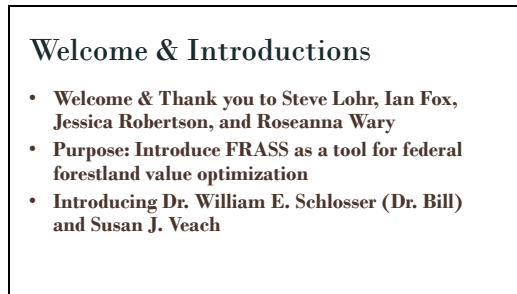


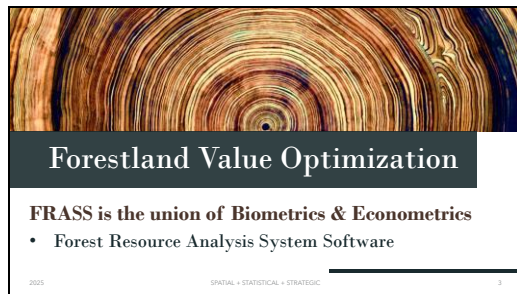
Slide 1



Slide 2



Slide 3



Slide 4



Federal Timber Economics Has Been Fragmented

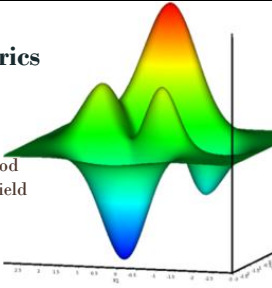
- Biometric models exist, but economic optimization has been missing
- Harvest schedules often ignore market cycles — FRASS corrects that misalignment.

2025 FRASS IS YOUR PILOT 4

Slide 5

Forest Econometrics Defined


- Forest: The asset
- Econometrics: The method
- Integration: Growth & yield + Market data + Optimization logic



Forest Econometrics

2025 FROM MAPPING THE LAND TO MODELING ITS FUTURE 5

Slide 6



Maps, Models, and Meaning


The Evolution of Forest Decision Tools

2025 FROM MAPPING THE LAND TO MODELING ITS FUTURE 6

Slide 7

**Metzger's Maps
1948**

- Property Lines
- Section Numbers
- Roads




2025 FROM MAPPING THE LAND TO MODELING ITS FUTURE

Slide 8

**USGS Maps
1961**

- Contour Lines with Elevation
- Section Numbers
- Rivers & Lakes



2025 FROM MAPPING THE LAND TO MODELING ITS FUTURE

Slide 9

**Jack
Dangermond
1969 ESRI**





ArcGIS
1980
INVENTION • INNOVATION

2025 FROM MAPPING THE LAND TO MODELING ITS FUTURE

Slide 10

Fire Prone Landscapes 2003

- Attributes as Factors of Risk
 - Elevation
 - Aspect
 - Vegetation

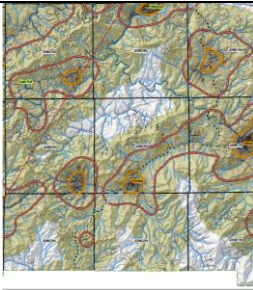


2025 INVENTION → INNOVATION

Slide 11

Wildland Urban Interface 2004

- People,
- Structures,
- Infrastructure,
- The Economy
- The Way of Life




2025 INVENTION → INNOVATION

Slide 12

Econometrics Emerges

- Turning growth models into management decisions
- Bridging science, strategy, and valuation



**FOREST
ECONOMETRICS**

FOREST RESOURCE ANALYSIS SYSTEM SOFTWARE

Slide 13

Nominal vs. Real Log Price Trends

- Each map innovation gave rise to smarter decisions.
- FRASS continues this tradition—elevating data into valuation logic.

Species - Grade	Average	High	Low	Market
Douglas Fir	\$771	\$1,200	\$376	●
1M and Better	\$844	\$1,200	\$376	●
2 Saw	\$770	\$1,174	\$375	●
3 Saw	\$761	\$1,174	\$365	●
4 Saw/CNS	\$561	\$1,125	\$303	●
USP*	\$391	\$1,114	\$176	●
Compton	\$400	\$1,100	\$180	●
Westernred	\$366	\$1,174	\$176	●
1M and Better	\$121	\$125	\$125	●
2 Saw	\$144	\$140	\$140	●
3 Saw	\$134	\$139	\$140	●
4 Saw/CNS	\$47	\$121	\$44	●
USP*	\$27	\$124	\$25	●
Compton	\$57	\$130	\$44	●
Regene	\$44	\$140	\$44	●
2 Saw	\$120	\$130	\$120	●
3 Saw	\$101	\$120	\$100	●
4 Saw/CNS	\$40	\$120	\$40	●
Compton	\$1,000	\$1,100	\$1,100	●
1M and Better	\$40	\$140	\$140	●
2 Saw	\$421	\$1,100	\$1,100	●
3 Saw	\$100	\$110	\$110	●
4 Saw	\$44	\$100	\$35	●
USP*	\$71	\$110	\$11	●
Compton	\$50	\$110	\$11	●
Maple	\$11	\$110	\$11	●
USP*	\$11	\$110	\$11	●

WASHINGTON STATE DEPARTMENT OF Natural Resources

2025

Slide 14

Log \$\$

- What is this market doing?
- Can you see the trend?

Cost - Delivered Log Prices

2025

Slide 15

Are You Seeing the Real Market Trend?

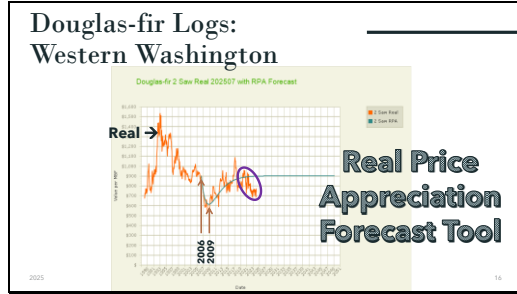
Douglas fir 2 Saw Nominal and Real Values (7/1/2025)

Real →

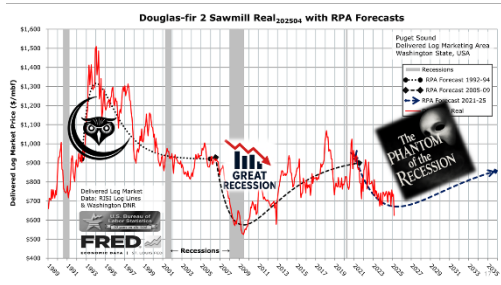
Nominal →

2025

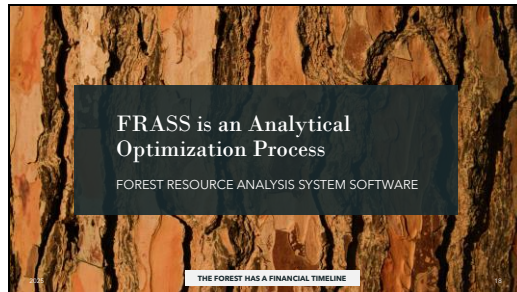
Slide 16



Slide 17



Slide 18




Slide 19



Slide 20


Actionable Decision Data
Getting Value from your data

SQL Server GeoNORMseries




Spatial (GIS)

- Stand Boundaries
- Stream Networks
- Road Networks
 - Non-Op & Distance
- Soil Types
 - Site Index



Biometric


- Growth & Yield
- Volume articulated by Years
- Merchandized Volume:
 - Stand
 - Sort & Grade



Slide 21


Actionable Decision Data
Getting Value from your data

SQL Server GeoNORMseries




Spatial (GIS)

- Stand Boundaries
- Stream Networks
- Road Networks
 - Non-Op & Distance
- Soil Types
 - Site Index



Biometric

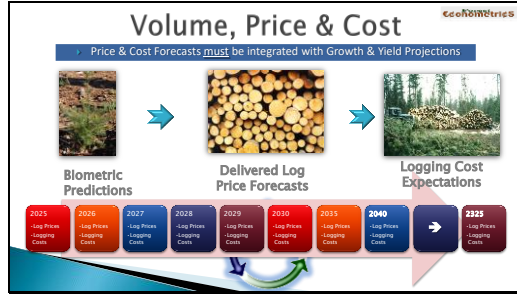
- Growth & Yield
- Volume articulated by Years
- Merchandized Volume:
 - Stand
 - Sort & Grade



Econometric

- Real Price Appreciation
 - Delivered Log Market Value**
 - Logging Costs
 - Trucking Costs
 - Road Construction
- Inflation Rate
- Discount Rate (*Impatience*)


Slide 22



Slide 23

Market Realities Demand Market Units

- FRASS converts cubic feet into marketable board feet.
 - *Biometrics give cubic feet*
 - *Mills buy board feet*
 - *States define log rules*
 - *FRASS makes the translation – every time.*




2025 FRASS FINANCIAL OPTIMIZATION

Slide 24

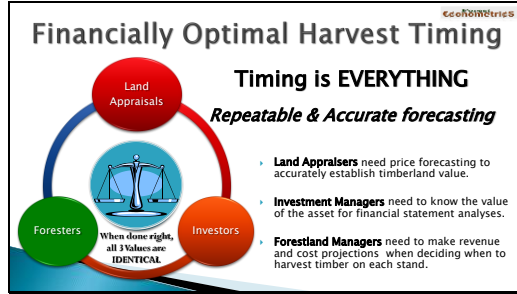
Appraisals Matter

- Delivers stand-level harvest timing + parcel valuation.
 - 50 to 100 pages
 - Within 3 minutes
 - For each Timber Stand on the parcel



2025 FRASS FINANCIAL OPTIMIZATION

Slide 25



Financially Optimal Harvest Timing GeoMetrics

Timing is EVERYTHING
Repeatable & Accurate forecasting

Land Appraisals

Foresters

Investors

When done right, all 3 Values are IDENTICAL

- Land Appraisers need price forecasting to accurately establish timberland value.
- Investment Managers need to know the value of the asset for financial statement analyses.
- Forestland Managers need to make revenue and cost projections when deciding when to harvest timber on each stand.

Slide 26

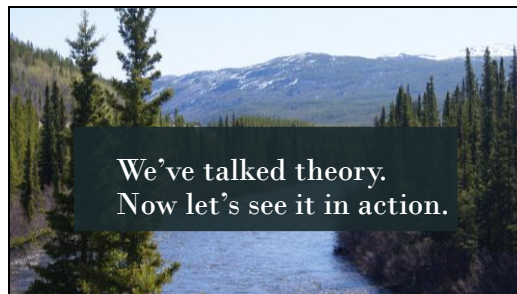


**When done right,
all 3 Values are
IDENTICAL**

**What is your
Impatience Factor?**

We don't manage for timber anymore.
We manage for timing.

Slide 27



We've talked theory.
Now let's see it in action.

Slide 28

USFS Appraisal: Long-Term Patience, Higher Value

3% Inflation
1% Landowner Discount Rate

Valuation: Over \$1 million

Stand ID Number	Operable Commercial Timber Land Acres	Harvest Volumes & Value Summary						Total Present Value	Per Acre
		Current Rotation Harvest Year	Net Present Value	Rotation Length (Years)	Net Present Value	Rotation Length	Third Rotation into Perpetuity		
19008220	15.49	2019	\$218,239	75	\$99,113	75	\$67,814	\$401,701	\$26,541
19009430	3.44	2016	\$31,902	70	\$25,445	70	\$25,445	\$96,811	\$28,228
19009020	2.58	2055	\$161,624	70	\$24,803	70	\$17,408	\$204,256	\$79,021
19028880	7.04	2055	\$94,827	65	\$41,559	95	\$34,751	\$171,237	\$24,308
19069480	4.71	2055	\$107,123	65	\$32,623	80	\$27,635	\$167,391	\$35,555
New Road Construction		-		-		-		-\$1,031,421	-\$1,031,421
Total Value based on Operable Commercial Timber Land Acres:		33.3 Acres		\$1,031,421		\$1,031,421		\$31,076/Acre	
Value per Acre of Unworked Acres:		35.8 Acres		\$28,205/Acre		\$28,205/Acre			
Value per Acre (Entire Parcel):		38.7 Acres		\$26,669/Acre		\$26,669/Acre			
Bare Land Value (Entire Parcel):		38.7 Acres		\$179,011		\$14,081/Acre			

Slide 29

Same Forest, Shorter Horizon – TIMO Perspective

3% Inflation
2% Landowner Discount Rate

Valuation: \$543,751

Stand ID Number	Operable Commercial Timber Land Acres	Harvest Volumes & Value Summary						Total Present Value	Per Acre
		Current Rotation Harvest Year	Net Present Value	Rotation Length (Years)	Net Present Value	Rotation Length	Third Rotation into Perpetuity		
19008220	15.49	2010	\$113,725	65	\$13,725	65	\$18,404	\$12,037	
19009430	3.44	2055	\$4,894	60	\$4,894	60	\$17,040	\$10,768	
19009020	2.58	2045	\$61,862	60	\$6,462	60	\$162,620	\$55,302	
19028880	7.04	2055	\$61,712	65	\$11,139	65	\$6,170	\$86,712	
19069480	4.71	2055	\$71,474	60	\$12,021	65	\$7,103	\$90,598	
New Road Construction		-		-		-		-\$16,347/Acre	-\$16,347/Acre
Total Value based on Operable Commercial Timber Land Acres:		35.3 Acres		\$443,751		\$443,751		\$16,347/Acre	
Value per Acre of Unworked Acres:		35.8 Acres		\$15,208/Acre		\$15,208/Acre			
Value per Acre (Entire Parcel):		38.7 Acres		\$14,069/Acre		\$14,069/Acre			
Bare Land Value (Entire Parcel):		38.7 Acres		\$374,863		\$7,119/Acre			

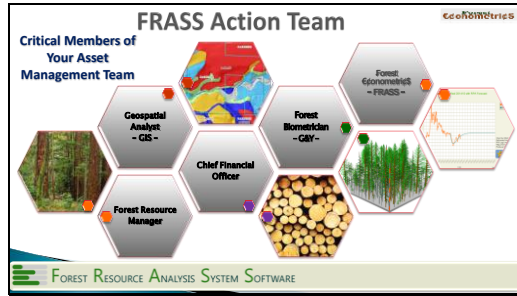
Slide 30

ecofirst

One Forest Different Owners Different Values

	USFS	TIMO
Discount Rate	1%	2%
Inflation Rate	3%	3%
Appraised Value	\$1,031,421	\$543,751
Harvest Timing	Later	Sooner
Ownership Objective	Long-term Stewardship	Return on Investment (ROI)

Slide 31



Slide 32

Proven Accuracy & Precision

- **2005:** Potlatch Corp. | REIT & TRS, 666,000 acres
- **2006:** CCTHTA, Alaska | Multi-jurisdictional analysis (43.5 million acres)
- **2009:** BIA & Tribes: Cobell Settlement (220,000+ acres)
- **2014-2024:** Private-sector valuation consulting (6.5 million acres)
- **50.5+ million acres** analyzed with FRASS methodology

Slide 33

FRASS Mechanics

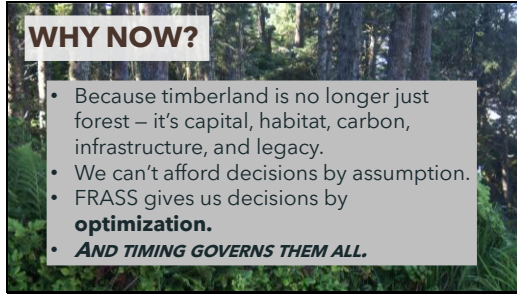
Tools aligned to real-world log sort systems

INTEGRATED UNDERSTANDING

- RPA Forecast Tool & Market Forecasting
- GIS Analyses & Results
- Tree Merchandizing | Trees to Logs
- The optimization layer built atop the foundation of forest science.

FRASS FORECAST OPTIMIZATION

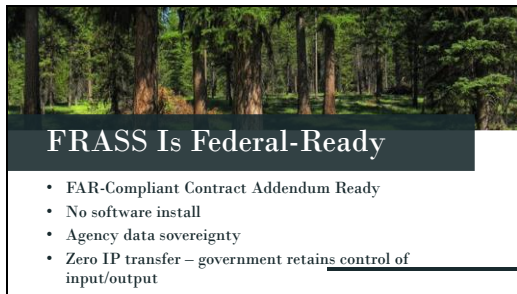
Slide 34



WHY NOW?

- Because timberland is no longer just forest – it's capital, habitat, carbon, infrastructure, and legacy.
- We can't afford decisions by assumption.
- FRASS gives us decisions by **optimization.**
- **AND TIMING GOVERNS THEM ALL.**

Slide 35



FRASS Is Federal-Ready

- FAR-Compliant Contract Addendum Ready
- No software install
- Agency data sovereignty
- Zero IP transfer – government retains control of input/output

Slide 36



Supporting Federal Goals

- Supports ESA compliance and habitat planning
- Aligns with timber economic stimulus
- Responds to **2025 federal economic stimulus for timber sector** ✓

Slide 37

President Trump's Executive Orders

"Immediate Expansion of American Timber Production"

March 1, 2025



2025 WE DON'T JUST PREDICT THE MARKET - WE PREPARE YOU FOR IT. 37

Slide 38

U.S. Secretary of Agriculture Brooke Rollins

Announces Sweeping Reforms to Protect National Forests and Boost Domestic Timber Production

April 4, 2025



2025 WE DON'T JUST PREDICT THE MARKET - WE PREPARE YOU FOR IT.

Slide 39

Demonstration Site: University of Washington's Former Pack Experimental Forest.

Preview & Demonstration Site

- **Demonstration site at Former Pack Forest**
- **Now we have talked, You see it**
- **You want more information**

Risk Isn't Always in the Forest - It's in the Timing



Slide 40

Parcel Distance along Main Road		0.107		20/03/20		2.9	
Timber Stand Statistics (current)							
Stand ID Number	Vegetation Label	Site Index	Riparian Zone Non-Clearable Acres	Operable Commercial Timber Land Acres	BF/Acre per Stand	Total Forested Acres on Parcel	Total BF on Each Stand
19879240	WH33	120	0.00	14.54	36.441	14.54	529.934
19879220	WH12	105	0.00	3.19	0	3.19	0
19879230	DF33	105	0.00	5.25	20.068	5.25	108.519
19879240	DF22	120	0.00	7.52	8.536	7.52	64.155
19899260	DF22	105	0.00	2.98	2.435	2.98	7.287
19879310	DF11	105	0.00	4.20	0	4.20	0
Totals:			0.00	37.68		37.68	709.874


- We welcome you to a Guided Demonstration Site Tour
- We will walk you through real forestland optimization in action.

Live demonstration in FRASS: View scale 30,000 ft → 1:1,200

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FRASS Converts Data into Action

Inventory
Date (FPS,
GIS)



2025 FRASS IS YOUR PILOT

Slide 42



Ownership strategy shapes forest value

Dr. Bill Schlosser@Resource-Analysis.com
Contact us for a site-specific walkthrough or agency onboarding kit.



FOREST
ECONOMETRICS

2025 WE DON'T JUST PREDICT THE MARKET - WE PREPARE YOU FOR IT 42