

“How To Improve Timber Cruise Accuracy”

A Presentation

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Presentation Contents

- **What is important When Timber Cruising Larger, More Valuable Timber**
 - Acreage
 - Sampling System
 - Tree Height Measurement
 - Tree Count
 - Form Factor
 - Diameter
- **Conclusion**

How To Ruin A Cruise

- Get Acres Wrong
- Choose the wrong sampling system
- Measure Tree Height incorrectly
- Miss tree count
- Use one form factor for entire stand
- Classify diameter

How Not To

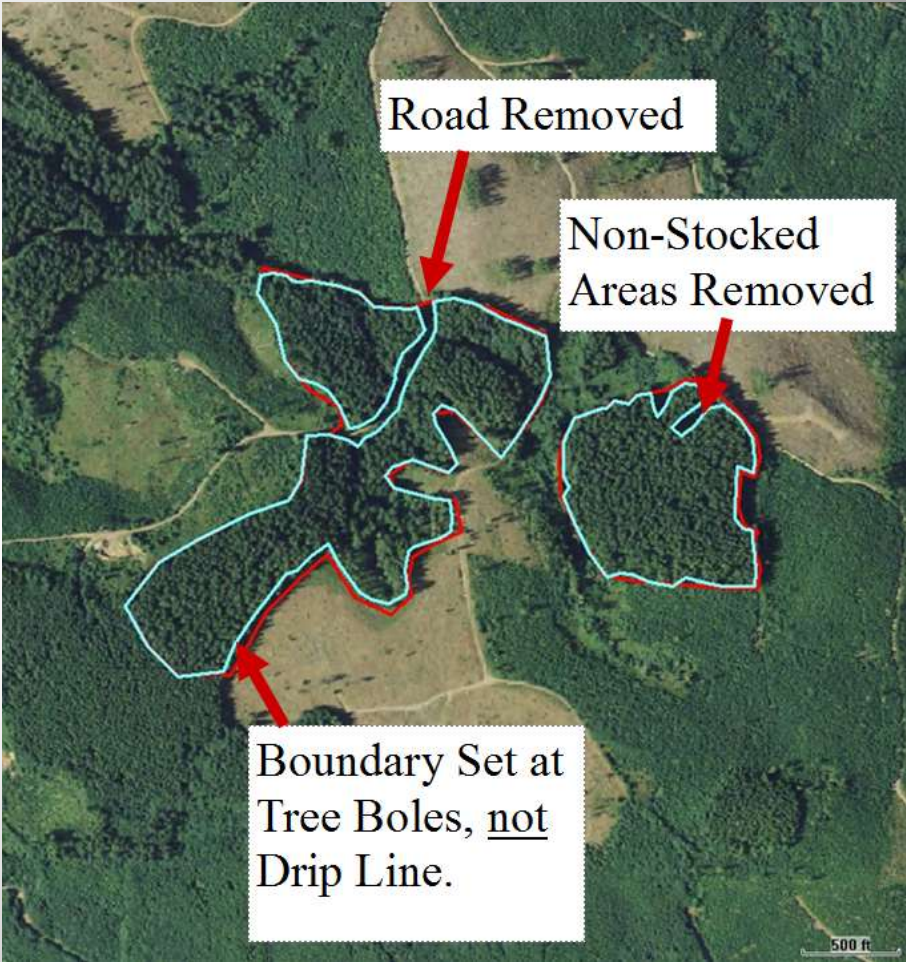
- Get Acres right
- Choose the best sampling system
- Measure Merchantable bole height
- Good Tree count
- Estimate/Measure Form Factor on Each Tree
- Measure Diameter 1/10"

Acreeage Must Be Accurate

- GPS your cruise units if possible
- GPS To the Tree Boles, Not Drip Line
- Stratify out roads and non stocked areas large enough to identify on the photo



Sellers Polygon - Buyers Polygon



Cruiser Sets Boundary in Field

- Cruiser sets points on boundary with Offset GPS points.
- Cruiser navigates from plot to plot with GPS unit
- GPS is On all day
- Boundary points made into polygon



Acresage Difference Seller/Buyer

TMS Timber Sale			
Unit 1	Seller Acresage	Buyer Acresage	Dif.
	42.7	32.2	
		8.9	
	-----	-----	
	42.7	41.1	1.6
Unit 2			
	19.7	18.8	0.9
Totals:	62.4 Acres	59.9 Acres	2.5 Acres
2.5 acres X 50 MBF/Ac. X \$405/MBF = \$50,625.00			

Sampling Systems

“Once Size Does Not Fit All”

- **Variable Plot**
 - Larger stands
 - Acreage known
- **Fixed Area Plot**
 - Acreage Known
 - Younger trees
- **Strip Cruise**
 - Do not have to know acres
- **100%**

Variable Plot Cruising

- Very Efficient Cruising
- Must Know acreage
- Good for units 10 Acres and bigger
- Frequently only 3 or 4% of trees cruised
- Great for Medium to large timber



Using the Wrong Sampling System

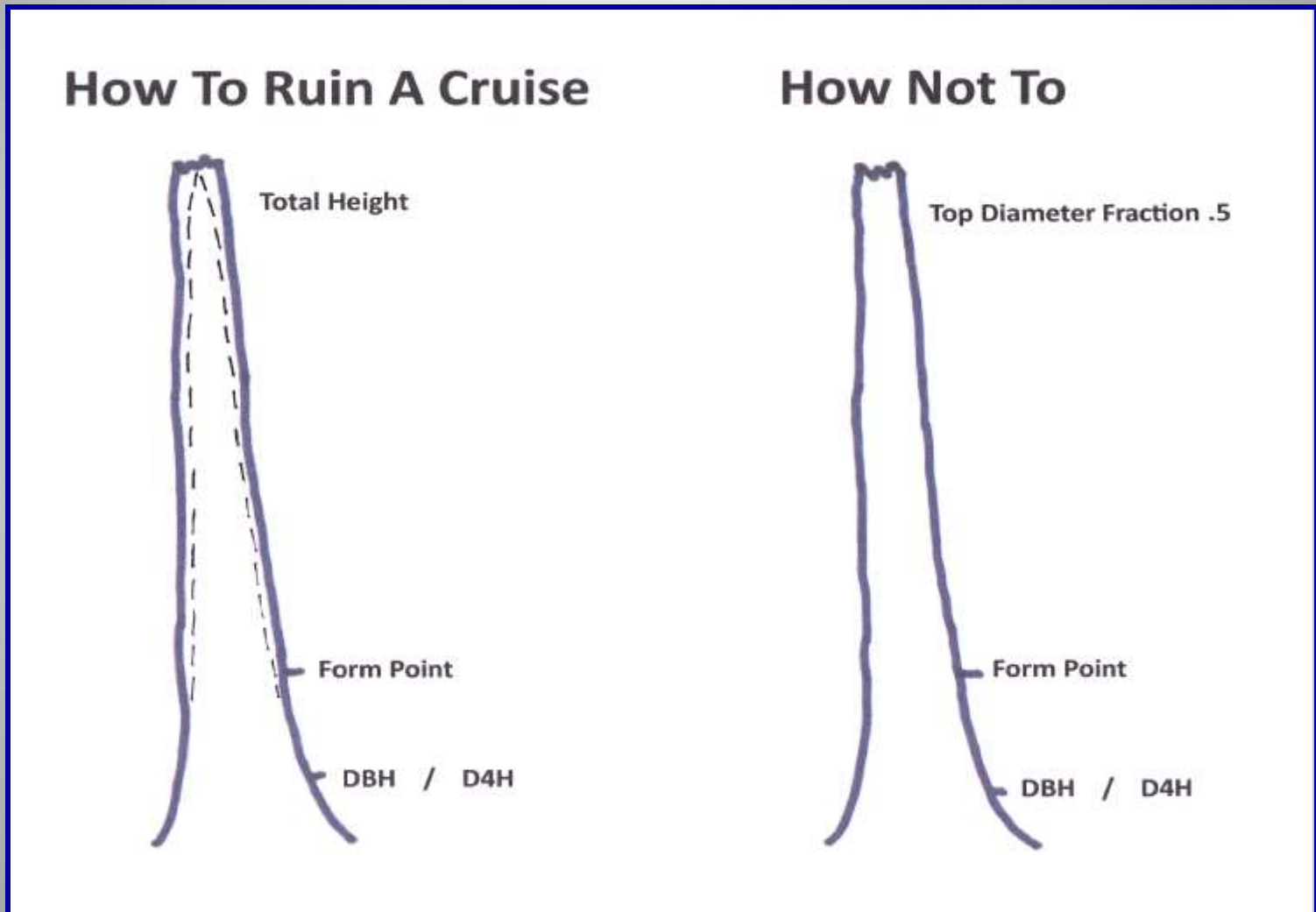
How to Ruin a Cruise - How Not To

- 40 BAF when it should be 20
- Variable Plot Cruise in 3 acre unit
- Variable Plot Cruise in tall, dense brush
- Ave. 4-6 Trees/Plot
- Strip Cruise or 100%
- Fixed Plot or Strip Cruise

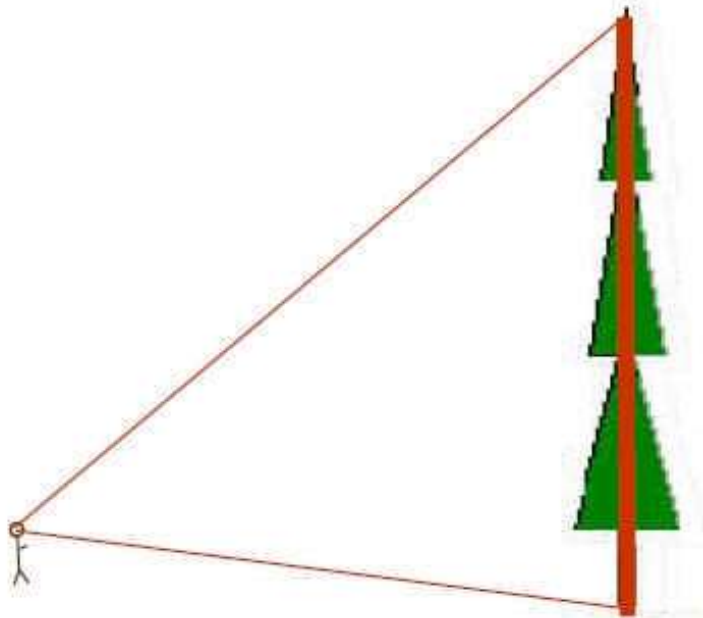
Tree Heights Must Be Accurate

- Measure some heights on every plot
- Measure to accurately define the tree shape
- Be careful of leaning trees

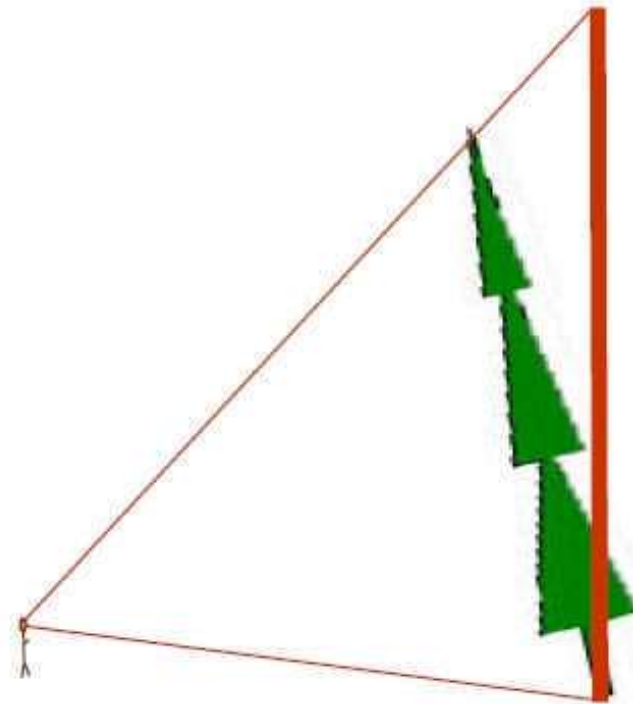
Define the Shape Of The Tree



Leaning Trees – Use Missing Line Mode



Three Point Height Measurement works fine with normal trees.



The Three Point Height Measurement overstates the tree height when the tree is leaning toward the cruiser

Tree Count – No Room For Error

- Sight at 16 feet, not DBH
 - Trees rounder at 16'
 - Better back light
- Estimate count when approaching plot
 - Never miss a tree behind another tree
- Tree Count on Count Plots Is Still Important



Form Factor – Taper In Butt Log

- Diam @16'/Diam@D4h
- Easy to Estimate
- Easy to Measure
- Can Vary a lot from tree to tree in a stand and between species



Tree Diameter at DBH or D4H

- Record to 1/10th inch if you measure
- Estimate to the inch
- Measure trees close to plot center
- Diameter is more important in Fixed plot, Strip Cruising, & 100% than in Variable Plot
- It is last on the list for a reason.



Equipment to help you improve Cruise Accuracy: Modern Technology

- **RD1000 BAF Scope**
- **Laser Rangefinders with built-in compasses**
- **Laser Rangefinders for tree heights**
- **GPS Units For Determining Acreage**

Conclusion

- **Timber Cruising is Hard Work**
- **You have to get everything right, every time**
- **The Value of the resource is very high**
- **NEVER count on compensating errors**
- **New Technology Helps with Accuracy**

Thanks!

For all your GPS Work, May your:

- PDOPS be low
- Satellites be High in the Sky

For data collection:

- May your handheld never crash
- May your batteries last all day

For Timber Cruising:

- May your tree boles be easy to see
- May the hills be less steep than last year.



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