

Stocking Standards Information Session

Burns Lake, BC

January 26th, 2014



BCTS
BC Timber Sales

Disclaimer

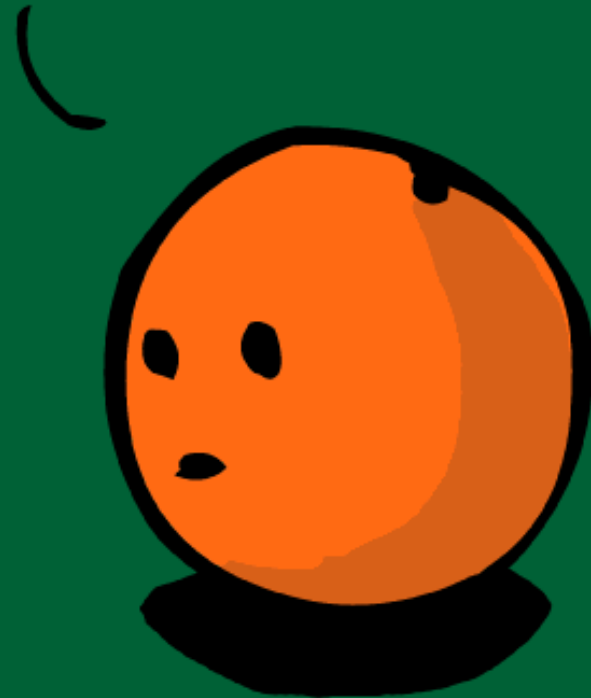
- ▶ Some information contained in this presentation contains forward-looking statements. These forward-looking statements include, without limitation, statements relating to revenues and earnings. The words "believe", "intend", "expect", "anticipate", "project", "estimate", "predict", "is confident", "has confidence" and similar expressions are also intended to identify forward-looking statements. These forward-looking statements are not historical facts. Rather, these forward-looking statements are based on the current beliefs, assumptions, expectations, estimates, and projections of the forester and management of BCTS-Babine about the business, the industry and the markets in which we operate.
- ▶ These forward-looking statements are not guarantees of future performance and are subject to risks, uncertainties and other factors, some of which are beyond our control and are difficult to predict. Consequently, actual results could differ materially from those expressed, implied or forecasted in these forward-looking statements. Factors that could cause actual results to differ materially are more than likely.



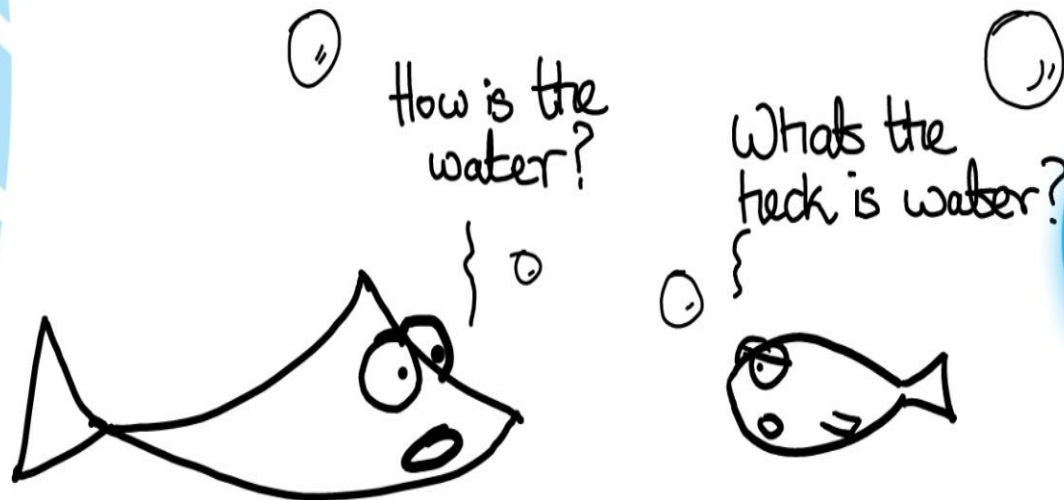
Core Topic Areas

- ▶ Introduction
- ▶ Comparative value
- ▶ Graphs, Graphs and more Graphs
- ▶ Discussion

Well, we're both fruit.



DON'T MAKE ASSUMPTIONS

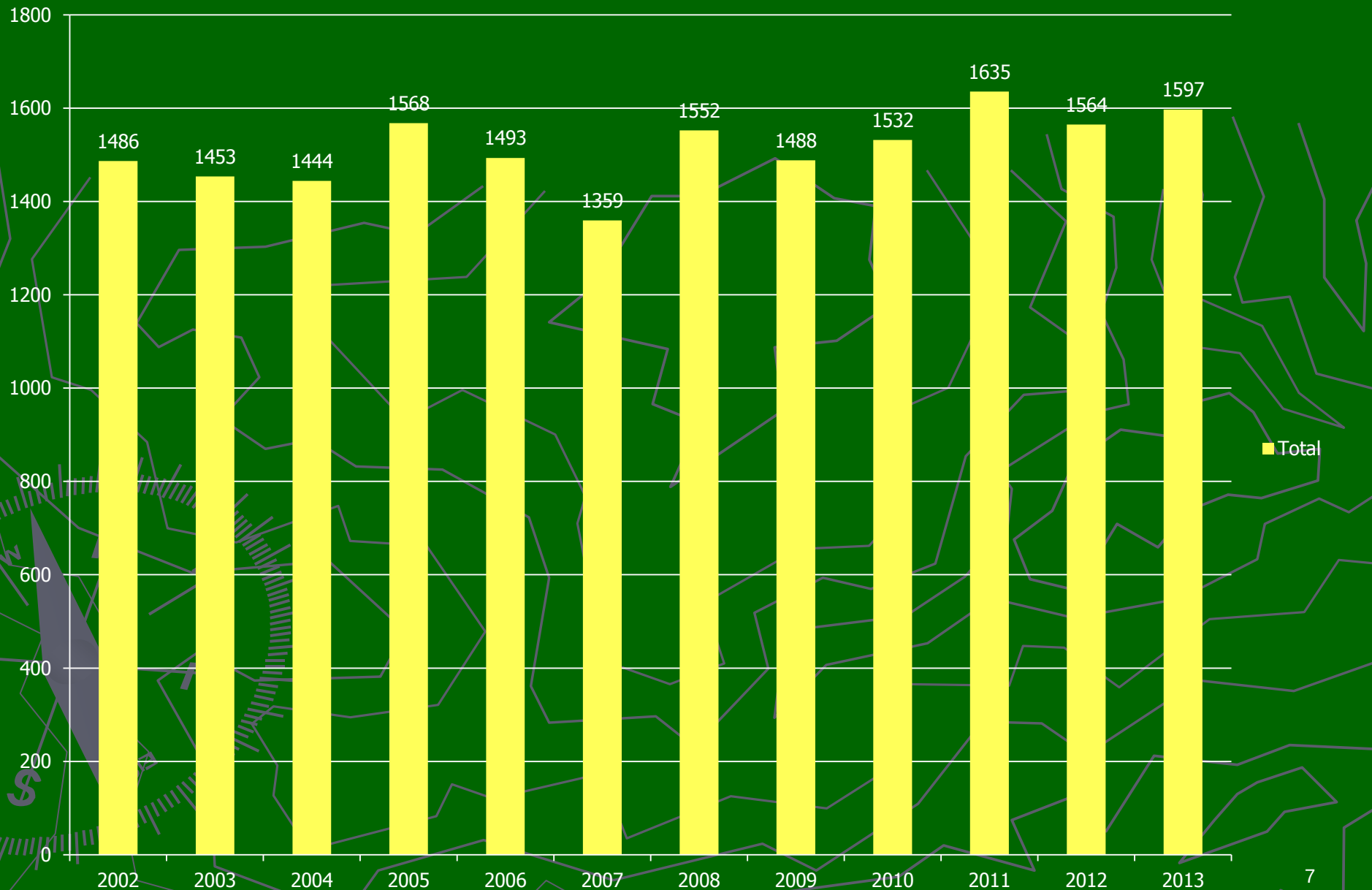


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Supporting Information

- ▶ Tabular data set is derived from CENGEA Forest & Survey Wizard Raw Data export
- ▶ Data range from 2002-2013 for Planting
 - Code and FRPA legislative regime
- ▶ Data range from 2007-2013 for Surveys
 - PHSP and Code Silviculture Regime
- ▶ Compilation of approximately 11000Ha of survey data collected to 1plot/ha
- ▶ Compilation of approximately 10592 plots (sw)
- ▶ Average Free Growing age at time of FG SU 12yrs

Average Planting Densities All Species



2014

SX #	PLI #	BL #	FDI #	Lw #
1074764	1016796	0	432522	109606
40.469657	38.286903	0.00	16.286382	4.127155

2015

SX #	PLI #	BL #	FDI #	Lw #
889456	915032	100383.8	108239.6	127929.4
41.54316	42.737719	4.69	5.0554665	5.975103

2013

U	V	W	X	Y
SX #	PLI #	BL #	FDI #	Lw #
1251489.6	924657.6	21480	559455.2	163413.6
42.851954	31.660978	0.7354915	19.156171	5.595406

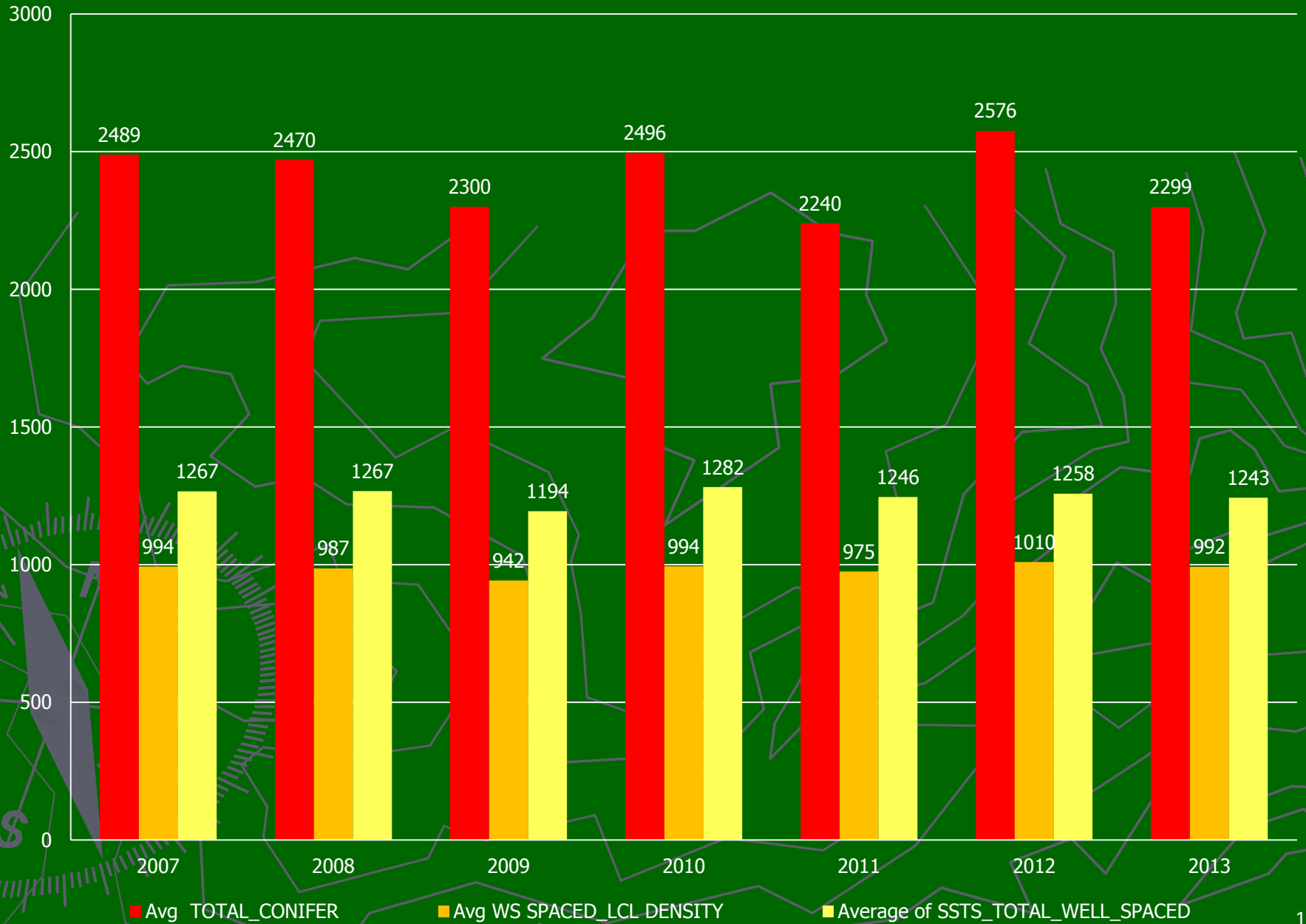
2012

U	V	W	X	Y
1416304	1428744	83584	108440	172208
46.633863	47.043468	2.7521244	3.5705443	5.6701981

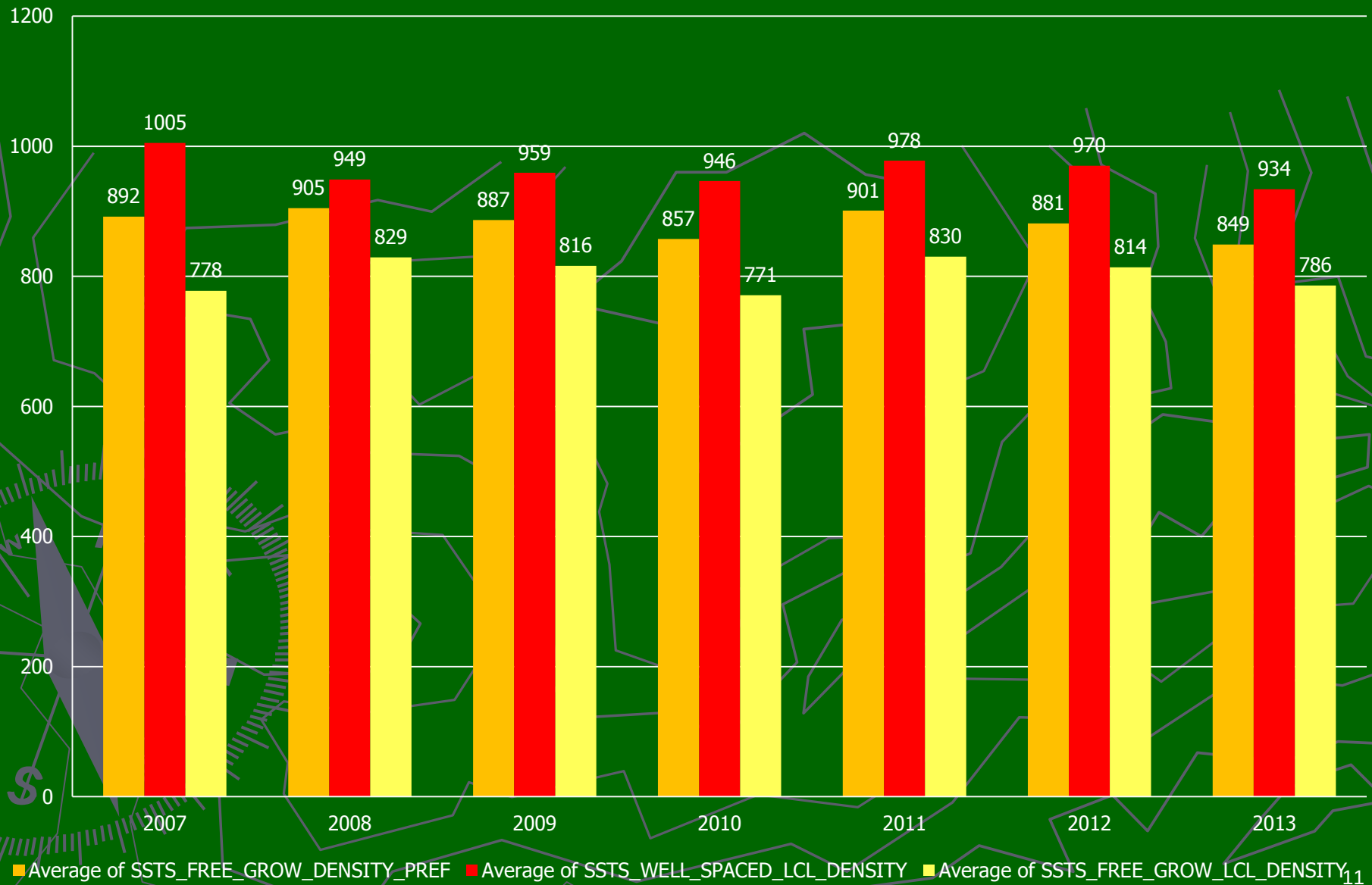
A photograph of a forest landscape. In the foreground, there is a dense layer of dry, brown brush and fallen logs. Several evergreen trees are visible, some of which appear to be dead or dying, with brown, needleless branches. The background shows a line of healthy green evergreen trees under a clear blue sky. The text "Forest Health Graph" is overlaid in the center of the image.

Forest Health Graph

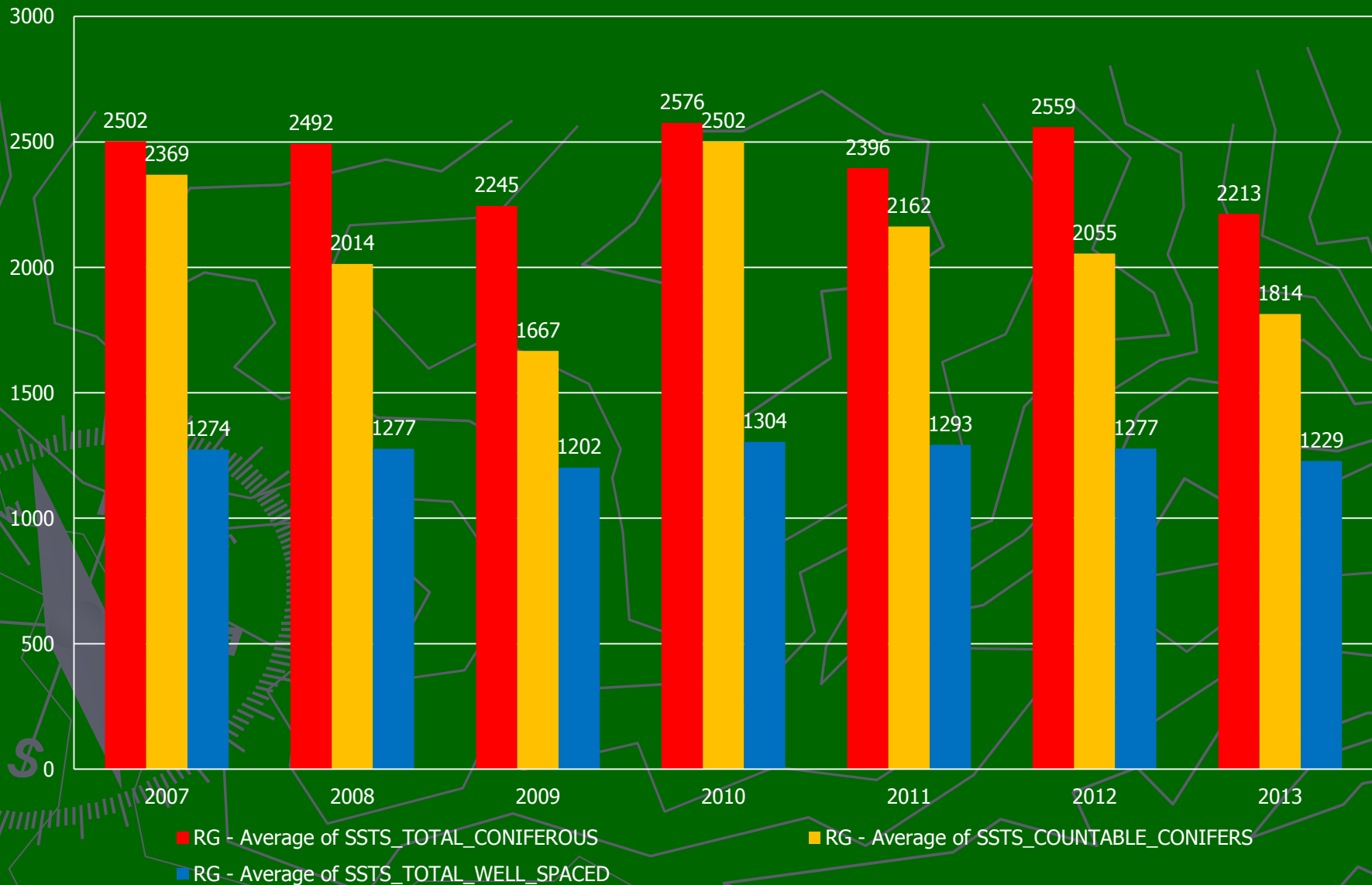
Average Regen Survey (Unsorted BEC) by Year of Survey



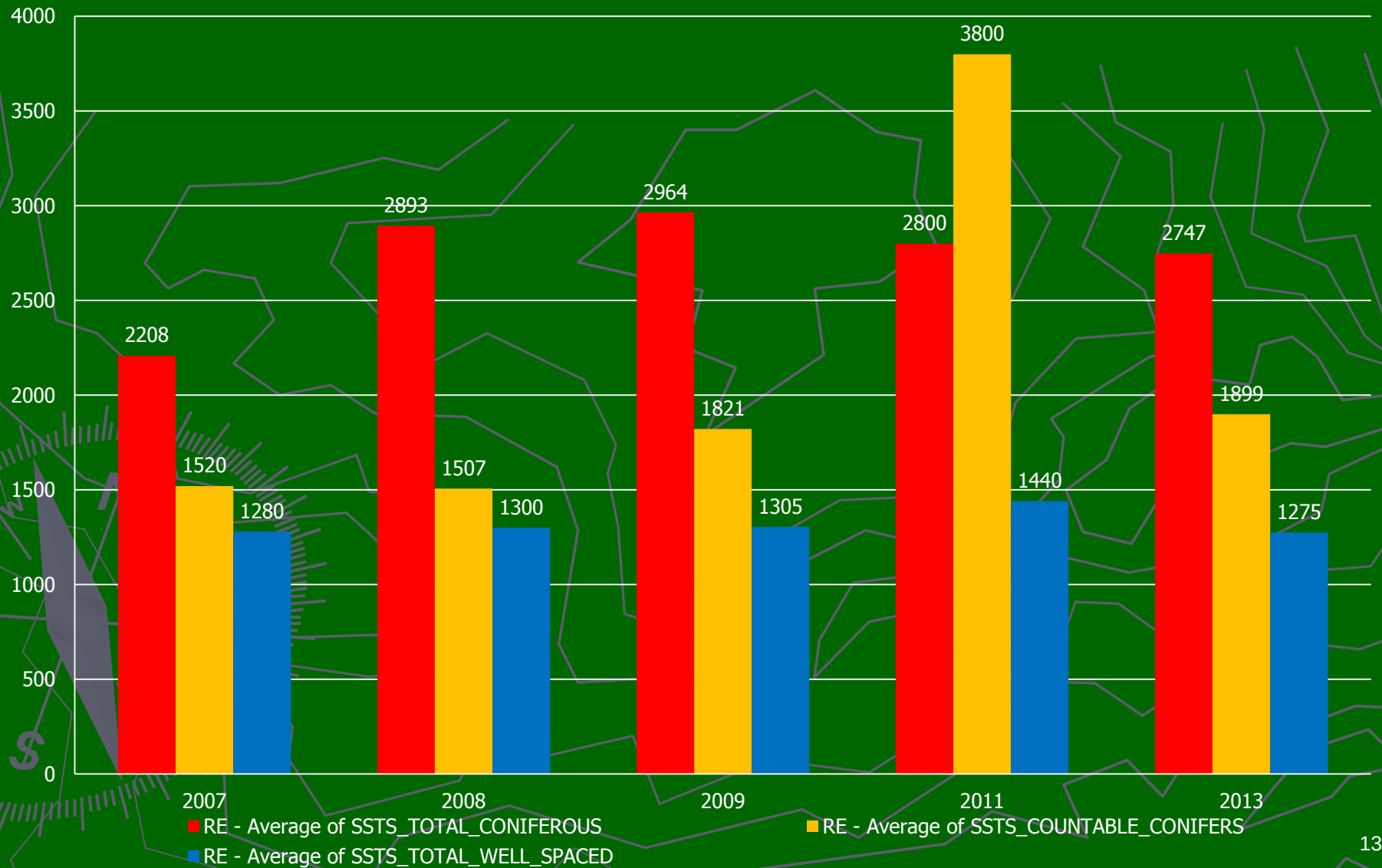
Average Free Growing Survey WS/PREF/LCL (Unsorted BEC)



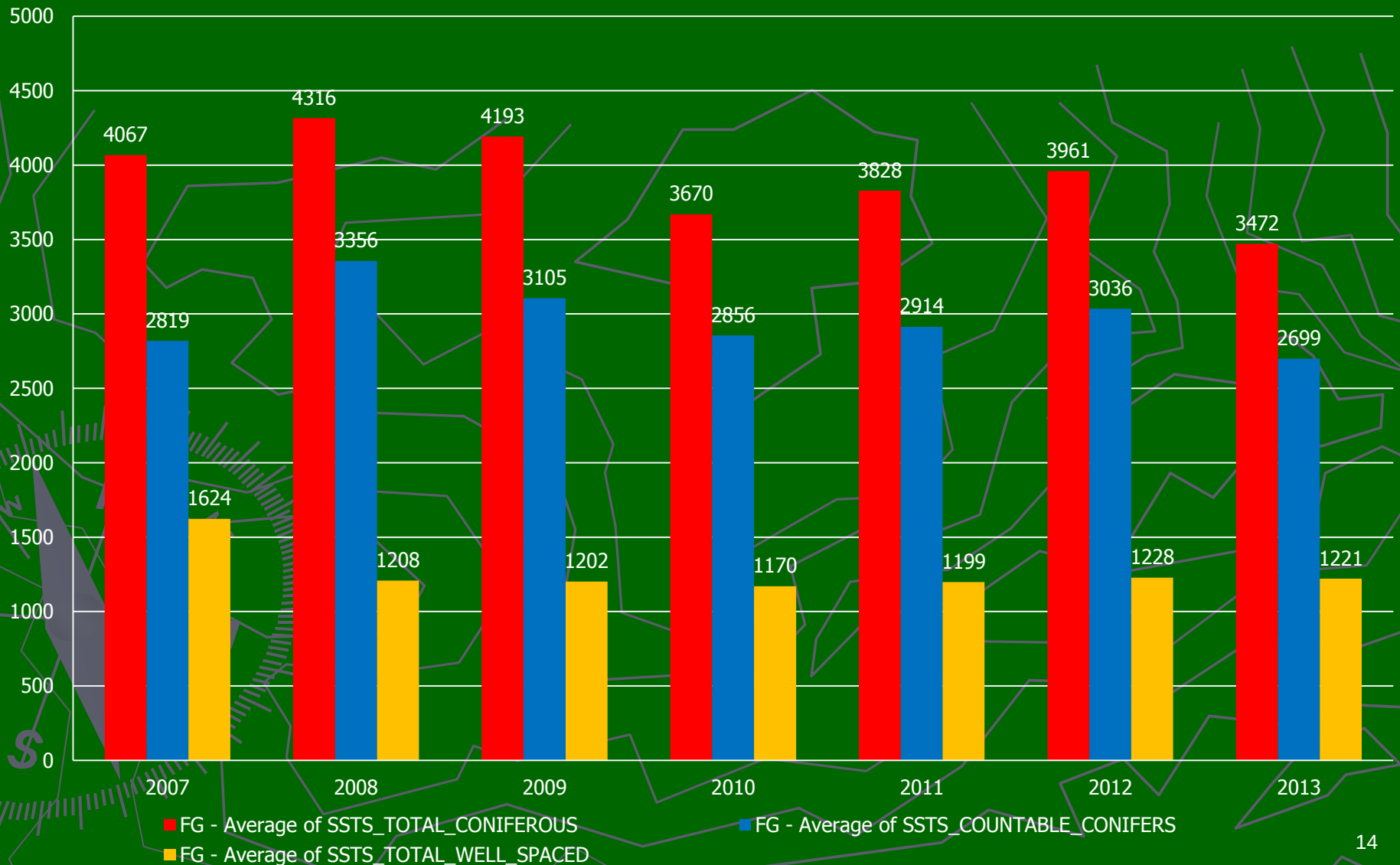
Total Conifer, Countable Conifer , and Well Spaced Sorted by Dominant ECO (SBSdk 01,05,06 & SBSmc2 01,05,06)by Year of Regen Survey from 2007-2013



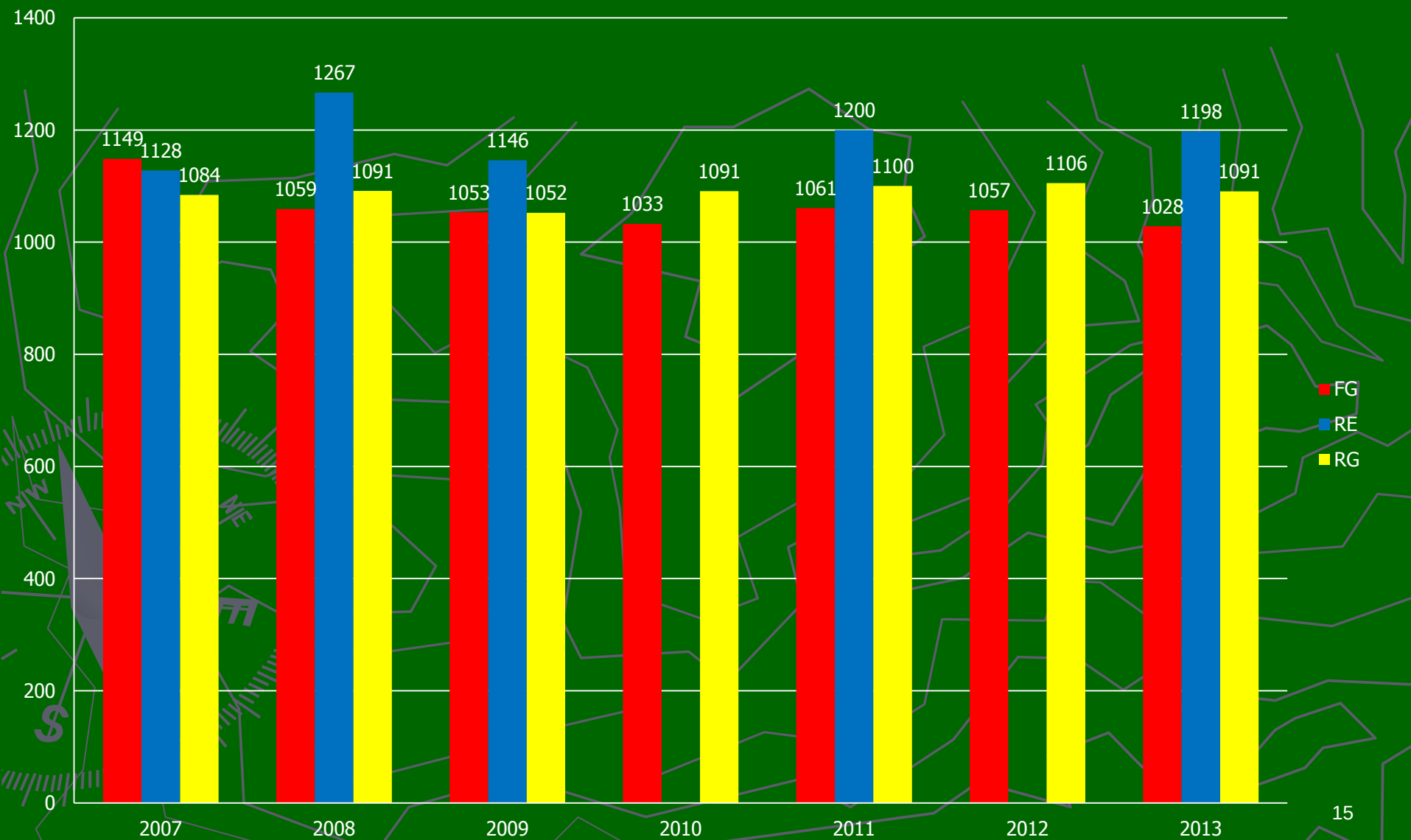
Total Conifer, Countable Conifer , and Well Spaced Sorted by Dominant ECO (SBSdk 01,05,06 & SBSmc2 01,05,06)by Year of Reconnaissance Survey from 2007-2013



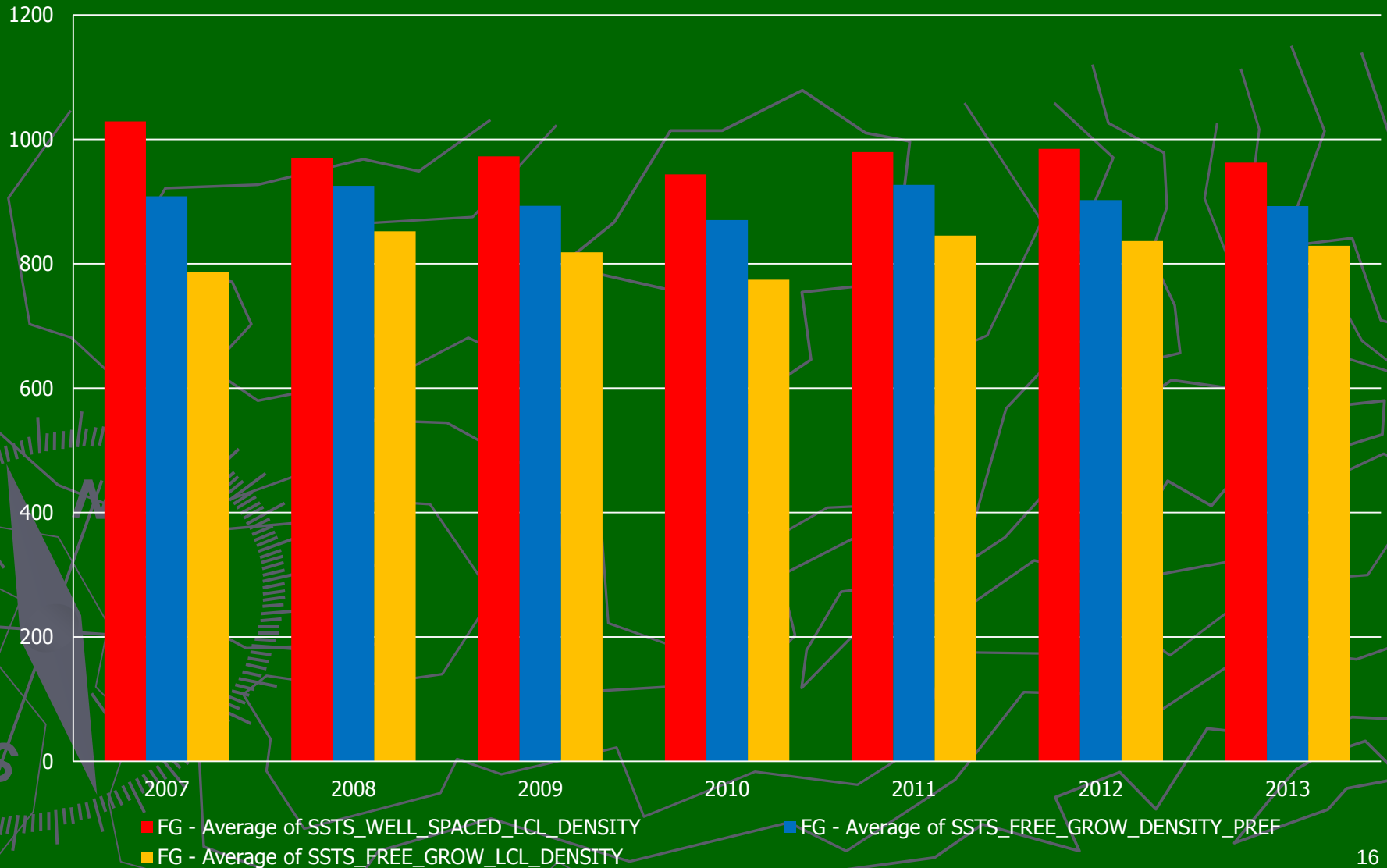
Total Conifer, Countable Conifer , and Well Spaced Sorted by Dominant ECO (SBSdk 01,05,06 & SBSmc2 01,05,06)by Year of Free Growing Survey from 2007-2013



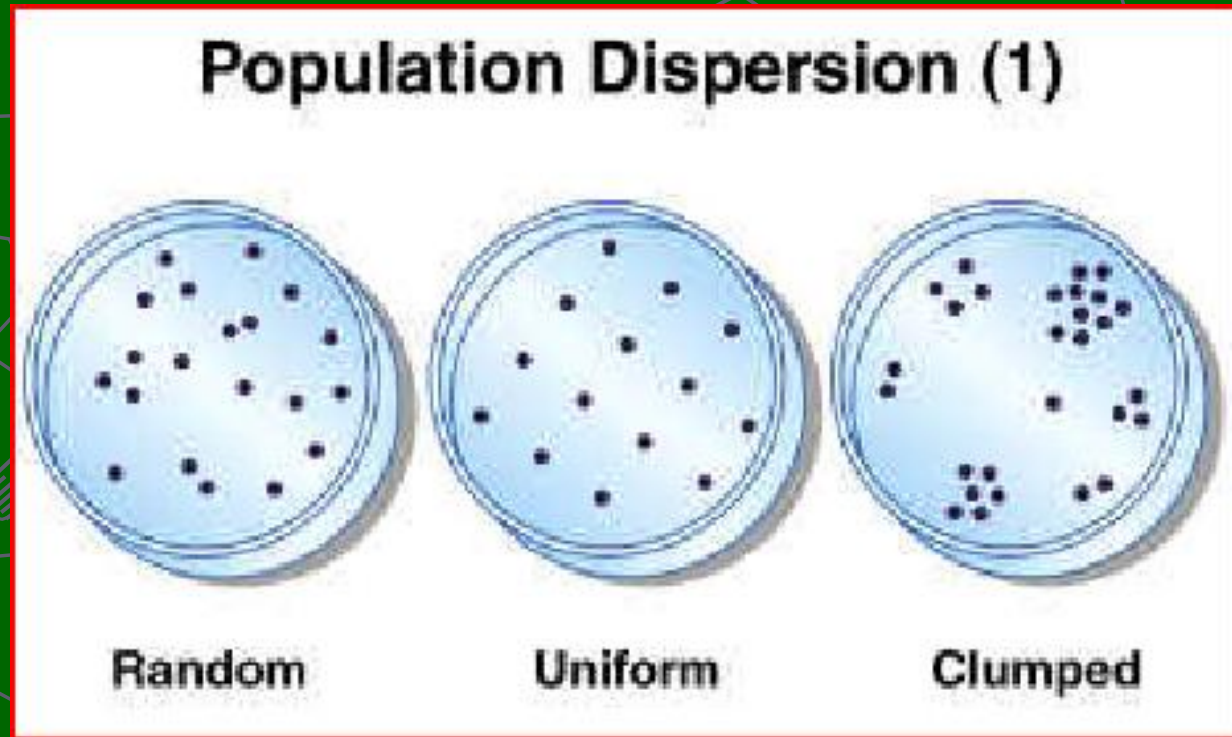
Average Well Spaced by Silviculture Activity sorted by Dominant ECO (SBSdk 01,05,06 & SBSmc2 01,05,06)by Year of Survey from 2007-2013



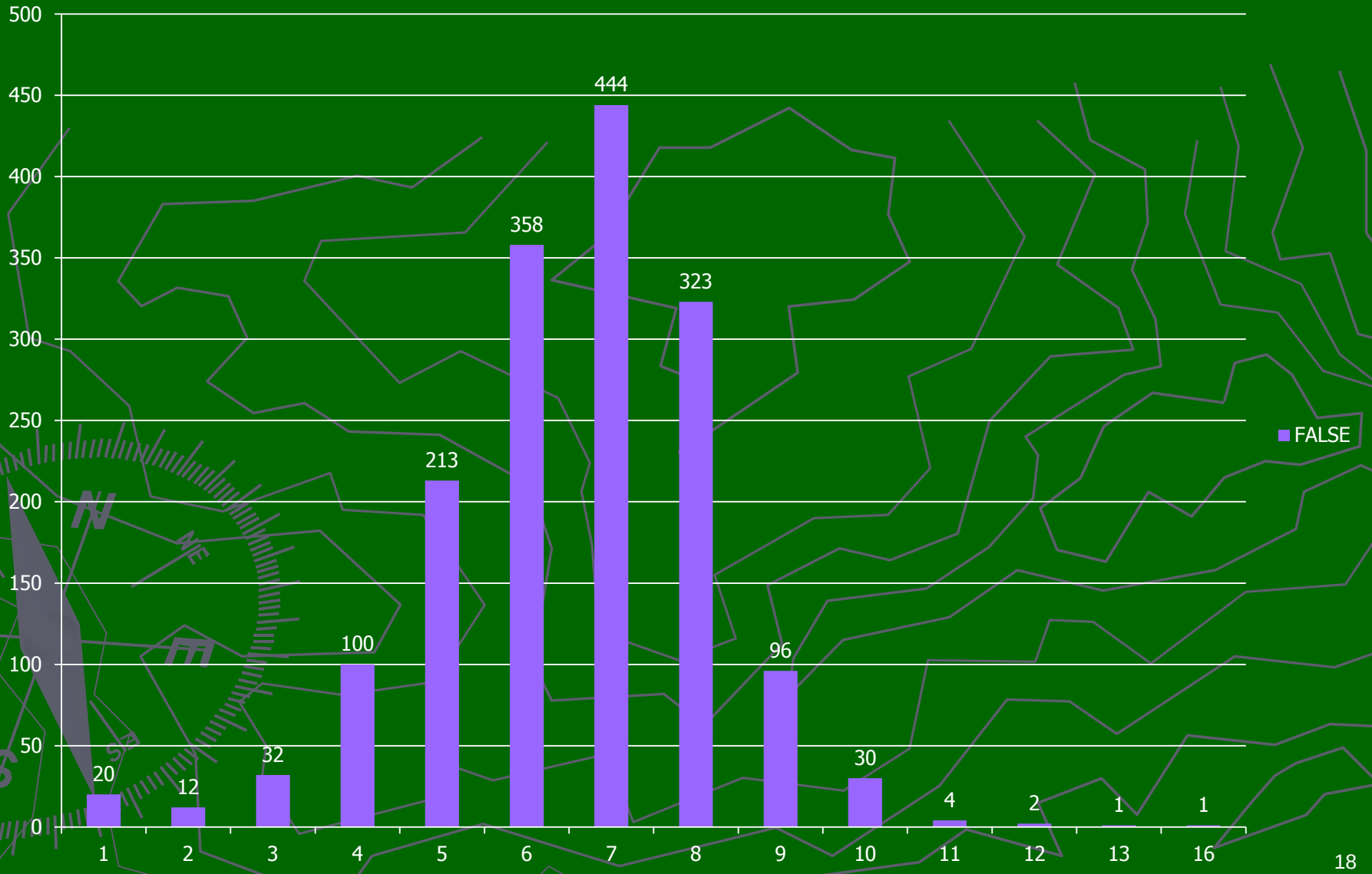
Well Spaced LCL-Free Growing Density Pref-Free Growing LCL Sorted by Dominant ECO (SBSdk 01,05,06 & SBSmc2 01,05,06)by Year of Free Growing Survey from 2007-2013



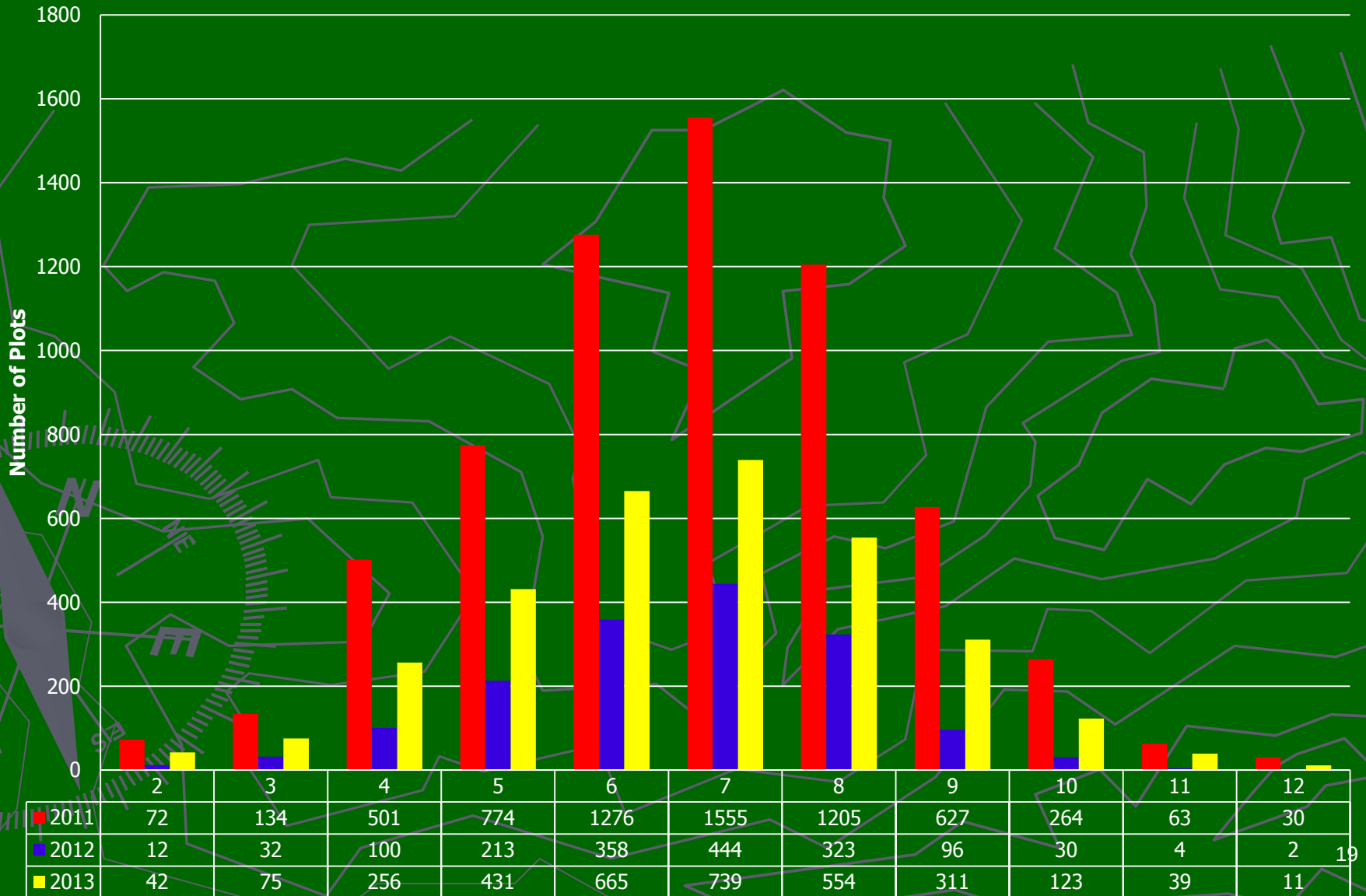
Clumped vs Natural vs Normal Distribution



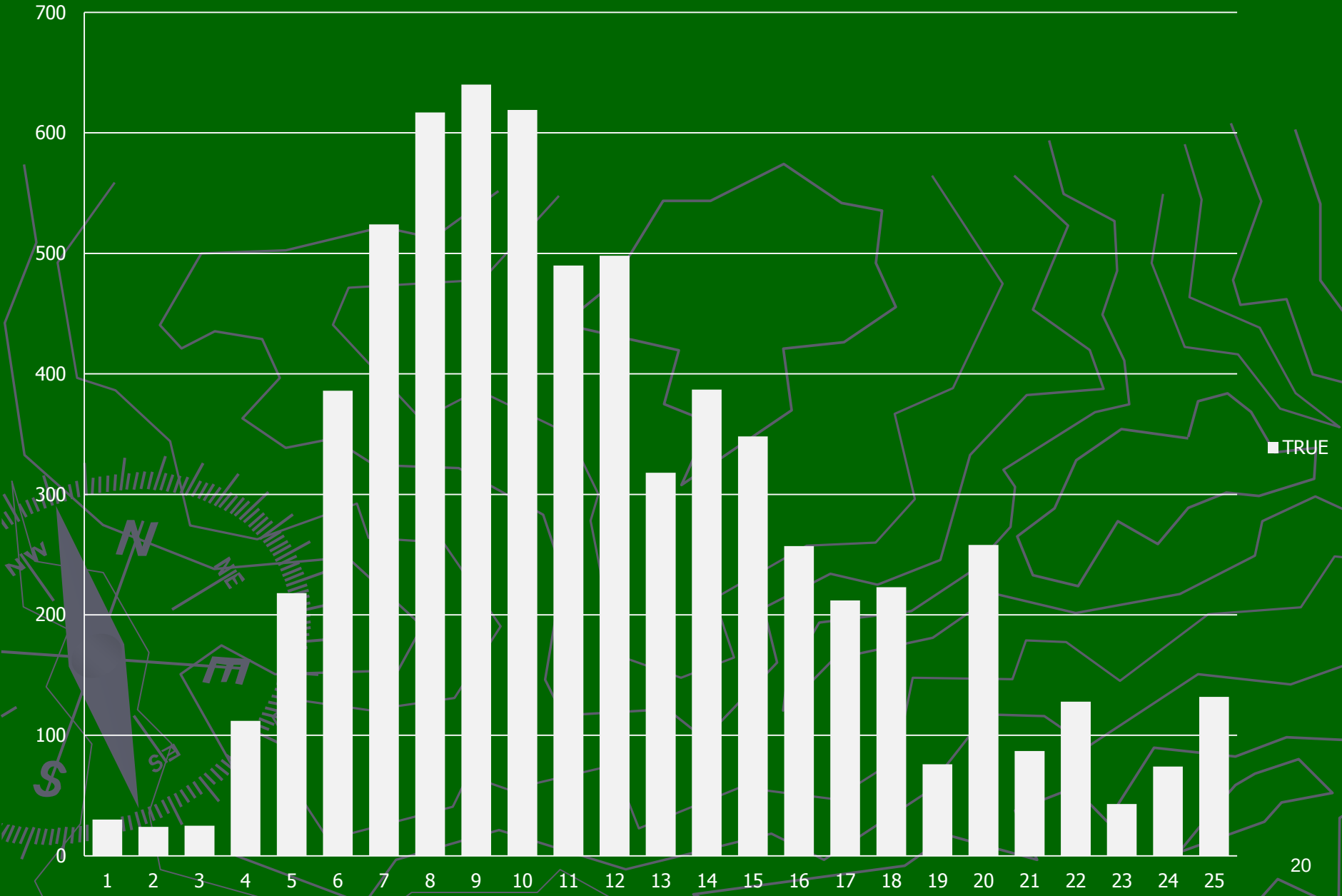
Well Spaced Stems-2012 Forest Health & Regen Survey per plot (Unsorted BEC)



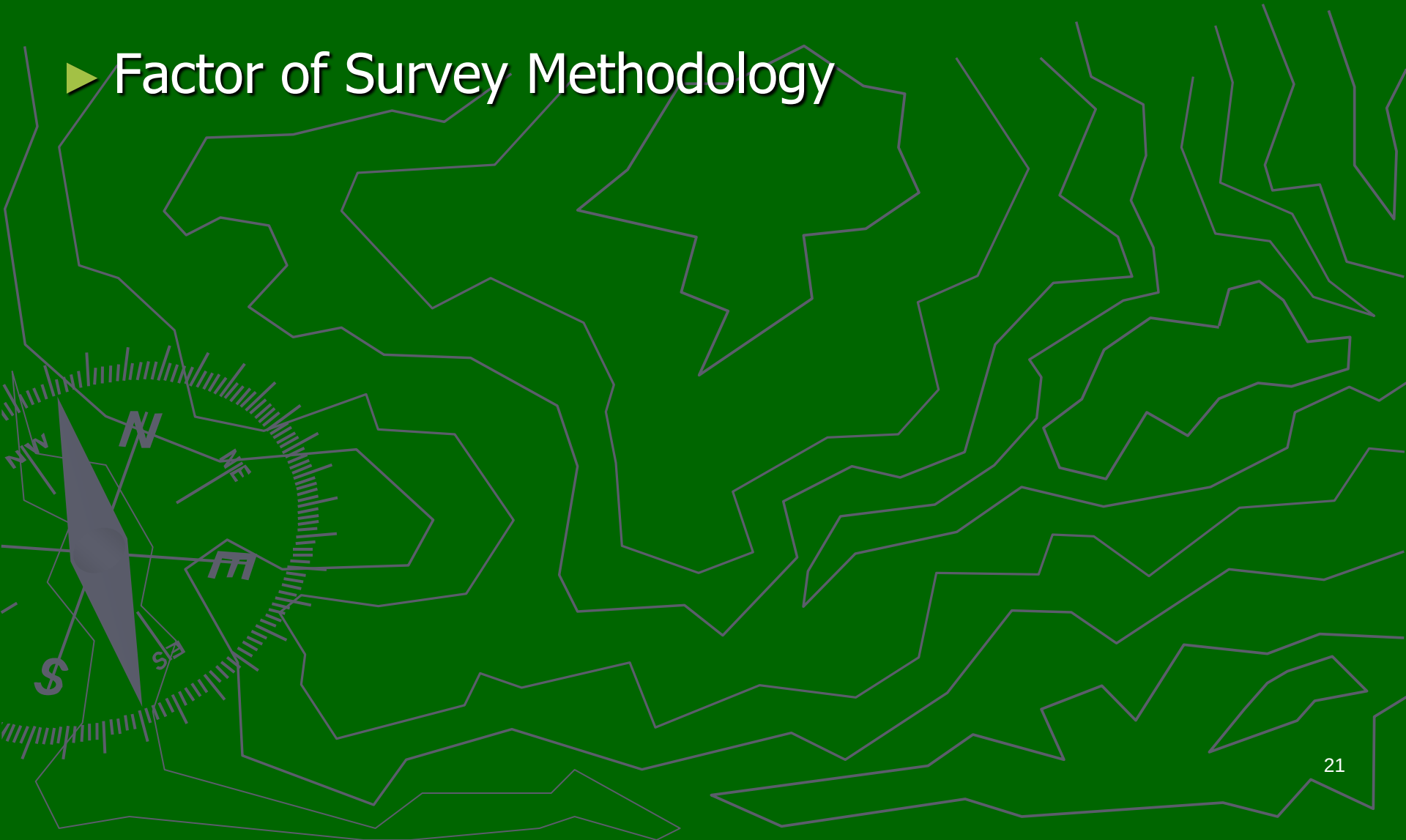
Well Spaced-Free Growing Trees per Plot Compiled Using 2011-2013 Free Growing Survey Data (Sum of 10951 plots)



Free Growing Countable Trees by Plot



► Factor of Survey Methodology



Statistical Calculation Summary

(Free Growing Data Only)

Project:	SU12TAB001	Year:	2013
Block	1 49914 APR-49914		
Stratum	B		
Net Area	5.6	ha	
# of Plots	n	-	6
Plot Multiplier	$PM = \frac{10,000 \text{ (m}^2\text{/ha)}}{\text{plot area (m}^2\text{/plot)}}$	-	200
Average WS	$\bar{X} = \sum Xi \div n$	-	5.835
		$\bar{X} \times PM$	- 1,167 s/ha
Standard Deviation	$s = \sqrt{\frac{\sum Xi^2 - (\sum Xi)^2 / n}{(n - 1)}}$	-	0.408
Standard Error of the Mean	$s_x = \frac{s}{\sqrt{n}}$	-	0.167
T - table Value	$t_{90, n-1 \text{ df}}$	-	2.015
CI ₉₀	$CI_{90} = t_{90} \times s_x$	-	0.336
		$CI_{90} \times PM$	- 67 s/ha
LCL	$LCL = \bar{X} - CI_{90}$	-	5.499
		$LCL \times PM$	- 1,100 s/ha
MSS (layer 1)			700 s/ha
Desired Precision	$e = 0.1\bar{X} \text{ OR } 0.5$	-	0.584
		$e \times PM$	- 117 s/ha
# of Plots to meet 'e'	$n = \frac{t^2 s^2}{e^2}$	-	0 plots
Stocking Status	FG		

Statistical Calculation Summary

(Free Growing Data Only)

Project:	SU12TAB001	Year:	2013
Block	1 49914 APR-49914		
Stratum	B		
Net Area	5.6	ha	
# of Plots	n	-	6
Plot Multiplier	$PM = \frac{10,000 \text{ (m}^2\text{/ha)}}{\text{plot area (m}^2\text{/plot)}}$ - 200		
Average WS	$\bar{X} = \sum Xi \div n$	- 6.665	$\bar{X} \times PM$ - 1,333 s/ha
Standard Deviation	$s = \sqrt{\frac{\sum Xi^2 - (\sum Xi)^2 / n}{(n - 1)}}$	-	0.816
Standard Error of the Mean	$s_x = \frac{s}{\sqrt{n}}$	-	0.333
T - table Value	$t_{90, n-1 \text{ df}}$	-	2.015
CI ₉₀	$CI_{90} = t_{90} \times s_x$	- 0.672	$CI_{90} \times PM$ - 134 s/ha
LCL	$LCL = \bar{X} - CI_{90}$	- 5.993	$LCL \times PM$ - 1,199 s/ha
MSS (layer 1)	800		s/ha
Desired Precision	$e = 0.1\bar{X}$ OR 0.5	- 0.667	$e \times PM$ - 133 s/ha
# of Plots to meet 'e'	$n = \frac{t^2 s^2}{e^2}$	-	0 plots
Stocking Status	FG		

Statistical Calculation Summary

(Free Growing Data Only)

Project:	SU12TAB001	Year:	2013
Block	1 49914 APR-49914		
Stratum	B		
Net Area	5.6	ha	
# of Plots	n =	6	
Plot Multiplier	$PM = \frac{10,000 \text{ (m}^2\text{/ha)}}{\text{plot area (m}^2\text{/plot)}}$ =	200	
Average WS	$\bar{X} = \sum Xi \div n$ = 7.500	$\bar{X} \times PM$ = 1,500	s/ha
Standard Deviation	$s = \sqrt{\frac{\sum Xi^2 - (\sum Xi)^2 / n}{(n - 1)}}$ =	1.225	
Standard Error of the Mean	$s_x = \frac{s}{\sqrt{n}}$ =	0.500	
T - table Value	$t_{90, n-1 \text{ df}}$ =	2.015	
CI ₉₀	$CI_{90} = t_{90} \times s_x$ = 1.008	$CI_{90} \times PM$ = 202	s/ha
LCL	$LCL = \bar{X} - CI_{90}$ = 6.493	$LCL \times PM$ = 1,299	s/ha
MSS (layer 1)	1,400		s/ha
Desired Precision	$e = 0.1\bar{X}$ OR 0.5 = 0.750	$e \times PM$ = 150	s/ha
# of Plots to meet 'e'	$n = \frac{t^2 s^2}{e^2}$ =	0 plots	
Stocking Status	NOT FG ...aka LCL Decision Rule were (mean -CI) <= MSS....So now technically this would required Max plotting at 1.5		

END OF PRESENTATION

National Forest Week- Decker
Lake Elementary Students
Planting Seedlings 2012

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