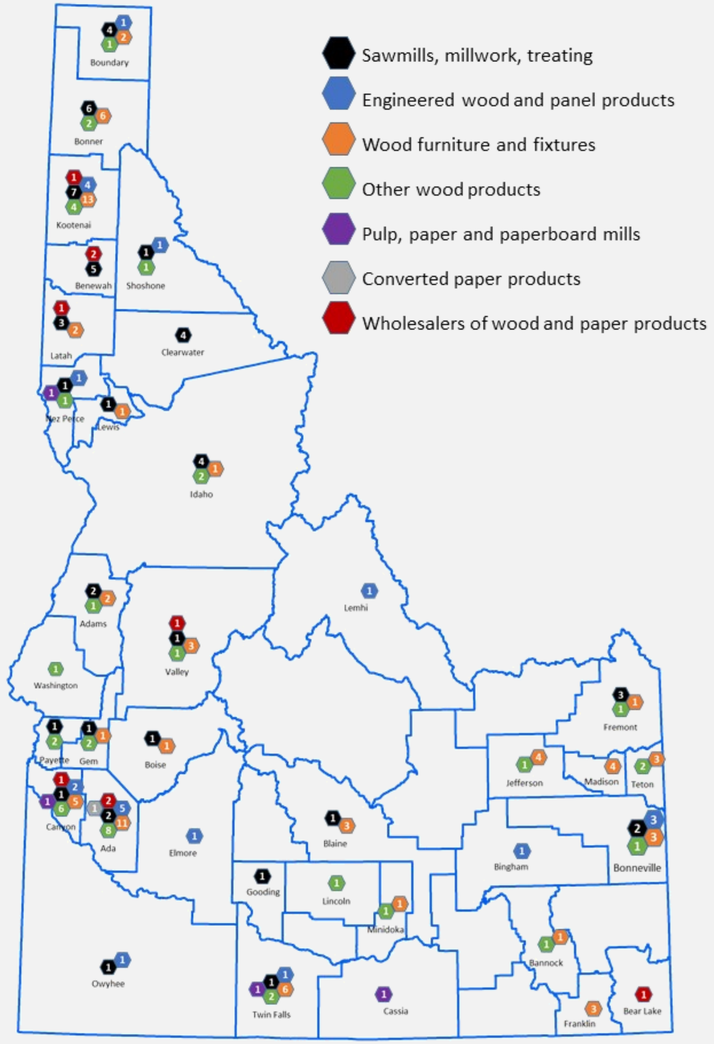


Data source:
Oswalt et al. 2018. Forest Resources of the United States, 2017: A Technical Document Supporting the Forest Service Update of the 2010 RPA Assessment, Review Draft. https://www.fia.fs.fed.us/program-features/rpa/docs/2017%20RPA_TABLES%20Federal%20Register%20Review%20Draft%20032917-pdf.pdf

ECONOMIC IMPORTANCE OF IDAHO'S FORESTS

200+ manufacturing and wholesaling businesses

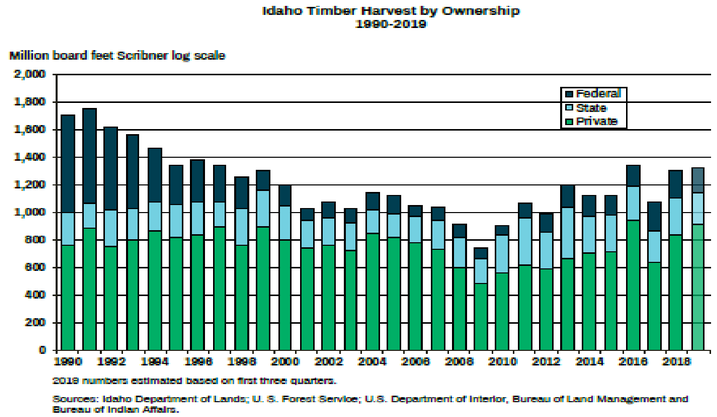




ECONOMIC IMPORTANCE OF IDAHO'S FORESTS

IDAHO'S FOREST PRODUCTS INDUSTRY 2019

TIMBER HARVEST



1.3
billion board feet
+1.2% from 2018

69%
from **Private** lands

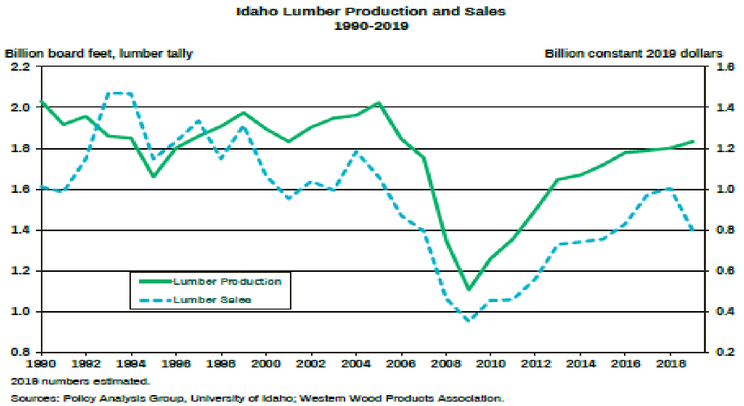
17%
from **State** lands

14%
from **Federal** lands

LUMBER PRODUCTION AND SALES

1.9
billion board feet of Lumber *produced*
+4.1% from 2018

$793
million of Lumber *sales*
-21% from 2018
(due to 23% reduction in average price from 2018)



University of Idaho
College of Natural Resources

Idaho Forest, Wildlife and Range Experiment Station
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IDAHO'S FOREST PRODUCTS INDUSTRY 2019

ECONOMIC CONTRIBUTIONS

DIRECT EFFECTS
initial spending by FPI businesses for

- Forest Management (foresters)
- Harvest Operations (loggers)
- Wood Products, Paper, and Furniture Manufacturing (mill workers)

+

SUPPORT EFFECTS
additional spending by FPI businesses for supplies and by FPI workers, for example

- Harvesting equipment
- Mill equipment
- Home sales to workers
- Food for workers' families

$2.2 Billion to Idaho's Gross State Product
More than **31,000** jobs

	Forest Management	+ Harvest Operations	+ Wood Products, Paper, and Furniture Manufacturing	= Total Forest Products Industry
Employment		*jobs*		
Direct	3,477	2,188	10,747	16,412
Support	1,010	361	13,475	14,846
Total	4,487	2,549	24,222	31,358
Labor Income		*million dollars*		
Direct	$123	$79	$542	$744
Support	$30	$11	$462	$503
Total	$153	$90	$1,004	$1,247
Gross State Product		*million dollars*		
Direct	$203	$127	$874	$1,204
Support	$65	$24	$919	$1,008
Total	$268	$150	$1,792	$2,212

Numbers based on 2018 data.
Sources: Policy Analysis Group, University of Idaho; U.S. Department of Commerce, Bureau of Economic Analysis, regional accounts data.

Each Million Board Feet of Timber Harvested in Idaho
Provides
24 Jobs
13 direct jobs
plus
11 support jobs

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Electronic copies available at: www.uidaho.edu/cnr/policy-analysis-group/research/forest-products-industry-reports

This report is a product of the

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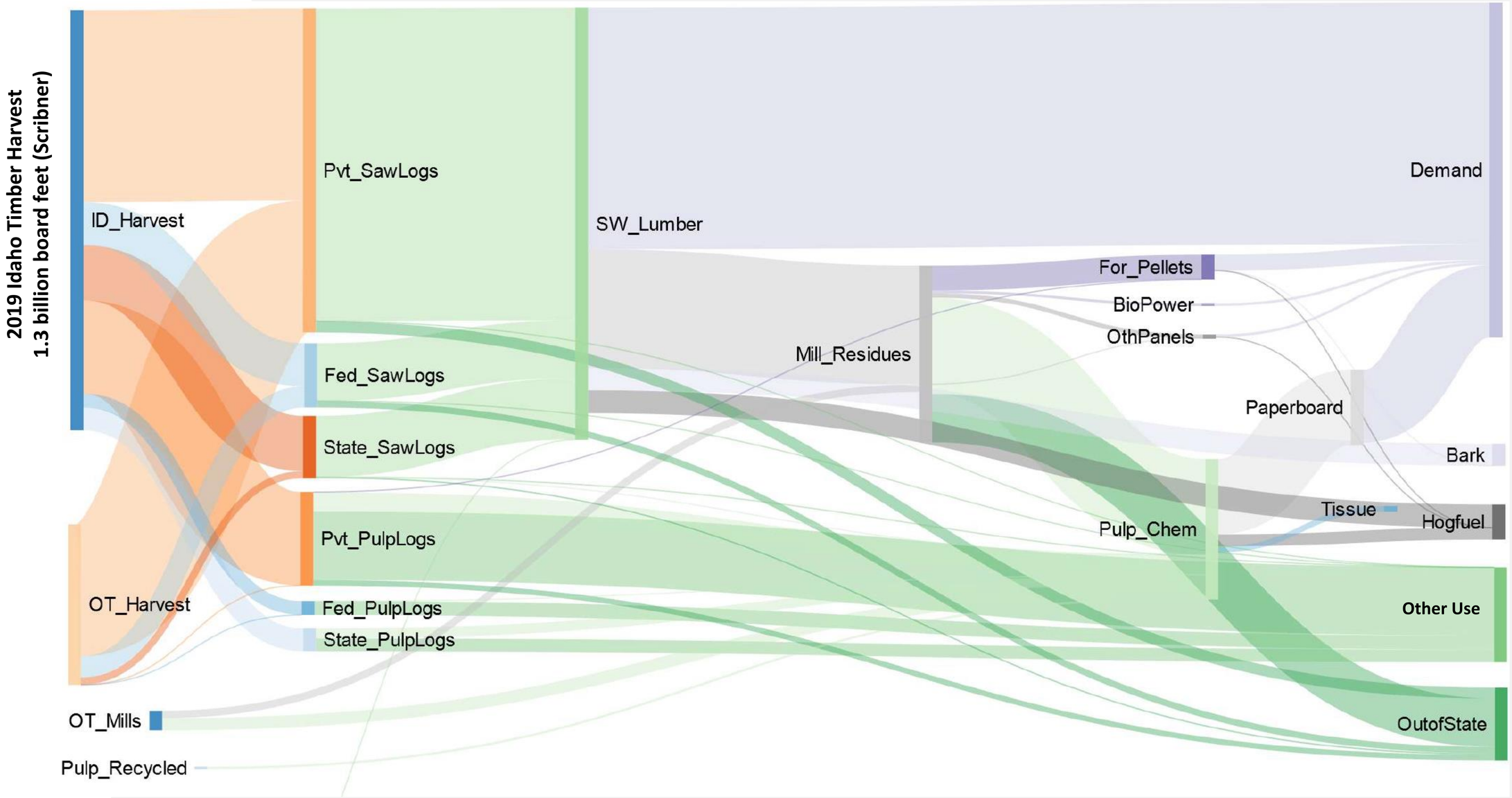
University of Idaho
Policy Analysis Group

ECONOMIC IMPORTANCE OF IDAHO'S FORESTS



ECONOMIC IMPORTANCE OF IDAHO'S FORESTS

$2.2 billion in state GDP (2018); 24 total jobs per million board feet

SUPPLY CHAIN MULTIPLIERS

Direct jobs in each sector

Indirect jobs include support industries (e.g., electricians, mechanics, teachers)

	Forest Management	+ Harvest Operations	+ Wood Products, Paper, and Furniture Manufacturing	= Total Forest Products Industry
Employment		*jobs*		
Direct	3,477	2,188	10,747	16,412
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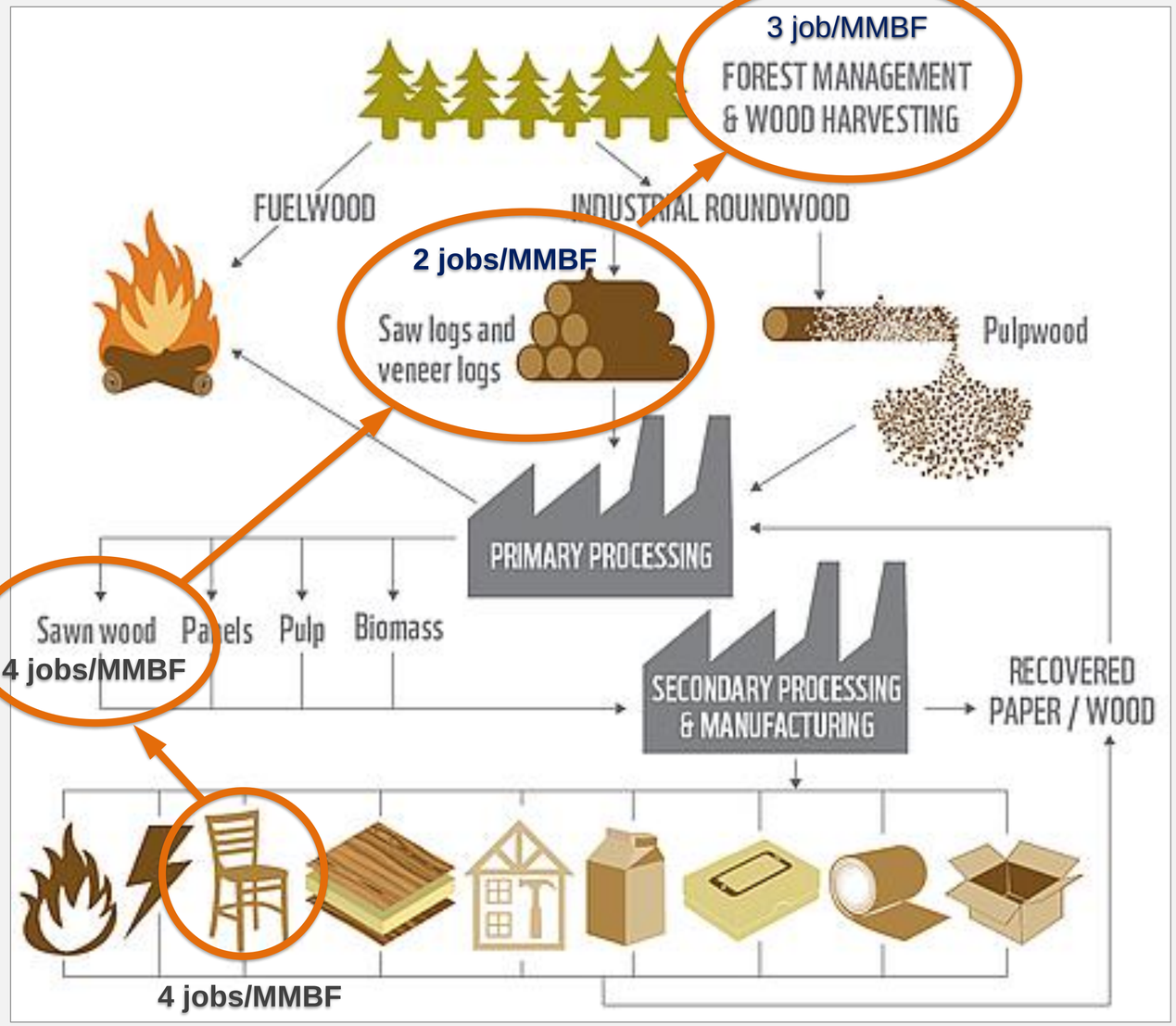
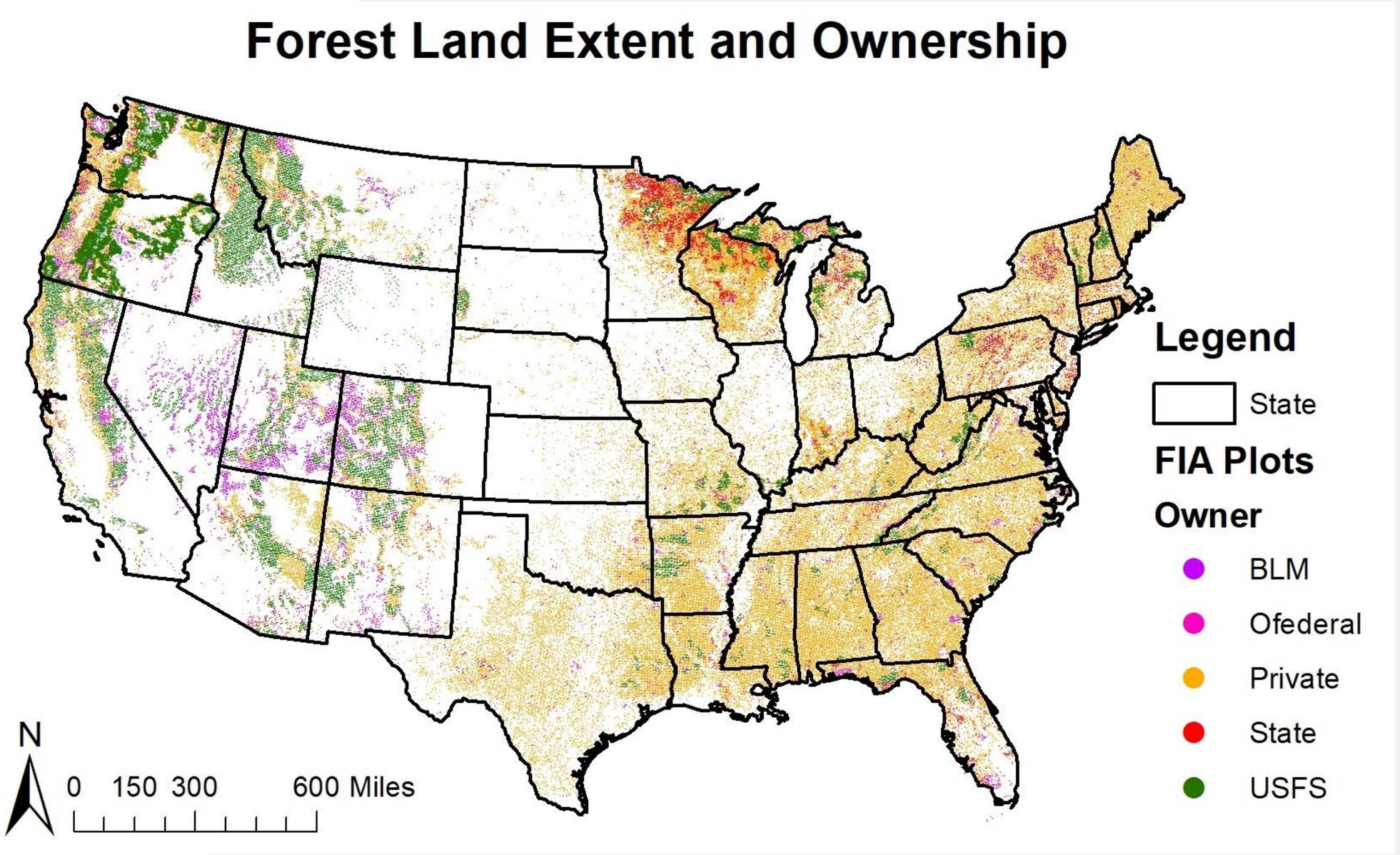
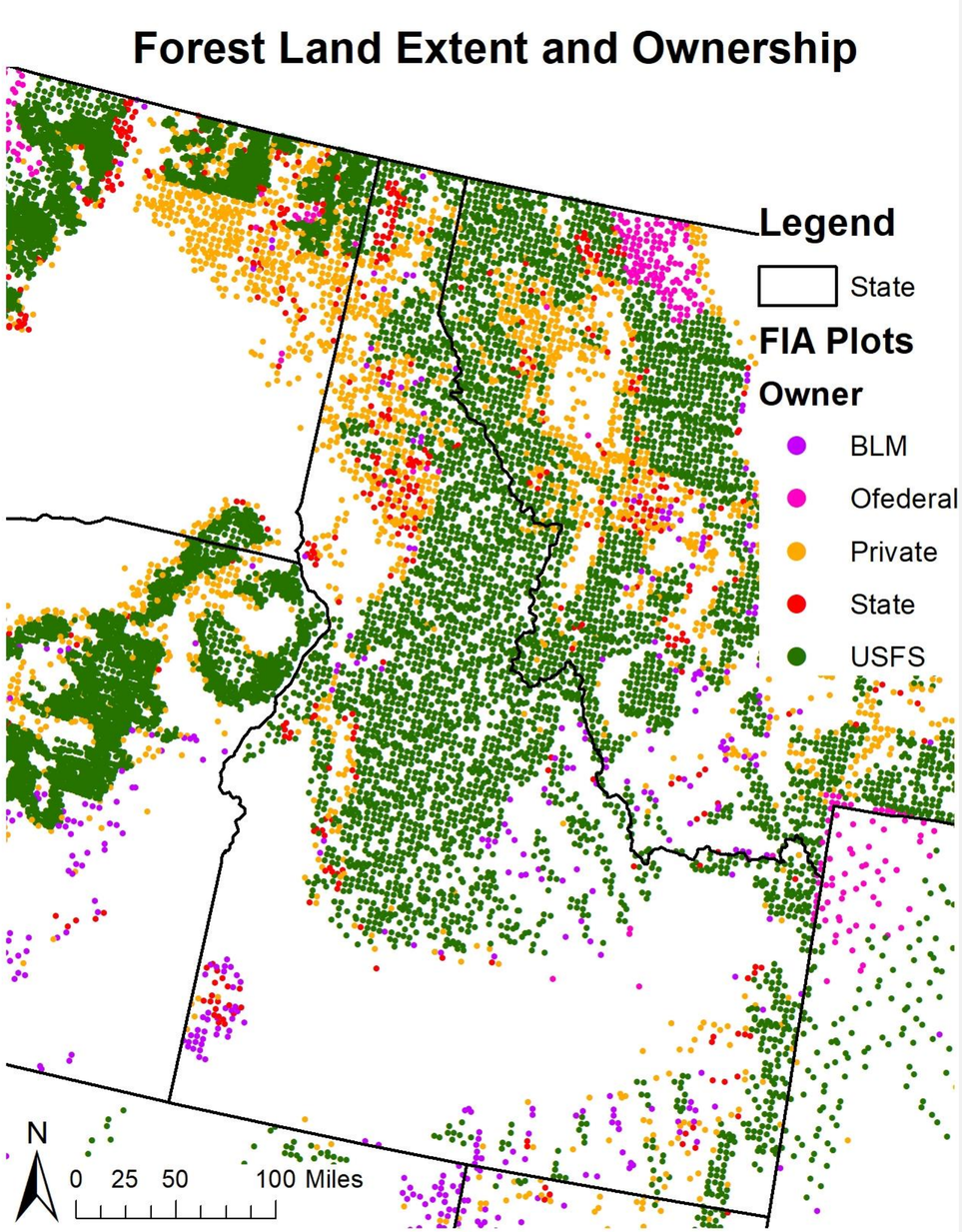


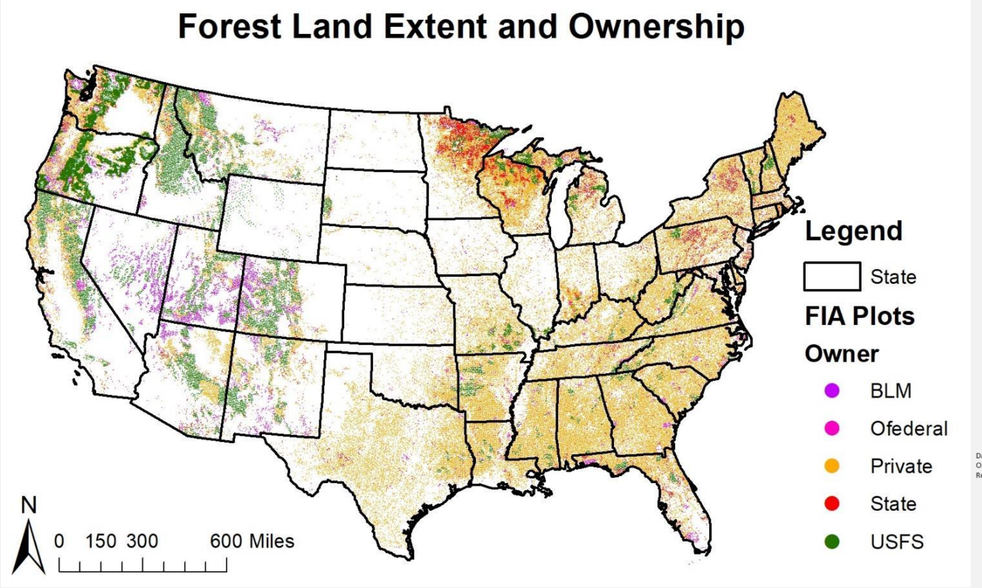
FORESTS OF THE UNITED STATES

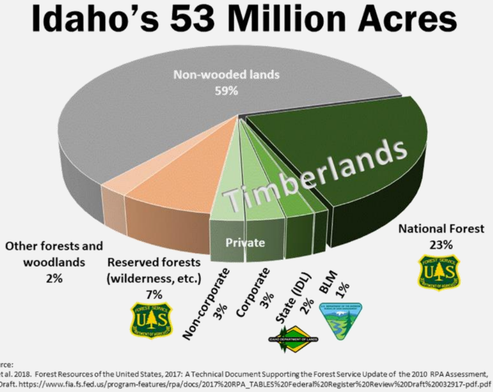


Owner	Million Acres	Percentage
BLM	31	5%
Ofederal	19	3%
Private	427	64%
State	57	8%
USFS	135	20%
Total	670	

FORESTS OF IDAHO







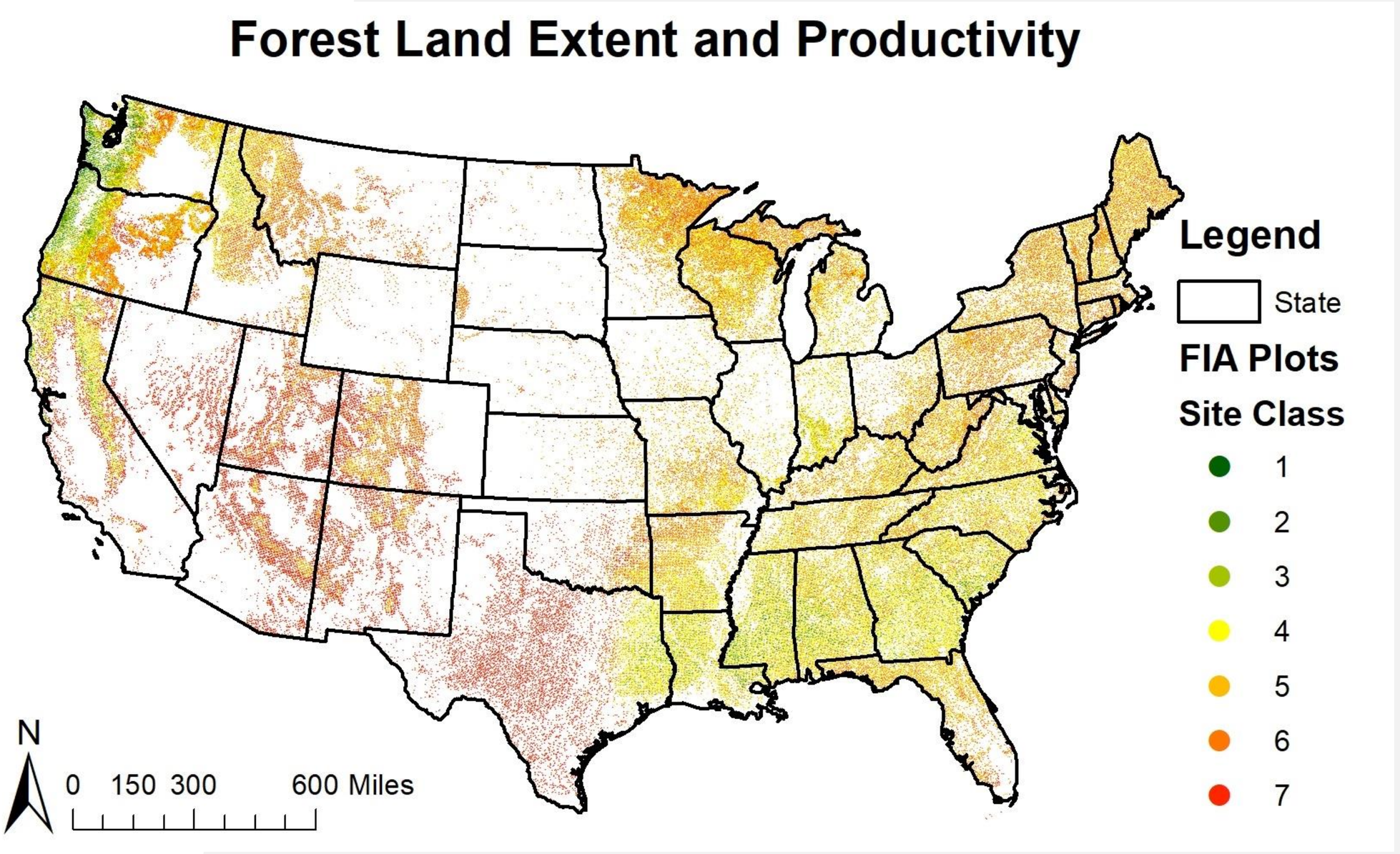
Idaho

Owner	Million Acres	Percentage
BLM	0.9	4%
Ofederal	0.1	0%
Private	2.9	14%
State	1.2	6%
USFS	15.9	76%
Total	21	

United States

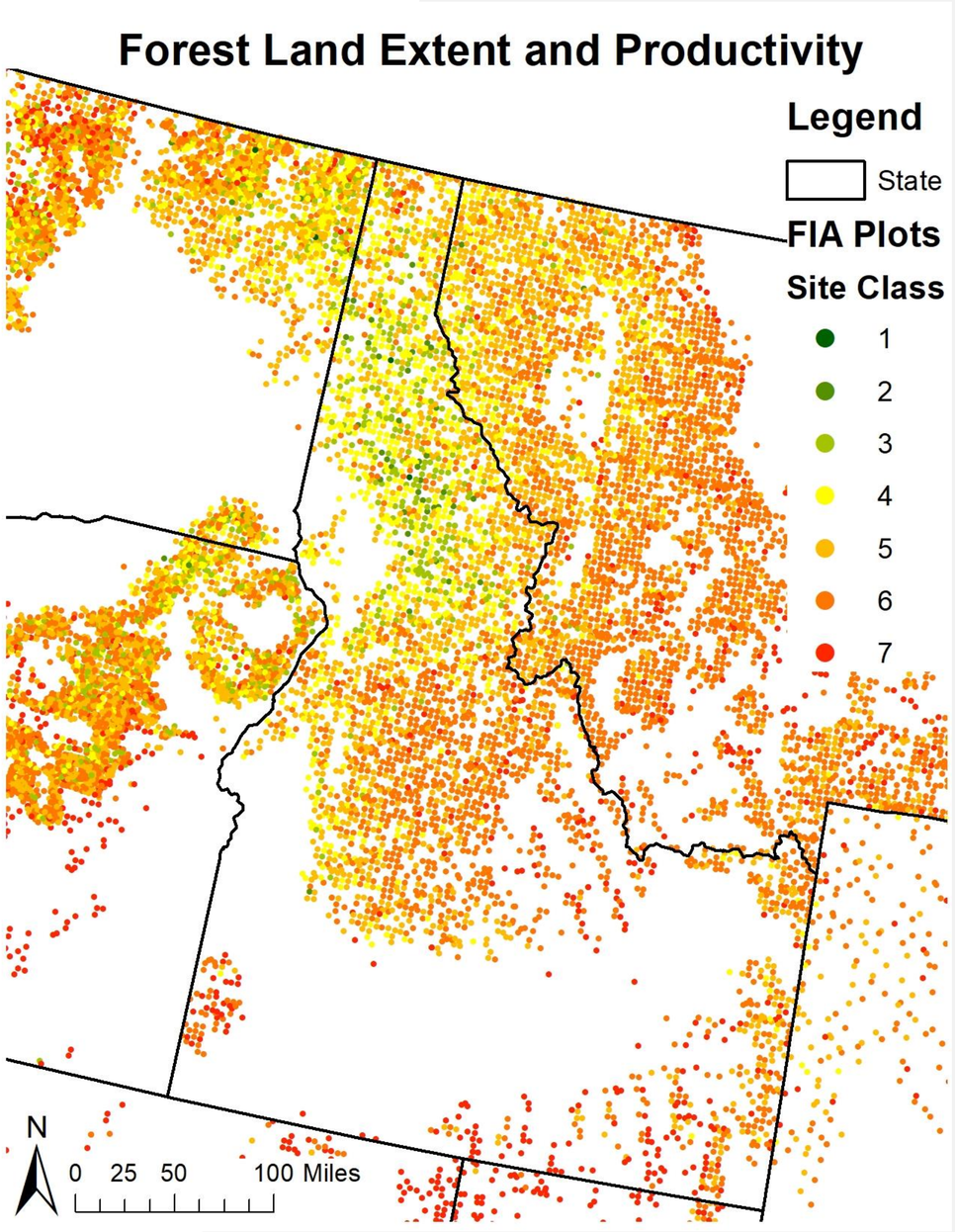
Owner	Million Acres	Percentage
BLM	31	5%
Ofederal	19	3%
Private	427	64%
State	57	8%
USFS	135	20%
Total	670	

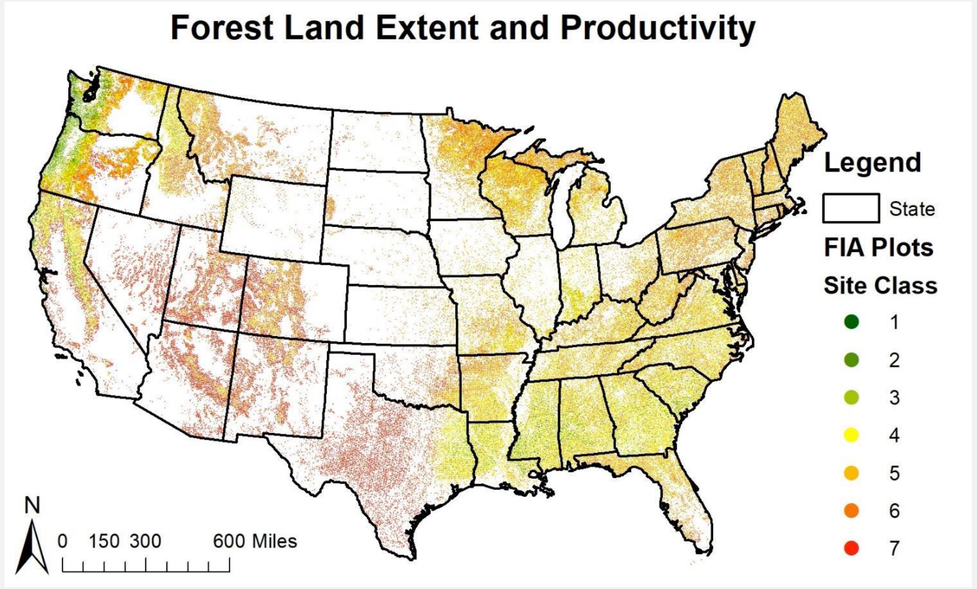
FORESTS OF THE UNITED STATES

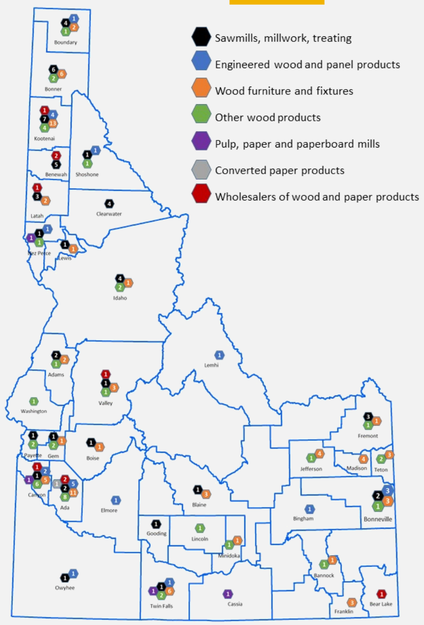


Site Class	Million Acres	Percentage
1	2	0%
2	17	3%
3	50	7%
4	109	16%
5	190	28%
6	160	24%
7	140	21%
Total	670	

FORESTS OF IDAHO







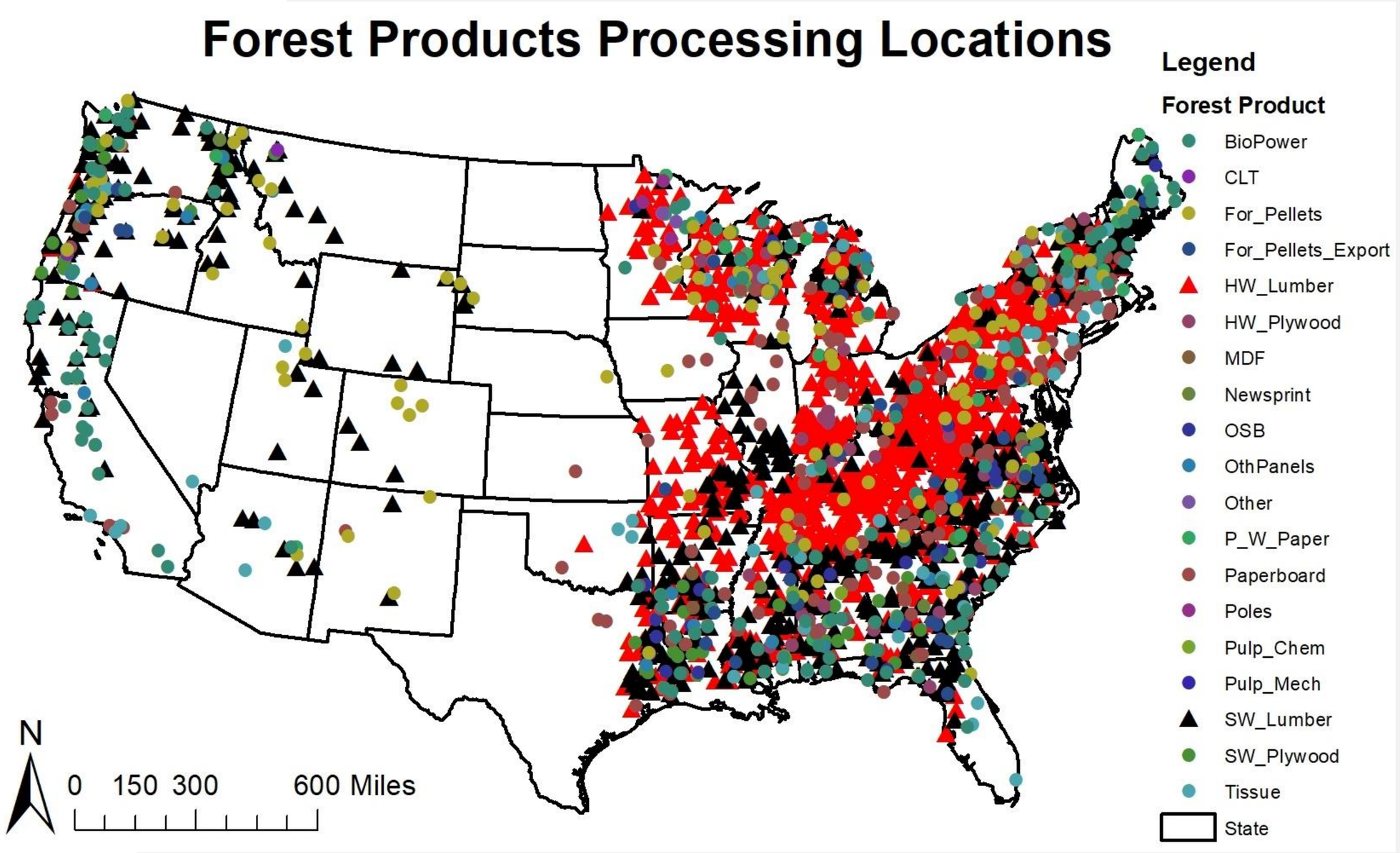
Idaho

Site Class	Million Acres	Percentage
1	0.01	0%
2	0.26	1%
3	1.64	8%
4	3.99	19%
5	6.50	31%
6	7.29	35%
7	1.31	6%
Total	21.01	

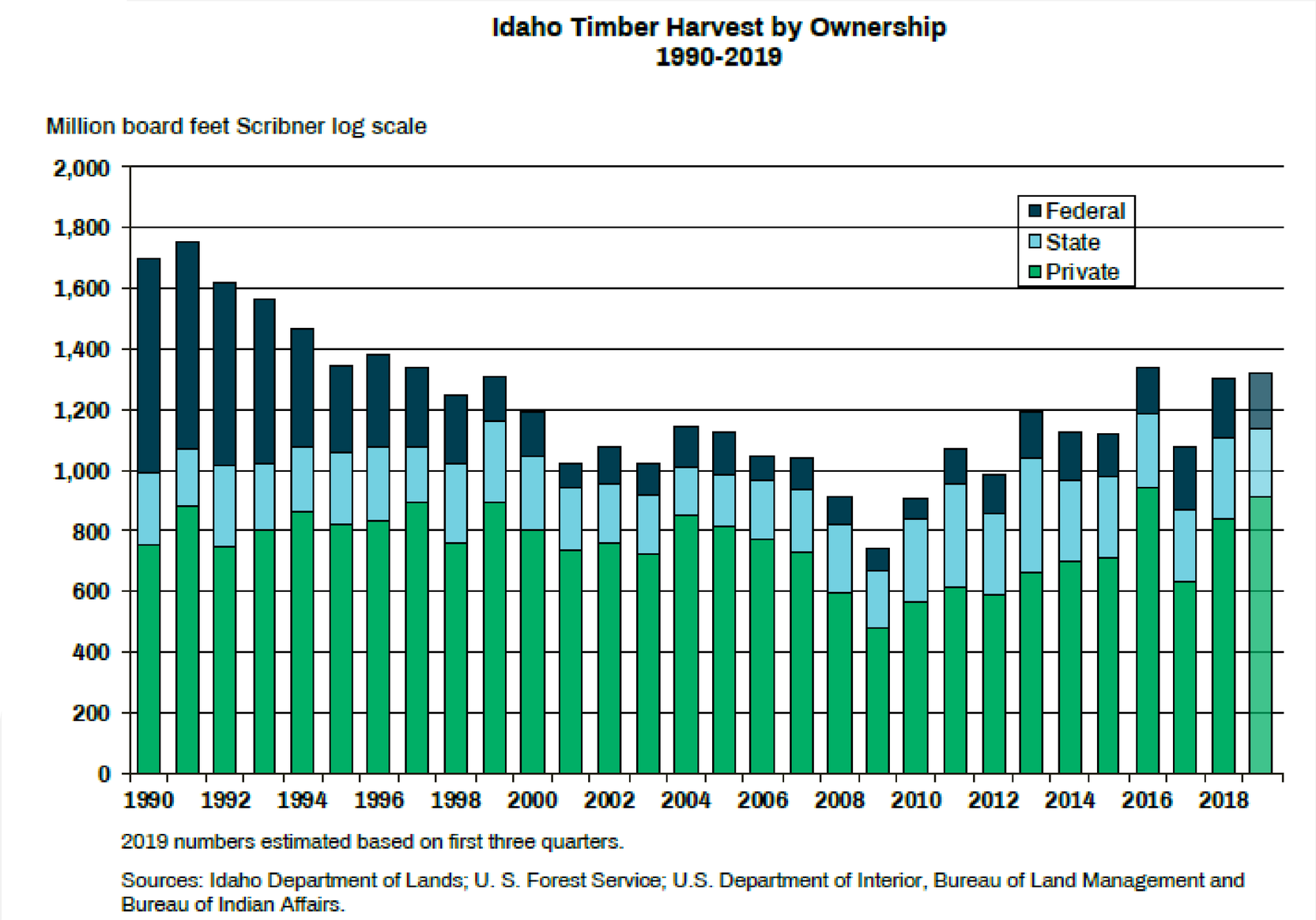
United States

Site Class	Million Acres	Percentage
1	2	0%
2	17	3%
3	50	7%
4	109	16%
5	190	28%
6	160	24%
7	140	21%
Total	670	

FOREST PROCESSING IN THE UNITED STATES

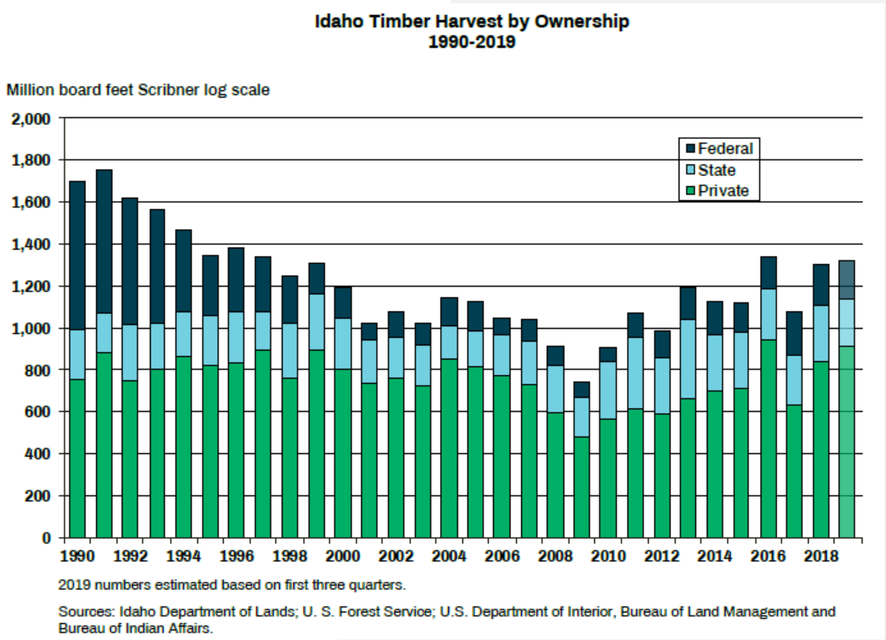


IDAHO'S TIMBER HARVEST

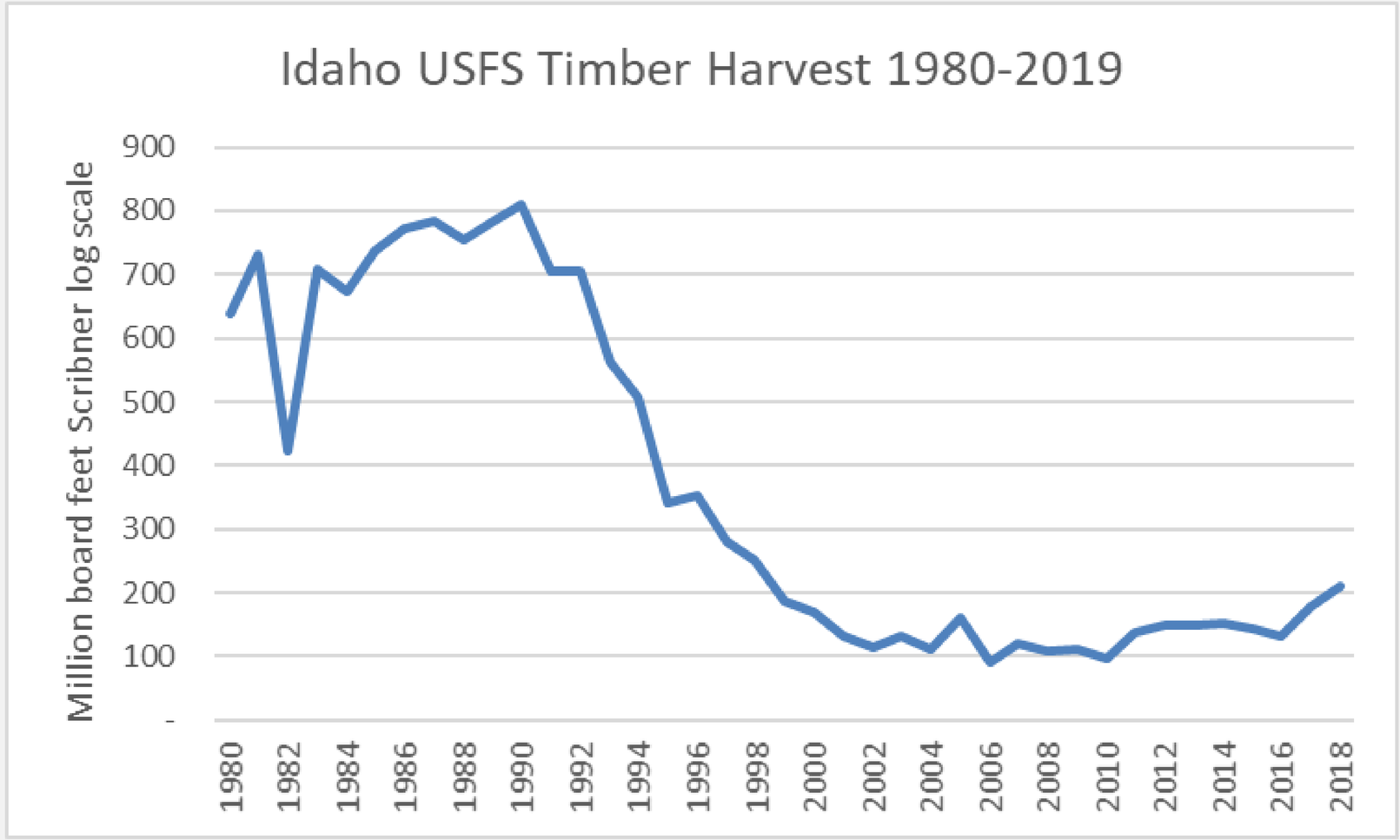


IDAHO'S TIMBER HARVEST

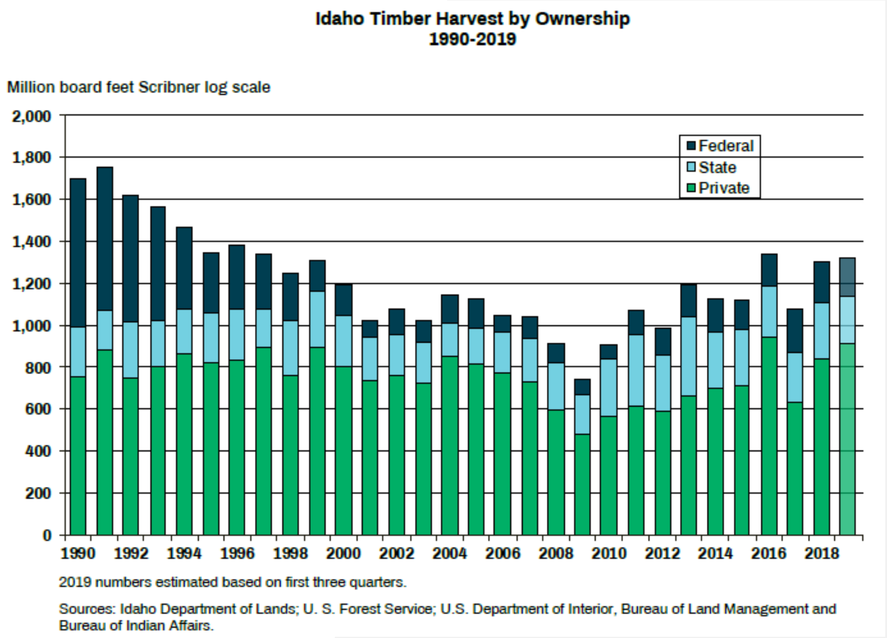
Idaho Timber Harvest by Ownership, 1990-2019

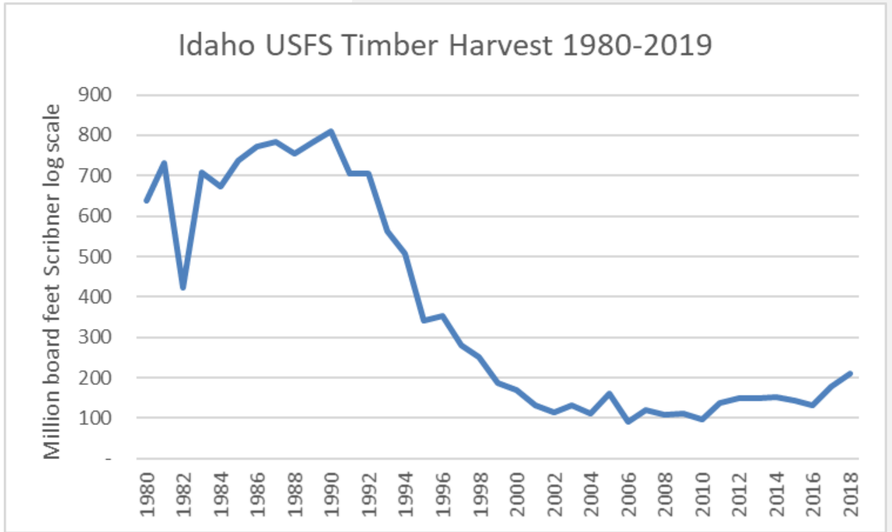


- Isolating the USFS component of total Idaho harvest
  - >85% drop in harvest in the 1990's

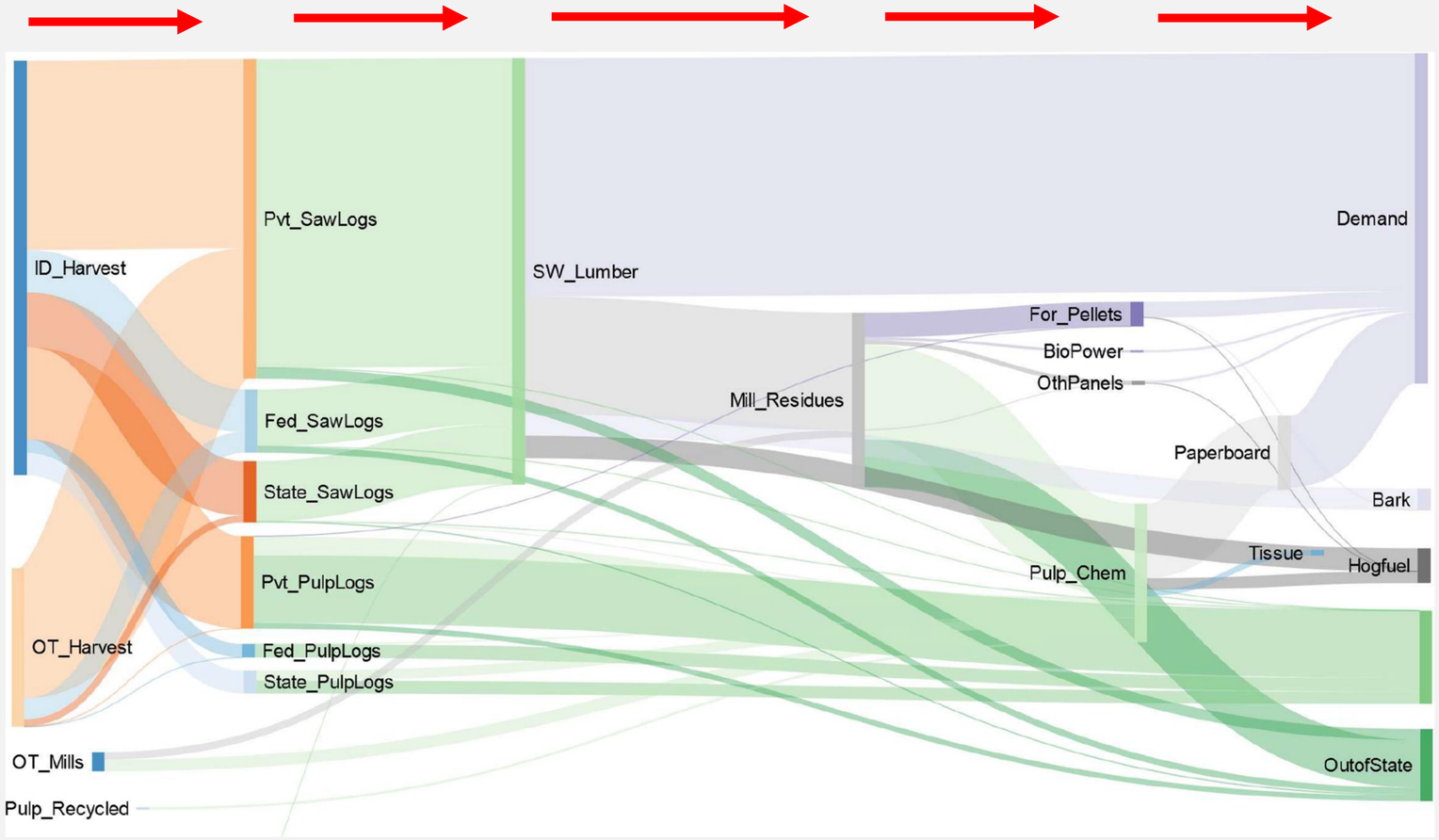


IDAHO'S TIMBER HARVEST

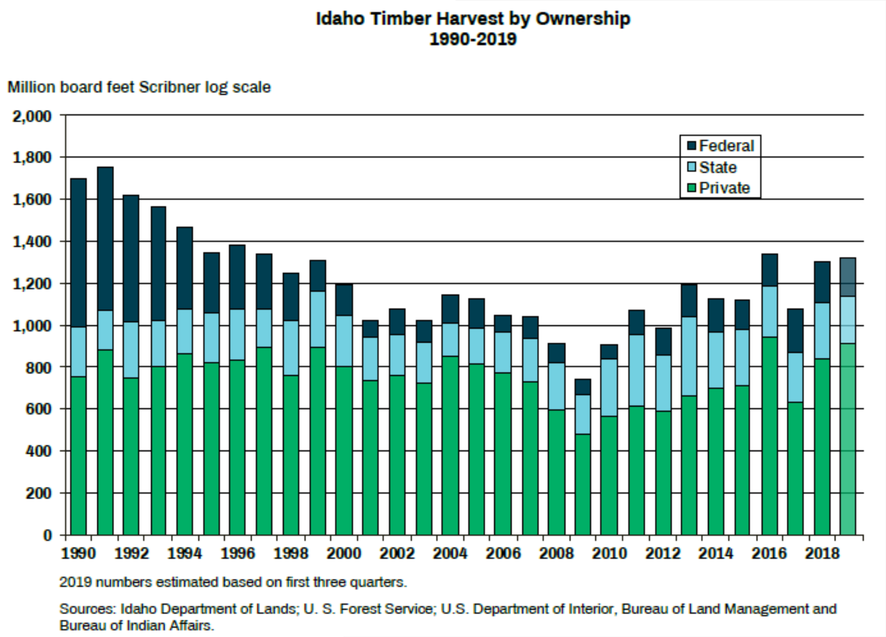




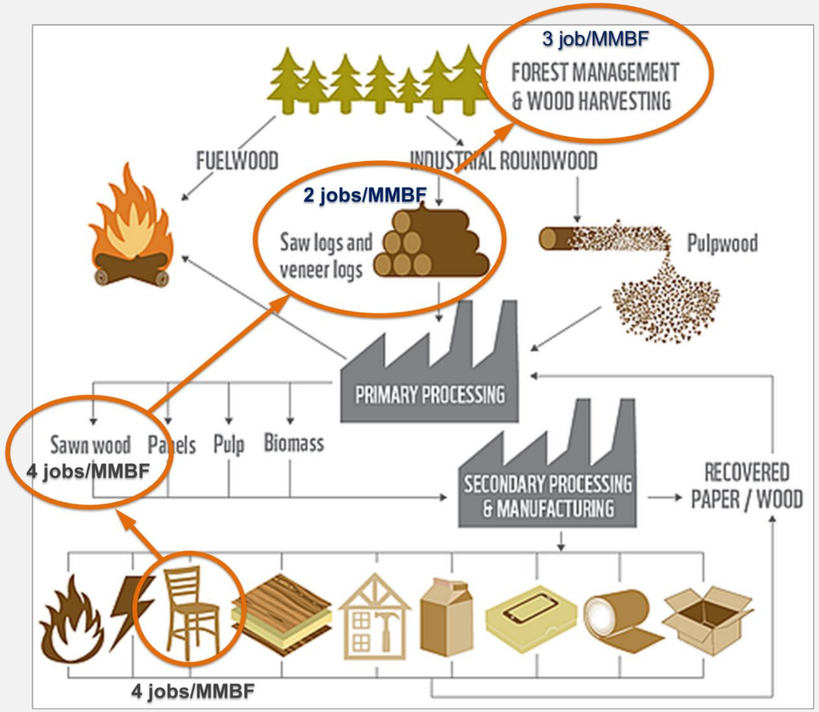
- That harvest moves through our forest economy

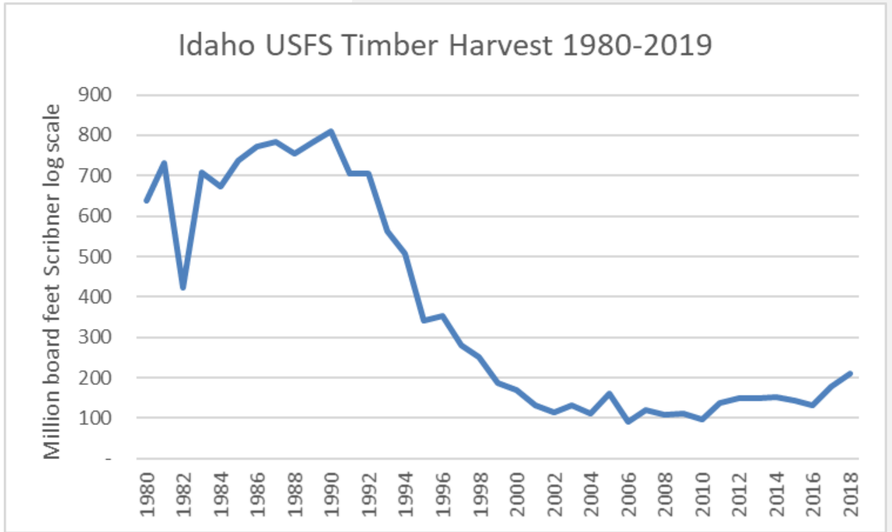


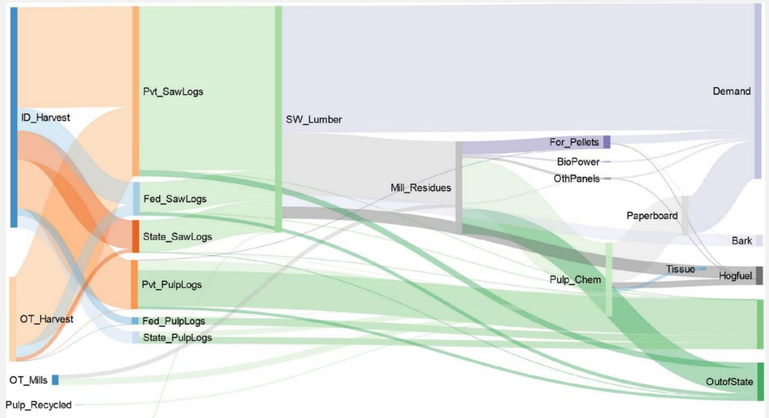
IDAHO'S TIMBER HARVEST



- That harvest moves through our forest economy
- Creating jobs (and taxes) and spurring the local economy







Econ 101 - Static Efficiency *(static means just the current year)*

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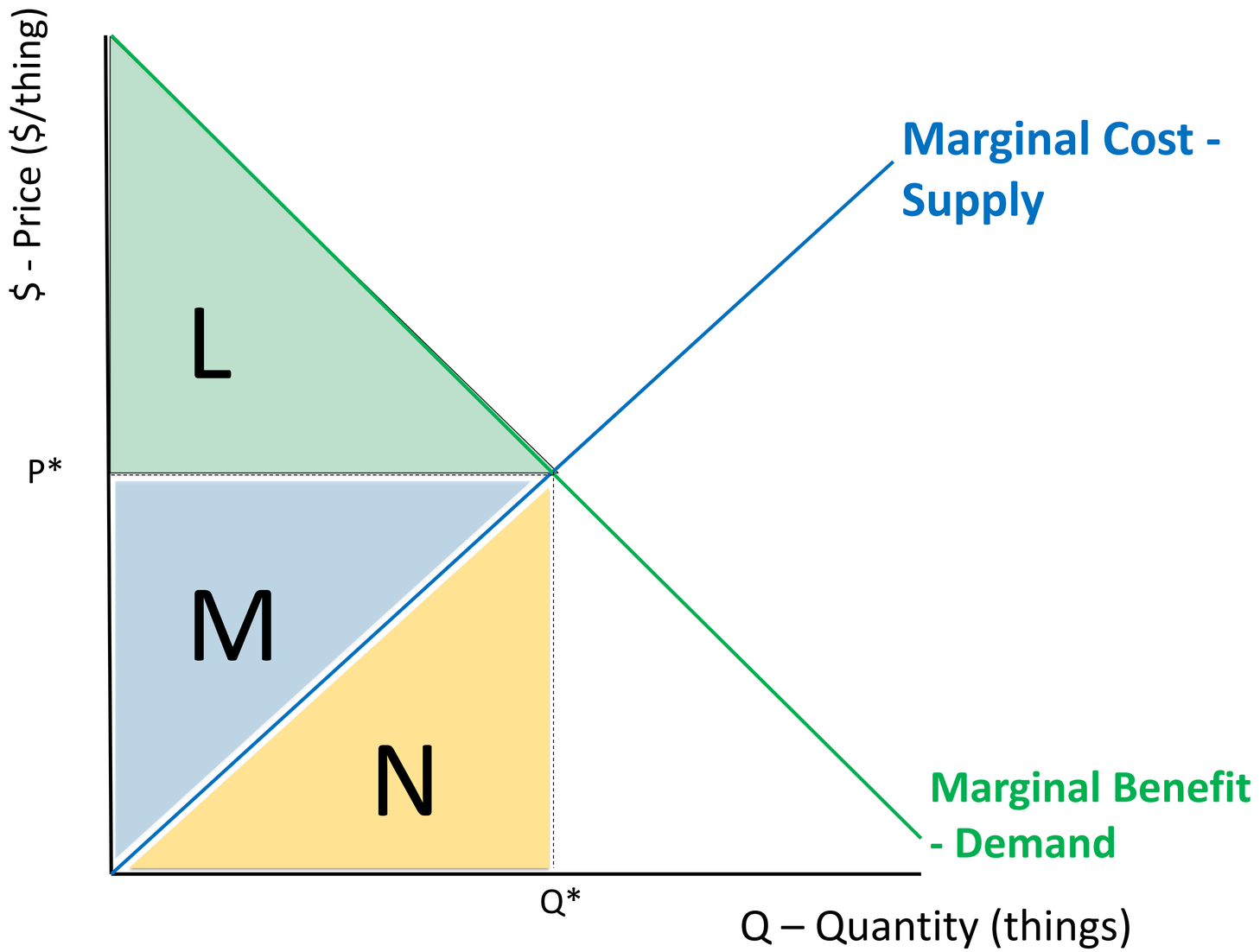


L = Consumers Net Benefits (Surplus)

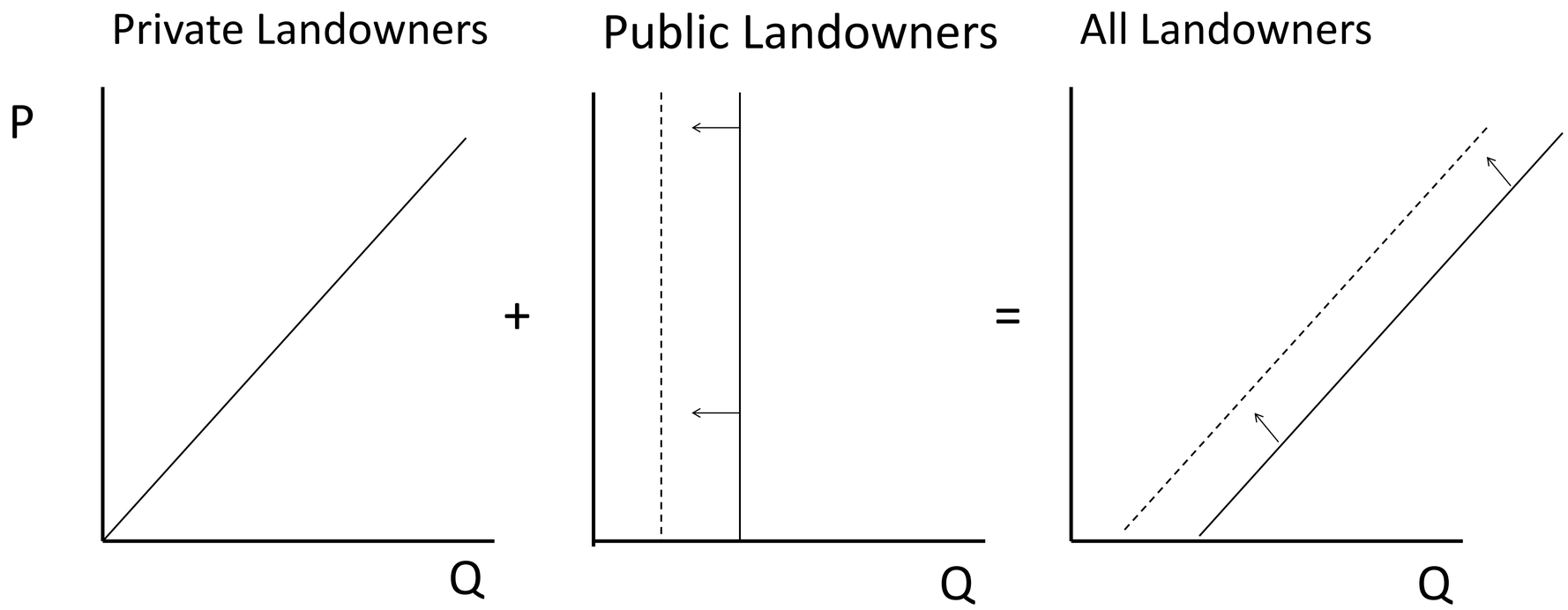
M = Producer's Net Benefits (Surplus)

N = Total Cost

M+N = Total Revenue

L+M = Net Benefits (Net Social Surplus)

Markets - Example



Consider a policy to reduce harvest on public lands

What is the potential impact of this policy?

Markets - Example

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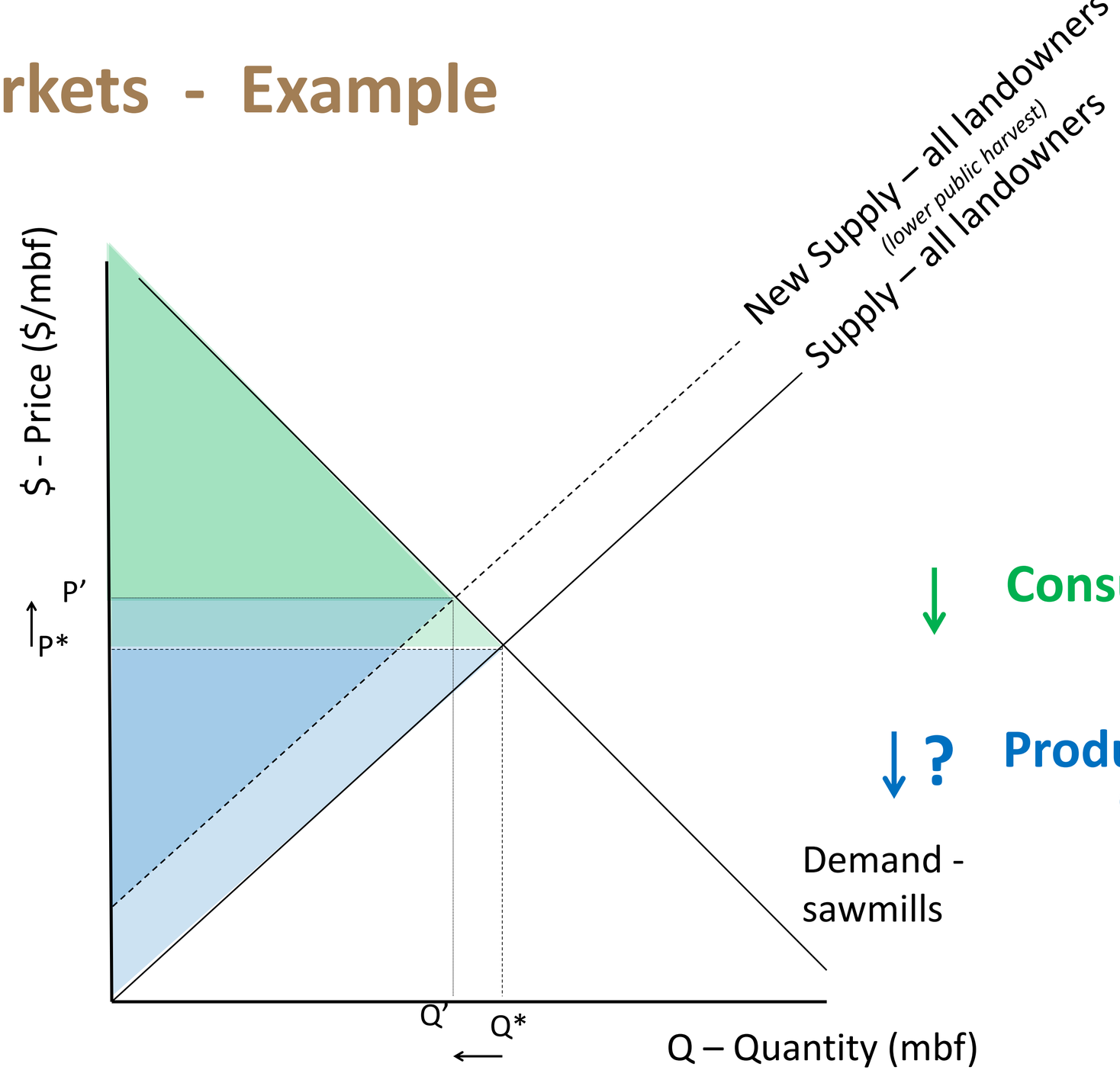
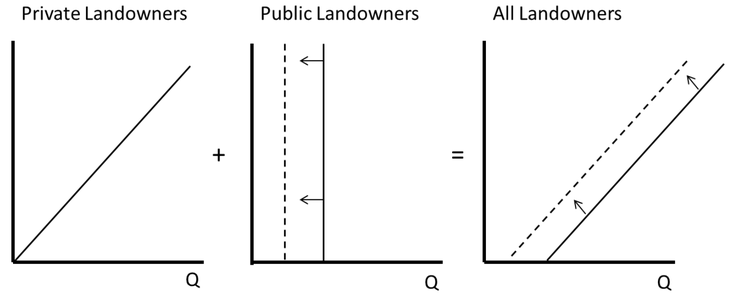


↓ **Consumers Surplus**
(consumer's profit)

↓ ? **Producers Surplus**
(producer's profit)



Elasticity – Responsiveness to Changes

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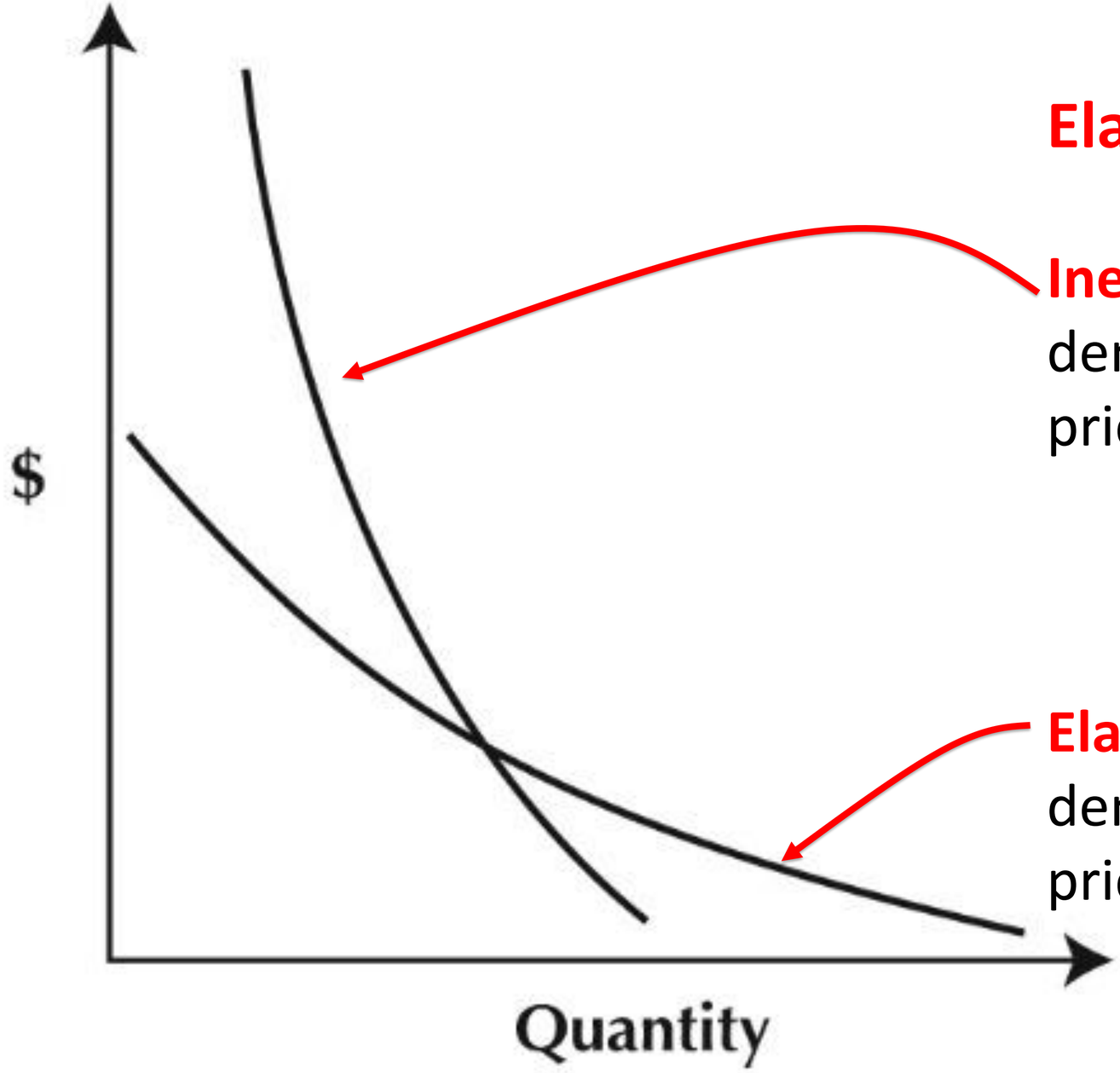

Elasticity - % Change in Q / % Change in P

Inelastic Demand Curves – quantity demanded changes little with substantial price change

- So P ↑ leads to Q ↓

Elastic Demand Curves – quantity demanded changes substantially with little price change

- So P ↓ leads to Q ↑

Simple Market Example – Dynamic Efficiency

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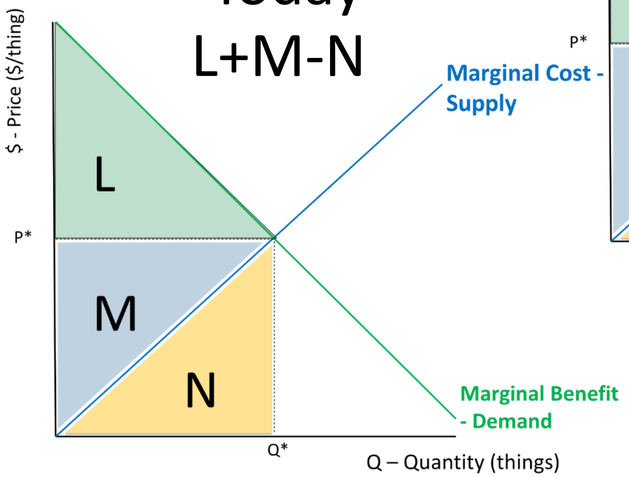
Sadly, it only gets more complicated

We have to think about the future

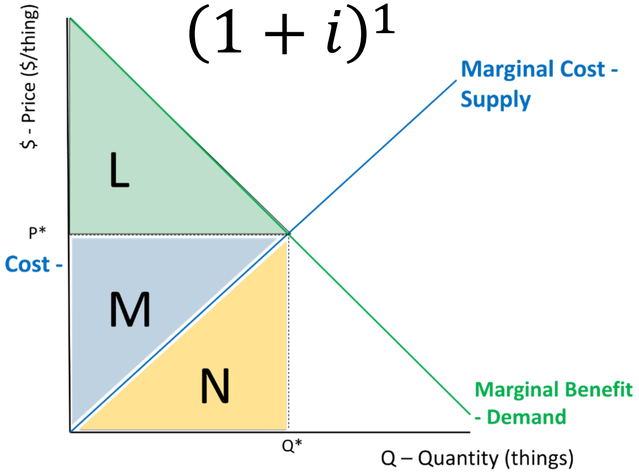
And Discount

Today
L+M-N



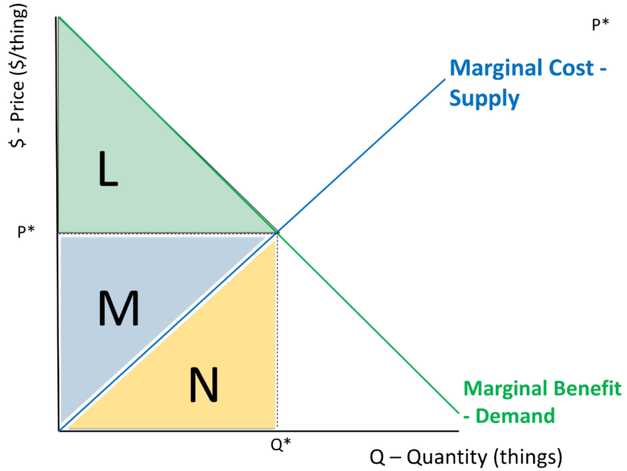
Next Year

$$\frac{L+M-N}{(1+i)^1}$$



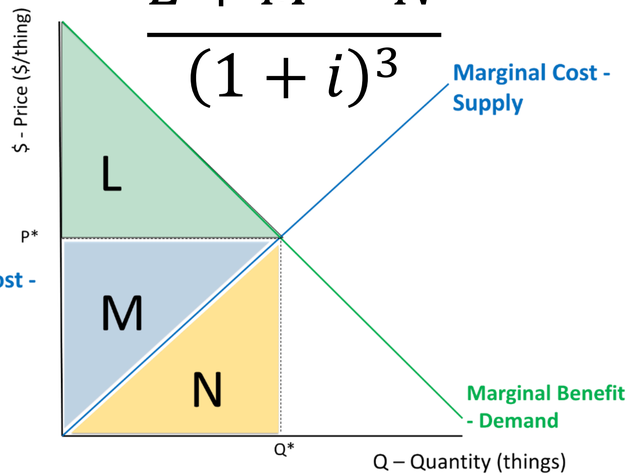
In Two Years

$$\frac{L+M-N}{(1+i)^2}$$



And on and on

$$\frac{L+M-N}{(1+i)^3}$$



Simple Market Example - looking back

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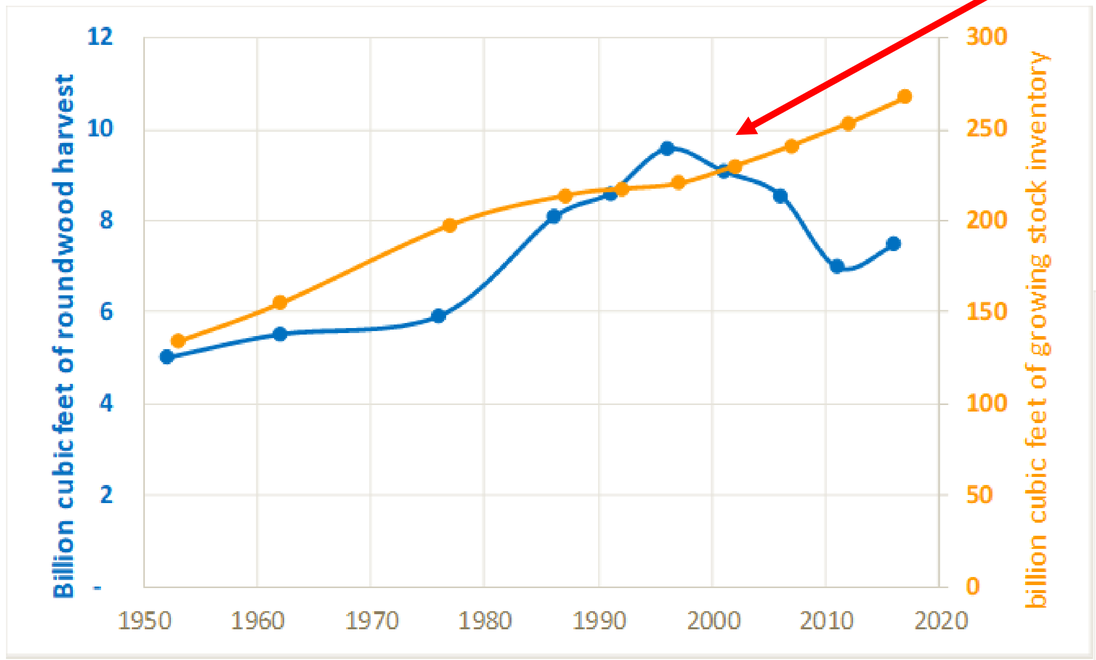
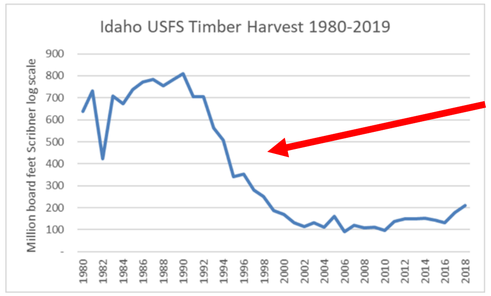
With this

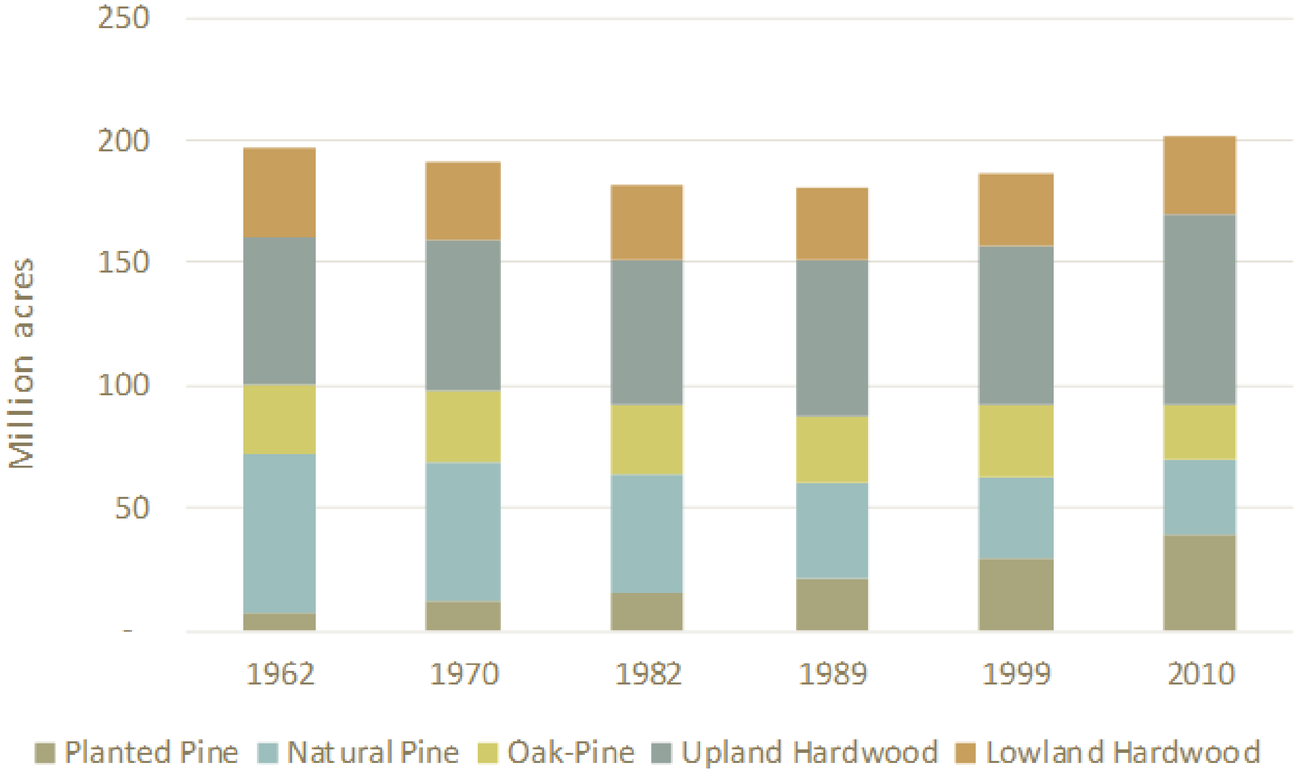
Southern US Roundwood Harvest





They responded to this

Southern US Timberland Acreage



The long-term effects are still being felt

We are foresters though – we are used to it being complicated and playing out over long periods of time

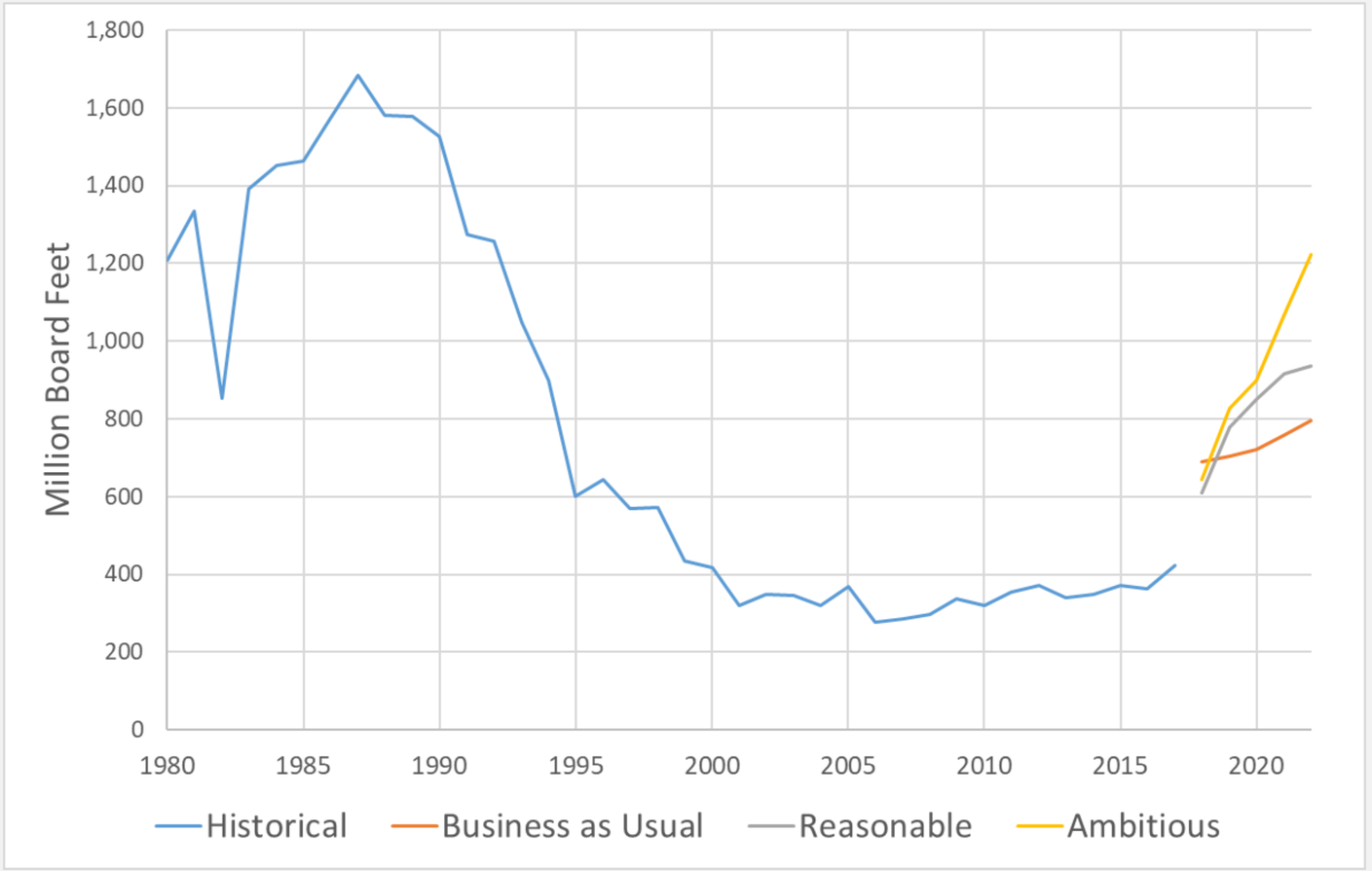
LOOKING FORWARD

- These are the things that keep me awake at night

FEDERAL FOREST MANAGEMENT

- We can use our market, logistics, and economic contribution modeling to evaluate potential responses to policy or market stimuli
  - This means looking to the future
- What might an increase in federal harvest mean for Idaho's forest sector?
  - This could be Good Neighbor Authority or Shared Stewardship
  - Or – forest collaboratives and partnerships

USFS Inland Northwest Timber Harvest 5-Year Projections



Simple Market Example 2

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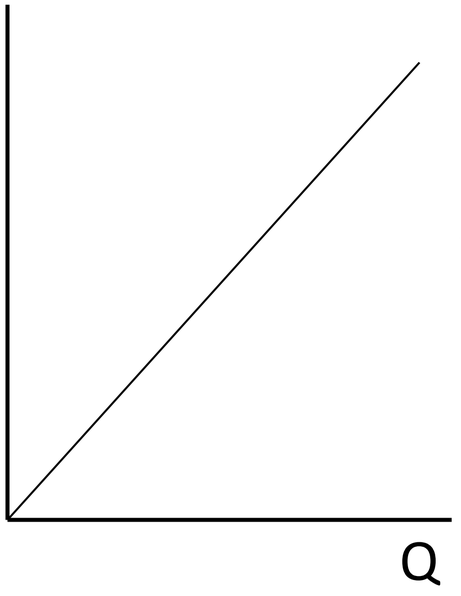
Private Landowners



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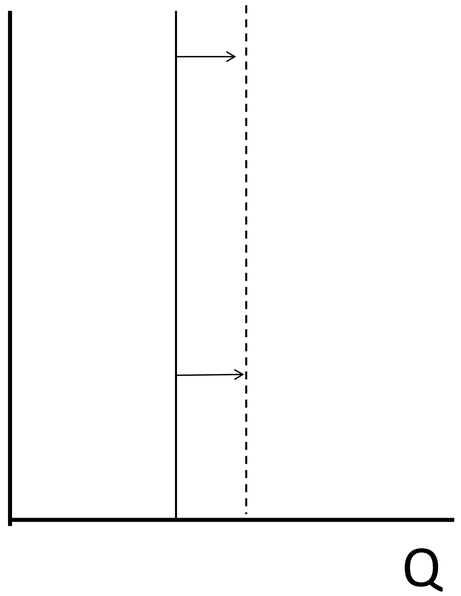
Public Landowners



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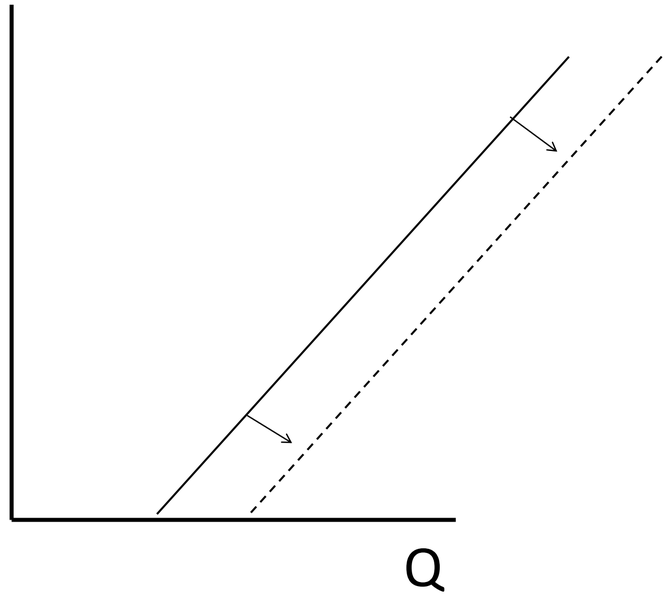
All Landowners



Consider a policy to increase harvest on public lands

What is the potential impact of this policy?

Good Neighbor Authority

Shared Stewardship

Nez-Perce Forest Plan Revision

Forest management plan draws sharp reactions from citizens

Nez Perce-Clearwater National Forest vegetation management specialist Buddie Carrol (center) talks with L. Joe of Emida during a meeting about the draft forest plan at the University Inn in Moscow on Saturday.

Rebecca Noble/ For the Daily News

Nez Perce-Clearwater National Forest officials get earful about draft during public sessions in Moscow and Lewiston

By Eric Barker
For the Daily News

U.S. Forest Service officials met with about 150 people in Lewiston and Moscow Saturday during informational meetings on the agency's draft plan outlining future management of the 4-million-acre Nez Perce-Clearwater National Forest.

A protest prior to the Moscow meeting at the Best Western Plus University Inn was attended by about 35 people advocating for stronger environmental standards. The protest was organized by the environmental group Friends of the Clearwater.

Those who attended the protest held signs with slogans such as "Protect Roadless Areas" and "Logging is not Restoration."

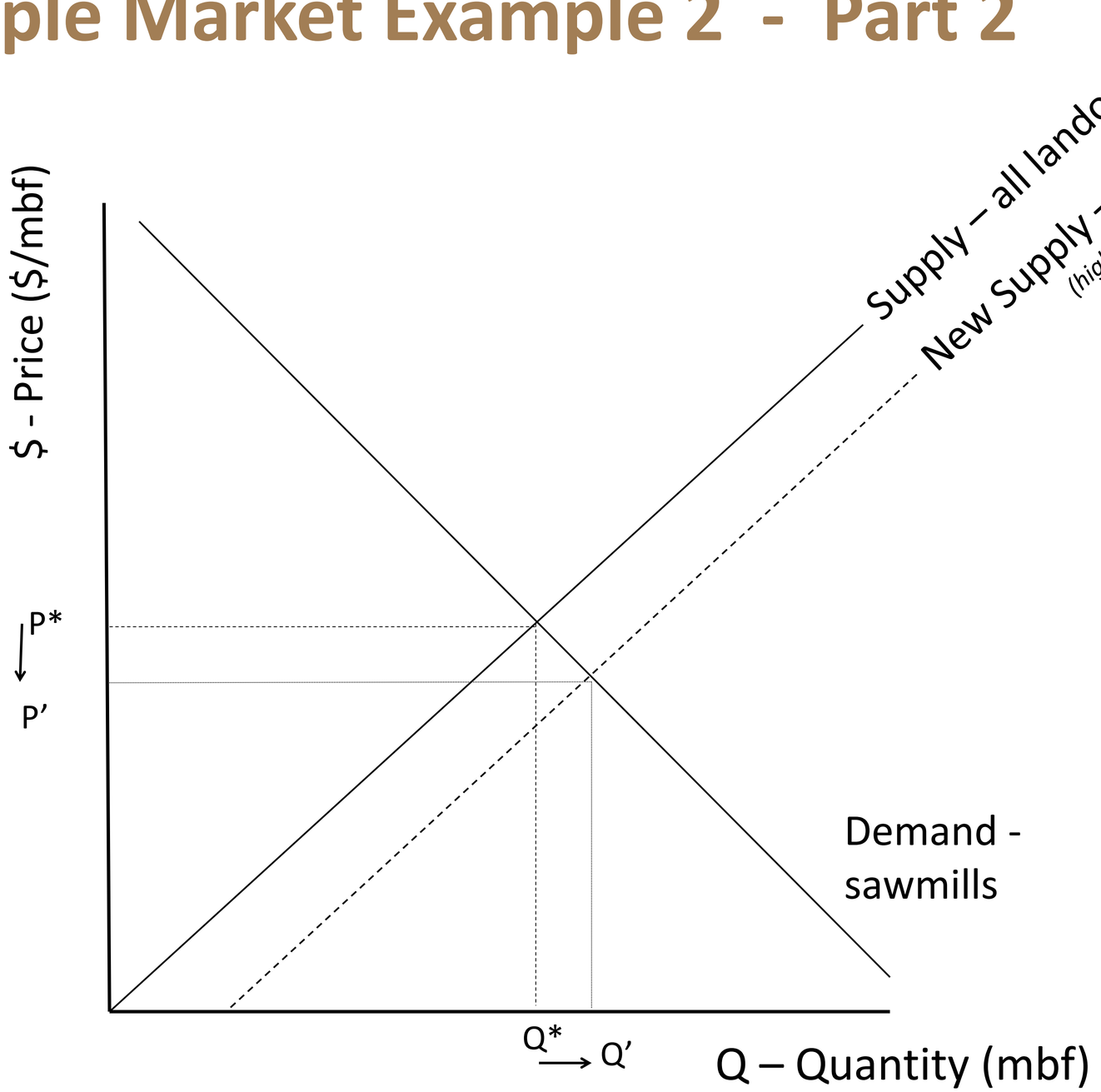
"The Forest Service has had 20 years to live up to the past plans and they haven't yet," said Gary Macfarlane, ecosystem defense director for the group. "Yet this new plan proposed is even worse. It has no accountability."

Cass Davis of Moscow held a sign that read "Respect. Biodiversity. Li Depends on It." He said t agency that is supposed

See PLAN, Page 6A

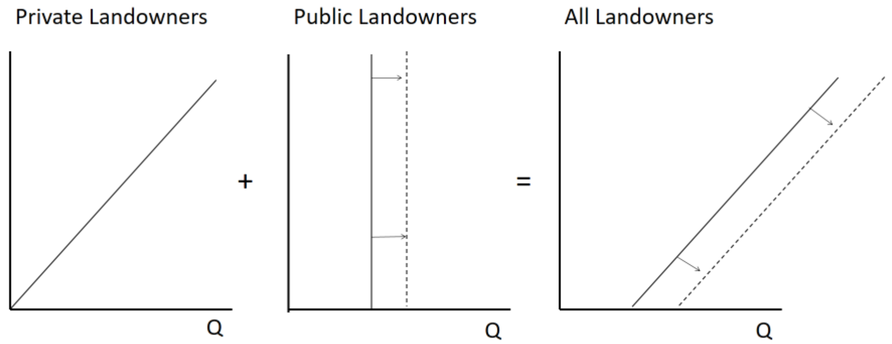
Simple Market Example 2 - Part 2

University of Idaho
College of Natural Resources



↑ **Consumers Surplus**
(consumer's profit)

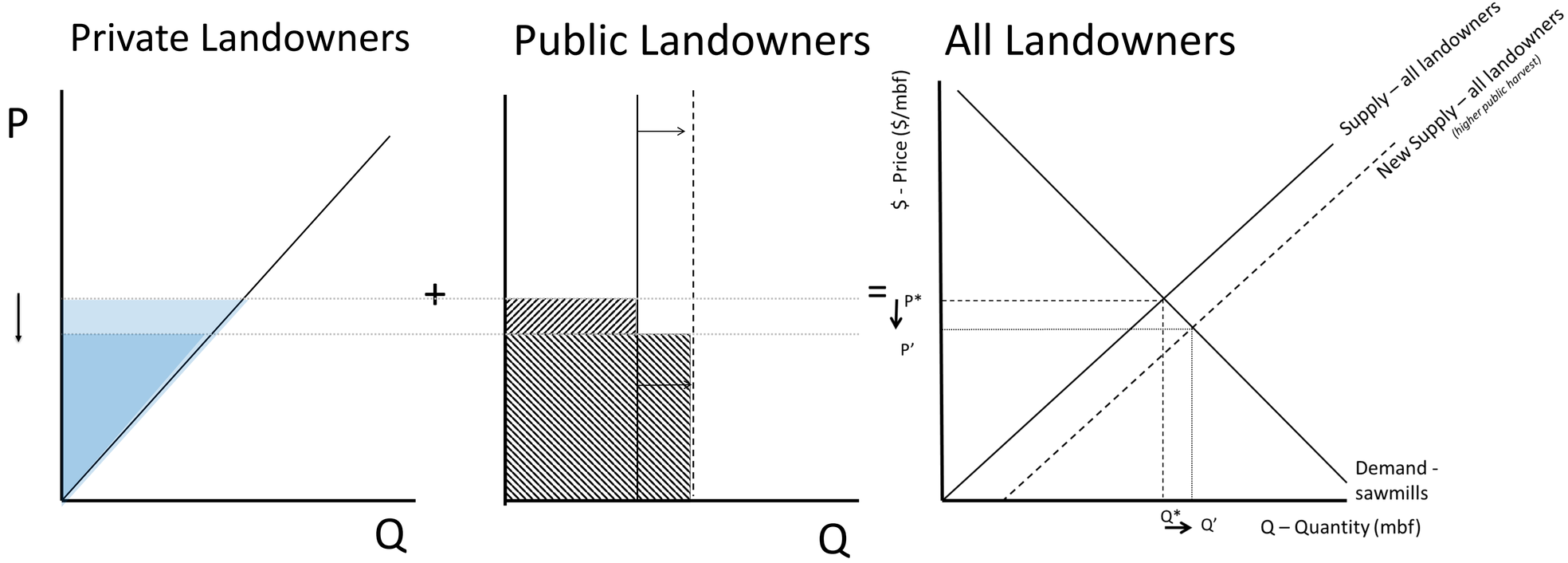
↑ **? Producers Surplus**
(producer's profit)



Simple Market Example 2

University of Idaho
College of Natural Resources

← **Producers Surplus** *(producer's profit)*



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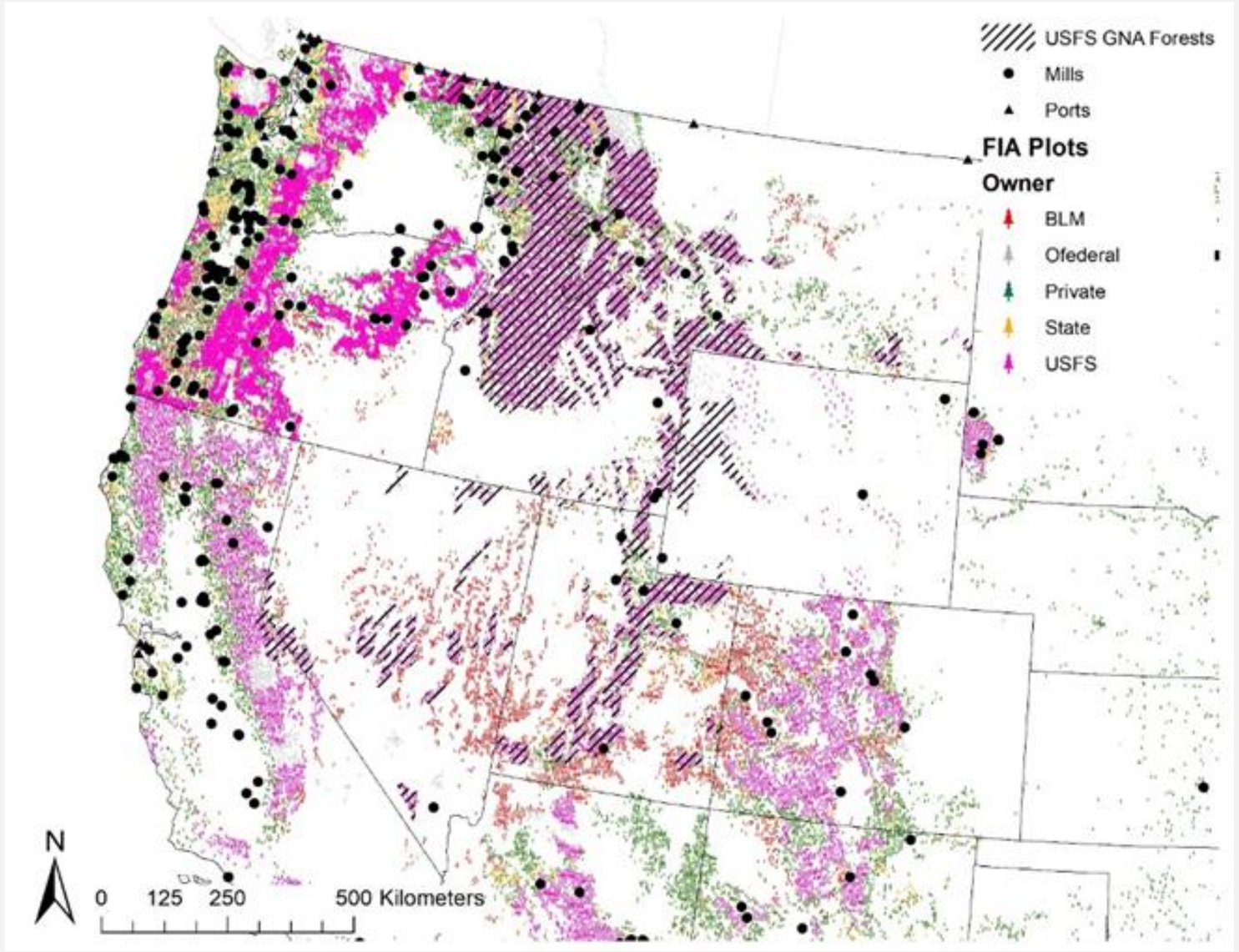
See PLAN, Page 6A

INCREASING FEDERAL TIMBER HARVESTING

Modeling Forest Market Impacts

Current USDA Analysis

- 235 million acres in national forest system
- Focuses on 23 national forests covering 62 million acres
- Includes projected ID and MT state harvest levels
- Accounts for national demand, international trade, and all wood products facility production



January 2020

FEDERAL FOREST MANAGEMENT

- **What might an increase in federal harvest mean for Idaho's forest sector?**

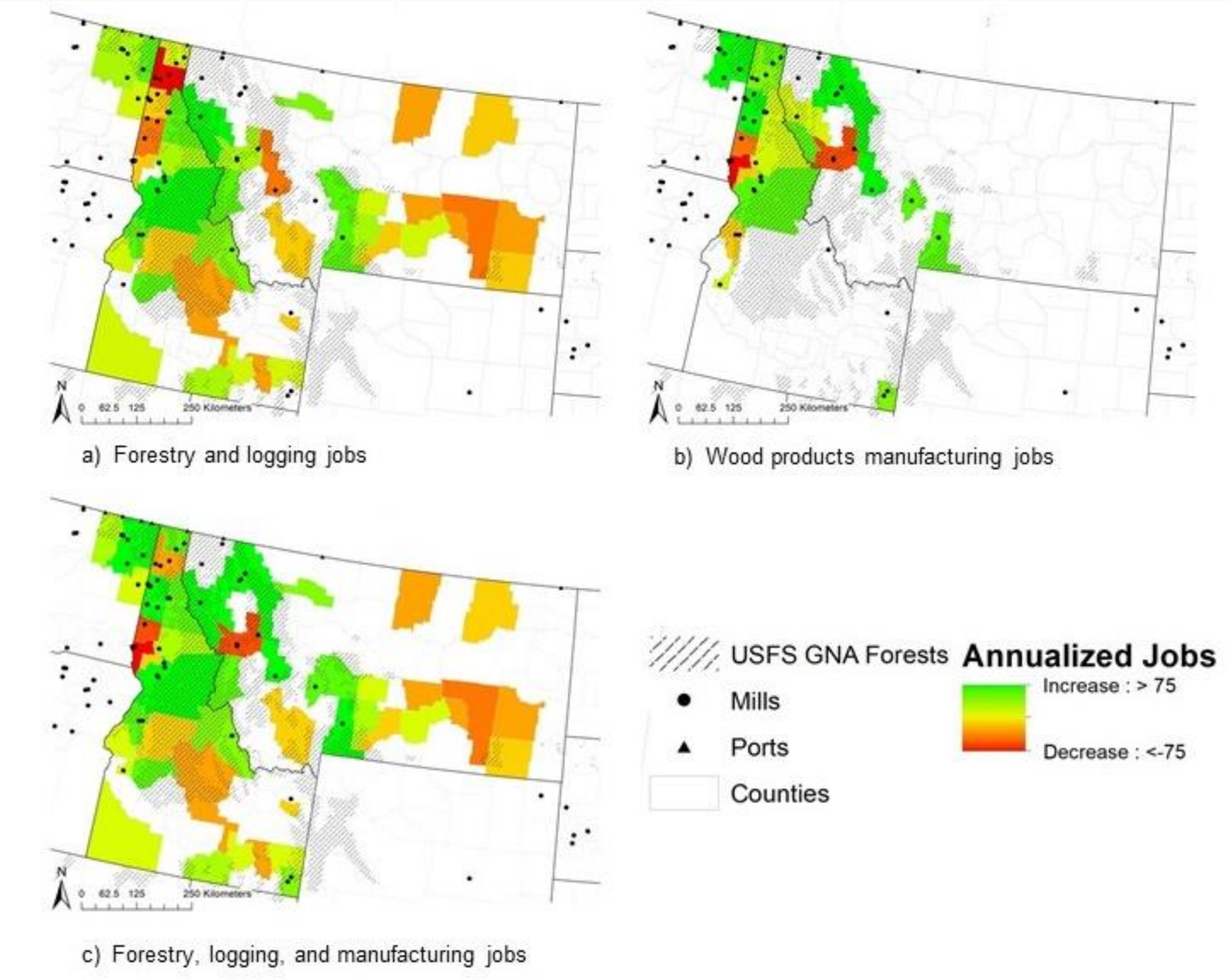
- **Findings** - *It could*:
  - Displace private timber
    - Upside: 60% of that displacement will be outside of the region and the industry will be in a better long-run position
  - Require more truckers
    - Downside: More harvest means more trucking required when we are looking for solutions at the current level

WHAT MIGHT AN INCREASE IN FEDERAL HARVEST MEAN FOR IDAHO'S FOREST SECTOR?

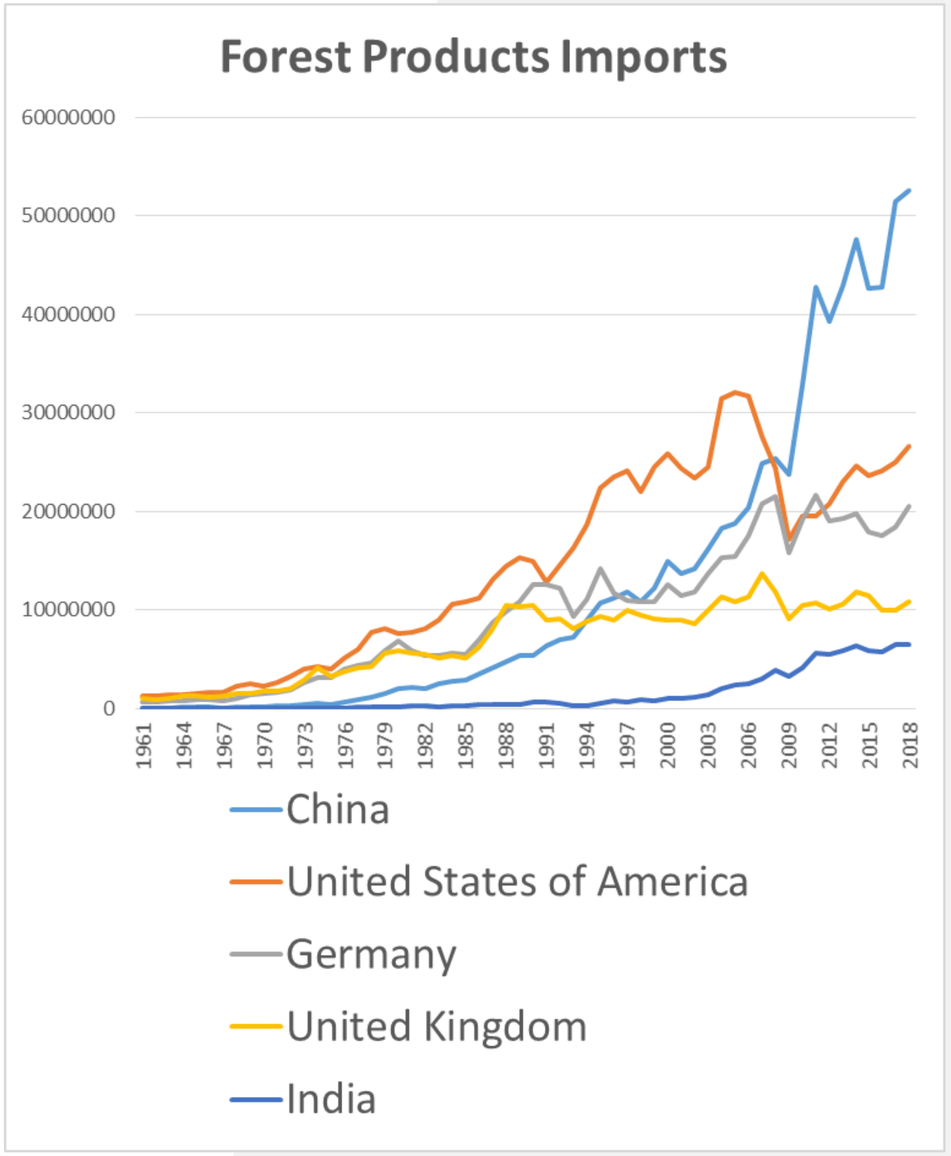
- We can look at the jobs created (or lost) by subsector and across counties

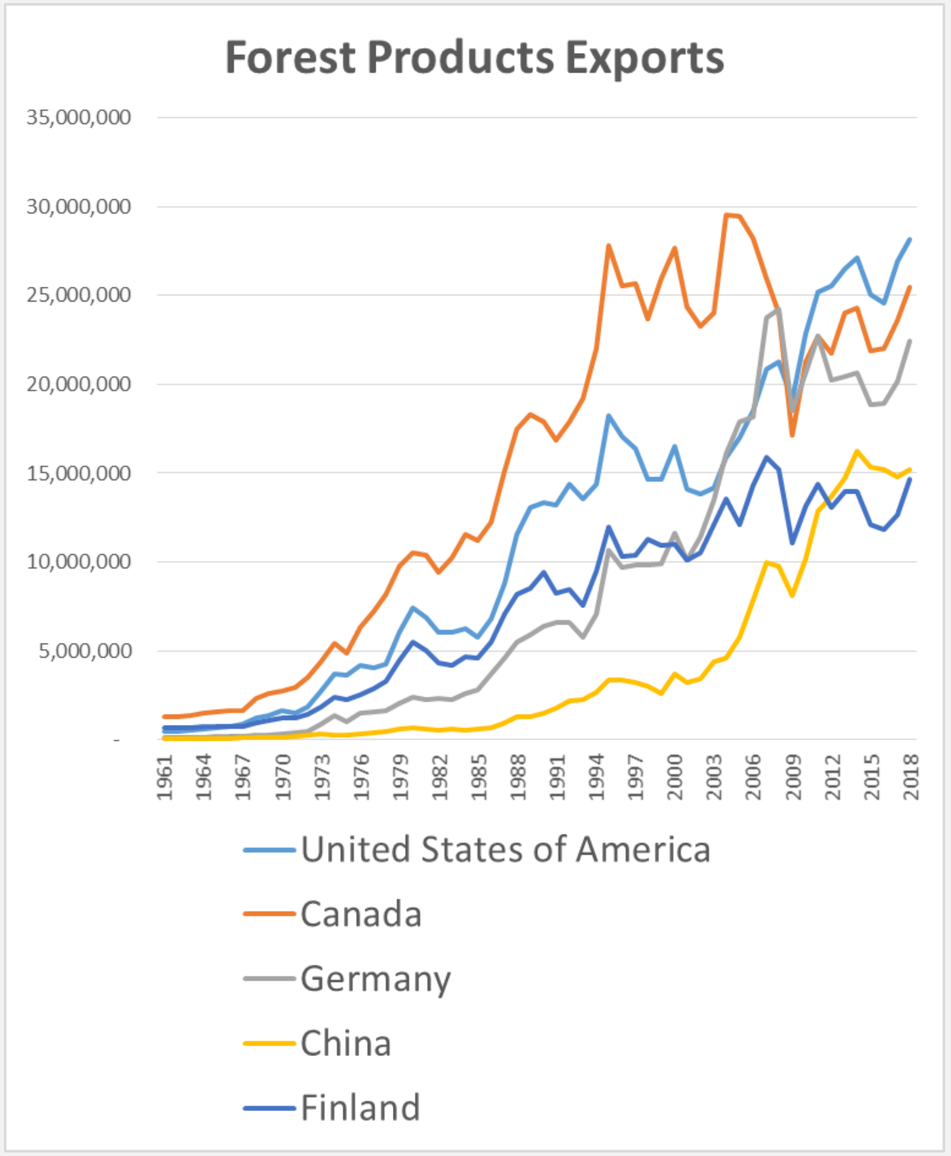
- The results demonstrate the complexity of market responses even within a single state

- Additional Jobs by Subsector



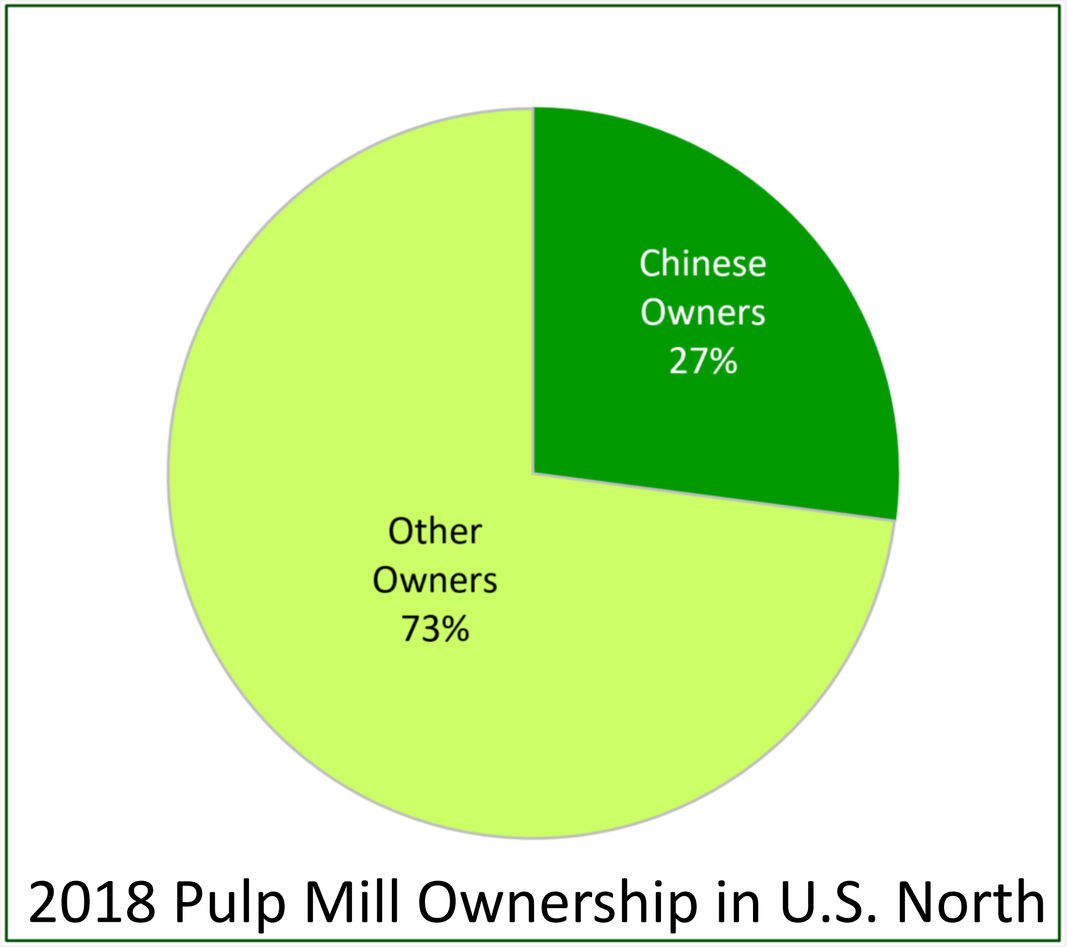
GLOBAL PLAYERS – *HERE COMES CHINA*





FOREIGN JUST AIN'T WHAT IT USED TO BE

It's not just foreign trade that we need to be thinking about when we think of a new global economy



2018 Pulp Mill Ownership in U.S. North

http://forisk.com/blog/2019/02/07/chinese-investment-u-s-pulp-paper/

CANADIAN FOREST COMPANY INVESTING

CANADA TOP 10 SOFTWOOD LUMBER PRODUCERS - 2017 (Million Bf)

Rank 2016	Rank 2017	Company	No. of Mills Open	Production 2016	Production 2017	Change
1	1	West Fraser	13	3796	3809	0%
2	2	Canfor	13	3787	3744	-1%
4	3	Resolute FP	8	1844	2011	9%
3	4	Tolko	7	1897	1620	-15%
9	5	J.D. Irving	7	895	920	3%
7	6	Interfor	5	876	875	0%
8	7	EACOM	7	851	874	3%
6	8	Weyerhaeuser [1]	3	876	827	-6%
5	9	Western FP	8	943	809	-14%
11	10	Arbec	4	623	670	8%
		Total Top 10	75	16,388	16,159	-1.4%
		Total Canada Shipments		28,521	28,041	-1.7%
		% of Canada Shipments		57.5%	57.6%	

Notes: Includes lumber produced only at primary sawmills and excludes U.S. production.

1. Production with custom cut volume

Sou

USA TOP 20 SOFTWOOD LUMBER PRODUCERS - 2017 (Million Bf)

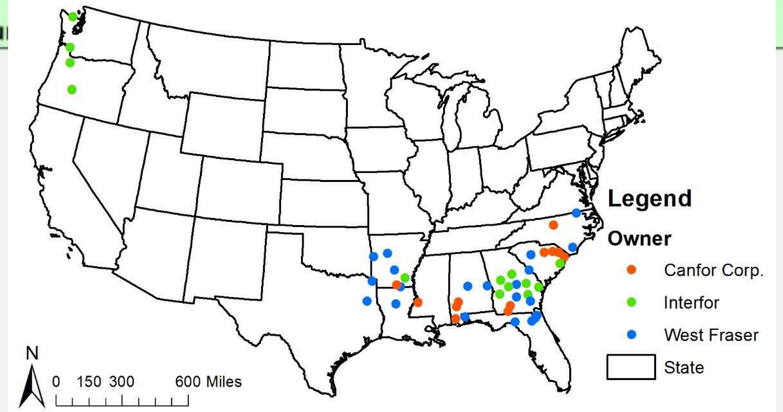
Rank 2016	Rank 2017	Company	No. of Mills Open	Production 2016	Production 2017	Change
1	1	Weyerhaeuser	16	3640	3682	1%
2	2	Georgia-Pacific [1]	17	2507	2597	4%
3	3	West Fraser	21	2139	2424	13%
4	4	Sierra Pacific	12	2009	2064	3%
5	5	Interfor	13	1612	1720	7%
6	6	Canfor	11	1336	1411	6%
7	7	Hampton [1]	7	1325	1410	6%
8	8	Idaho Forest Group	6	1036	1108	7%
9	9	Potlatch FP	4	700	735	5%
10	10	Stimson	6	655	620	-5%
		Total Top 10	113	16,959	17,771	4.8%
		Total US Shipments		32,644	33,861	3.7%
		% of US Shipments		52.0%	52.5%	

Notes: Includes lumber produced only at primary sawmills

l offshore production.

Source: FEA Canada/WOOD MARKETS

Forest Products Processing Locations



DOMINANCE OF US SOUTH

Southern Lumber Capacity

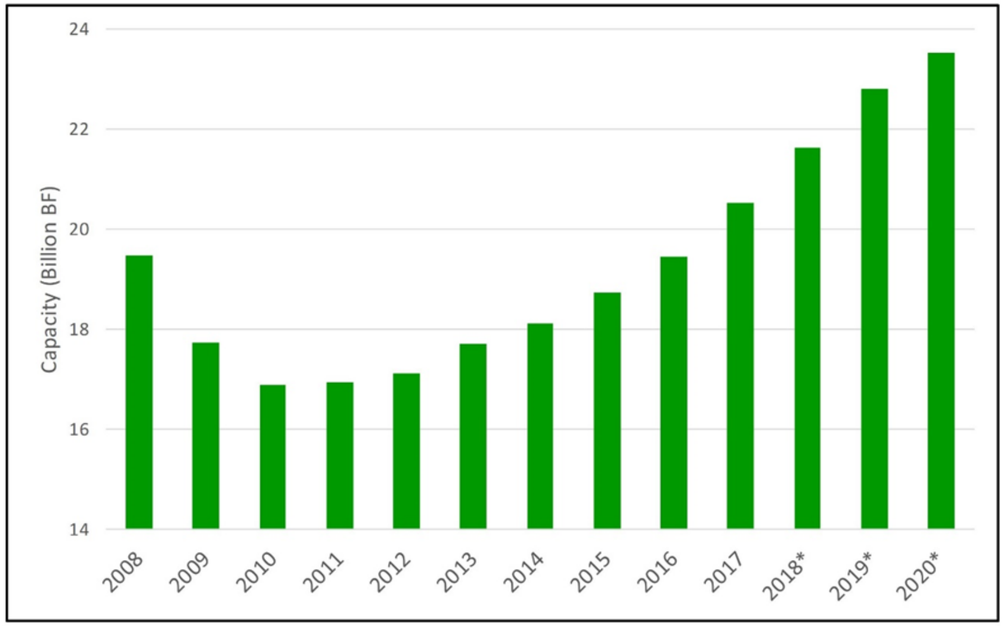


Figure 1. Softwood lumber capacity in the U.S. South, 2008-2020. Capacity estimates reflect a year-end snapshot, and estimates for 2018-2020 include announced projects that are expected to come online in the given year. Source: Forisk Consulting.

https://forisk.com/blog/2018/07/12/southern-lumber-producers-past-present-future/

Good summary from (http://www.timberharvesting.com/southern-softwood-lumber-explosion/)

—Interfor is spending $46 million for a major upgrade at its Monticello, Ark. facility and lesser amounts to tweak its other multiple works in Georgia. It has also identified a site in the central region for **a new 200MMBF operation**.

—Canfor has announced a new 275MMBF plant for Washington, Ga. and committed $125 million for modernization and refinements at several mills that will **increase annual capacity by another 75MMBF**.

—At Talladega, Ala., Georgia-Pacific is nearing completion of a new 230 MMBF capacity mill and has upgraded an existing plant at Belk, Ala. Earlier this year G-P told it would **build a new 350MMBF mill** to replace its existing facility, now producing about 110MMBF per year, at Warrenton, Ga. G-P has indicated other projects will be forthcoming, and some speculate the next one will involve the restart of its idle mill at Buna, Tex.

—Rex Lumber Co. is building a **new mill** near Troy, Ala. that will have a capacity of **240MMBF**.

—Two Rivers Lumber Co. last year completed a **new 200MMBF plant** near Demopolis, Ala.

—Although it has yet to officially reveal the location of the facility, Westervelt Lumber recently announced it intends to erect a **new 250MMBF capacity plant** in Alabama. Speculators point to a site near Thomasville.

—Elsewhere in Alabama, Weyerhaeuser is converting its stud mill at Millport to a more conventional sawmill, greatly increasing log intake and lumber output. Also, the company is expected to finally officially start up its **gigantic** new mill at Dierks, Ark.

—LaSalle Lumber Co., a joint venture involving Louisiana's Hunt Lumber Co. and Canada's Tolko Industries, has a **new 200MMBF capacity mil**l going up near Urania, La. At least two more companies are each said to be considering a new mill in the state.

—Biewer Lumber in early 2017 opened its **new 230MMBF facility** in Newton, Miss. and reportedly has indicated it may erect another in either Mississippi or Arkansas.

—Two idle mills in Arkansas were **upgraded and restarted** last year: Conifex with the mill once owned by Georgia-Pacific at El Dorado (180 MMBF capacity); and Caddo River Forest Products with the former Curt Bean Lumber Co. at Glenwood (100MMBF).

—Jordan Lumber Co. **added a third green line** to its already big mill at Mt. Gilead, NC, making it the largest capacity single shift mill in the region.

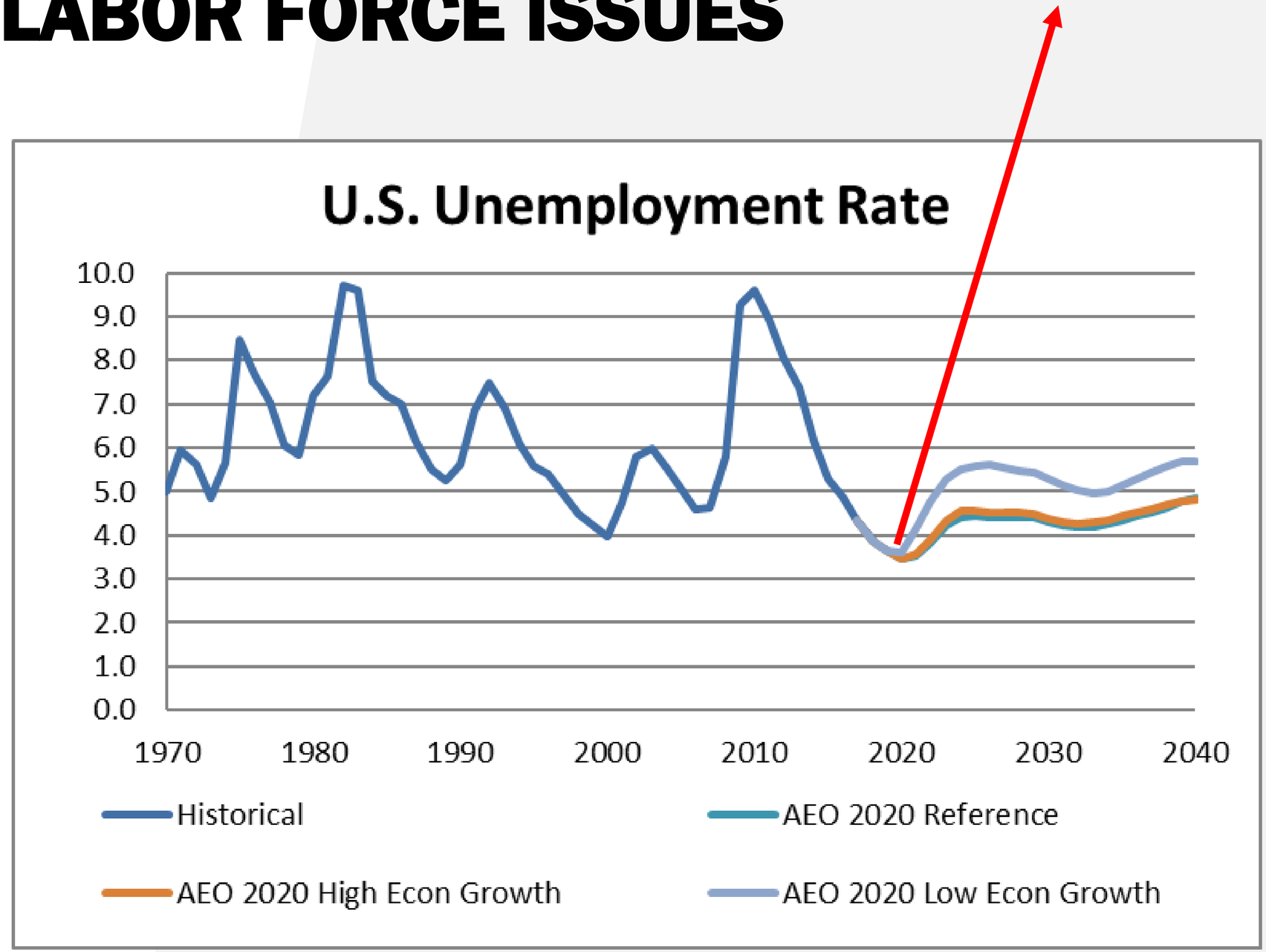
—Sooner or later, Klausner, or another company, will start up that long since finished but still idle mill at Enfield, NC.

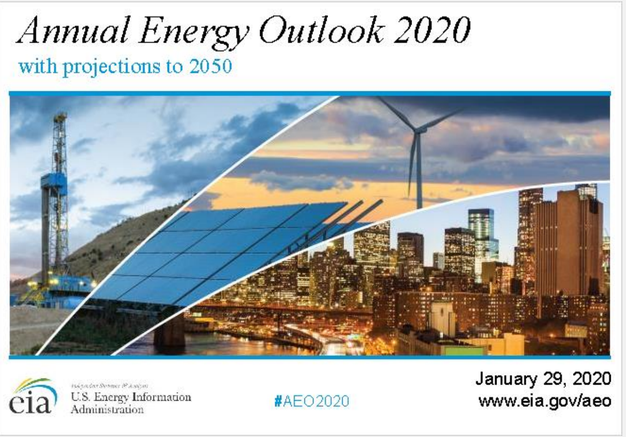
—West Fraser typically does not announce its construction plans, but 18 months ago did reveal it would expand production at its Newberry, SC mill by 37%. Last year it spent millions to significantly increase output at mills in Opelika and Maplesville, Ala. The company may be considering building its first ever greenfield sawmill in the region, possibly in central Alabama.

All this new and expanded production will mean a **heightened annual log demand that could push 13 million tons**. The timber is certainly available, as is logging capacity. What about mill labor? That could be an issue. What about trucking capacity? That could be a serious issue.

New and expanded mills will produce abundant quantities of chips and other residues, all of which will require more trucks, trailers, and drivers. However, this increased chip production will trim roundwood demand at some paper, OSB and pellet plants in certain locations, so the net trucking demand will be offset to a certain extent.

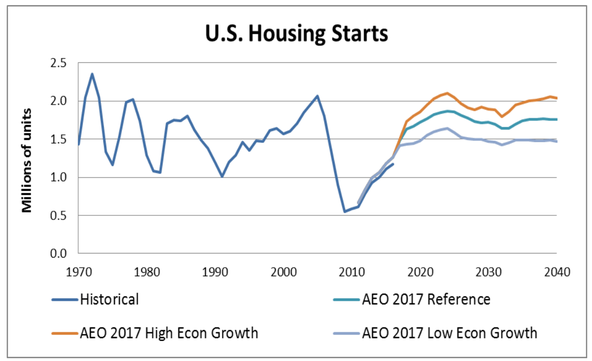
LABOR FORCE ISSUES

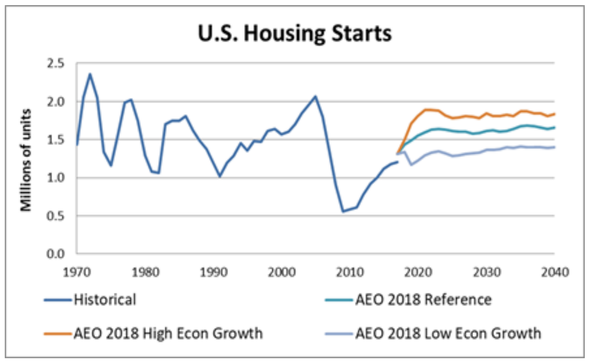


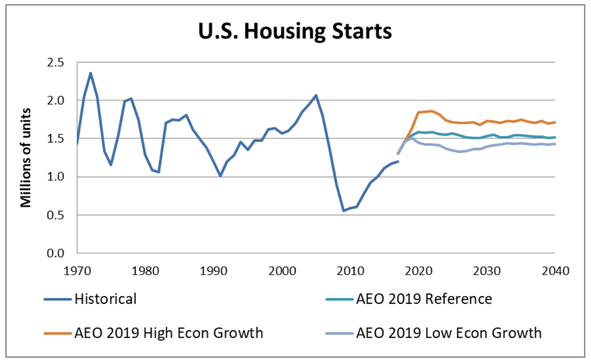


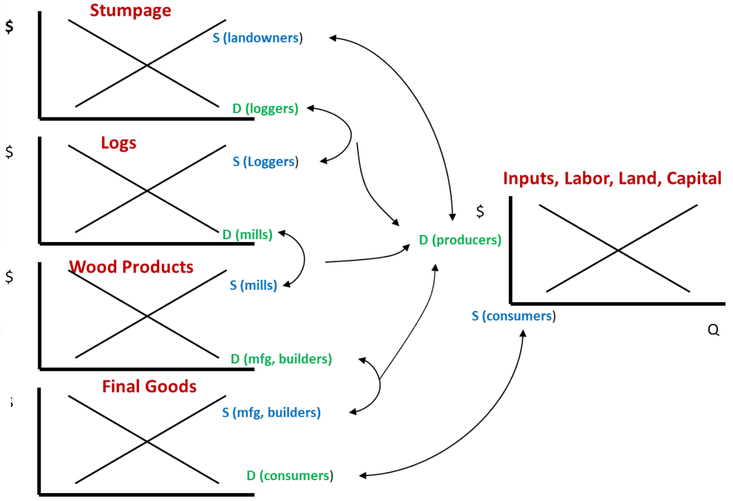
Macroeconomic Drivers

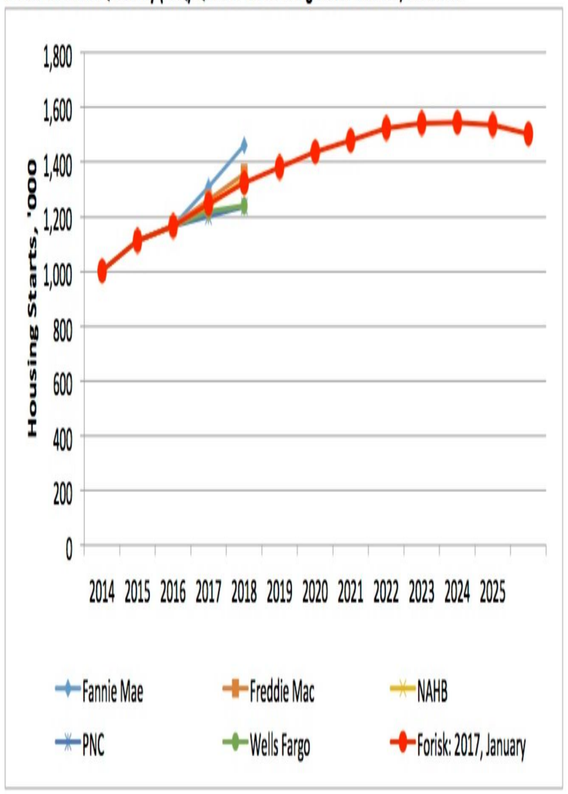
University of Idaho
College of Natural Resources

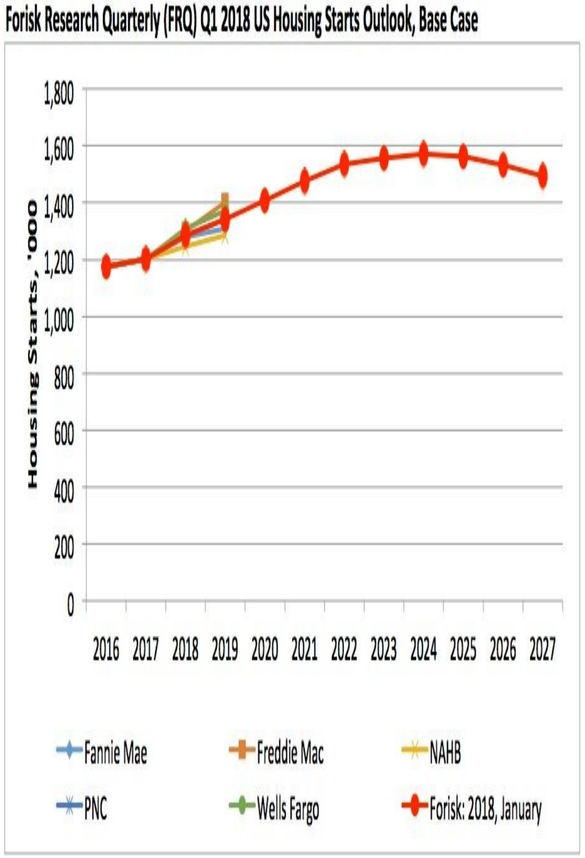


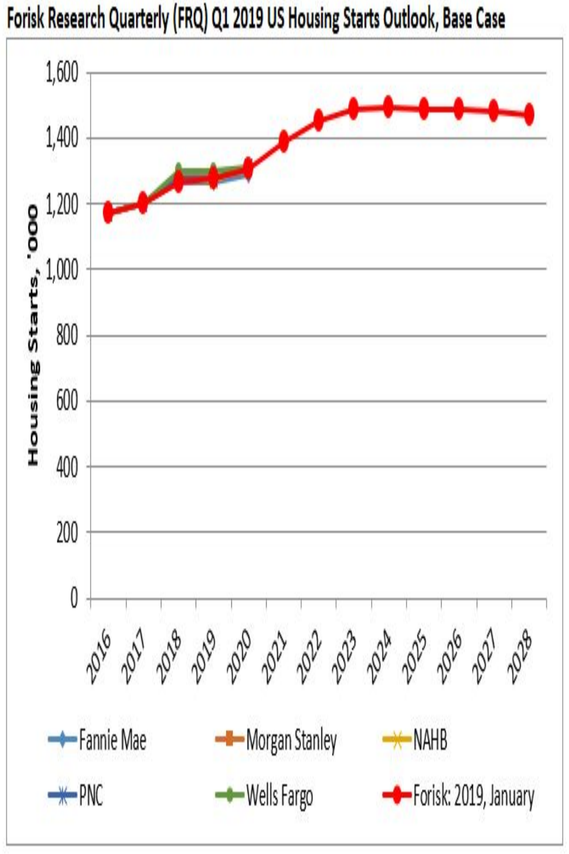


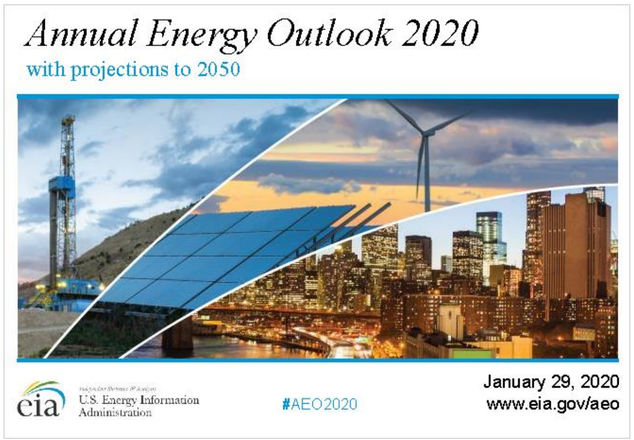












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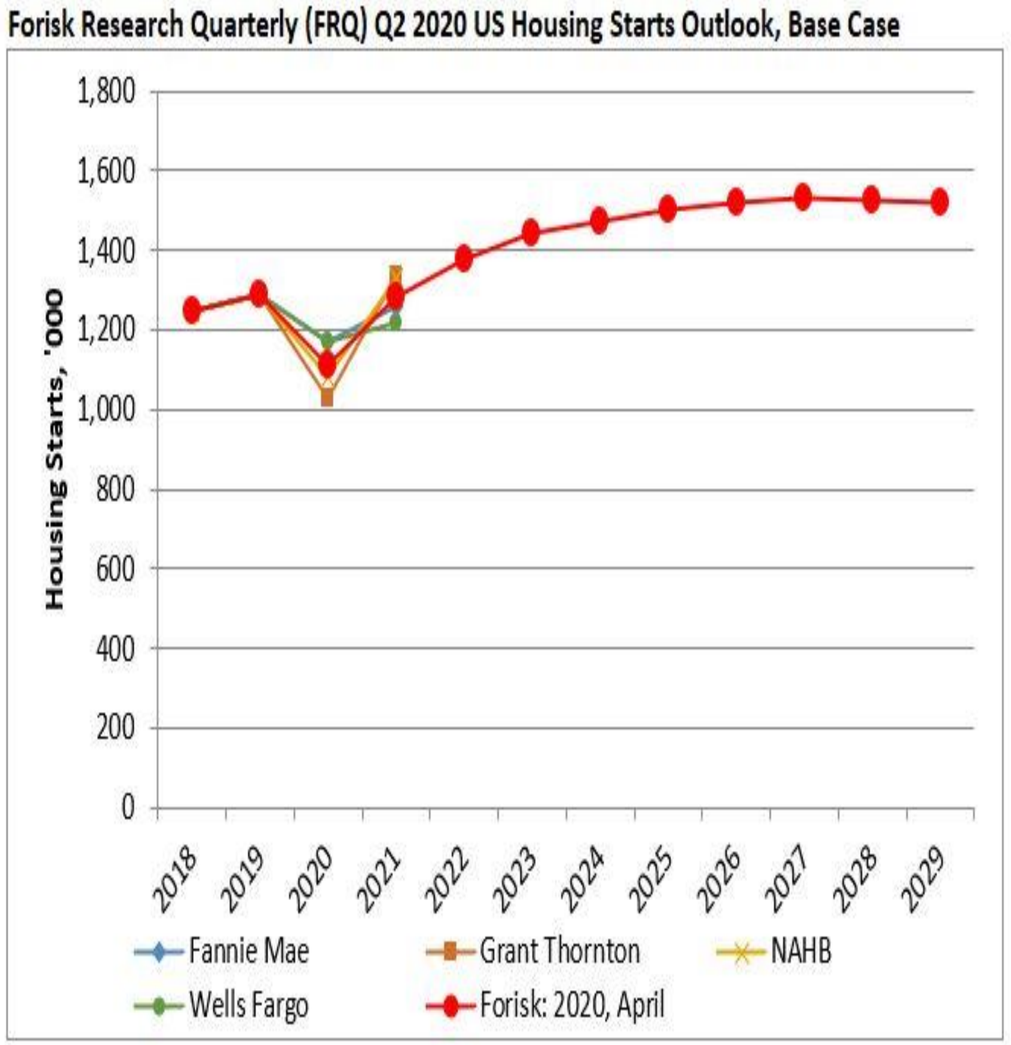
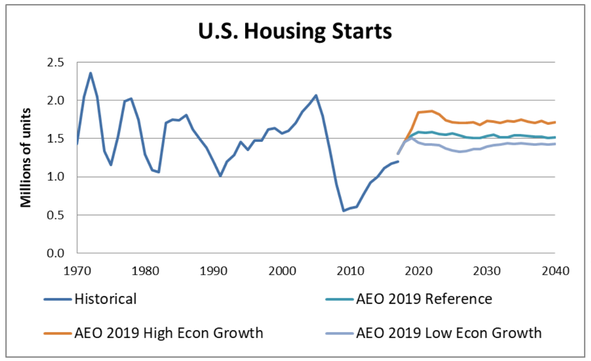
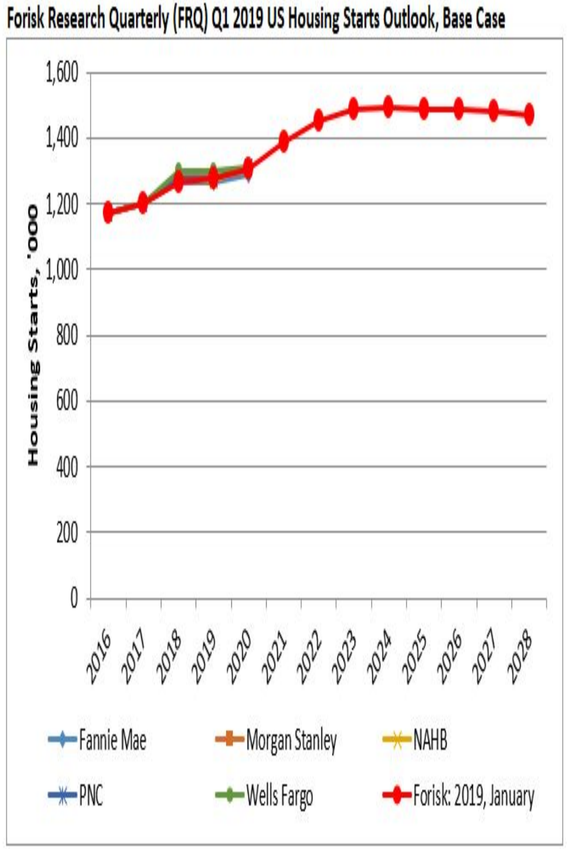
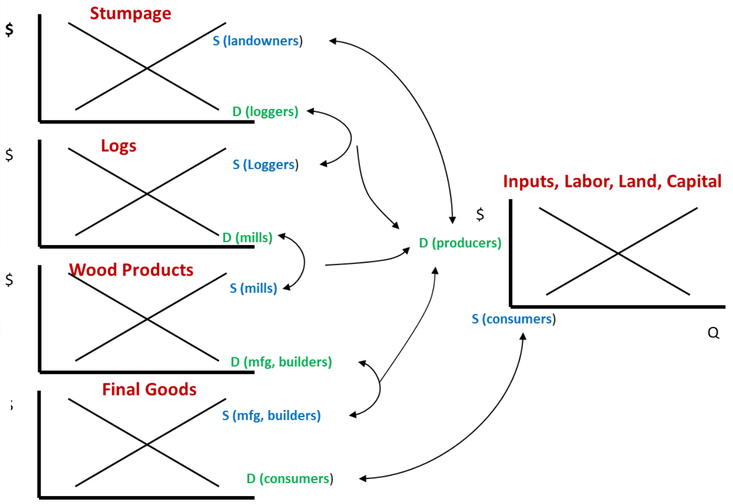
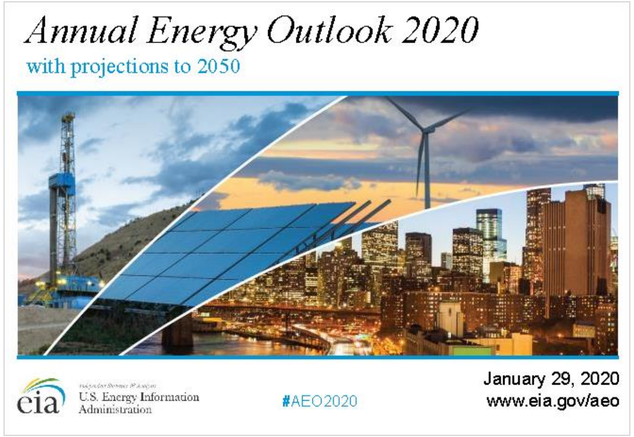


https://forisk.com/blog/2020/04/17/us-housing-starts-outlook-q2-2020-update-covid-19/



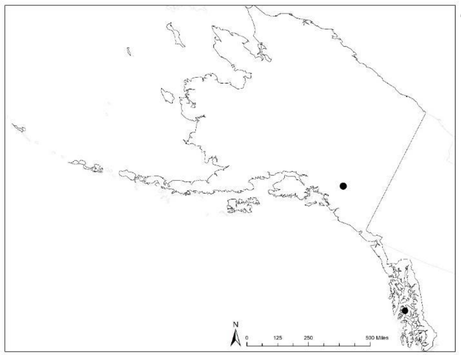






FOREST CARBON – *OPPORTUNITY KNOCKS*

Active Projects in the CA Cap-and-Trade Market



Descriptive Statistics

Item	Value
Projects	96
Acres	4,343,307
QRs	124,445,079
Project Acreage	
Maximum	506,729
Minimum	521
Average	45,243
Project QRs	
Maximum	14,861,093
Minimum	(145,559)
Average	1,296,303

A **QR** is a ton of avoided CO_2 emissions

The current price per QR is between $10 and $15

MASS TIMBER

University of Idaho ICCU Arena

Framework

Project: A 12-story high-rise containing retail space, offices and affordable housing

Location: 430 NW 10th Ave., Portland

Anticipated construction start date: Summer 2017

Anticipated construction completion date: Fall 2018

Developer: project^

Co-developer: Home Forward

Architect: LEVER Architecture

General contractor: Walsh Construction Co.

Structural engineer: KPFF Consulting Engineers

Fire, acoustic and sustainability engineer: Arup

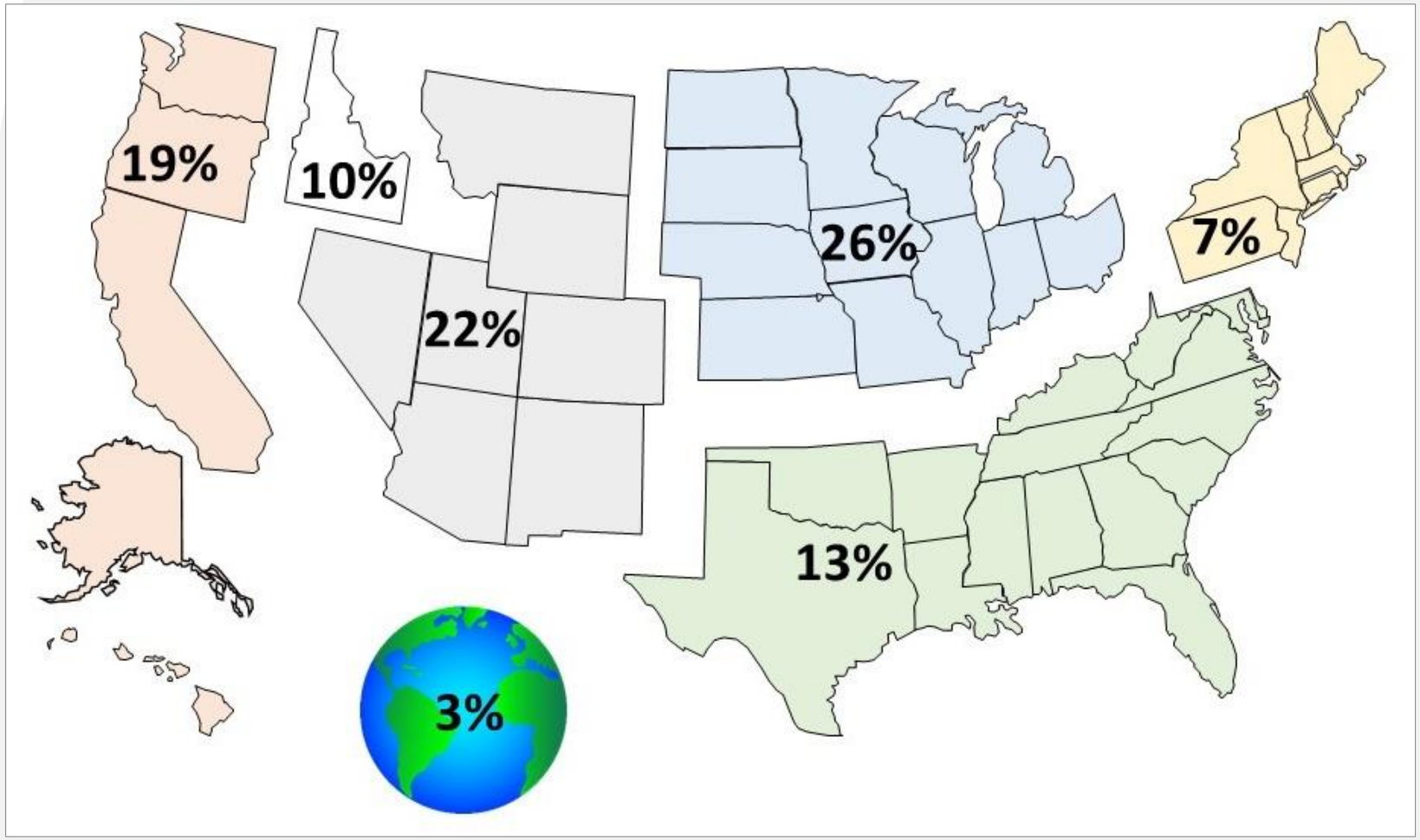
Mass timber consultant: StructureCraft Builders Inc.

Construction: CLT resilient rocking wall core, glulam post-and-beam frame and CLT diaphragm

https://oregonforests.org/node/163

ECONOMIC IMPORTANCE OF IDAHO'S FORESTS

90% of Idaho's primary wood products are exported out of state



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