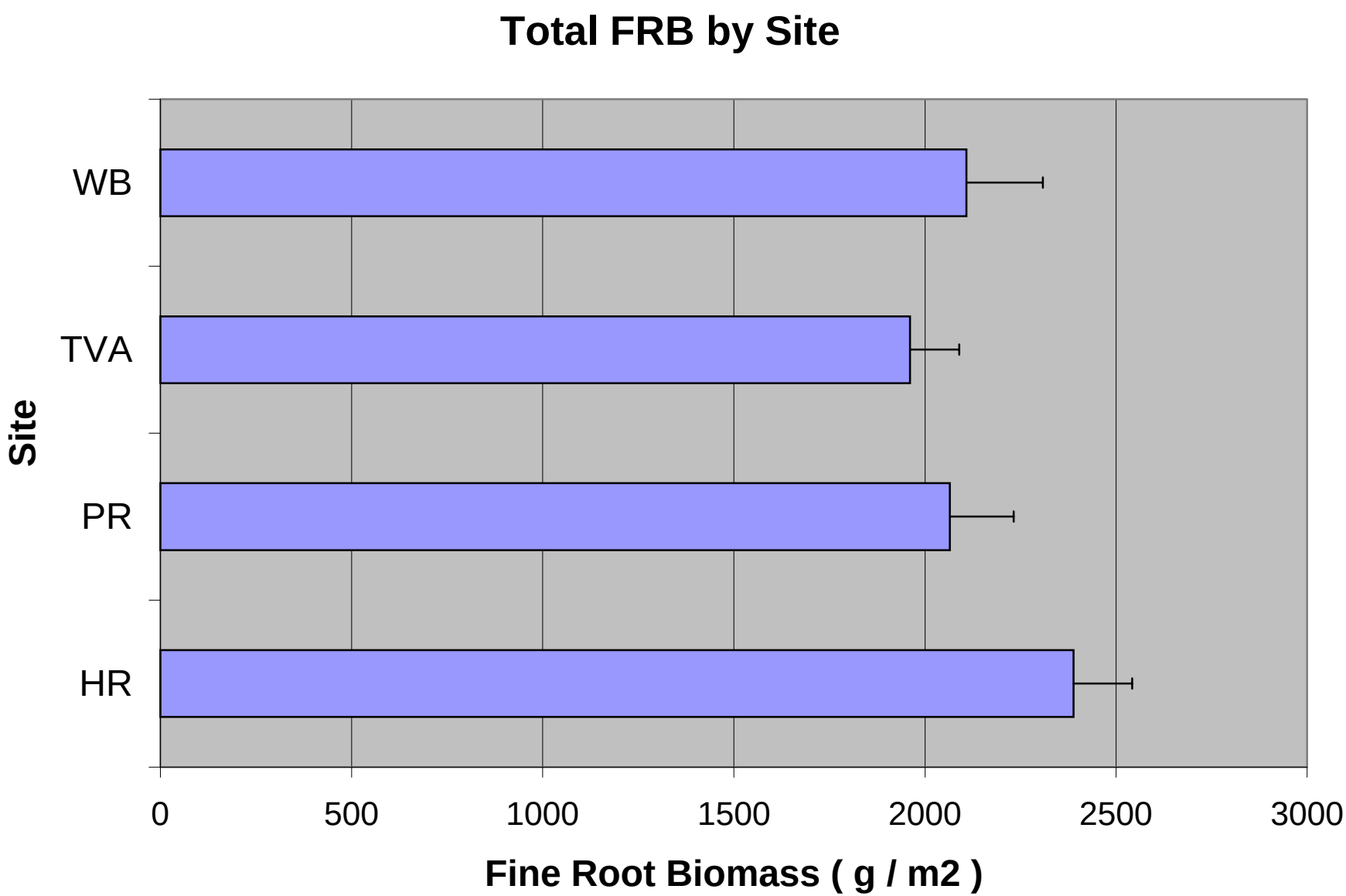
EBIS ROOT DATA

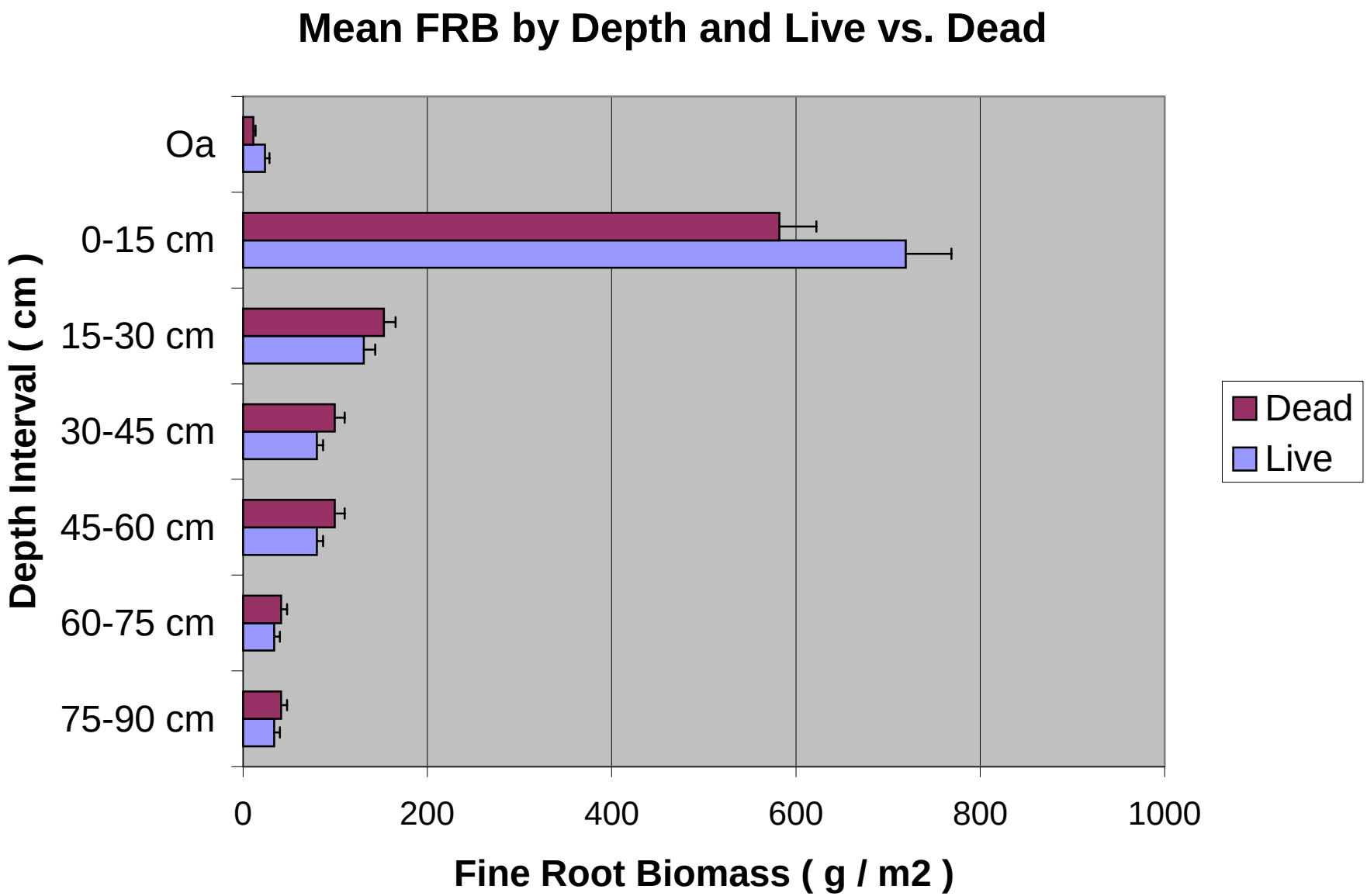
UC Irvine meeting

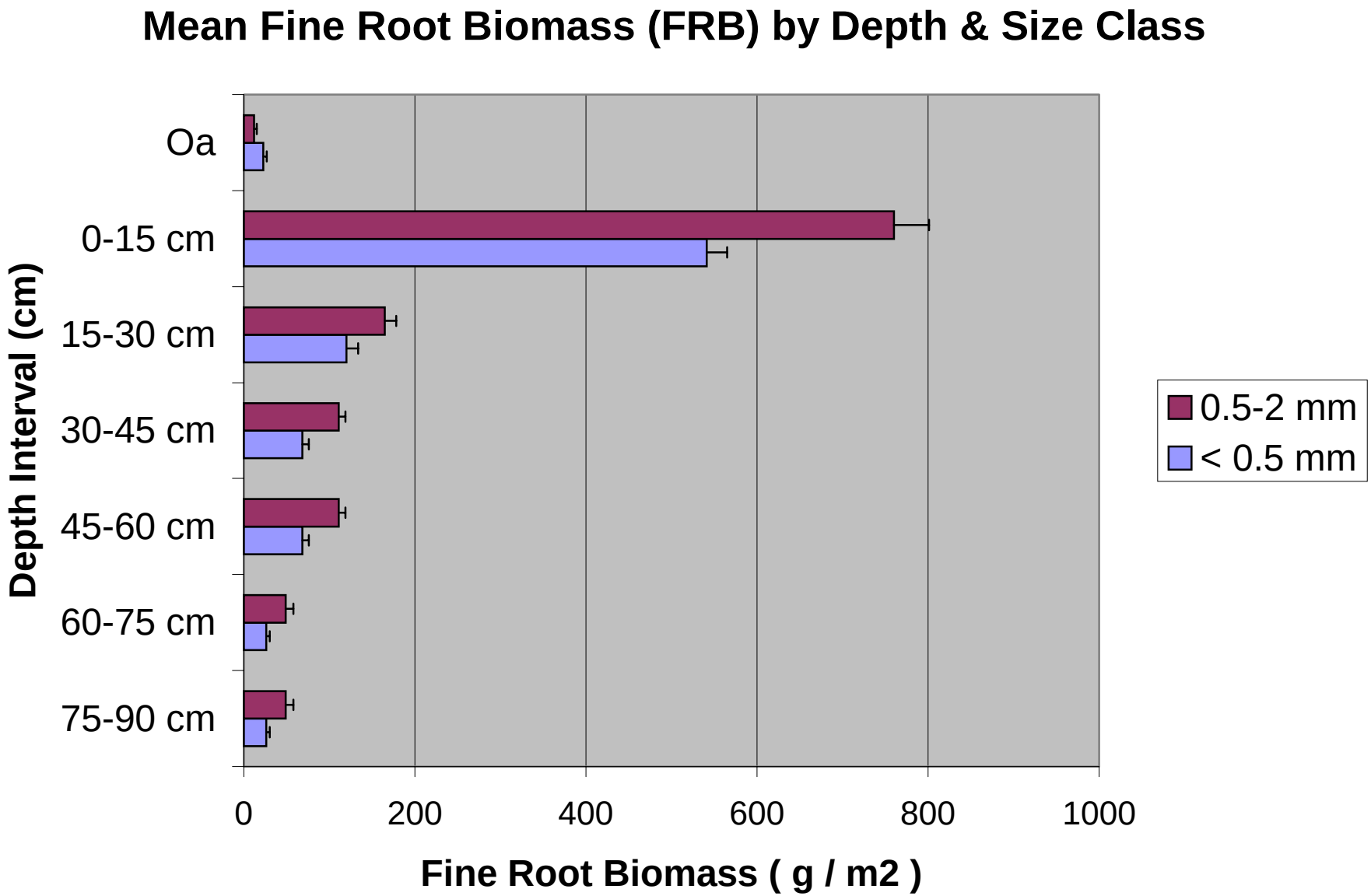
Dev Joslin, Julia Gaudinski and Margaret Torn

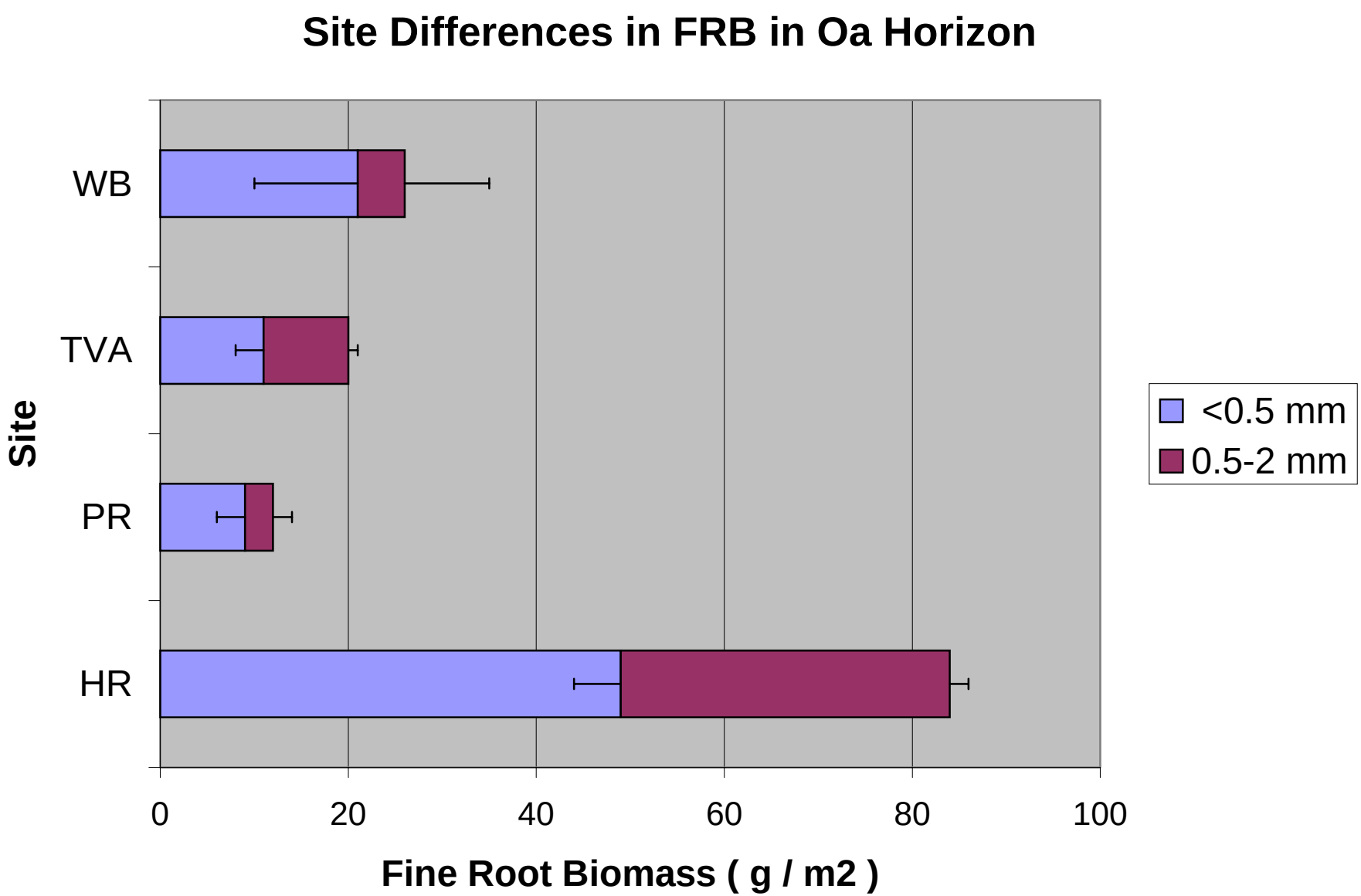
January 27-28 2003

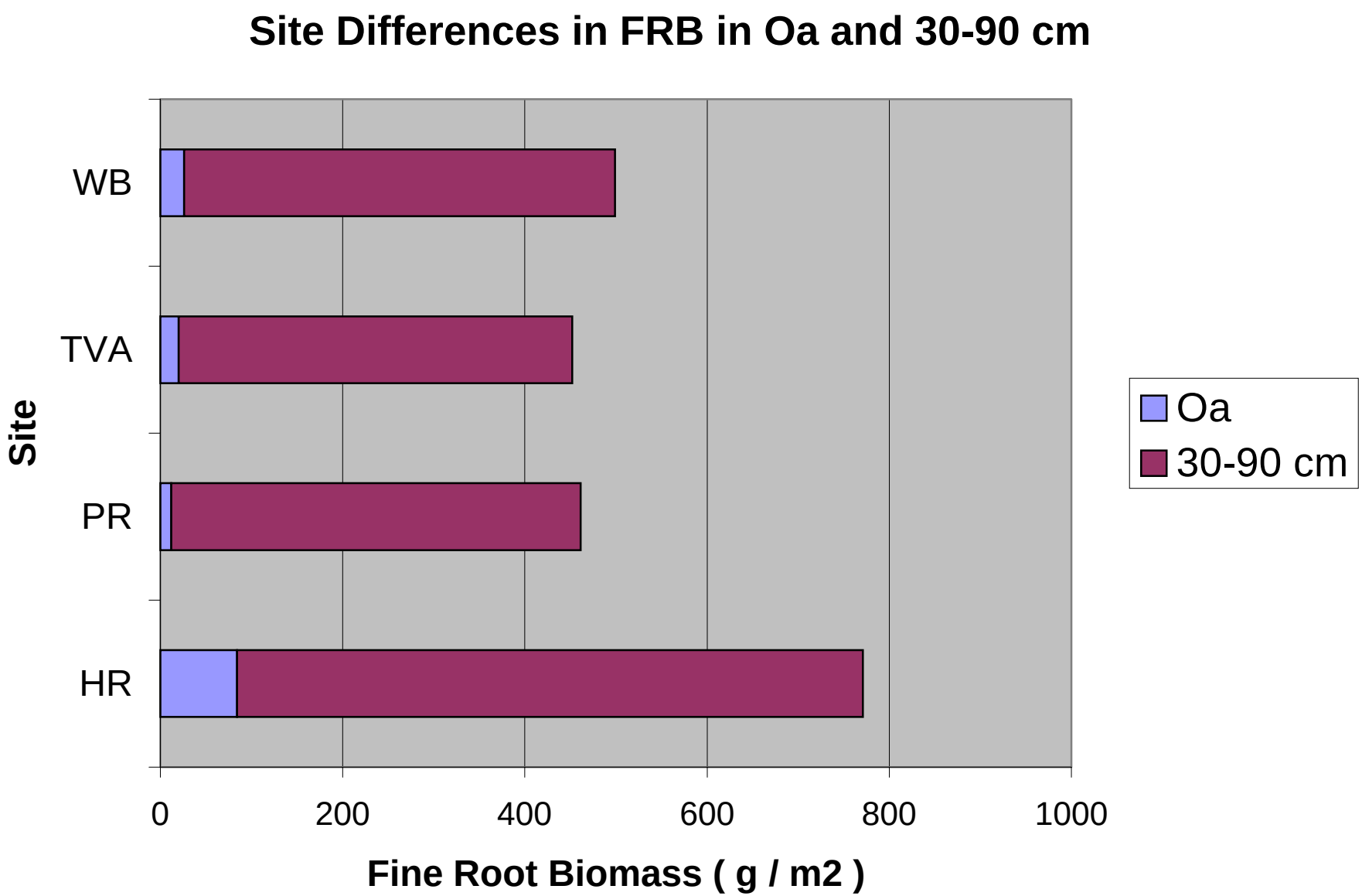
All root core data discussed is:
Growing season 2000 (T_0) only
Actually sampled Jan-Feb 2001

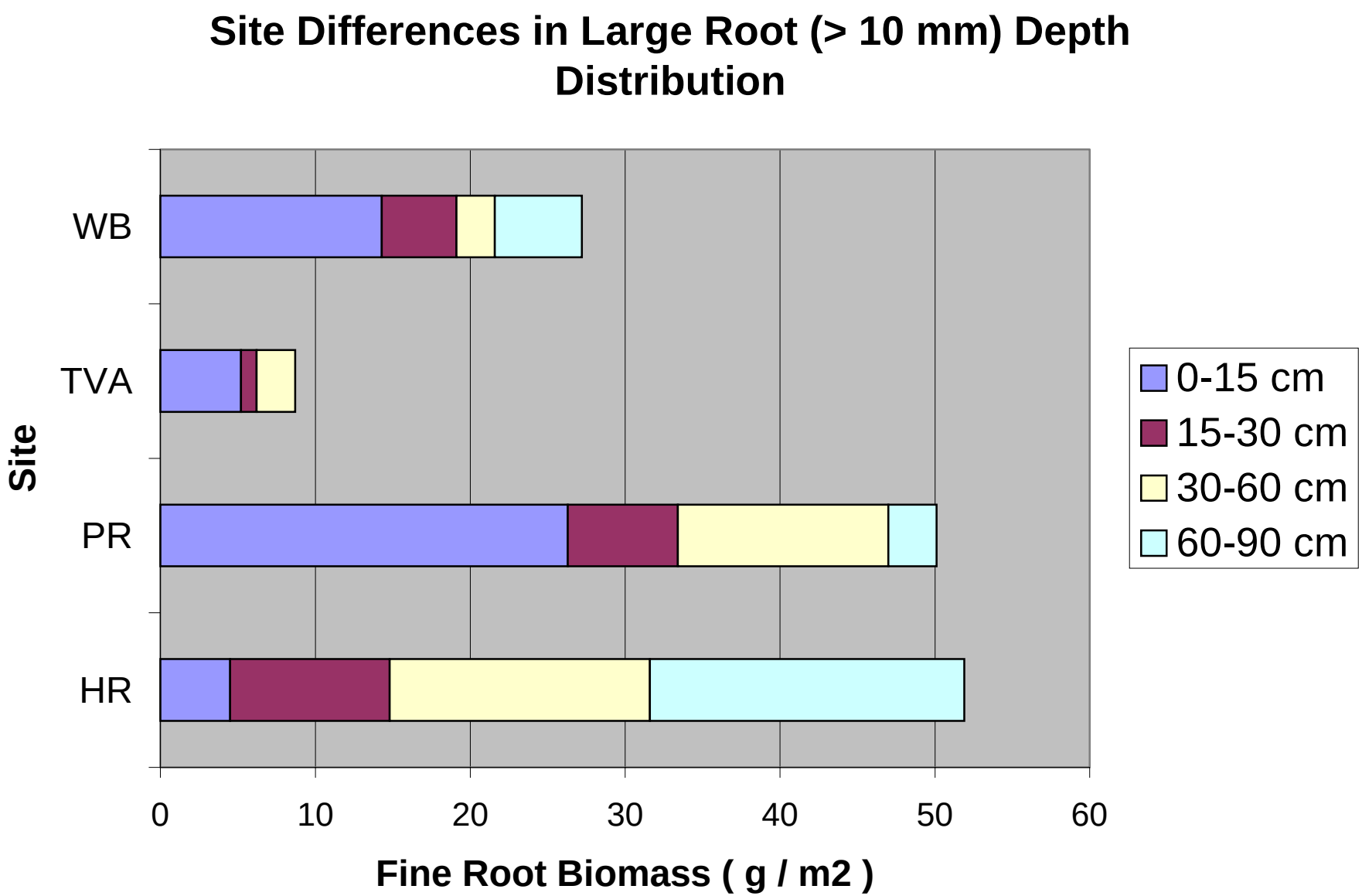

Total FRB by Site
Site
WB
TVA
PR
HR
0
500
1000
1500
2000
2500
3000
Fine Root Biomass (g / m2)

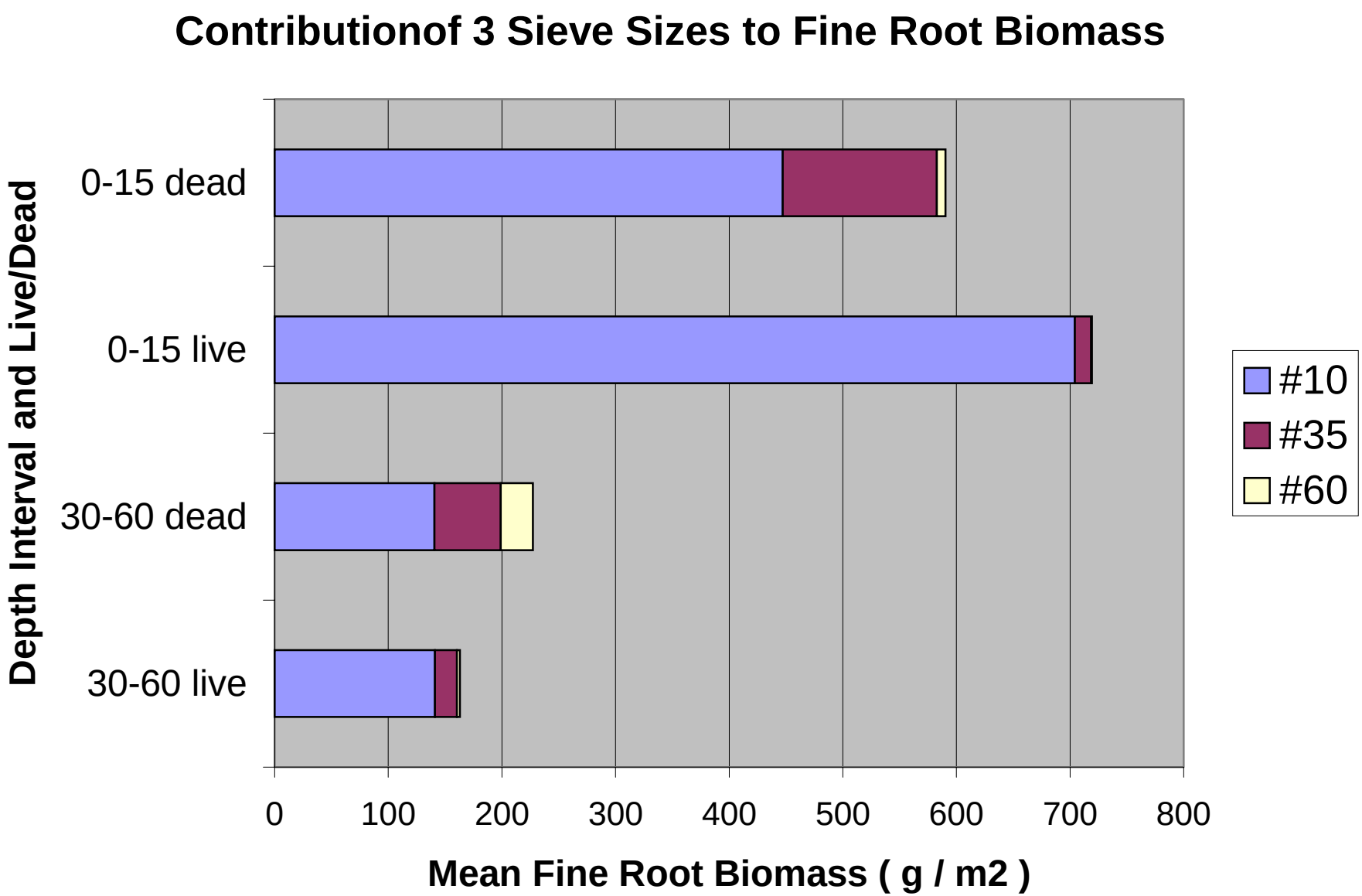

Mean FRB by Depth and Live vs. Dead
Depth Interval (cm)
Oa
0-15 cm
15-30 cm
30-45 cm
45-60 cm
60-75 cm
75-90 cm
0
200
400
600
800
1000
Fine Root Biomass (g / m2)
Dead
Live

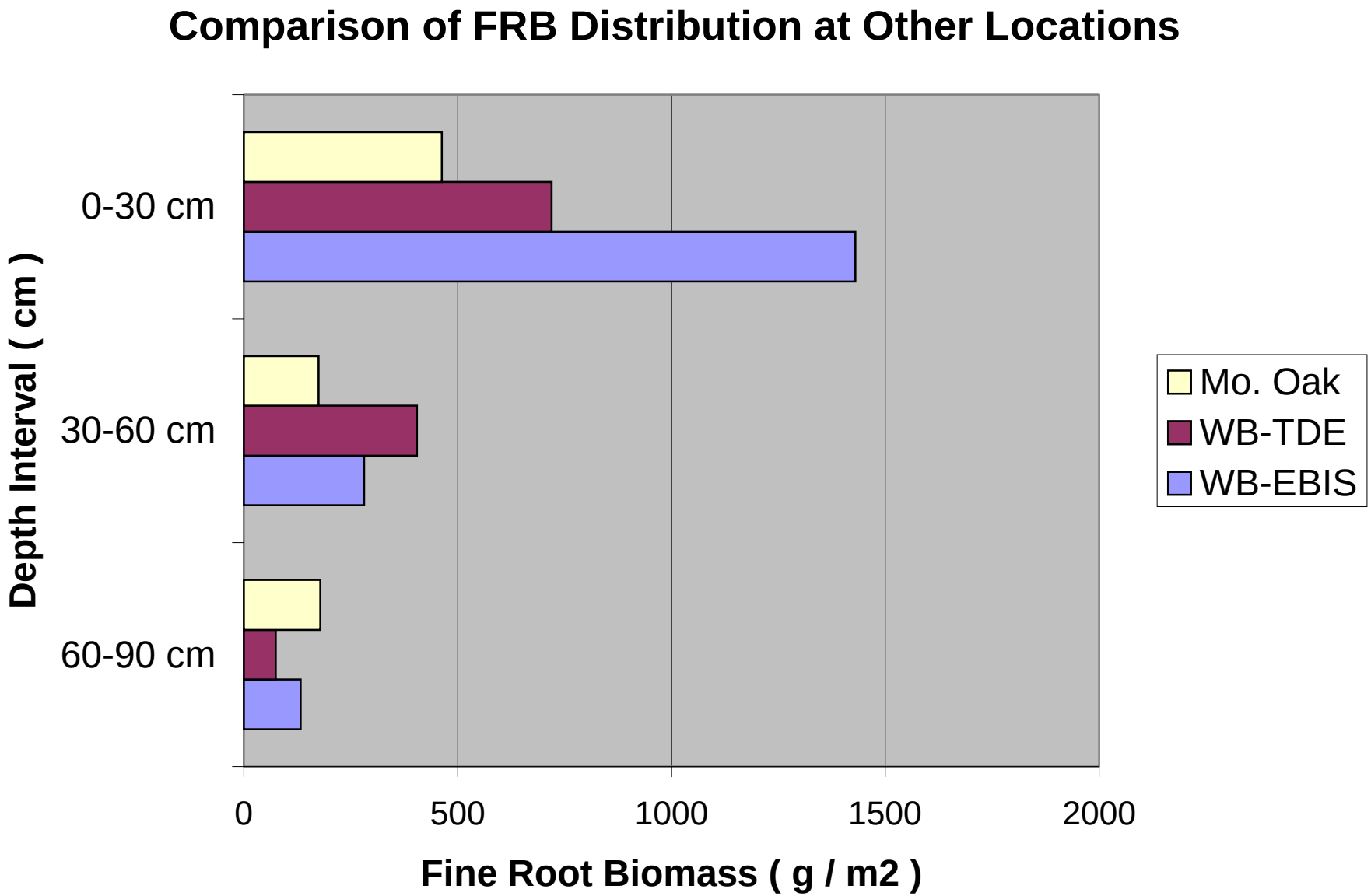

Mean Fine Root Biomass (FRB) by Depth & Size Class
Depth Interval (cm)
Oa
0-15 cm
15-30 cm
30-45 cm
45-60 cm
60-75 cm
75-90 cm
0
200
400
600
800
1000
Fine Root Biomass (g / m2)
0.5-2 mm
< 0.5 mm


Site Differences in FRB in Oa Horizon
WB
TVA
PR
HR
Site
0
20
40
60
80
100
Fine Root Biomass (g / m2)
<0.5 mm
0.5-2 mm

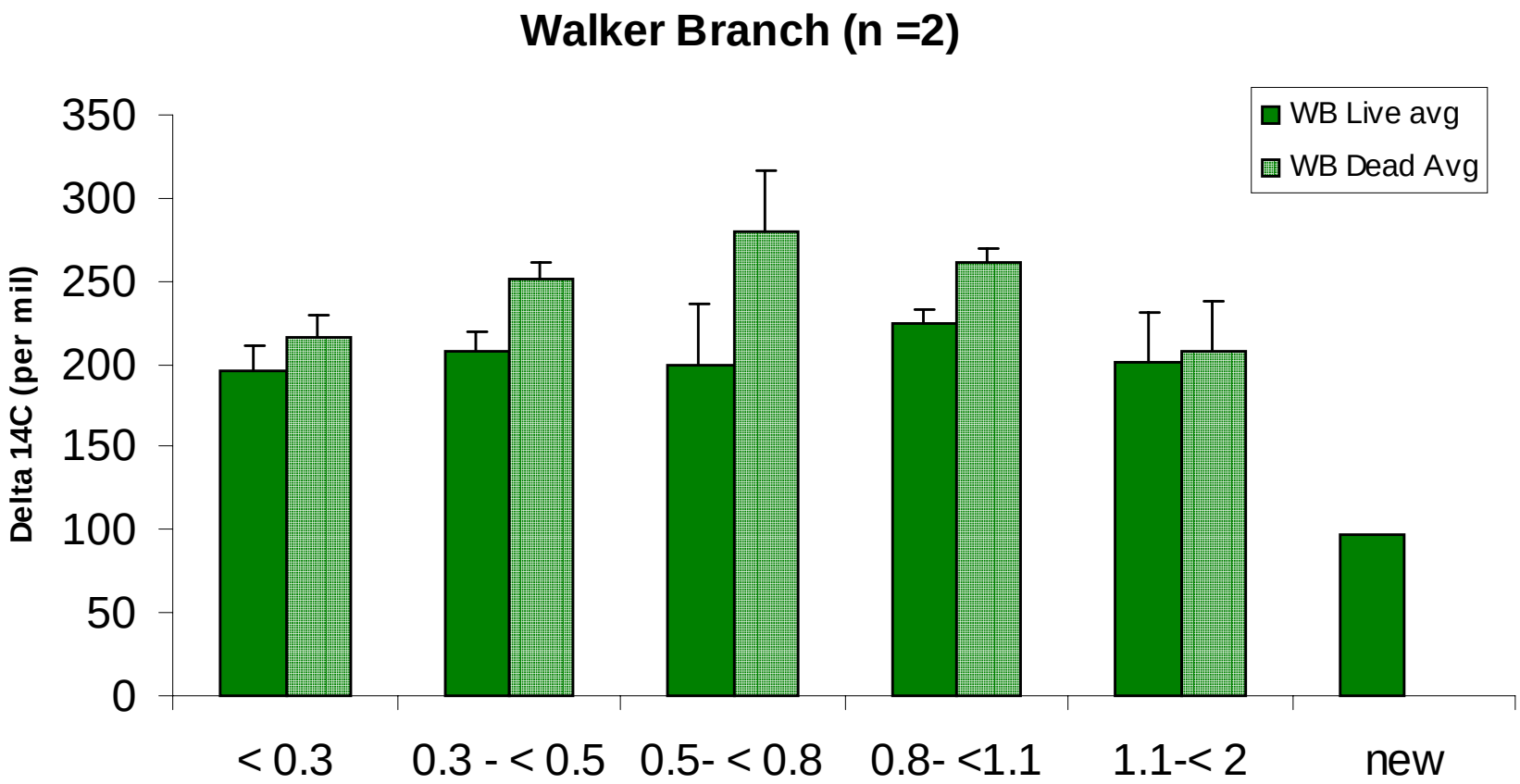

Site Differences in FRB in Oa and 30-90 cm
WB
TVA
PR
HR
Site
0
200
400
600
800
1000
Fine Root Biomass (g / m2)
Oa
30-90 cm


Site Differences in Large Root (> 10 mm) Depth Distribution
WB
TVA
PR
HR
Site
0
10
20
30
40
50
60
Fine Root Biomass (g / m2)
0-15 cm
15-30 cm
30-60 cm
60-90 cm

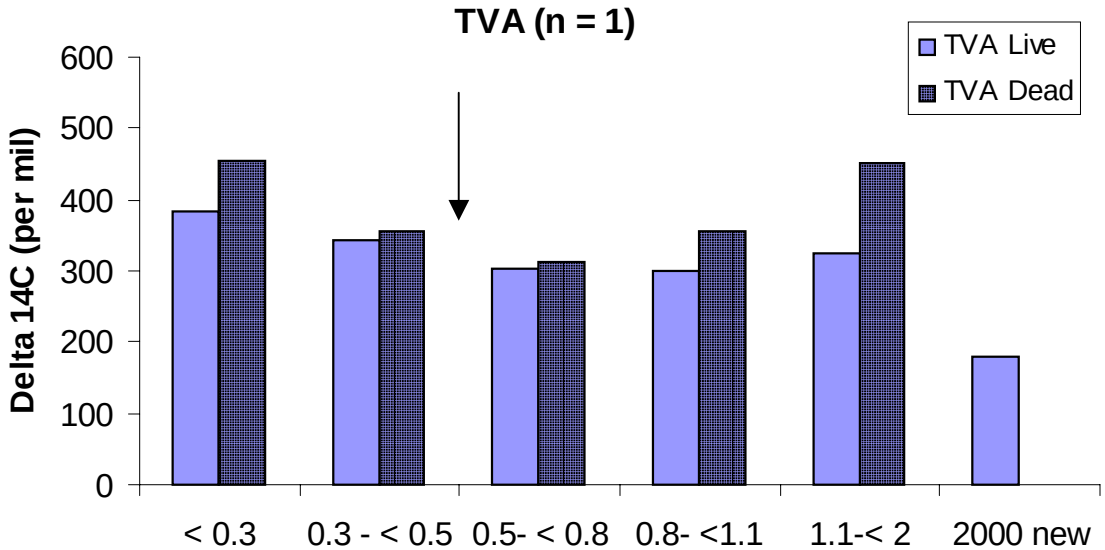

Contributionof 3 Sieve Sizes to Fine Root Biomass
Depth Interval and Live/Dead
0-15 dead
0-15 live
30-60 dead
30-60 live
0
100
200
300
400
500
600
700
800
Mean Fine Root Biomass (g / m2)
#10
#35
#60

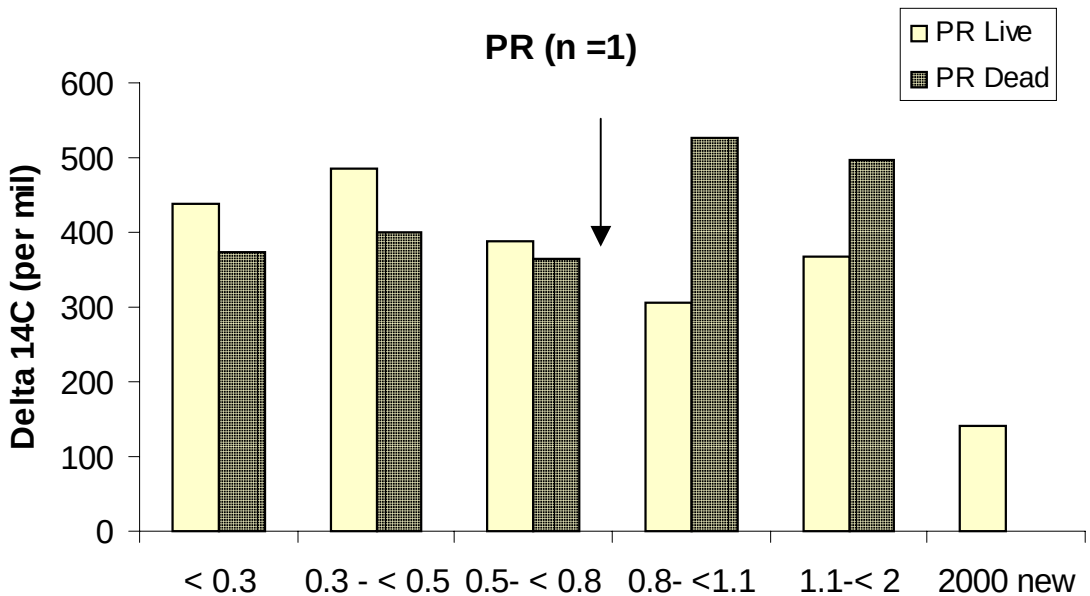

Comparison of FRB Distribution at Other Locations
Depth Interval (cm)
0-30 cm
30-60 cm
60-90 cm
0
500
1000
1500
2000
Fine Root Biomass (g / m2)
Mo. Oak
WB-TDE
WB-EBIS

Size class cut offs

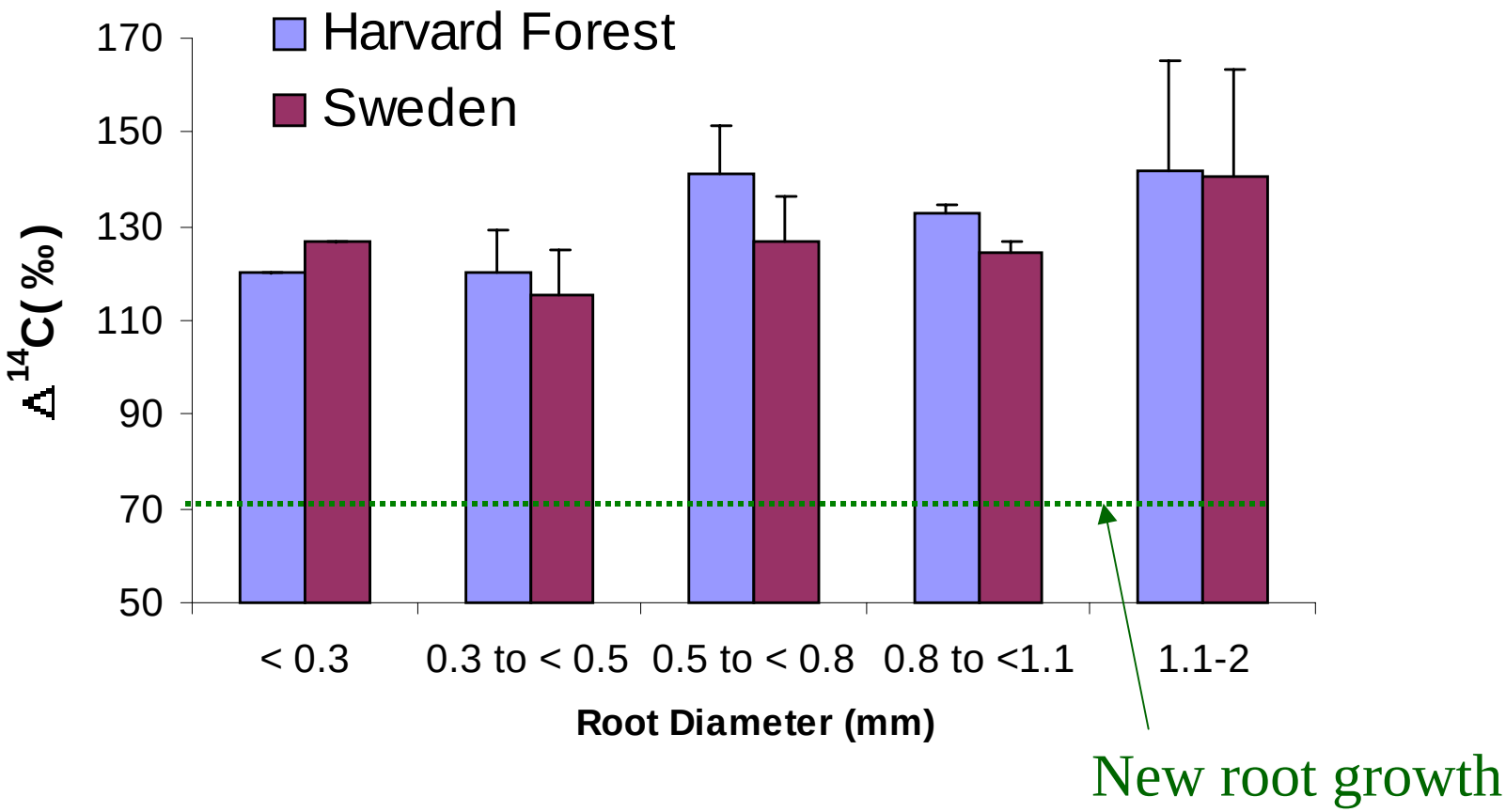


Size class cut offs

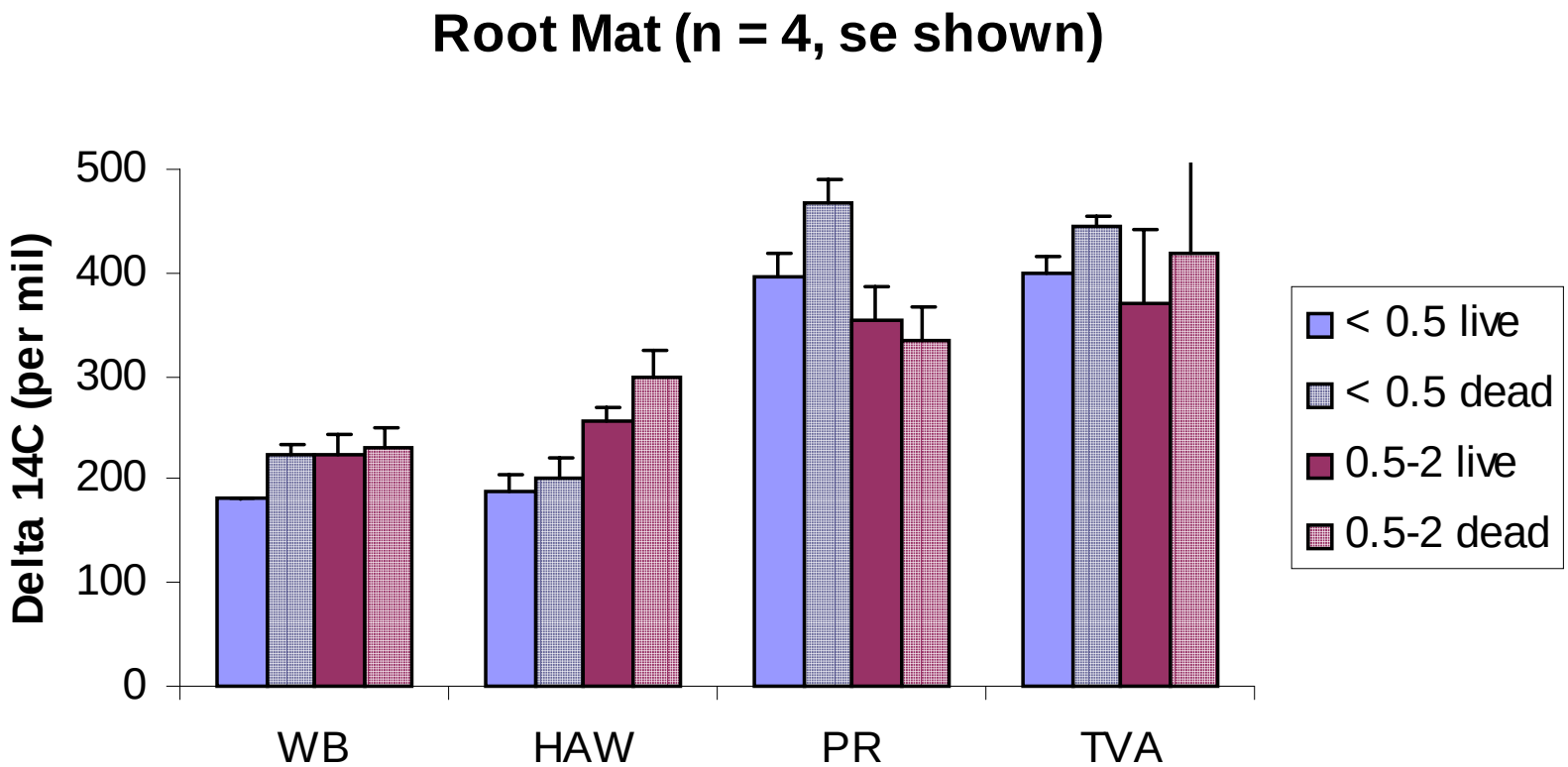




Size class cut offs-other sites

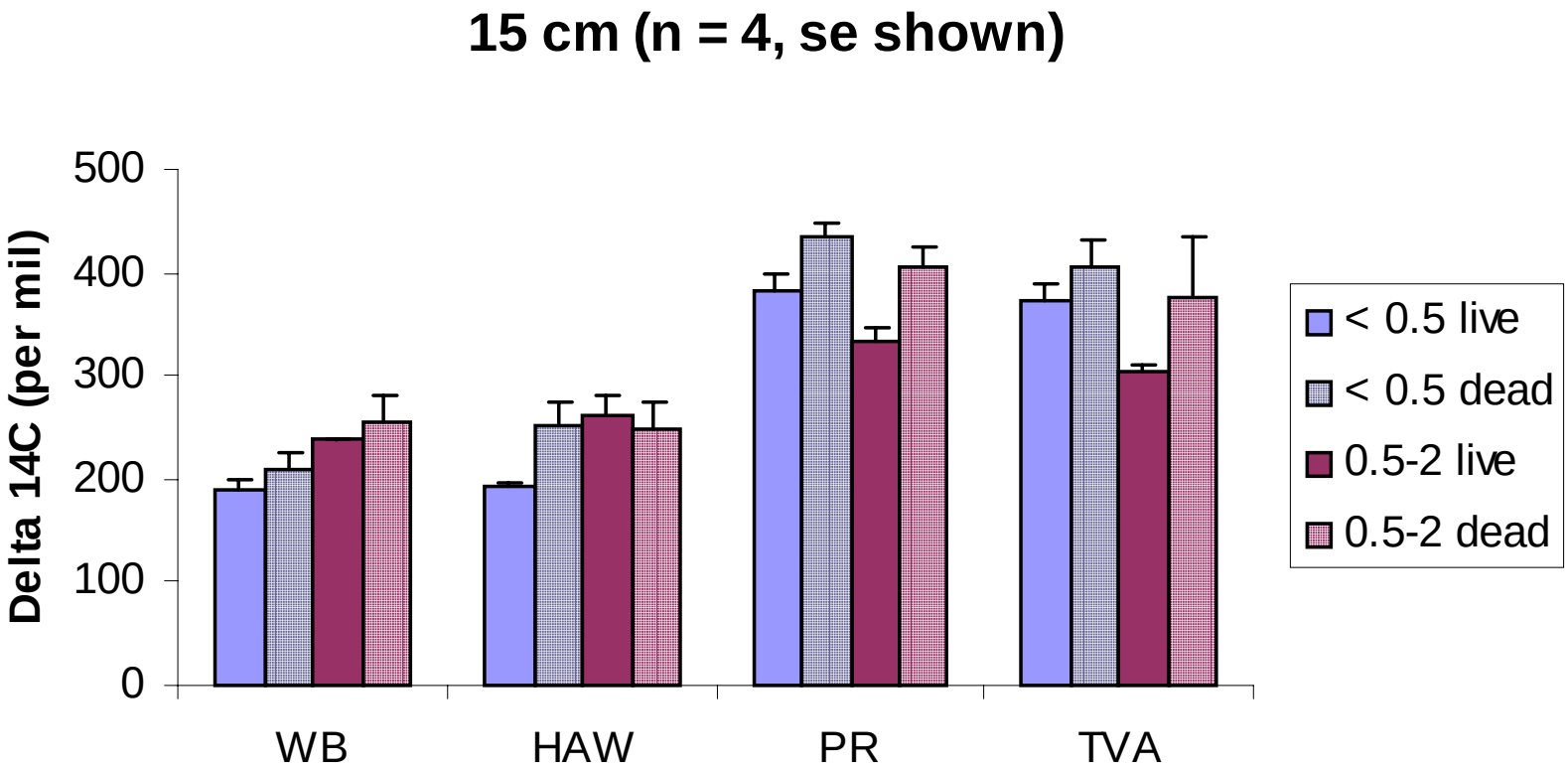


2000 growing season (T_0) root 14C signatures



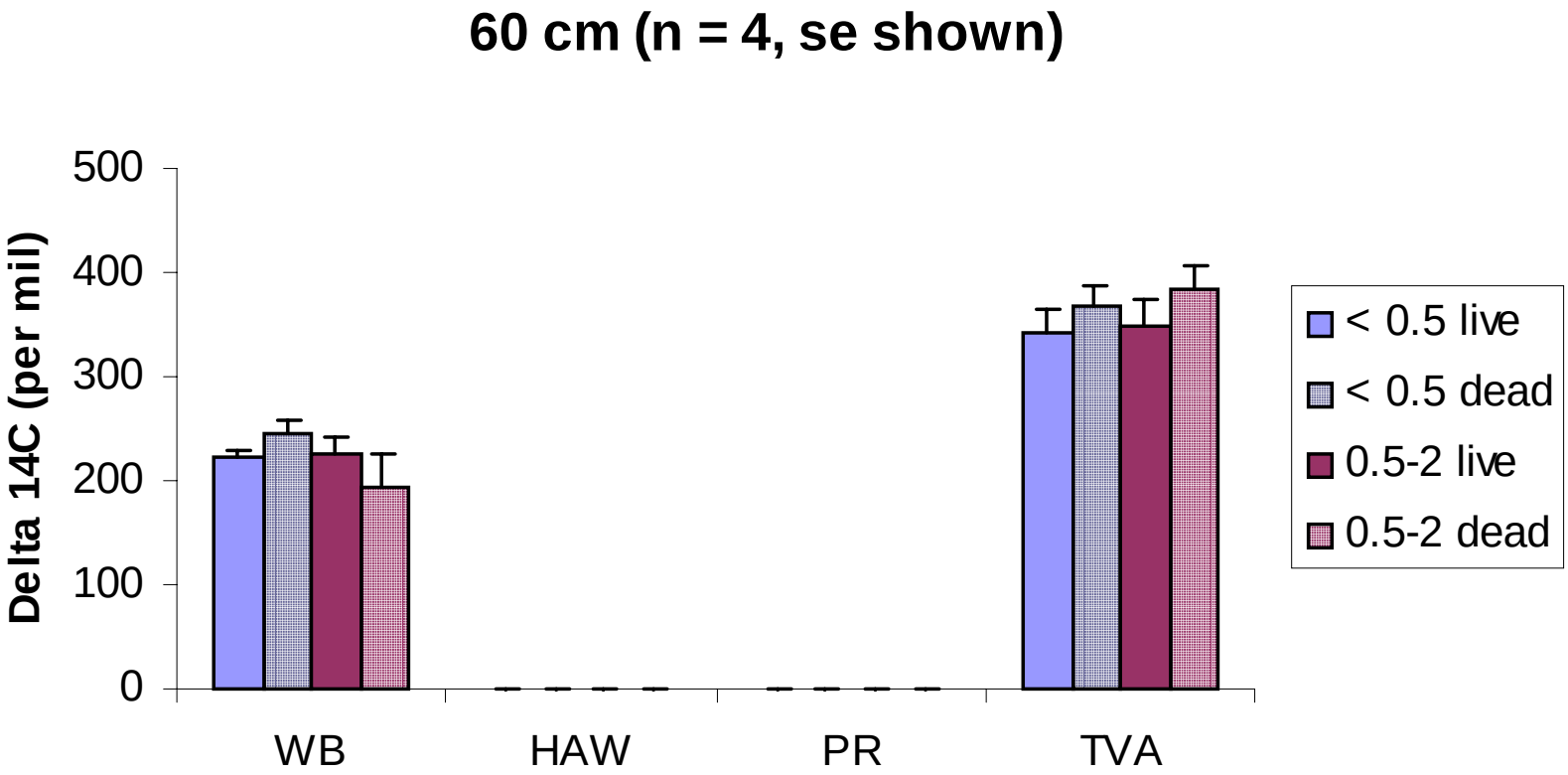
If significant difference, dead > live

2000 growing season (T_0) root 14C signatures

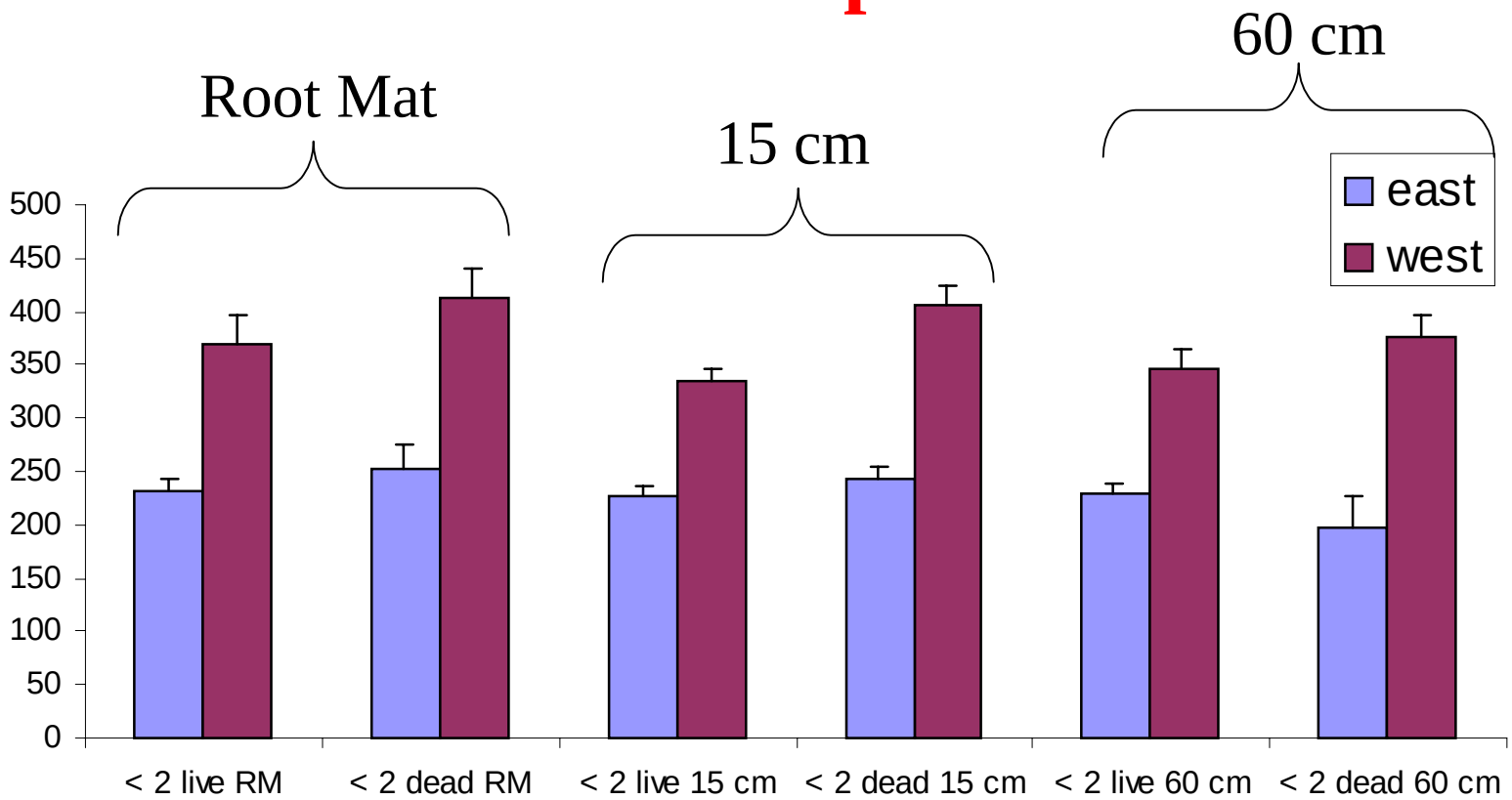


If significant difference, dead > live

2000 growing season (T_0) root 14C signatures

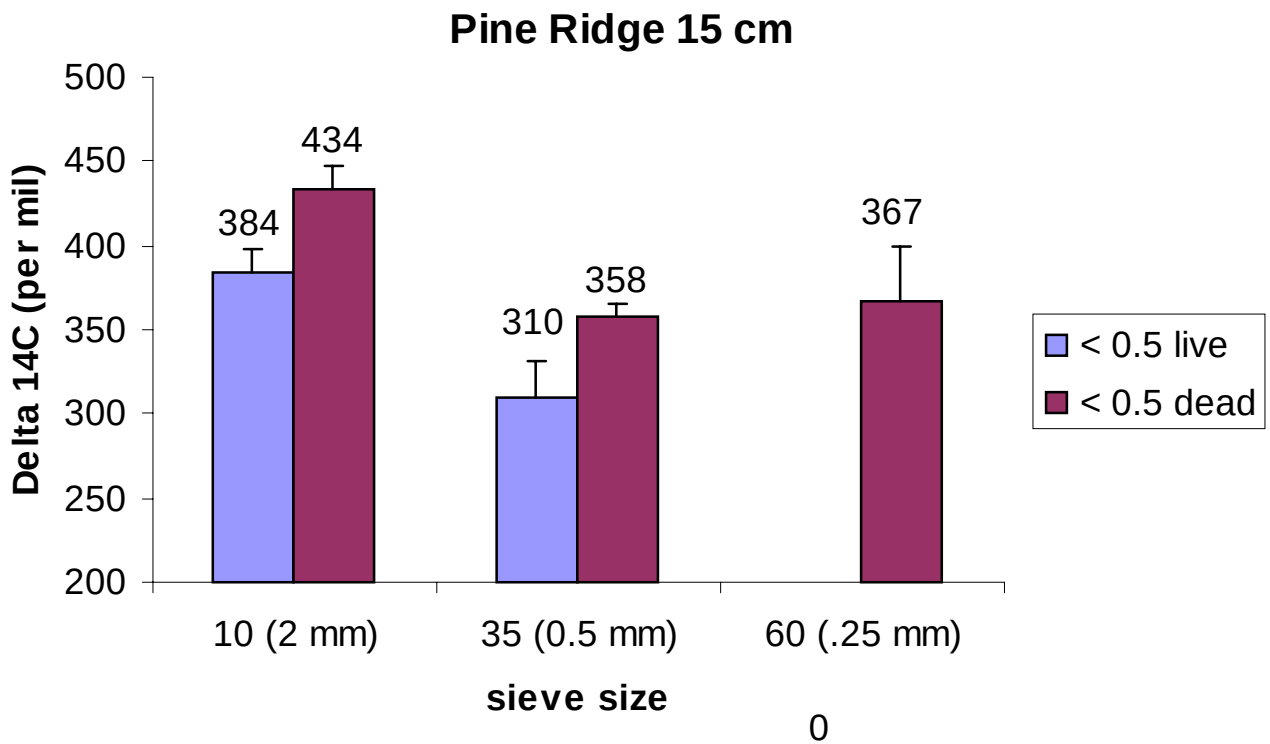


East vs. West/Depth Trends



	average	se
all < 2 mm east live	230	6
all < 2mm east dead	234	13
all < 2mm west live	351	12
all < 2 mm west dead	403	13

Sieve differences in 14C signature?



0

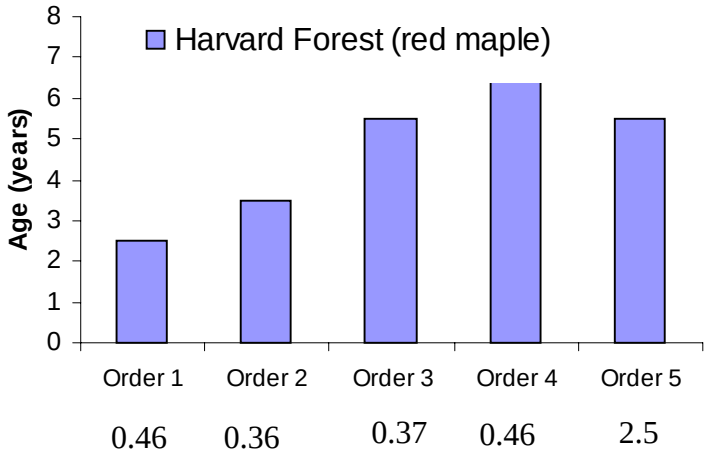
Affects on < 0.5 mm Delta 14C

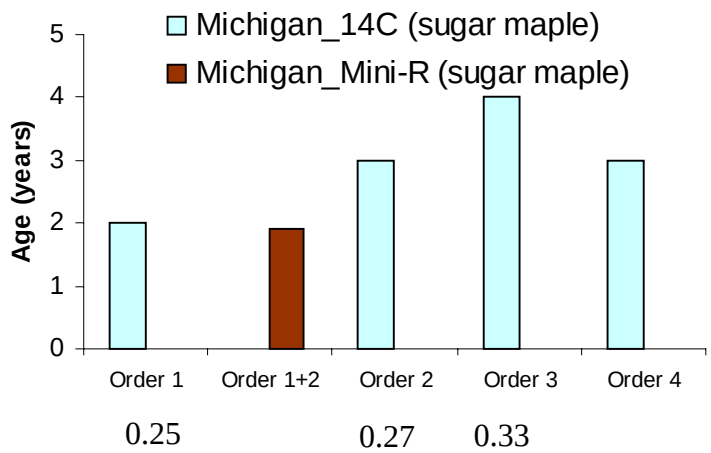
	live	dead
10 sieve	384	434
mass weighted all sieves	383	430

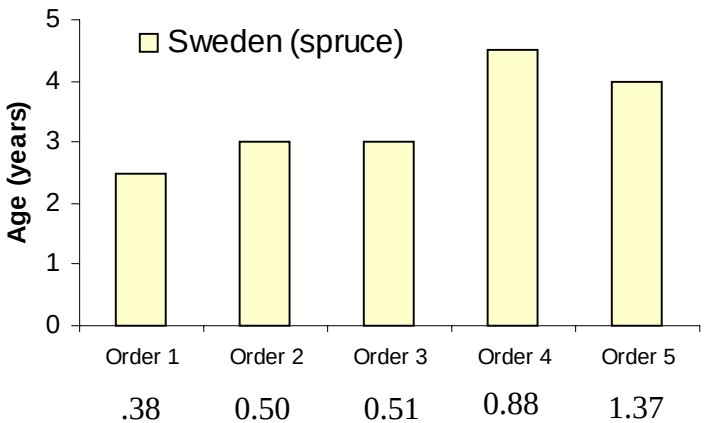
There was little difference in 14C as function of size class.

Are all < 2 mm roots really cycling at the same rate??

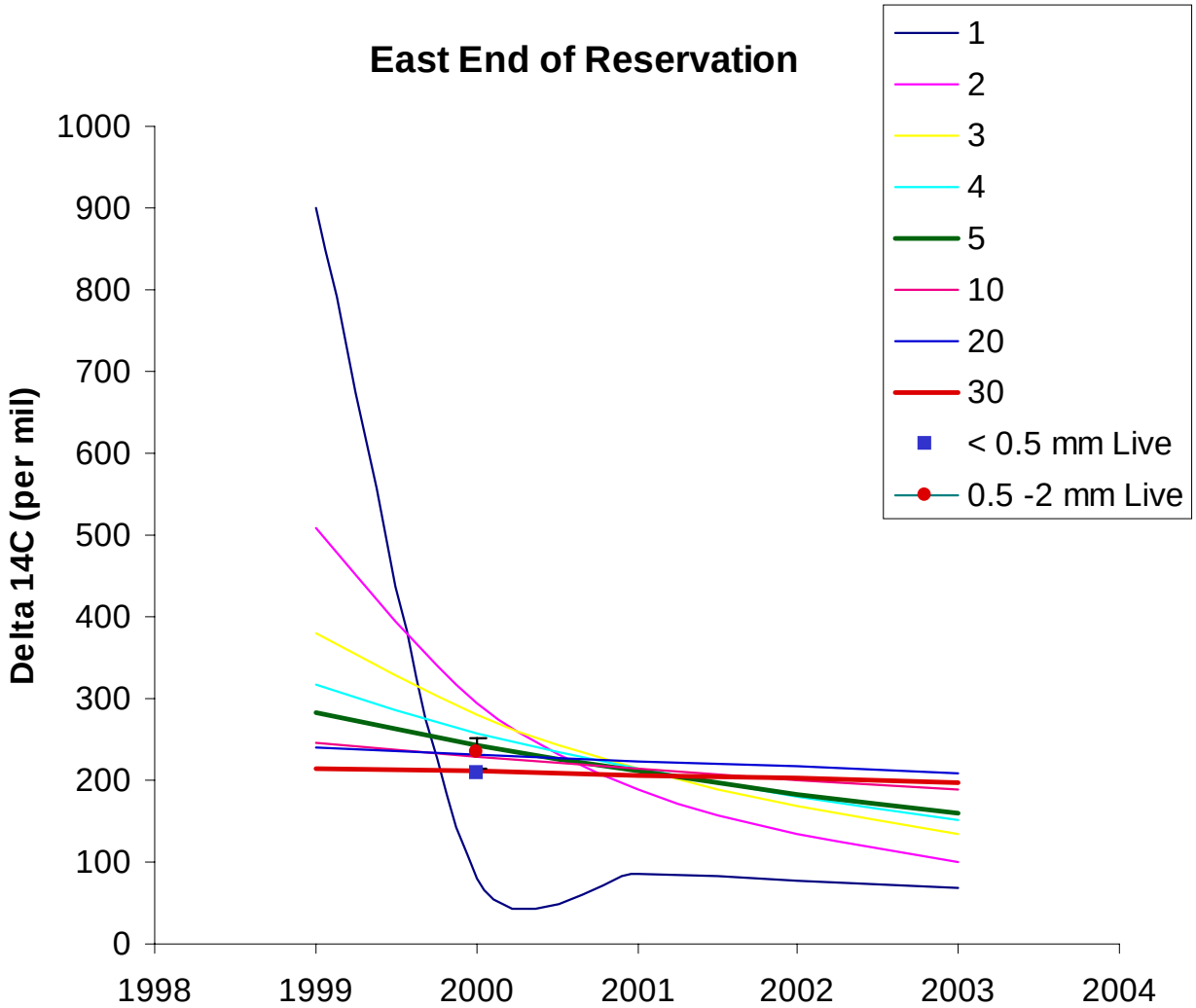
Branch Order and Age







Preliminary age estimations



Using 1999 root screens as proxy for 1999 atmosphere as seen by roots (value is 900 per mil).

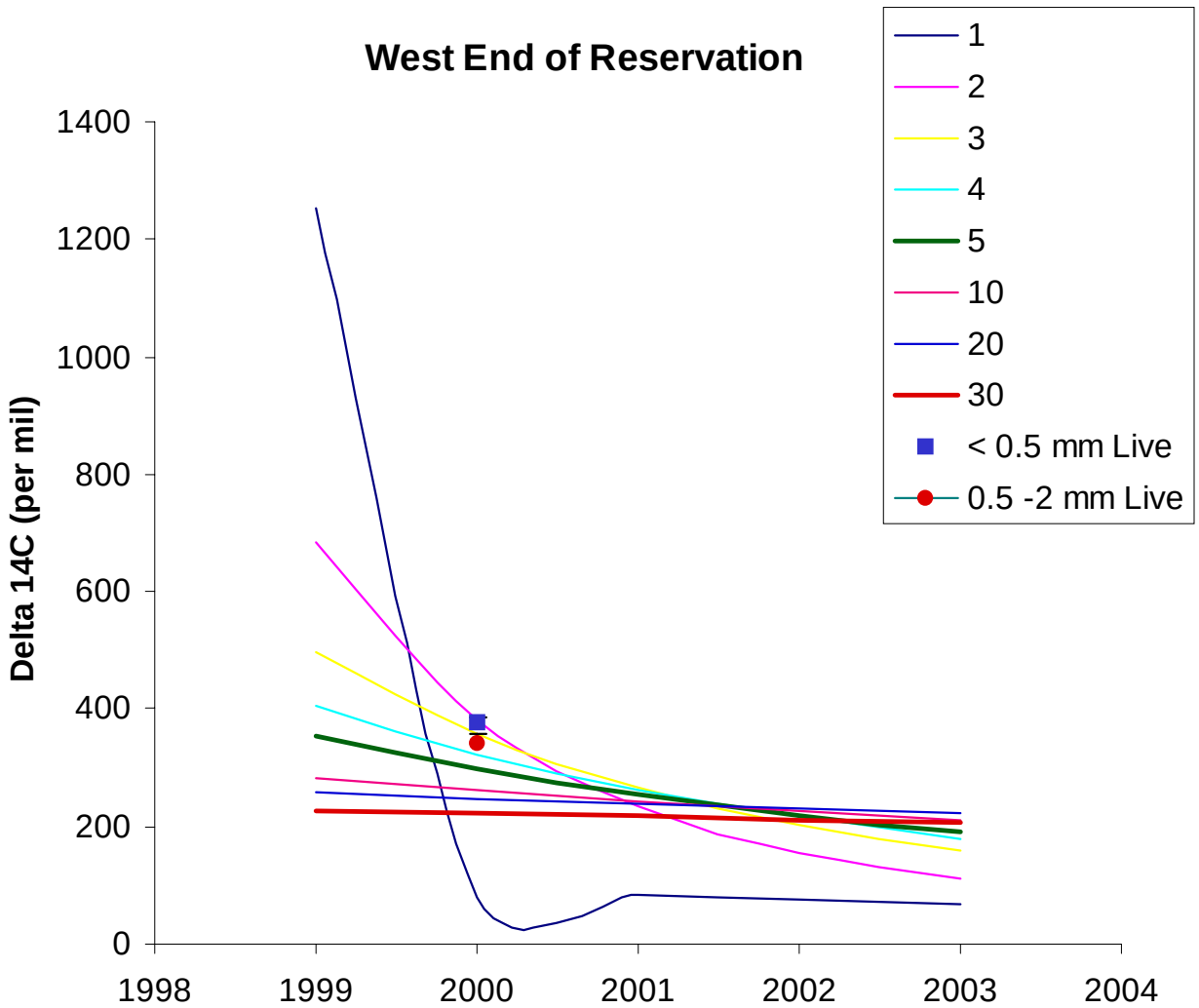
Doing “branch order” at TVA and WB

Sampled May 2002

Mostly White Oak

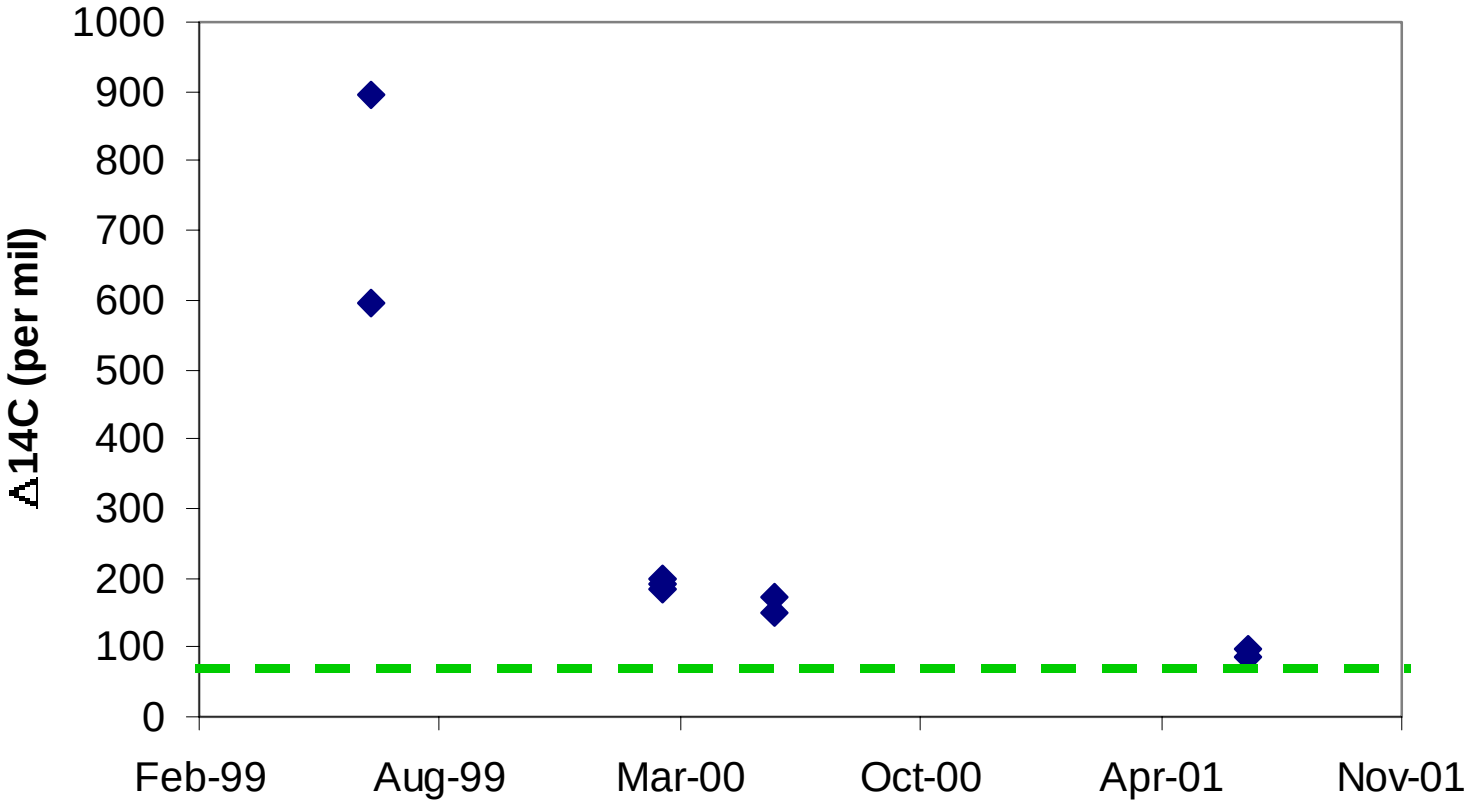
Some Red Maple

Preliminary age estimations



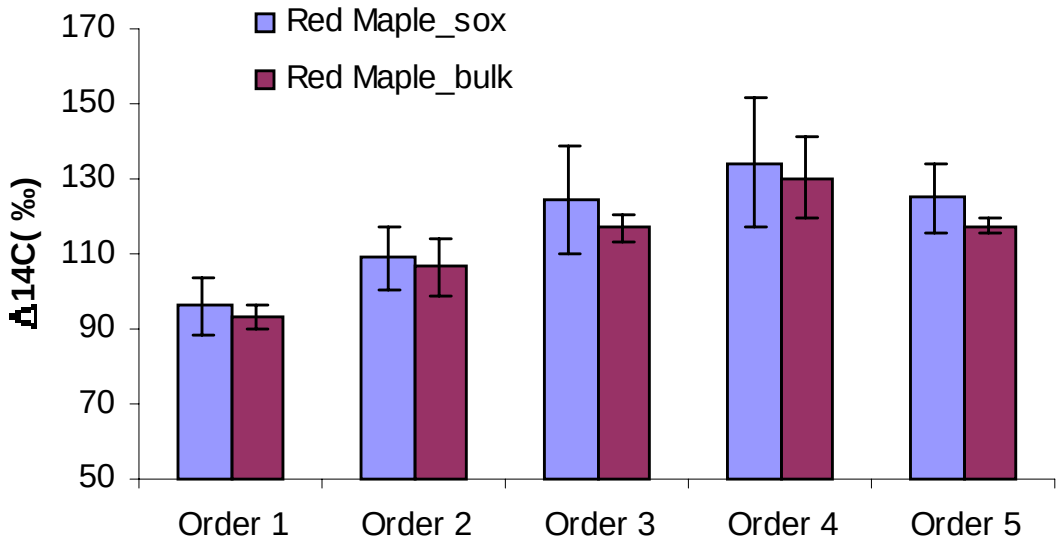
Using 1999 root screens as proxy for 1999 atmosphere as seen by roots (value is 1250 per mil).

New Root Growth



About 10-20% of 1999 pulse in new roots grown in 2000

Soxhlet vs.Bulk



N = 2

Discussion

Cores

“Year 1-2002” cores (#10 sieve) done processing end of January 2003

“Year 2-2003” cores--can we get washing done by end of May?

Processing Year 1 and 2 Cores

We will process only all the #35 sieves, but #60 sieves only for 15 cm – 90 cm.

We will not sort any sieves into live and dead and instead will use Time Zero-2001 percentages.

No 14C analysis on Year 1 and Year 2 #35 and #60 sieves.

How urgent is Year 1-2002 core 14C data for folks?

Other

Branch order--samples processed by end of march.

Root screen storage-- samples all processed.