



WESTCARB Phase I Results Review

***Terrestrial Baselines:
Sectoral Analyses for
CA, OR, WA, and AZ***

Sandra Brown
Winrock International
sbrown@winrock.org
Berkeley, CA
November 9, 2005



Overview—Baselines

- Forest area increasing in Oregon and Arizona and decreasing in Washington and California
- Carbon stocks increasing in all but Washington
- Emissions from conversion of land for development highest in Washington
- Significant emissions from fire in California and Oregon
- Emissions from crop lands are very low and dominated by emissions of non-CO₂ gases

Forests (1987–1997)

	California	Oregon	Washington	Arizona
Change in Area acres/year	- 83,500 <i>- 0.21%/yr</i>	+ 94,700 <i>+ 0.33%/yr</i>	- 62,800 <i>- 0.28%/yr</i>	+ 54,200 <i>+ 0.28%/yr</i>
Change in Carbon Stocks MMTCO₂e/yr	+ 18.2	+ 23.0	- 12.6	+ 0.92

From USFS published data, forestland only.
Change in carbon represents change in carbon stored in live trees.



Development of Forest Lands

Analyzed from National Resources Inventory (NRI) and Forest Inventory Analysis (FIA) datasets (1987-97). Remote sensing analysis from ODF and LCMMP Program (late 1990s)

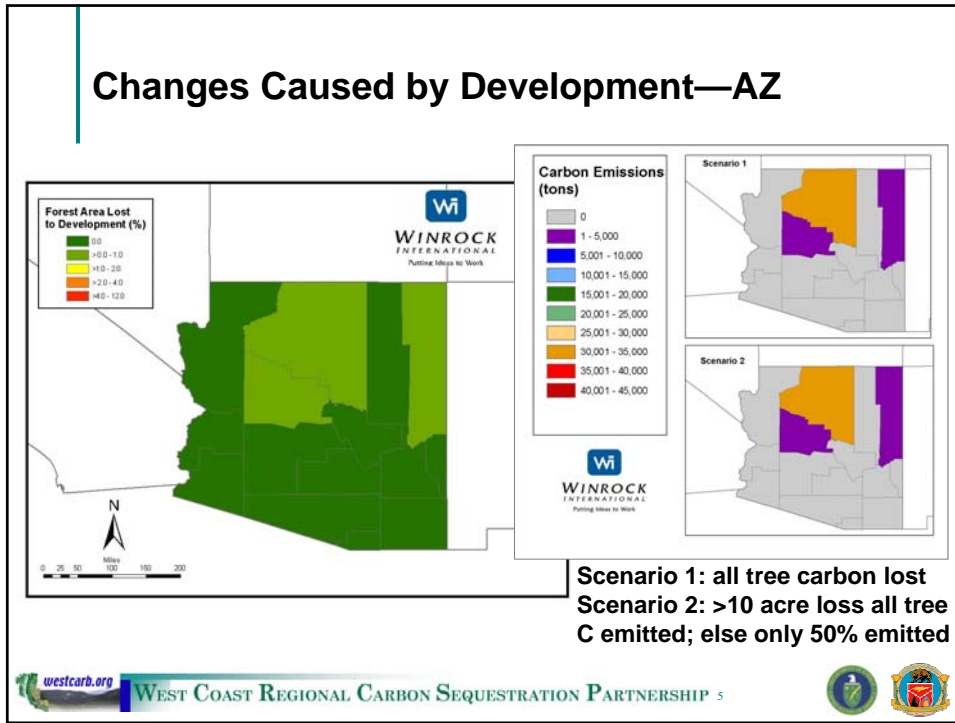
	California	Oregon	Washington	Arizona
NRI Change in Area -acres/year	- 16,760	- 6,890	- 24,570	- 350
Change in Carbon Stocks -MMTCO ₂ e/yr	- 3.77	- 1.39	- 6.54	- 0.015
Remote Sensing Change in Area -acres/year	- 12,247* 3 Regions California	- 5,500** ODF/ USFS	X	
Change in Carbon Stocks MMTCO ₂ e/yr	- 0.80* 3 regions California			

* Analysis from LCMMP dataset in California, 3 regions represent 84% of total forests in State, 42% of rangelands

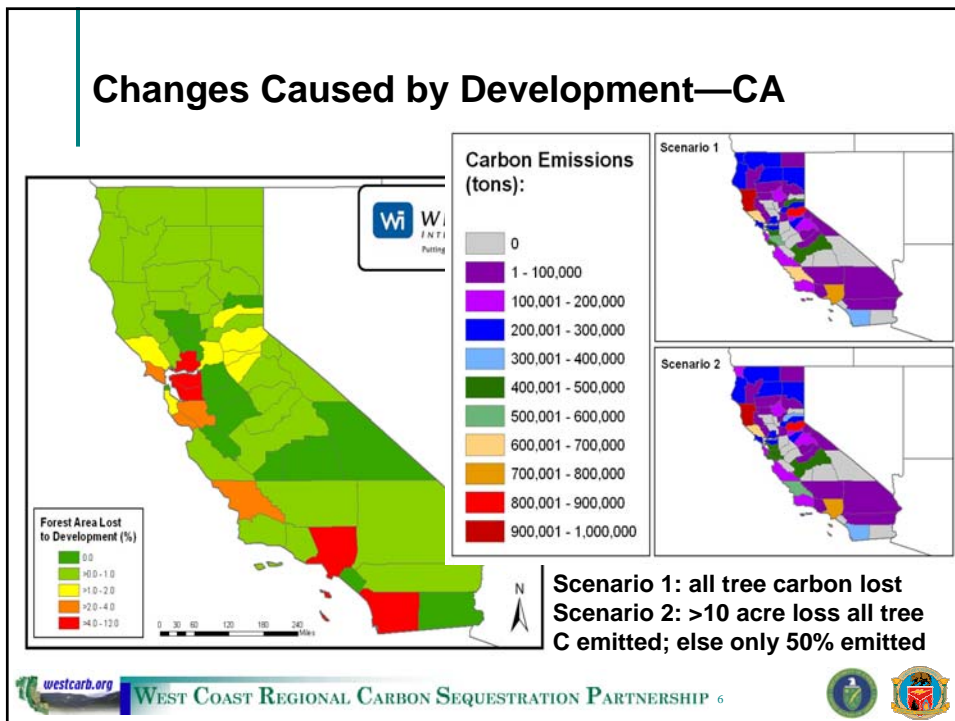
**Analysis from 'Forests, Farms, and People,' conducted by ODF, USFS



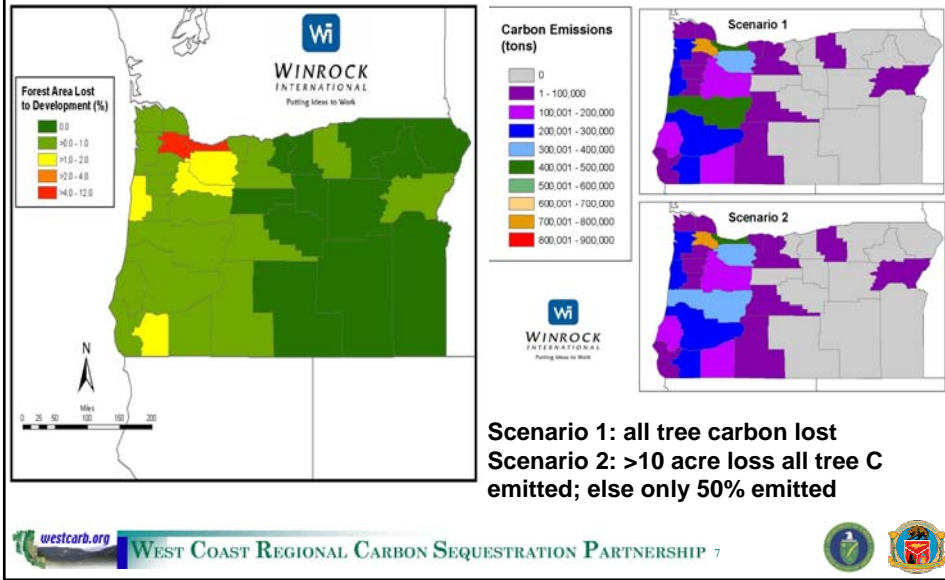
Changes Caused by Development—AZ



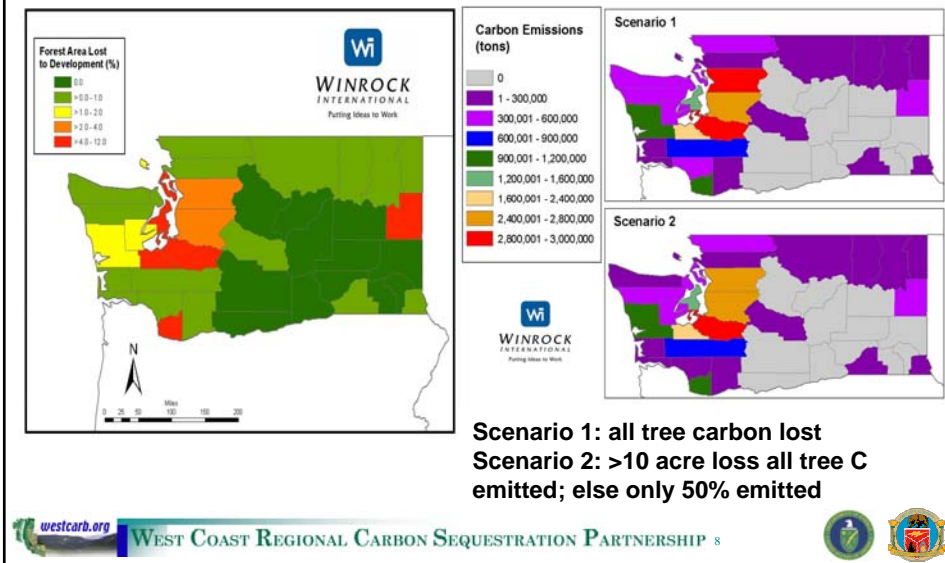
Changes Caused by Development—CA



Changes Caused by Development—OR



Changes Caused by Development—WA



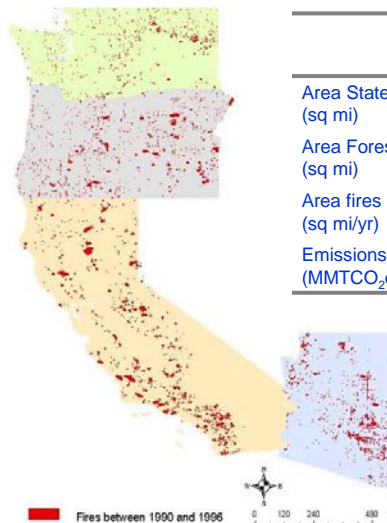
Fire in Forests and Rangelands

	California	Oregon	Washington	Arizona
Change in Area acres/year	- 39,262*	- 13,510	- 2,920	- 15,400
Change in Carbon Stocks MMTCO ₂ e/yr	- 1.46*	- 1.03	- 0.18	- 0.47

* Analysis from LCMMP dataset in California, 3 regions represent 84% of total forests in State, 42% of rangelands



Fire (1990–1996*)

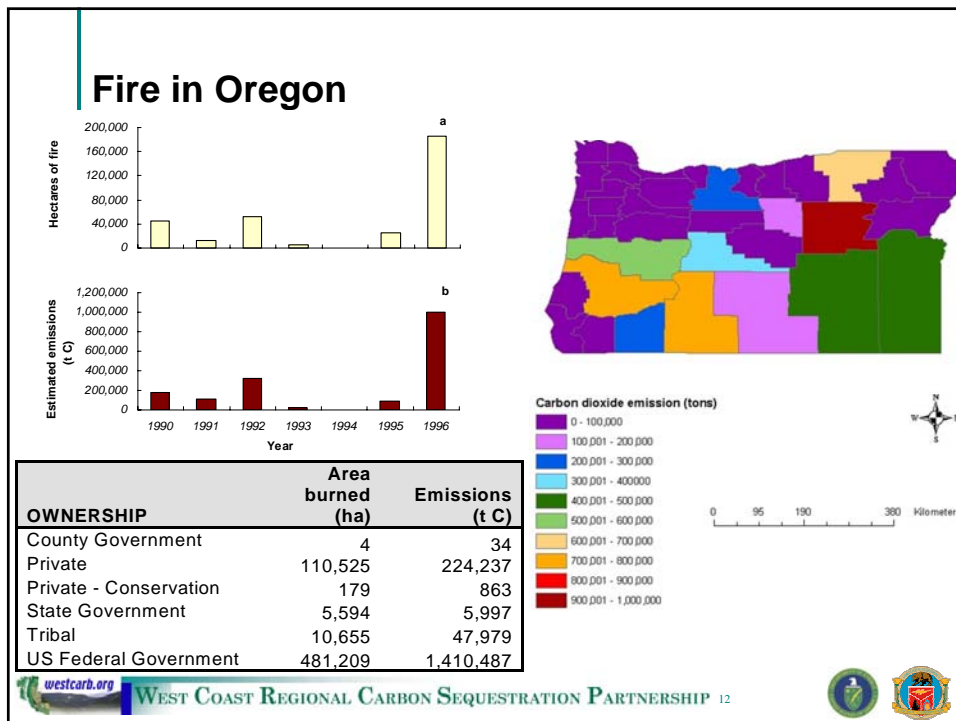
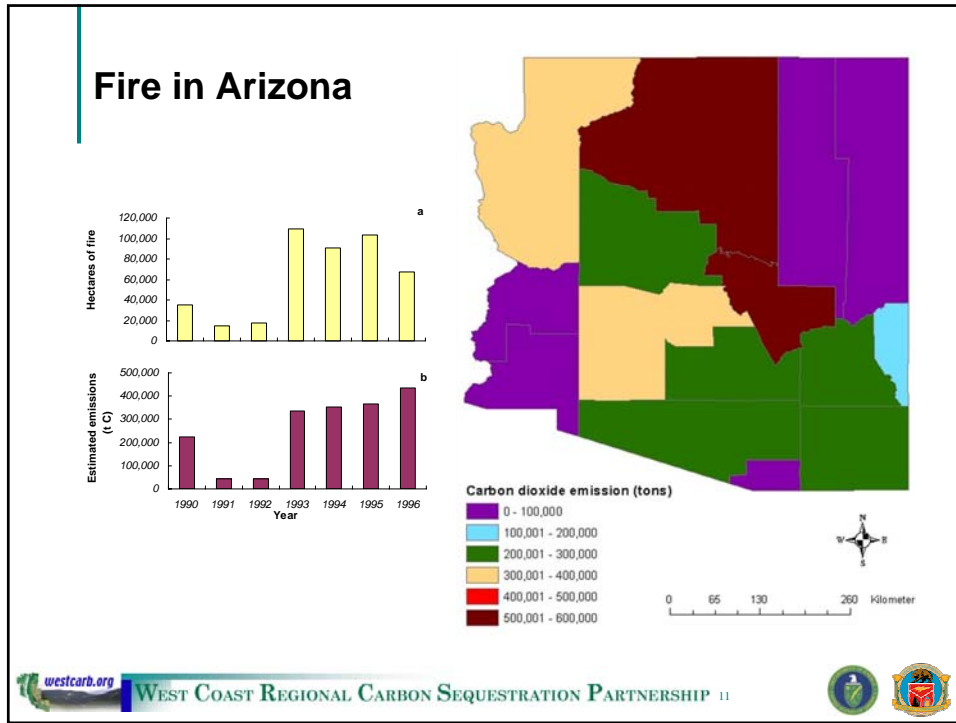


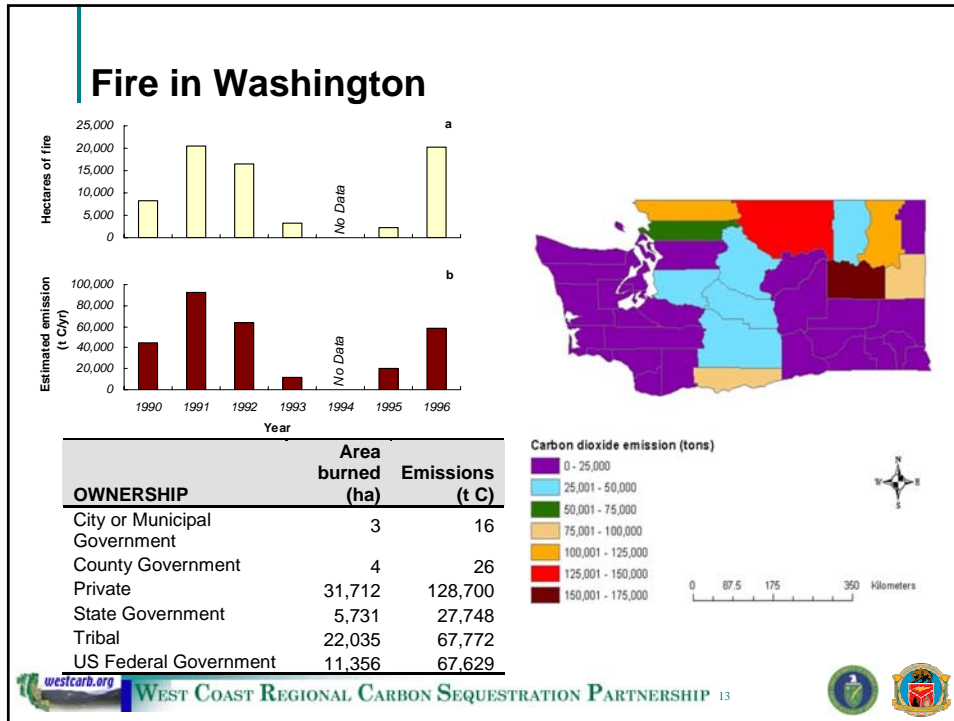
	CA	OR	WA	AZ
Area State (sq mi)	163,707	98,386	71,303	114,006
Area Forest 1997 (sq mi)	60,228	46,438	34,208	31,134
Area fires (sq mi/yr)	484	21*	4.6*	24
Emissions (MMTCO ₂ e/yr)	1.46**	1.03	0.18	0.47

* Fire data are missing for 1994 in Oregon and Washington due to satellite failure

** Analysis from LCMMP dataset in California, 3 regions represent 84% of total forests in State, 42% of rangelands







Agricultural Lands

Arizona MMTCO ₂ e				California MMTCO ₂ e			
	Agricultural Land	Woody	Non-woody		Agricultural Land	Woody	Non-woody
1987	3.9	1.4	2.4	1987	21.3	12.0	9.2
1997	3.5	1.3	2.2	1997	20.3	11.7	8.6
1987-1997	-0.4	-0.2	-0.2	1987-1997	-0.9	-0.3	-0.6

Oregon MMTCO ₂ e				Washington MMTCO ₂ e			
	Agricultural Land	Woody	Non-woody		Agricultural Land	Woody	Non-woody
1987	12.2	3.8	8.4	1987	23.4	8.0	15.4
1997	11.6	3.6	8.0	1997	22.9	9.0	13.9
1987-1997	-0.6	-0.2	-0.4	1987-1997	-0.5	1.0	-1.5

WEST COAST REGIONAL CARBON SEQUESTRATION PARTNERSHIP 14