

“Forest Carbon Inventory for the Small Landowner”

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Timber Measurements Society

April 8th, 2010

- **Woodlands Carbon Company**
 - **Family forests**
 - **Chicago Climate Exchange (CCX)**
 - **Concerned consulting foresters**
- **“Guidelines for Developing Baseline Forest Inventories to Meet the Requirements of the Chicago Climate Exchange”, Northwest Woodlands, Summer 2009.**

Rules of the Chicago Climate Exchange -

- 1. The estimated inventory must have a 90% confidence interval that is no larger than +/- 10%.
- 2. The inventory must be capable of being grown with the FVS growth model.
- 3. The inventory systems and procedures must be capable of passing an inspection by CCX-approved verifiers.

Rules of the Chicago Climate Exchange -

- 1. The estimated inventory must have a 90% confidence interval that is no larger than +/- 10%.
 - “At last! Finally, some *standards*.”

Sampling Method:	Full measure all plots				
Confidence Level:	90%		t= 1.7		
	Allowable Error (% of Mean)				
CV	25%	20%	15%	10%	5%
30%	4	7	12	26	104
45%	9	15	26	59	234
50%	12	18	32	72	289
55%	14	22	39	87	350
60%	17	26	46	104	416
65%	20	31	54	122	488
70%	23	35	63	142	566
75%	26	41	72	163	650

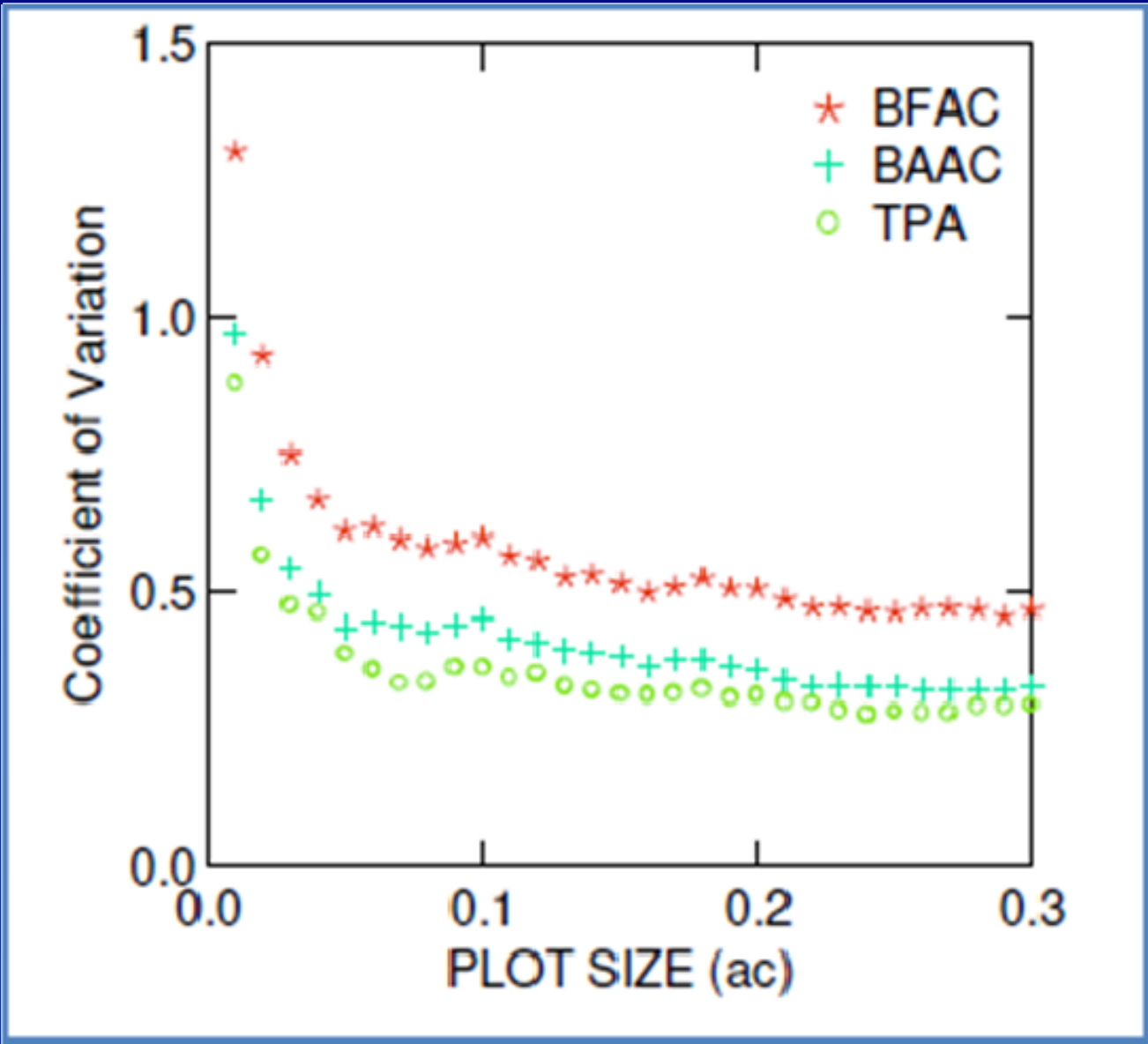
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 - Stratification – one of our most powerful tools for reducing the variability

Stratum	Acres	Weight (w_h)	Plots	Volume/ acre	90% CI
Old Doug-fir	30	.40	17	6,200	+/- 11%
Young Doug-fir	25	.33	14	2,300	+/- 22%
Hardwoods	20	.27	12	3,900	+/- 24%
Total	75	1.00	43	4,292	+/- 9.3%

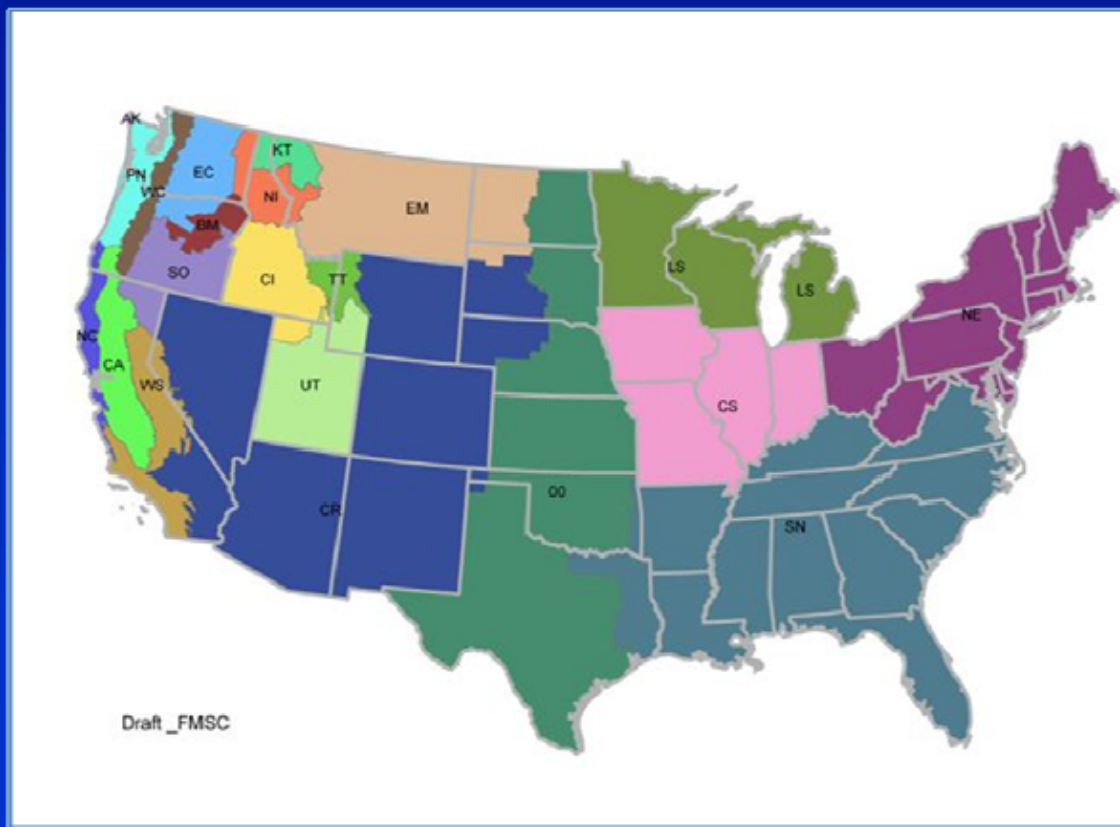
Rules of the Chicago Climate Exchange -

- 1. The estimated inventory must have a 90% confidence interval that is no larger than +/- 10%.
 - Stratification – one of our most powerful tools for reducing the variability
 - Consider “plot size” – small plots tend to introduce more variability than large plots



Rules of the Chicago Climate Exchange -

- 2. The inventory must be capable of being grown with the FVS growth model.



“CARBCALC”

Calculates above-ground and below-ground carbon tons per acre, in living vegetation.

Rules of the Chicago Climate Exchange -

- 2. The inventory must be capable of being grown with the FVS growth model.
 - FVS requires a tree list for each stand.
 - Ideally plot number, tree number, species, dbh, total height; can work with stand table
 - “Inventory summaries” won’t work.
 - FVS requires a site index for each stand.

Rules of the Chicago Climate Exchange -

- 3. The inventory systems and procedures must be capable of passing an inspection by CCX-approved verifiers.
 - *What will the verifiers look for?*
 - Documented systems and procedures for data collection, data management, and reporting;
 - QA/QC measures, such as check cruising;
 - Correct arithmetic and calculation of statistics;
 - Rigorous/documented annual update procedures;
 - A spatial (GIS) stands layer that is in sync with the tabular data for the stands.

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