Cubic Log Scale Use in Idaho: Update

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Timber Measurement Society Annual Meeting

Coeur d' Alene Resort

Coeur d' Alene, Idaho

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The Problem

- The Idaho Department of Lands sells a wide variety of products from Endowment Lands with a Constitutional Mandate to maximize long term financial returns to endowment beneficiaries.
- In order to ensure that we are meeting our fiduciary responsibility we need to be able to accurately measure our output of these products.

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The Problem (Continued)

- We sell Timber Sales (Standing Trees)
- Meaning we don't get to set cutting specifications!
  - We have tried to do so with Pole Sales – terrible idea
- Purchasers may generally choose the products manufactured under our contractual merchantability specifications
- Audits
  - Financial
  - Process

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Endowment Land Products

- Sawlogs
- Peelers
- Poles (Cedar)
- Pulp
- Cedar Products
- Topwood
- Posts and Poles
- Firewood
- Boughs and more

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Current Measurement

- Scribner Decimal C – used for higher value or more variable sawlogs and now poles, unfortunately also used for pulp, firewood, and cedar products much lower value products
- Tons – used to measure low variability or low value sales
- Linear foot (recently ended) – Formerly used for measuring poles
- Lump Sum – used for alternative products usually of low value or very small sales

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Issues IDL needs to address

- Cruise volume ≠ Scaled Volume (Cut-Out)
  - Purchaser Manufactures Forest Products
  - Holding foresters accountable (18% volume error Scribner)
- Multiple Products and Species
  - Cedar Pole Sales as example (must cut longest possible pole)
  - Poles to Topwood; Products and Pulp; Combination logs
- Accuracy and Precision
- Accountability of value
- High Scaling Frequencies
- High variability in weight factors

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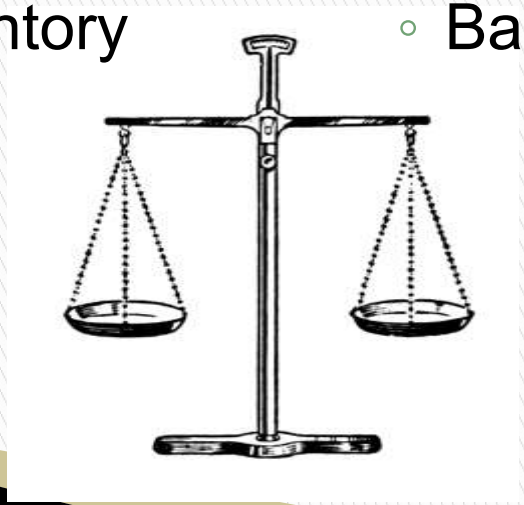
First Question is; "Why do we scale?"

- From the Perspective of both the buyer and seller
  - Establish Log Value
  - Record of species identification
  - Measure of Work Accomplished

- Purchaser
  - Prediction of the quantity of end products
  - Basis for Mill Inventory

- Seller
  - Check the accuracy of Cruise Volumes
  - Basis for Forest Inventory



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Manipulating Scale

A tree or a log is worth what it is worth and that is it no matter how you measure it! Right?

???

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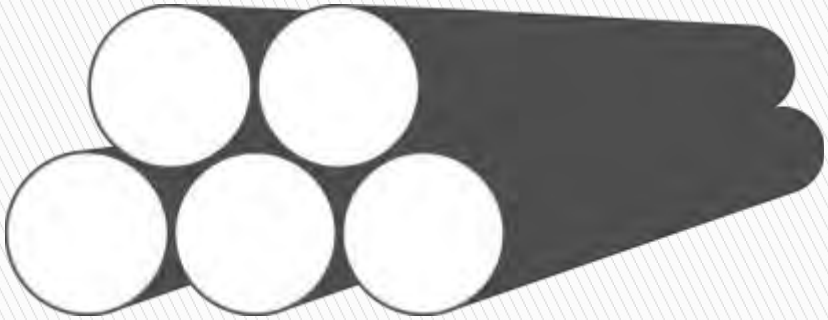
How much volume is in that tree?



Species	DBH – IB (in)	Merch Ht (ft)	Scribner SL BF Min	Scribner SL BF Max	Scribner LL BF Min	Scribner LL BF Max	International 1/4" BF Min	International 1/4" BF Max	USFS Nat. Cubic CF Min	USFS Nat. Cubic CF Max
Grand Fir	9.3	48	70	100	70	90	90	100	16.6	17.3
Douglas Fir	16.6	78	330	370	230	340	400	425	64.4	67.1
Ponderosa Pine	14.5	64	200	270	180	240	255	300	43.9	45.3
Engelmann Spruce	9.0	48	60	80	50	70	85	85	15.5	15.6
Lodgepole Pine	10.1	40	50	70	40	60	65	70	13.4	13.8
Total volume			710	890	570	800	895.0	980.0	154.2	158.7
% dif. (min to max)				25.4%		40.4%		9.5%		3.4%

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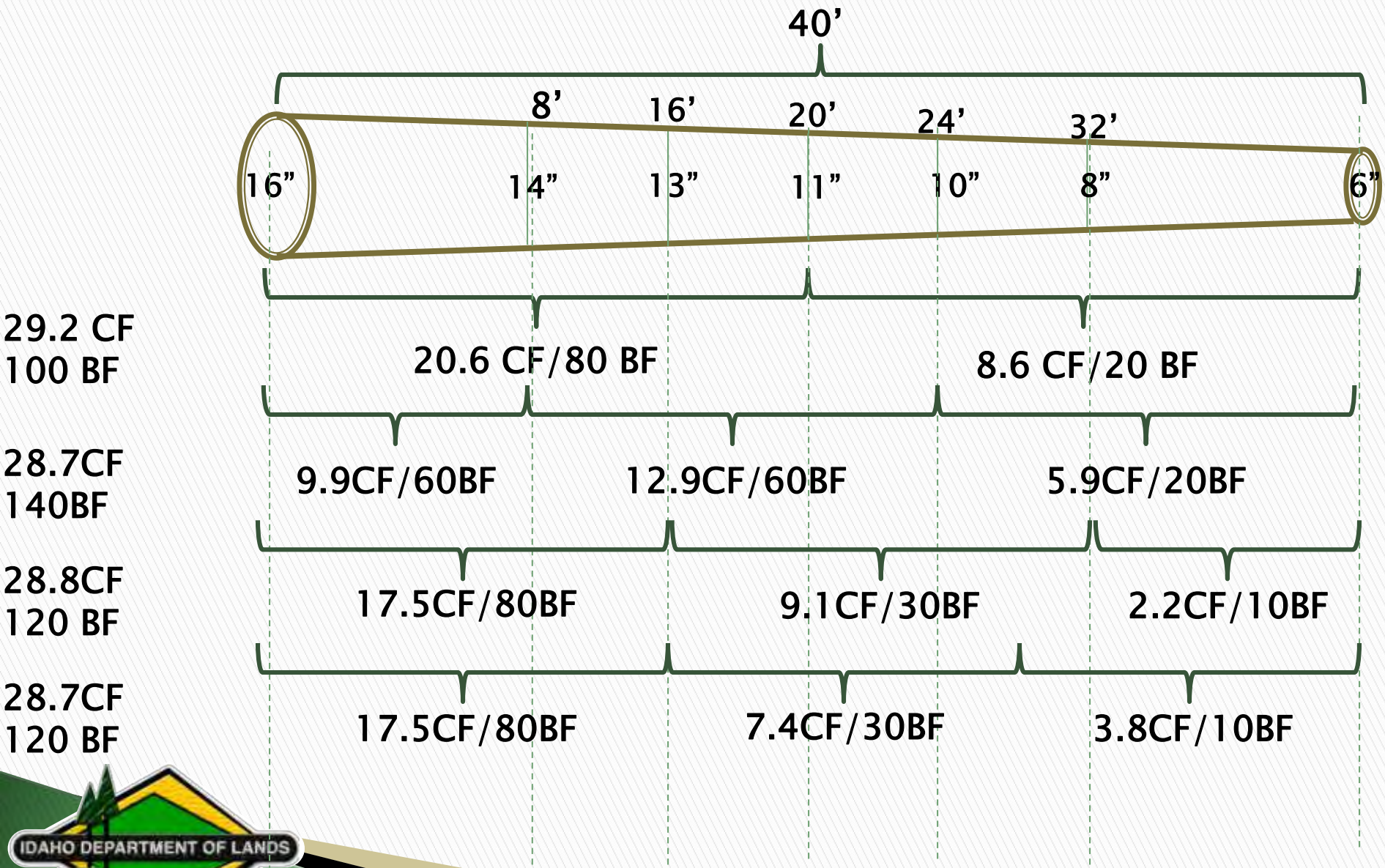
Is any other commodity sold with a unit of measure with this much variability?

Source: The Case for Cubic Log Scale

Differences from bucking a 40’ log into different lengths…



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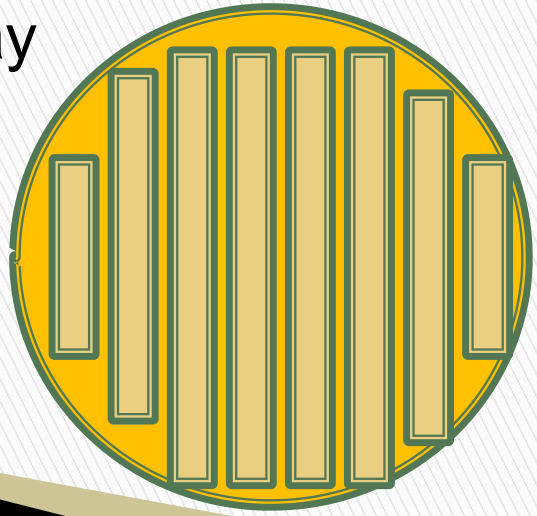
Scribner

- Advantages
  - It's easy
  - It's Fast
  - Mills are comfortable
  - Established (Traditional)
  - Predicts final products
  - Small logs pay their own way out of the woods



- Disadvantages
  - Consistency and Precision
  - Out of date (1842)
  - BF LS ≠ BF LT
  - Easily Manipulated by Manufacturing
  - BF Cruised ≠ BF Scaled
  - Poor correlation to weight
  - Small logs (5,6, or 7")
  - Focuses only on lumber Limitations for other products
  - Audits

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Other BF Rules

- Advantages
  - Already have established rules in other regions
  - Some are more consistent and accurate than Scribner
  - Some are just as easy to use as Scribner
- Disadvantages
  - Still based on lumber recovery not mathmatical volume
  - No history in Idaho
  - While some are more accurate than Scribner they still have a lot of variability

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Weight

- Advantages
  - Easiest of all
  - Everyone knows what a ton is
  - Accountability
  - Any size logs
  - Any product
  - Paid for Bark!

- Disadvantages
  - Volume = Educated Guess
  - Significanty impacted by many variables especially time
  - Variability among species
  - Combination Logs
  - Wrong Product or species in load
  - No way to calculate net
  - Administration nightmare

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Lump Sum

- Advantages
  - No scaling
  - Utilization is great
  - Could be easy to administer
  - Works for any products
- Disadvantages
  - Huge risk for both parties
  - Requires very good cruising
  - No way to measure performance
  - Accountability nightmare

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Cubic (Imperial NOT Metric)

- Advantages
  - Most consistent and Precise
  - Measure multiple products
  - Good correlation with weight
  - Correlation with cruise volume
  - Any size tree or log
  - History in other countries and regions
  - Easier conversions
  - Greater accountability
- Disadvantages
  - More complex
  - More measurements
  - More time to scale
  - Very limited history in ID
  - Mills less comfortable
  - Small logs won't pay their way

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Issues IDL needs to address (from a previous slide)

- Cruise volume ≠ Scaled Volume (Cut Out)
  - Purchaser Manufactures Forest Products
  - Cedar Pole Sales as example!
  - Holding foresters accountable (18% scaling volume error)
- Multiple Products and Species (247 MMBF)
  - Poles to Topwood; Products and Pulp
- Accuracy and Precision
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- High Scaling Frequencies
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First a Definition;

- Heresy – is any belief or theory that is strongly at variance with established beliefs or customs,… *Wikipedia.*

Heretic =

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The Chosen Solution

Obviously Cubic

- Our Goal is improvement not perfection
  - We are not striving for perfect cubic measurement
  - Gross is cubic – Defects are based on Scribner just like the USFS cubic
    - Experience and Industry's Comfort
    - Recognition that one product is still 'King'… lumber

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Challenges with Cubic details in the next presentation

- Timeline
  - My own team
  - Industry et. al.
- Rules
- Defect
- SAFETY
- Check Scaling
- Techniques (Lengths and Bu
- Productivity

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More Problems that Cubic Measurement Helps Resolve

- Slash Disposal
  - We can more easily require removal if we can measure products rather than sell lump sum
- Utilization issues
- Marketing of Delivered Product Sales!
- Purchasers will eventually better know what they are buying
  - In the future utilization decisions will be made at the mill by merchandizers…we will deliver tree length logs, soon!

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Where are we now?

- Background
  - Handbook
  - Measurements
- Tools
  - Handhelds
  - Navision/Crystal Reports etc. etc.
- Transition period
  - Purchasers and Foresters time to adjust

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Where are we going?

- Plan is to bring in a project manager to assist with IT updates
  - Handhelds
  - Navision
- Handbook/rules are in development
  - Purchaser Input
- Start with former “Pole Sales”
- Report volumes in both rules
- Gradual transition to cubic

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Projects

- Handbook
  - Provide Draft to Industry
  - Second Level Editing
- Techniques
  - Large End Diameter on Butt Logs
  - Midpoints? Lengths? SAFETY!
- Procedures (Frequencies)
- Handheld (Upgrade Planning and Testing)
- Navision (Testing)

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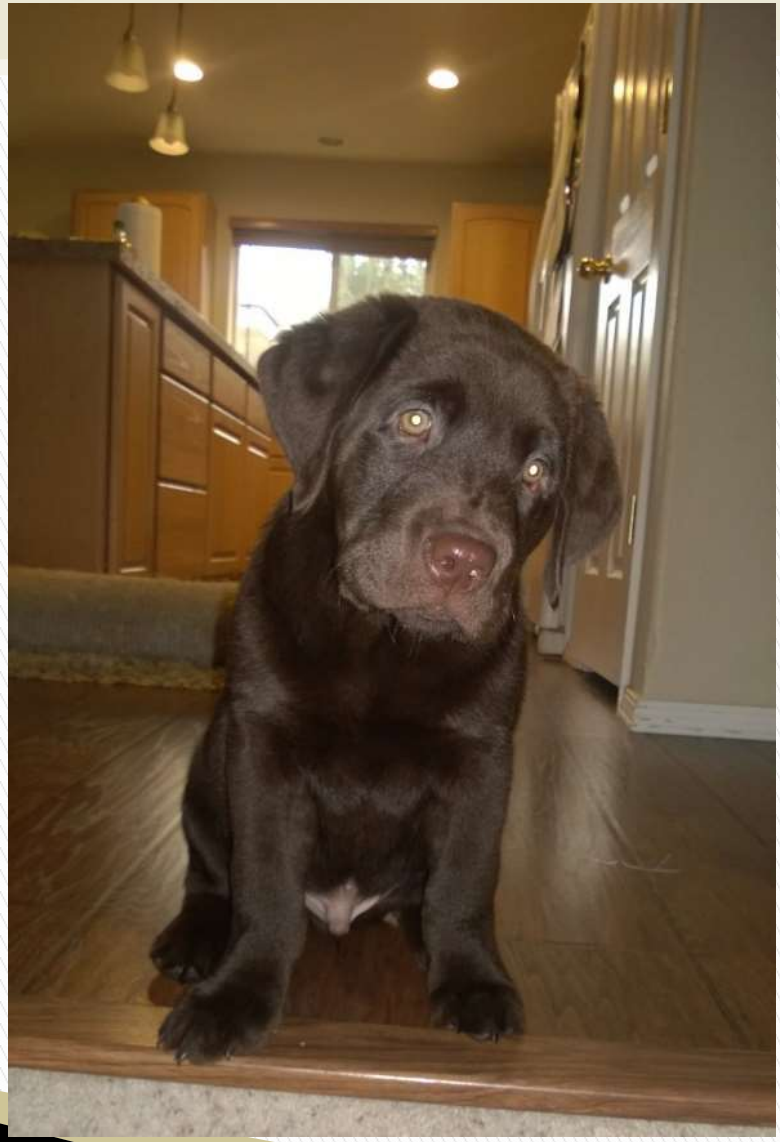
Any questions?



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