WEST COAST REGIONAL CARBON SEQUESTRATION PARTNERSHIP
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WESTCARB Annual Business Meeting

Developing a Methodology to Quantify GHG Benefits from Improved Fuels Management

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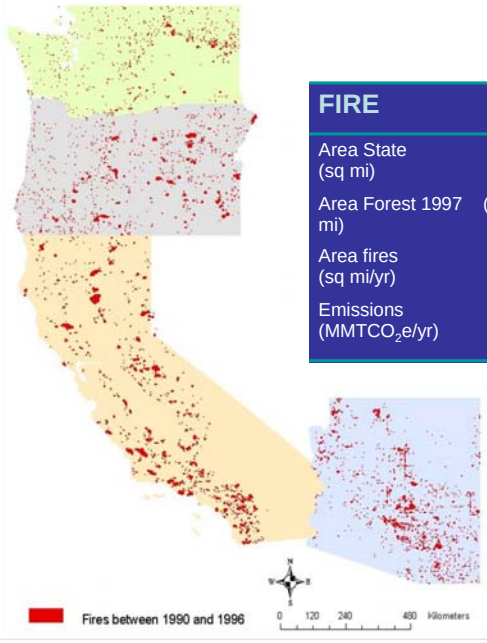
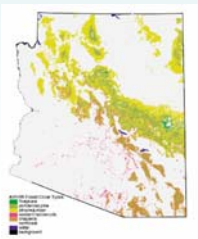
(1990 – 1996)



FIRE	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 ($MMTCO_2e/yr$)	1.46**	1.03	0.18	0.47



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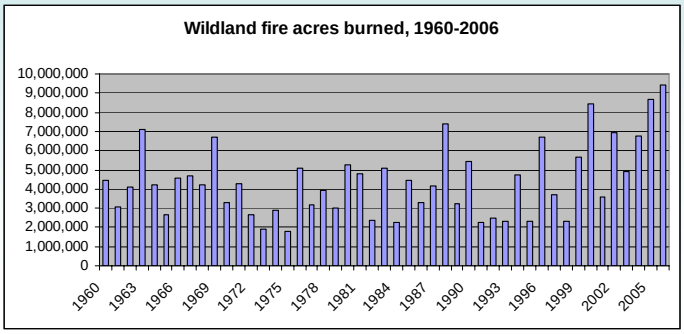
Wildland Fire Losses

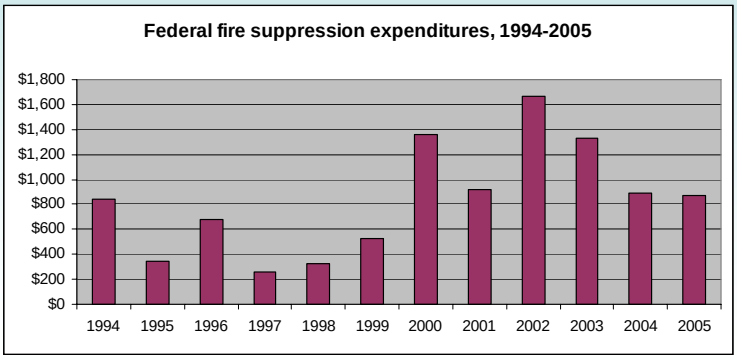
- Wildland fires consumed 9.4 million acres in 2006
- Ten-year average (1997-2006) of 6 million acres per year
- CA: 676,000 acres in 2006; AZ: 175,000 acres



Source: National Interagency Fire Center, 10/29/06

… and Costs

- Suppression costs to federal agencies for the 1994-2005 period averaged $833 million per year ($1.2 billion per year for 2000-05).



Source: National Interagency Fire Center, 10/29/06

Developing a New Protocol





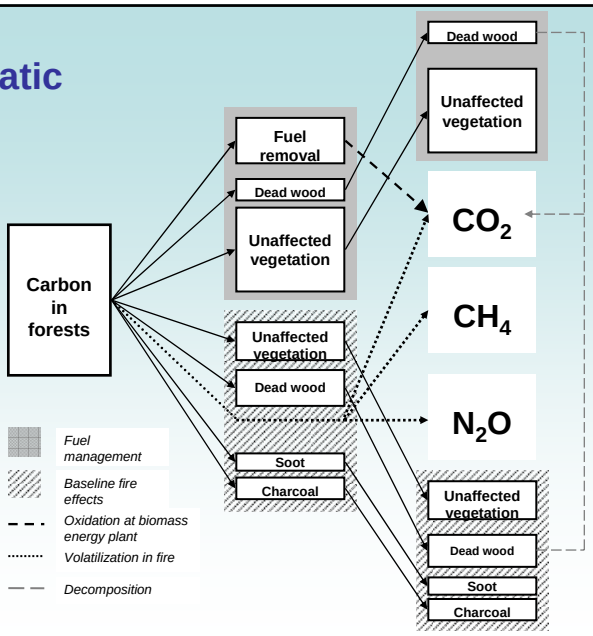


WESTCARB Fire Panel

- California Department of Forestry and Fire Protection
- California Air Resources Board
- Lake County Resources Initiative
- Oregon Department of Forestry
- Oregon State University
- Sylvan Acres LLC
- University of California at Berkeley - Center for Fire Research and Outreach
- USDA Forest Service - Pacific Northwest Research Station - Pacific Wildland Fire Sciences Laboratory
- USDA Forest Service - Pacific Southwest Research Station - Redding Silviculture Laboratory
- USDA Forest Service - Pacific Southwest Research Station – Sierra Nevada Research Center
- USDI National Park Service - Whiskeytown NRA
- W.M. Beaty and Associates
- Western Shasta Resource Conservation District
- Winrock International

Project Schematic

- Compare baseline and with-treatment scenarios
- Area and emissions from fires within project boundaries



1. Baseline
a) Area Burned

- Projection into future of the area that would burn
- Spatial and temporal scale?
- Public and private forestlands
- Look-up tables by vintage year
- Adapted for other regions
- Alternative: model project-specific baselines?

	Annual percentage	
	Public	Private
1985-1994	0.385	0.367
1986-1995	0.378	0.365
1987-1996	0.405	0.365
1988-1997	0.094	0.343
1989-1998	0.101	0.323
1990-1999	0.151	0.350
1991-2000	0.212	0.295
1992-2001	0.274	0.314
1993-2002	0.329	0.107
1994-2003	0.337	0.117
1995-2004	0.328	0.122

1. Baseline
b) Emissions

- Effect of fire on C stocks: unaffected, volatilized, transferred to stable C pools, non-CO_2 GHG emissions
- Proportions depend on fuel loading, fuel moisture, initial C stocks.
- Develop lookup tables with fraction emitted and/or killed as proportion of pre-fire C stocks
- Non-CO_2 GHG emission factors
- Rate of carbon accumulation in the forest pre-and post-fire

WEST COAST REGIONAL CARBON SEQUESTRATION PARTNERSHIP 9

2. With-Project Carbon Emissions and Removals

- Consider treatments eligible for crediting
- Quantify C emissions from treatment, i.e. fate of C stocks removed
  - Combustion in biomass plant
  - Emission in pile burning
  - Decomposition on site
- Emissions from equipment
- Sequestration benefits from treatment

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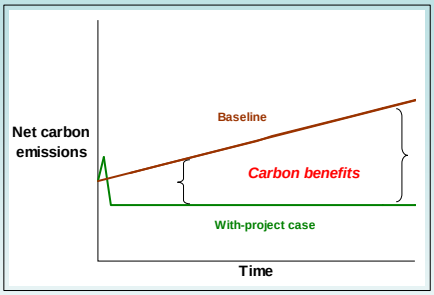
3. Net Benefits

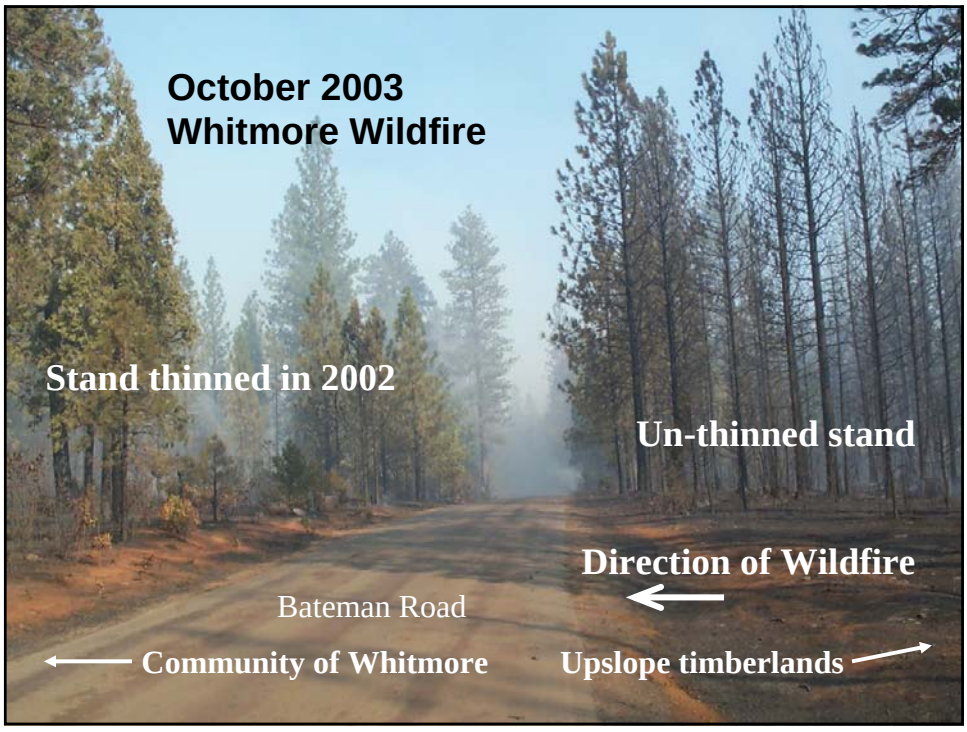
- Creditable benefit = difference between baseline fire emissions and sequestration (models or lookup tables) and with-project emissions and sequestration (measured)
- Positive leakage?



$$PB = BE - PE$$

$$PE = FE + FTE + EE \pm RE$$

$$BE = BE_{CO_2} + BE_{CH_4} + BE_{N_20} \pm BE_R$$



Goals for Protocol Development Process

- Develop a credible, transparent protocol with broad support
- Validate with real fire data, and test in pilot projects
- Review by CA Climate Action Registry, Climate Trust, ODF, CDF, other market actors
- Market transactions?

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