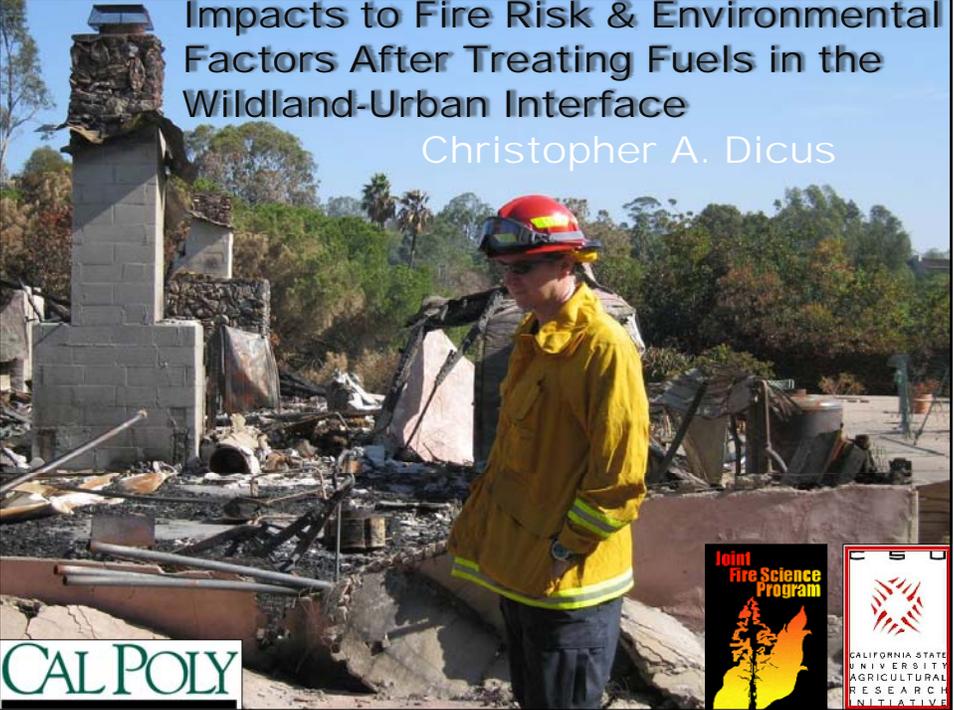


Impacts to Fire Risk & Environmental Factors After Treating Fuels in the Wildland-Urban Interface

Christopher A. Dicus



CAL POLY

Joint Fire Science Program

CALIFORNIA STATE UNIVERSITY AGRICULTURAL RESEARCH INITIATIVE

Three primary parts...

- 

1. Monkeys in the zoo

 - Research efforts into tradeoffs of fuel treatment
- 

2. If I ran the zoo...

 - Holistic approach to WUI management
- 

3. Zoo's gone wild...

 - When bad fires happen to good people

California dreamin'...

- Build it and they will come

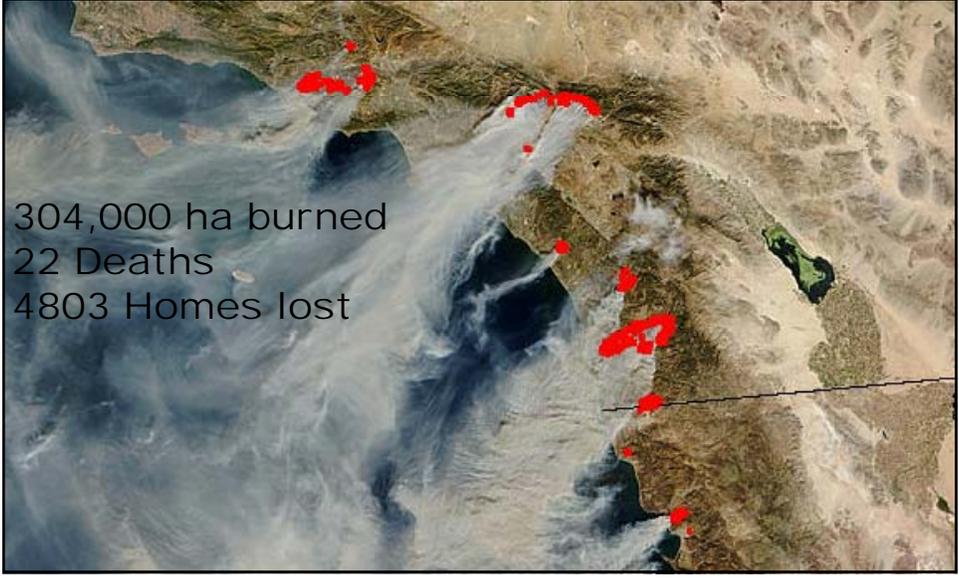
Population of Australia
In Southern California



California dreamin'...

- Build it and they will burn (2003)

304,000 ha burned
22 Deaths
4803 Homes lost

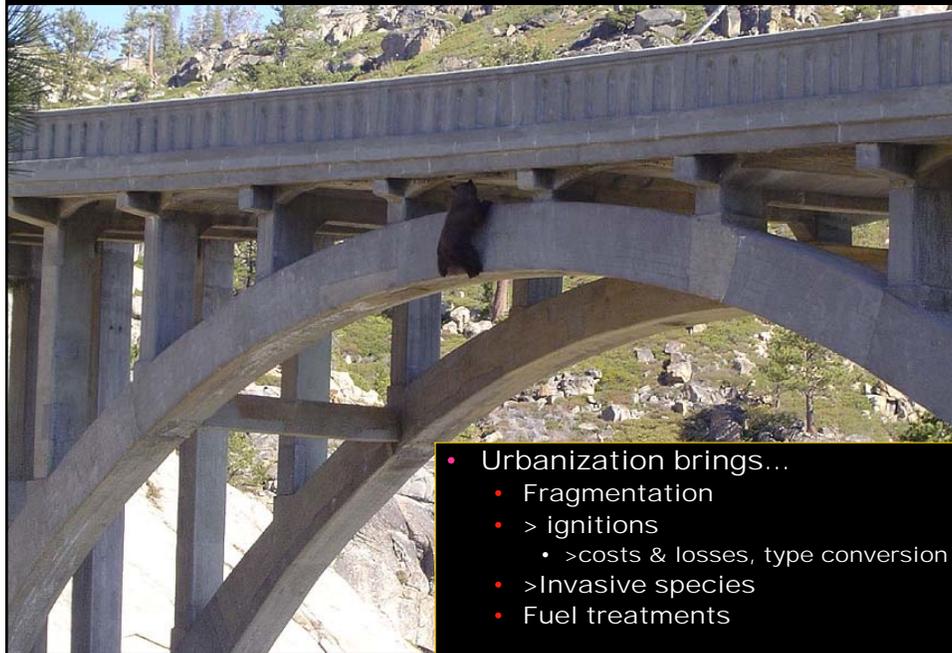


California dreamin'...

- Build it and they will burn (2007)



WUI: An insurmountable task???



- Urbanization brings...
 - Fragmentation
 - > ignitions
 - >costs & losses, type conversion
 - >Invasive species
 - Fuel treatments

Hazards vs. benefits

Pismo Beach, California



- Vegetation provides benefits
 - Air pollution removal
 - Carbon sequestration
 - Soil stabilization
 - Home cooling costs
 - Stormwater retention
 - Wildlife habitat
 - Home value
 - And on and on...

Vegetation is more than fuel!!

Bridging the stereotypes...

Stupid "firenecks" wanna pave the world, man!

Dang hippies like bushes more than people!



July 2003

Urban Ecosystem Analysis San Diego, California

Calculating the Value of Nature

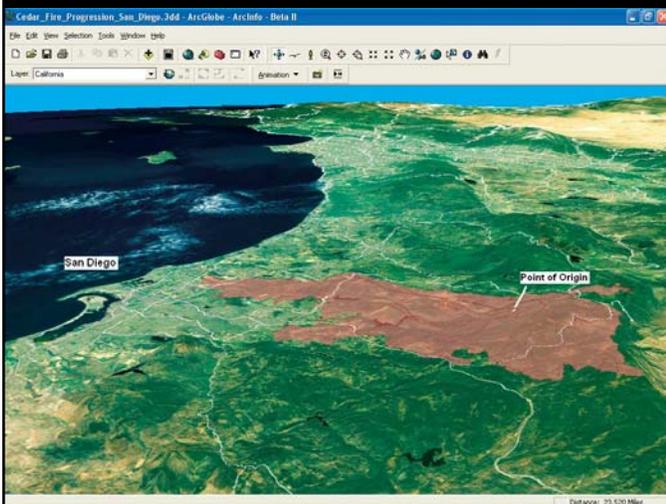
Report Contents

- 2 Project Overview
- 3 Major Findings
- 4 Creating a Green Data Layer
- 5-6 Tree Canopy Trends from Landsat
- 7-9 Building a Green Data Layer
- 10-11 San Diego's Green Data Layer
- 12-13 The Green Data Layer Applied to Local Issues
- 14-15 Environmental Benefits of Urban Forests
- 16 Analysis Report
- 17-18 Recommendations
- 19 About the Urban Ecosystem Analysis



- The result???
- Plant 100,000 trees





2003 Firestorm

The result???

- Cut it all down!
- Clear to 33 m

Cedar Fire
111,000 ha
2820 homes
14 fatalities

This is too easy...



Determine...

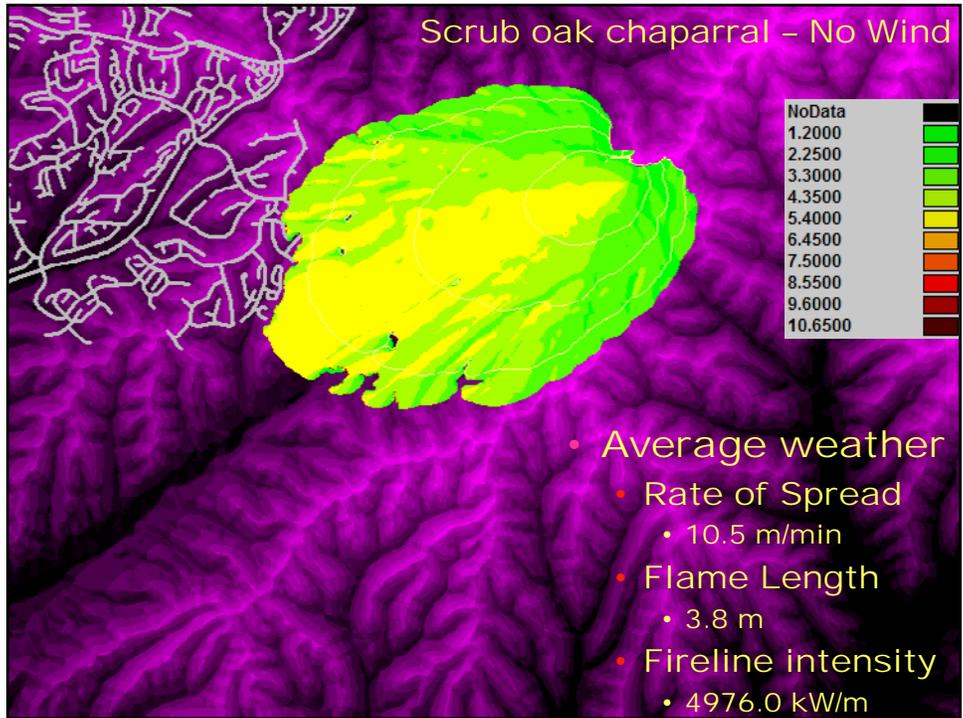
1. Potential fire behavior for major grassland, shrubland, and woodland communities in San Diego
2. Community benefits for each
3. Which best mitigates fire risk while maximizing benefits?



Scrub oak chaparral (SH7)



- Dominated by *Quercus berberidifolia* with considerable *Cercocarpus betuloides*



Benefits of scrub oak chaparral???

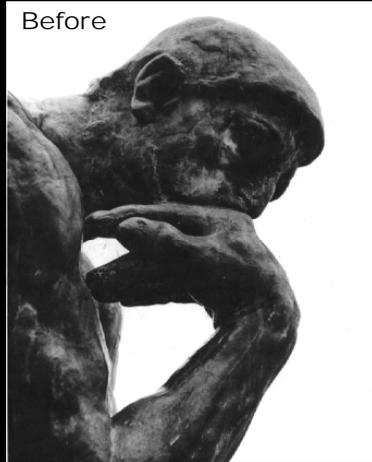
- Air pollution removed???
- Stormwater runoff stopped???
- Carbon sequestration???

Big FAT Zero

Conclusions...

Politically-correct, please-don't-sue-me version

- When assessing canopy benefits...
- Consider assumptions of CITYgreen model

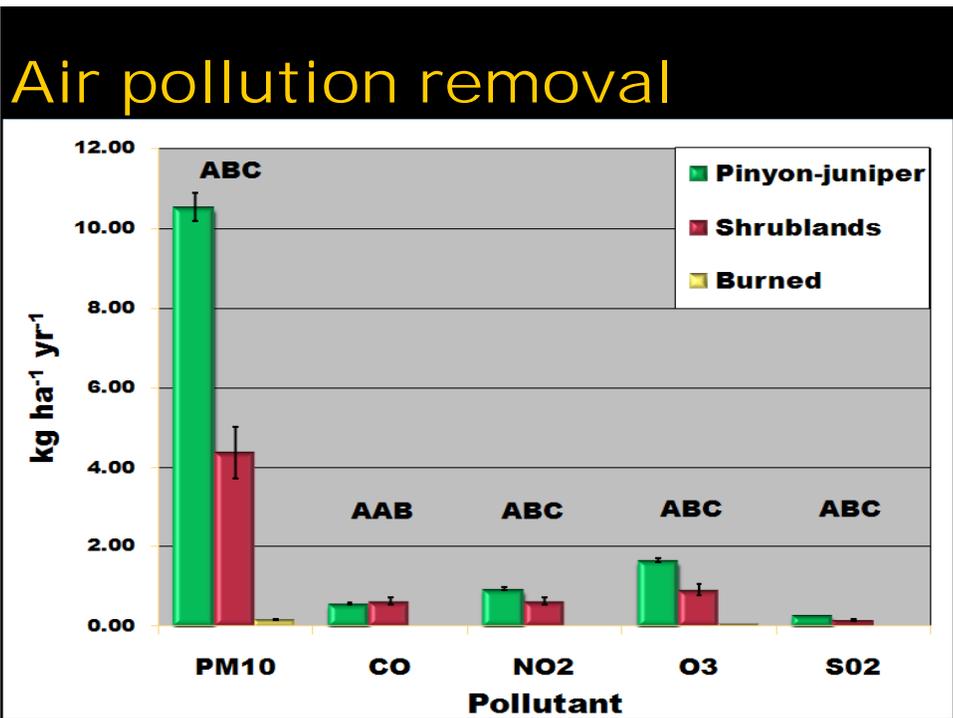
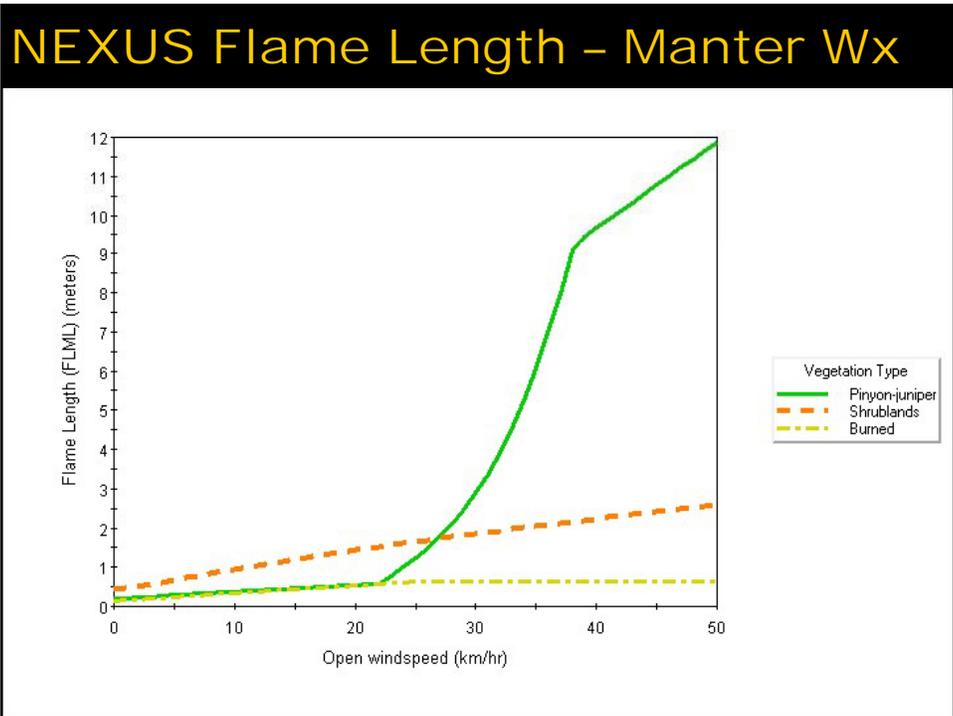


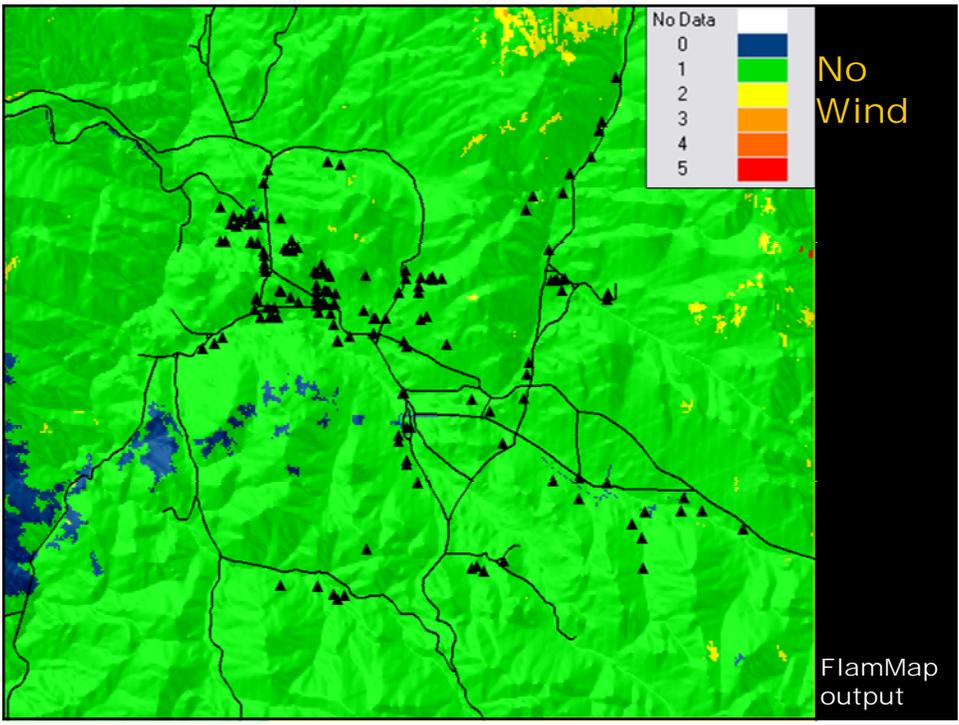
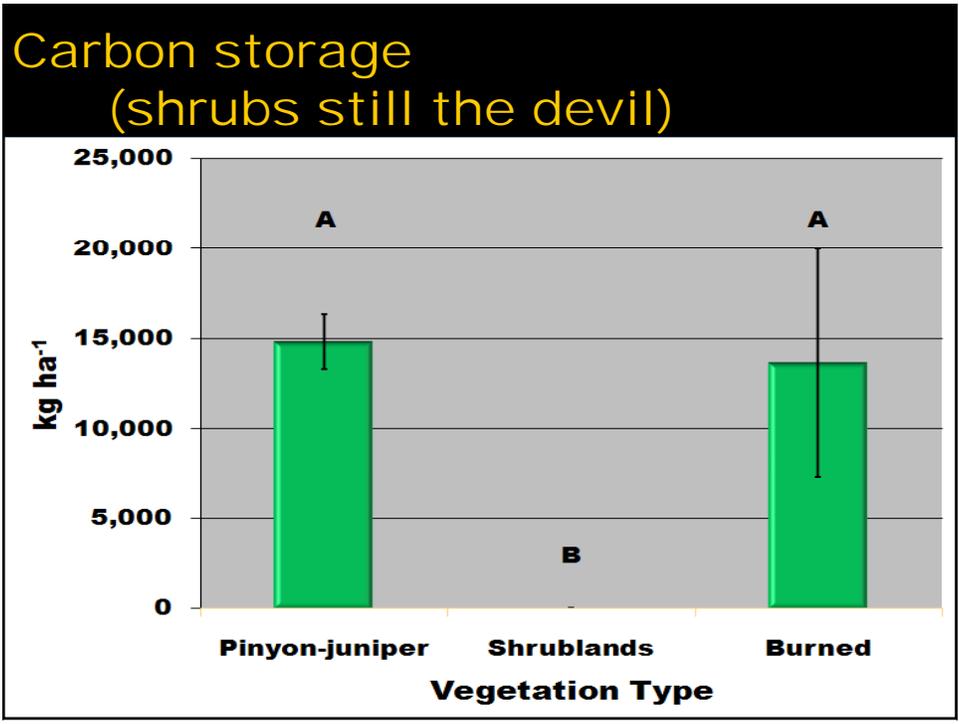
Oh please, oh please...
(4 attempts later...)

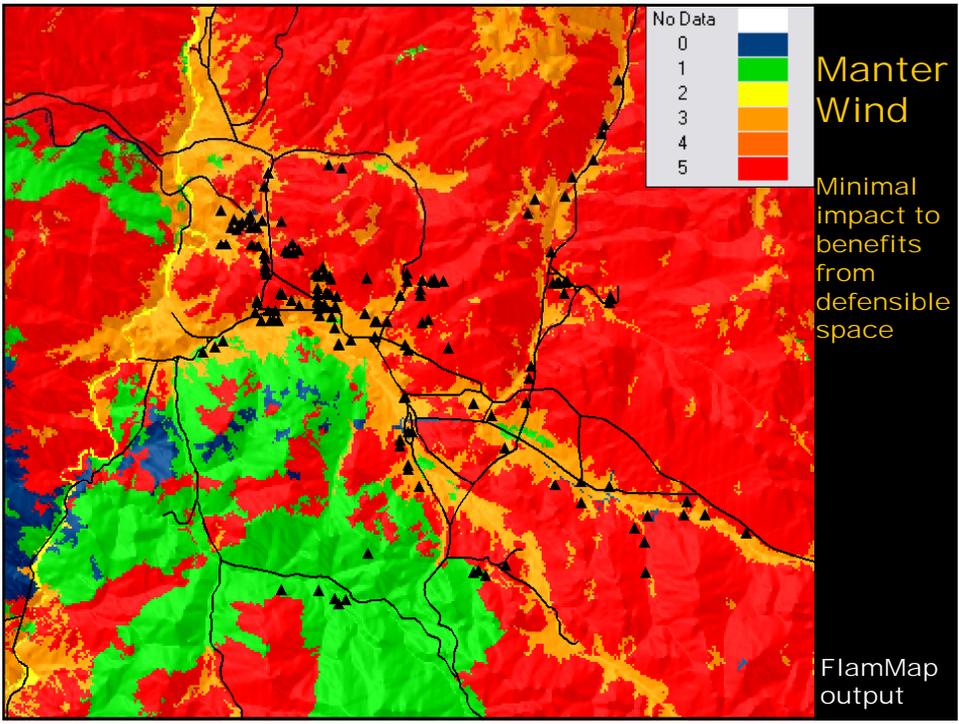
UFORE
Urban Forest Effects Model



- Eastern Sierra Nevada Mountains (~ 2000 m)
 - Pinyon-juniper woodlands
 - Sagebrush shrublands
 - Burned grasslands







• Meet the monkeys...

• Current work

Jon Large

Chris Hamma

Alex Kirkpatrick

Part Deux -

If I ran the (holistic fire management) zoo...



• Appropriate Suppression Resources

- Problem where small tax base
- Both agencies and private overemphasize





We must
prepare the
battlefield!!!



- Appropriate Fuels Management





Gavilan Fire
San Diego, 2002

New Generation Fire Shelter

Sound Land Use Planning

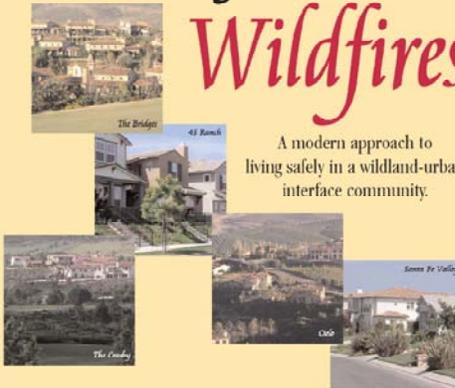
- San Diego way
 - Doesn't always work out so well...

An aerial photograph showing a residential area built on a steep, rocky hillside. A yellow arrow points to a small circular structure on the slope, labeled 'New Generation Fire Shelter'. The surrounding terrain is rugged and appears to be a fire-prone area.

Rancho Santa Fe Fire Protection District • www.rsffire.org

Sheltering in Place During Wildfires

A modern approach to living safely in a wildland-urban interface community.



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For the communities of:
The Bridges, Cielo, The Crosby, 45 Ranch, and Santa Fe Valley

New paradigm???

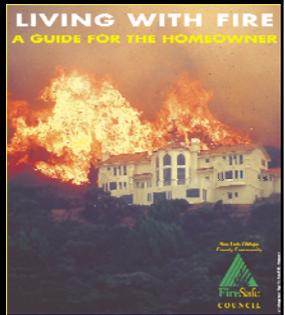
- Still got a ways to go, but it's going...

Not for everyone...



•Community education and buy-in

♪... Taken' it to the streets...♪



LIVING WITH FIRE
A GUIDE FOR THE HOMEOWNER

Fire Safe COUNSEL

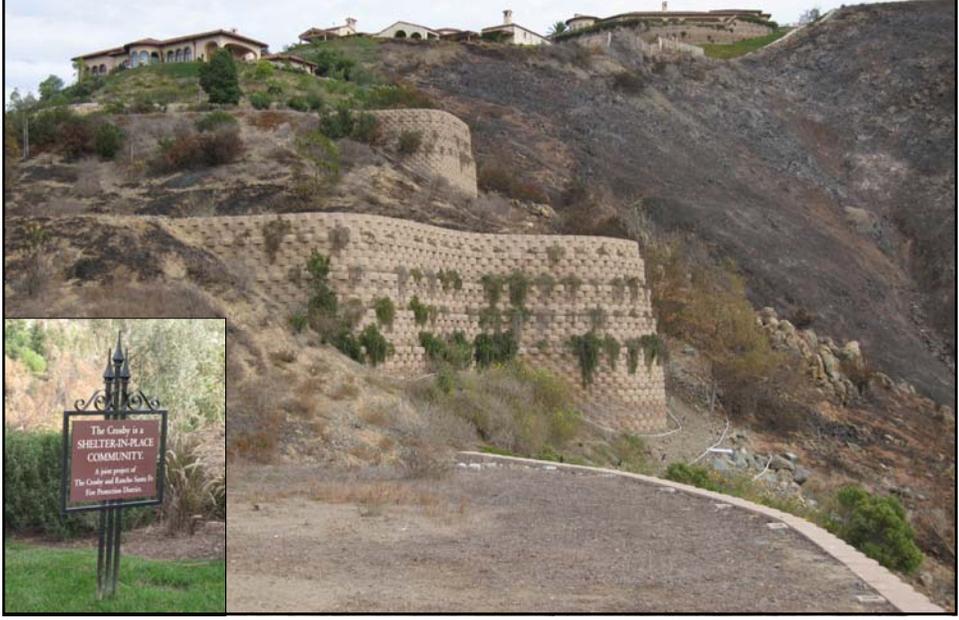


III. Zoo's gone wild When bad fires happen to good people



100% survival in Shelter-In-Place

- They also have the \$\$\$ to make it happen





Prepare...
(Plan to) Stay...
Get the &#\$* out!!!

- "But I thought this was shelter-in place"
- "True, but we don't know what YOU'RE gonna do when it hits the fan"

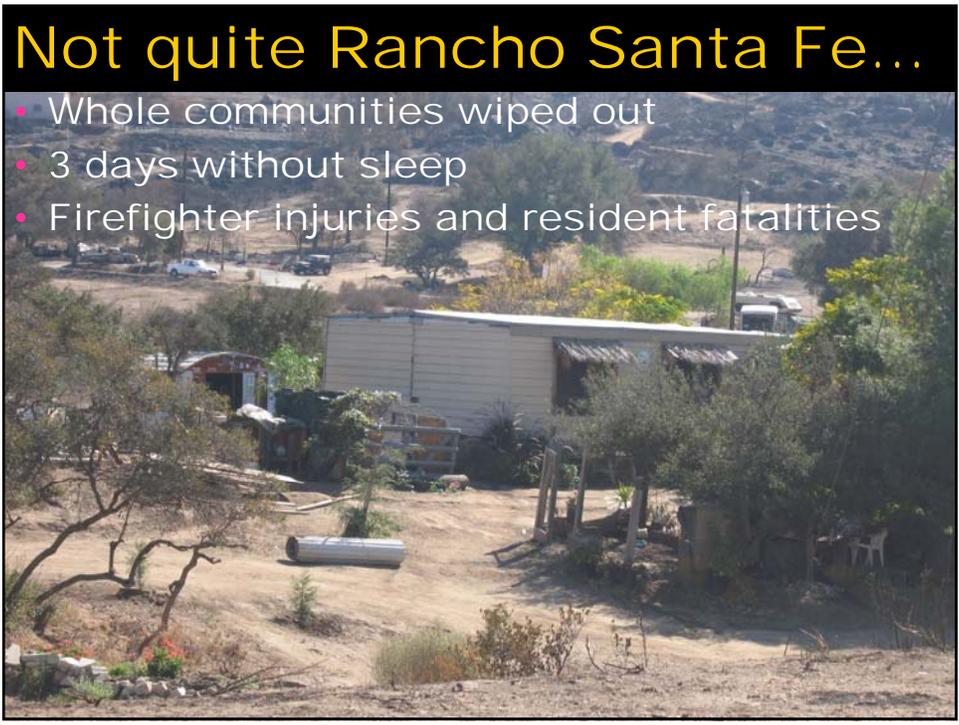
Buyer beware...

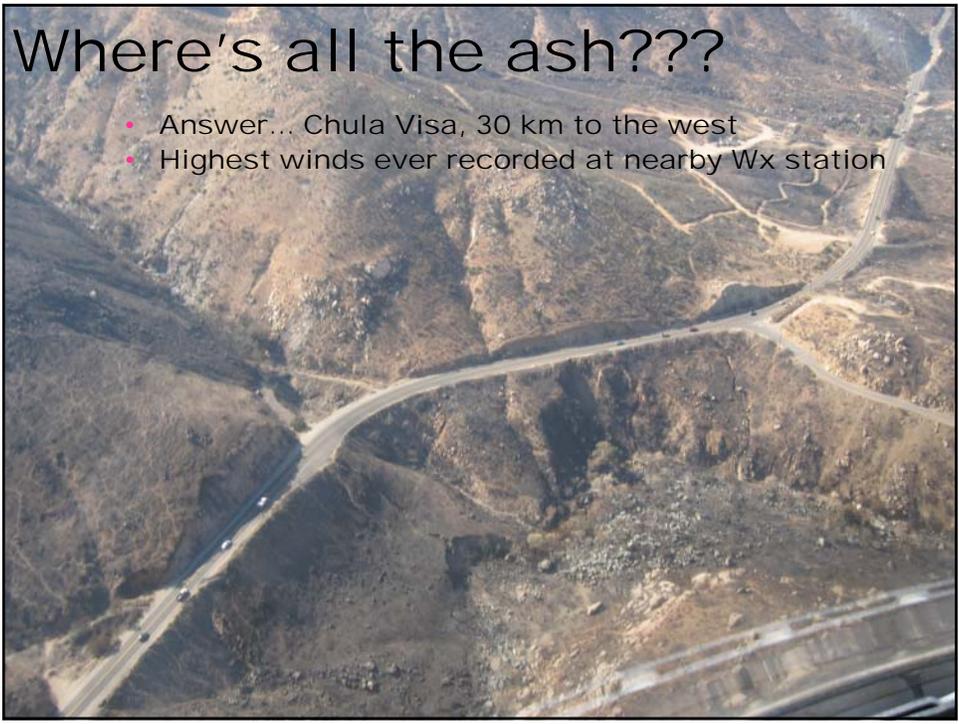
- One company reported to have sold many contracts guaranteeing that they would spray gel on house during wildfire
- Turned back by law enforcement











Pre-fire changes DID work...

- Construction
- Setbacks
- Landscaping
- Education

