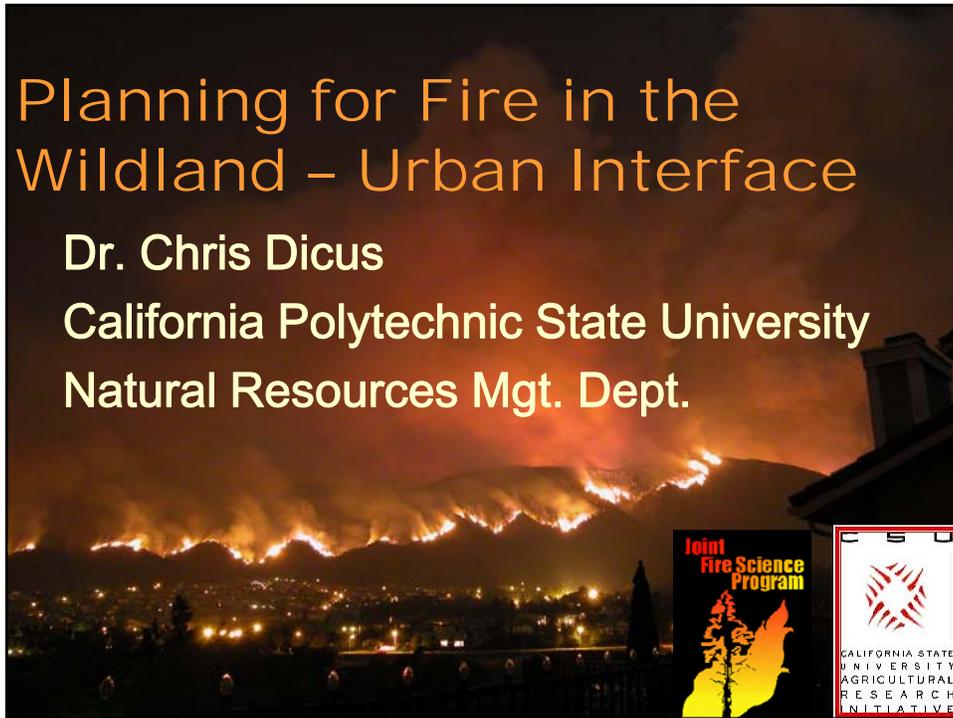


# Planning for Fire in the Wildland – Urban Interface

Dr. Chris Dicus

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Natural Resources Mgt. Dept.



## Changes to fuels

- Fire exclusion
  - Natives removes
  - Grazing introduced
  - Fire suppression
- Understory grows up in dry forests



- Ex. Cheatgrass in desert

## Changes to fuels



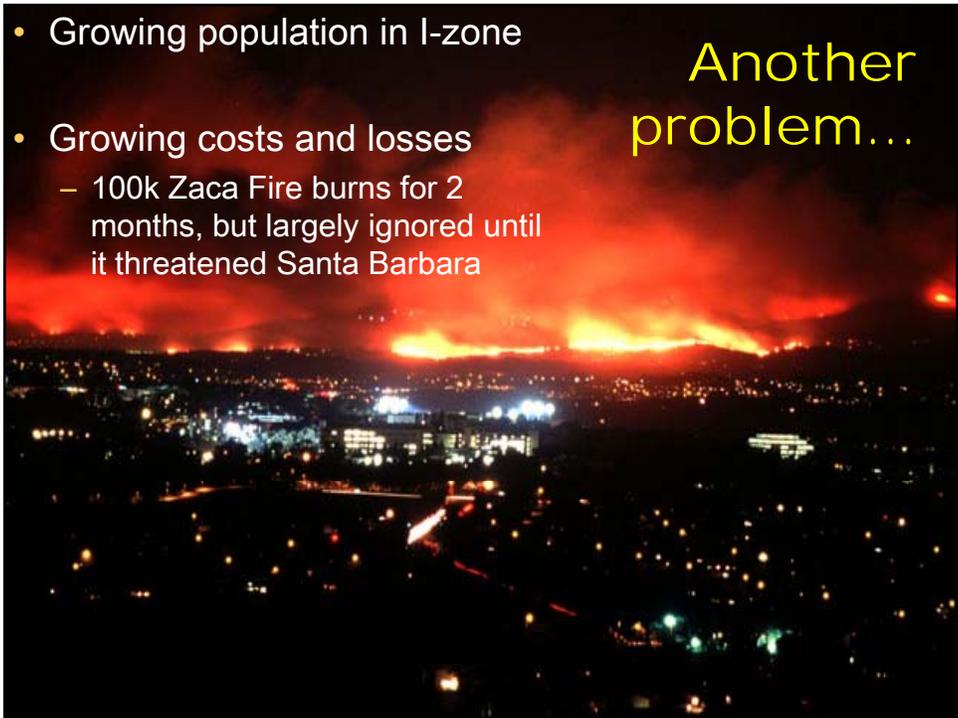
## Changes to Weather

- Longer fire season
- Drier fuels
- “Megafires” that don’t go out until it snows



- Growing population in I-zone
- Growing costs and losses
  - 100k Zaca Fire burns for 2 months, but largely ignored until it threatened Santa Barbara

**Another problem...**



**20 Largest California Wildland Fires (By Structures Destroyed)**

FIRE NAME/CAUSE	DATE	COUNTY	ACRES	STRUCTURES	DEATHS
1 CEDAR (HUMAN)	October 2003	SAN DIEGO	273,246	4,847	15
2 TUNNEL (REKINDLE)	October 1991	ALAMEDA	1,600	2,900	25
3 WITCH (UNDER INVESTIGATION)	October 2007	SAN DIEGO	197,990	1,650	2
4 OLD (HUMAN)	October 2003	SAN BERNARDINO	91,281	1,003	6
5 JONES (UNDETERMINED)	October 1999	SHASTA	26,200	954	1
6 PAINT (ARSON)	June 1990	SANTA BARBARA	4,900	641	1
7 FOUNTAIN (ARSON)	August 1992	SHASTA	63,960	636	0
8 CITY OF BERKELEY (POWERLINES)	September 1923	ALAMEDA	130	584	0
9 BEL AIR (UNDETERMINED)	November 1961	LOS ANGELES	6,090	484	0
10 HARRIS (UNDER INVESTIGATION)	October 2007	SAN DIEGO	90,440	548	6
11 LAGUNA FIRE (ARSON)	October 1993	ORANGE	14,437	441	0
12 LAGUNA (POWERLINES)	September 1970	SAN DIEGO	175,425	382	5
13 PANORAMA (ARSON)	November 1980	SAN BERNARDINO	23,600	325	4
14 TOPANGA (ARSON)	November 1993	LOS ANGELES	18,000	323	3
15 49ER (BURNING DEBRIS)	September 1988	NEVADA	33,700	312	0
16 ANGORA (HUMAN)	June 2007	EL DORADO	3,100	309	0
17 SIMI (UNDER INVESTIGATION)	October 2003	VENTURA	108,204	300	0
18 SLIDE (UNDER INVESTIGATION)	October 2007	SAN BERNARDINO	12,759	272	0
19 RICE (UNDER INVESTIGATION)	October 2007	SAN DIEGO	9,472	248	0
20 CANYON (VEHICLE)	September 1999	SHASTA	2,580	230	0

Note that this list does not include fire jurisdiction. These are the Top 20 within California, regardless of whether they were state, federal, or local responsibility. Also note that "structures" is meant to include all loss - homes and outbuildings, etc.



11/9/2007



# Complexities

- I-Zone fires not the same as managing wildlands
  - Not the same as managing urban development
- I-zone is a distinct entity
  - Distinctly complicated



## Ubiquitous problem....

- Not confined to any one region
  - California to Tennessee to Greece to Australia to...
- Continued immigration from city to rural areas
  - Little thought given to wildfire hazard
  - Bring expectation of urban emergency services
- Been compared to raising a Teenager

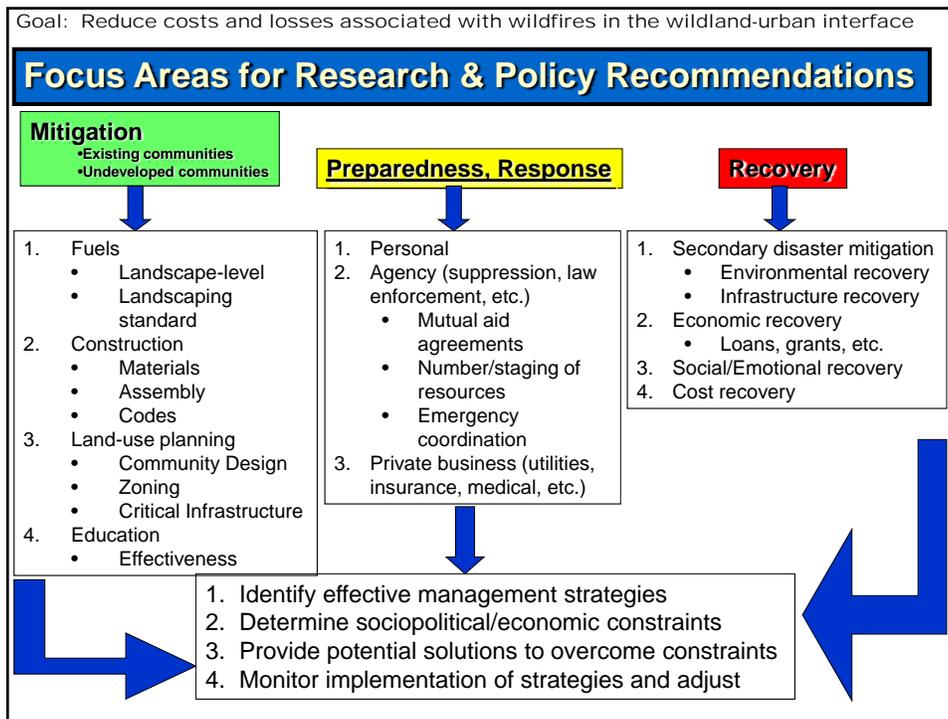
Long Island, New York 1995

## So what does it take for "sustainable communities"???



If I ran the zoo...





### • Appropriate Suppression Resources

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






# Wise man wonder...



- Shell left after house fire



- Wildfire burns to ground
- Both **EXTREMELY** hot... so why the difference???

  - No one to squirt water during wildfire

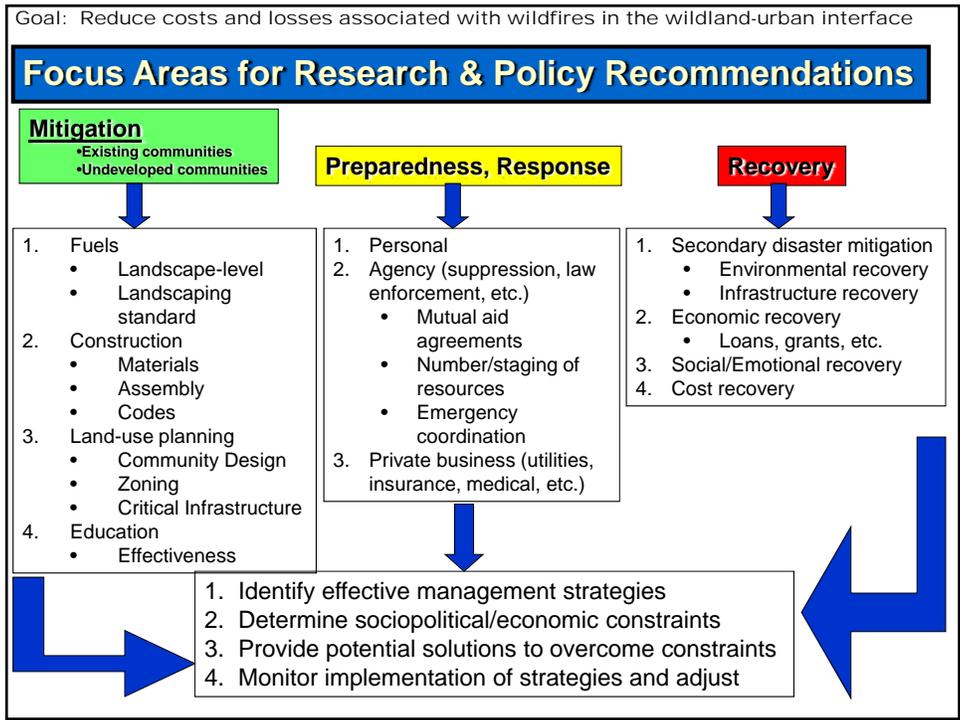
# Even Superman had his kryptonite...



Atascadero 2006  
•No time  
•2 minutes, 0.2 acres, 2 homes



Old Fire 2003  
•Overwhelmed



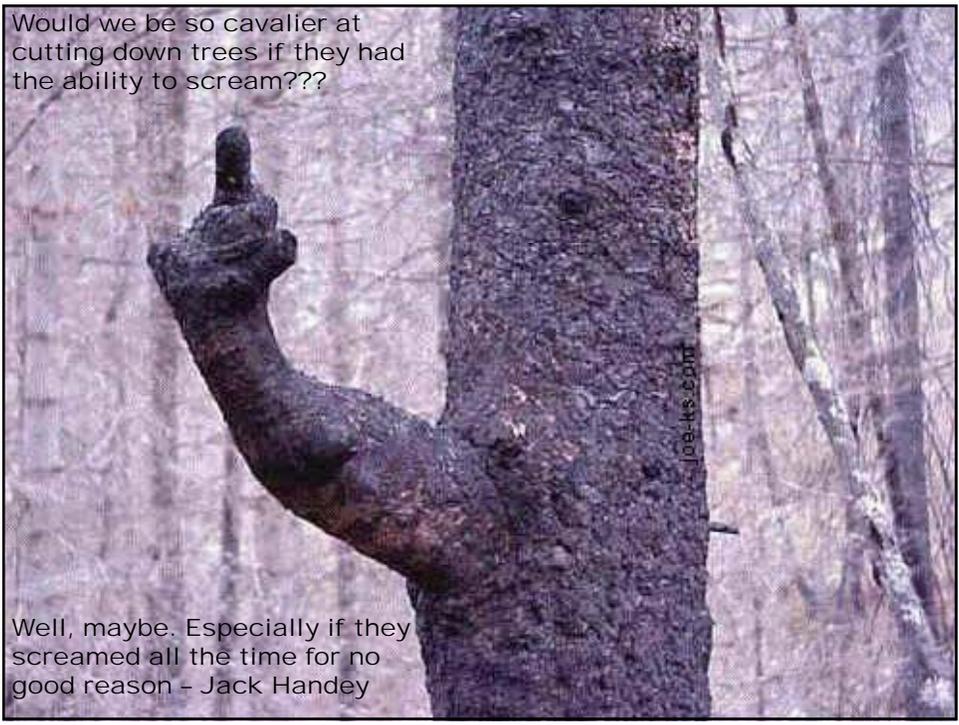
# Fuels modification

- Plenty of choices
- Ever thought about what the trees think???



The collage consists of five photographs. Top left: A brown cow grazing in a field of green plants. Top right: Two firefighters in yellow gear on a hillside with a fire in the background. Bottom left: A yellow bulldozer in a wooded area. Bottom middle: A red wood chipper with workers. Bottom right: A yellow skid steer loader in a forest.

Would we be so cavalier at cutting down trees if they had the ability to scream???



Well, maybe. Especially if they screamed all the time for no good reason - Jack Handey

The image shows a close-up of a tree trunk with a gnarled branch that has a shape resembling a hand giving the middle finger. A vertical watermark 'joe-hs.com' is visible on the right side of the tree trunk.

## Whisper of God theory...



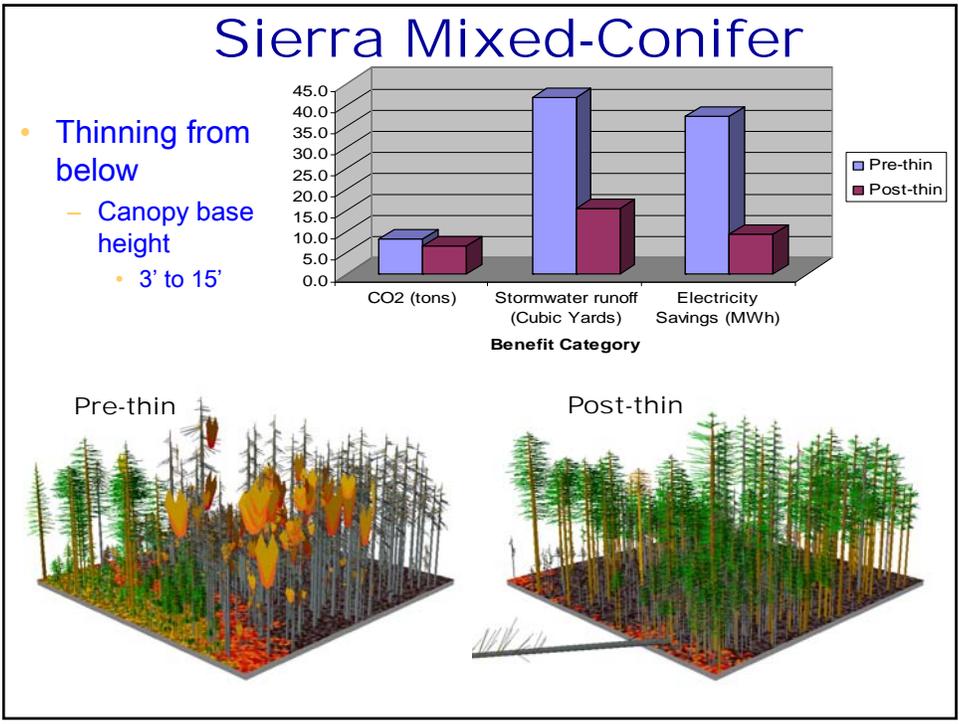
## • Appropriate Fuels Management

Pismo Beach, California



### • Vegetation is more than fuel!

- Soil stabilization
- Home cooling costs
- Stormwater retention
- Carbon sequestration
- Wildlife habitat
- And on and on...



- Future work
  - Specific fuel treatments

Jon Large

Chris Hamma  
Alex Kirkpatrick

## • Enforceable Construction Standards

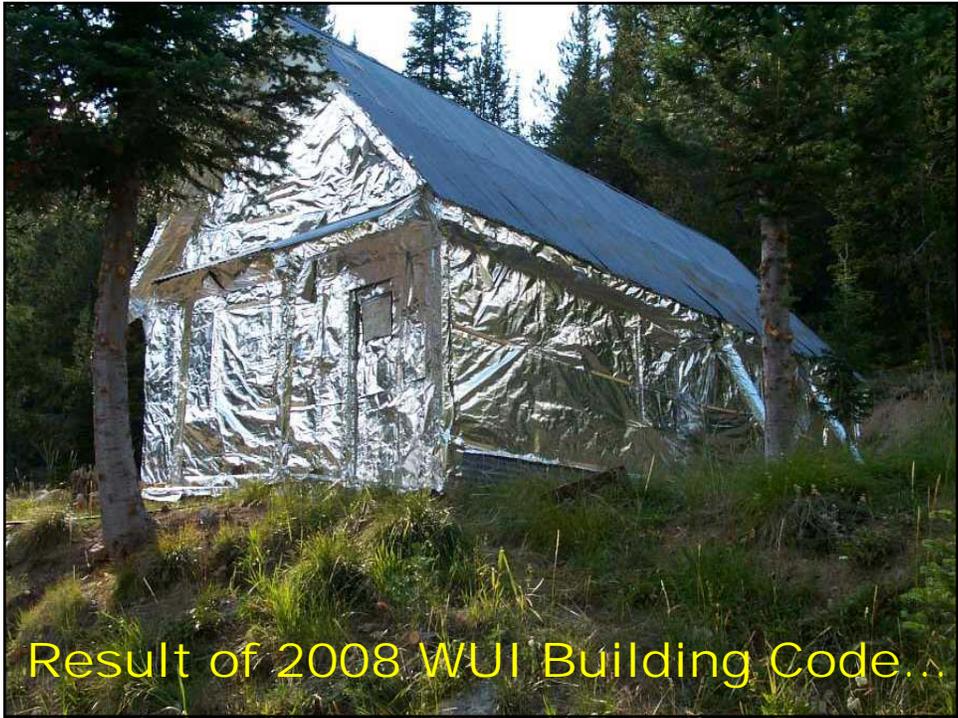
- House burned yet vegetation is untouched
  - Huh???
  - “It’s the embers, stupid” ...



## What to prepare for....

- Two main ignition sources
  - Fire front (radiation and flame impingement)
  - **EMBERS!!!**





- Roofs are MOST important construction consideration
- Tiles or synthetics best
  - Got to watch weak links

UNPROTECTED EDGE

The image contains two photographs illustrating roof damage. The left photograph shows a white house with a red tiled roof, with a red arrow pointing to a damaged area on the roof. The right photograph is a close-up of a roof edge, showing missing tiles and exposed wooden rafters, with a red arrow pointing to the damaged area. The text 'UNPROTECTED EDGE' is written above the right photograph, with lines pointing to the damaged areas in both photos.

## Windows

- Worst
  - Untempered glass
    - Expands and breaks
- Better (but more expensive)
  - Double paned glass
  - Tempered glass
  - Shutters
    - Got to be there to close



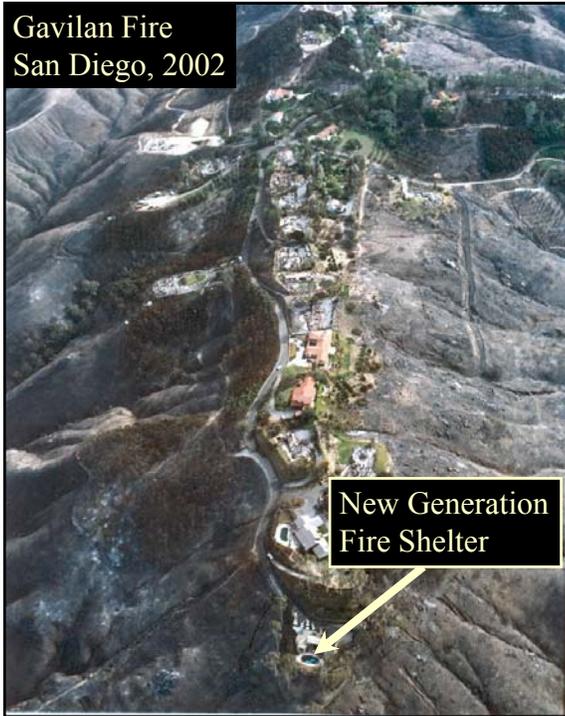
## Siding...

- Unless flames (or embers) touched structure, no ignition
  - Too fast
- If structure doesn't ignite, it doesn't burn...



Crown fire experiments (Jack Cohen)

Gavilan Fire  
San Diego, 2002



• Sound Land Use Planning

- The San Diego way
  - Not so good...
- Roads
  - Often narrow, steep
  - Often 1 way in
  - Delays response
  - Delays evacuation

New Generation Fire Shelter





## Bridges

- Must support fire apparatus
- Shouldn't burn



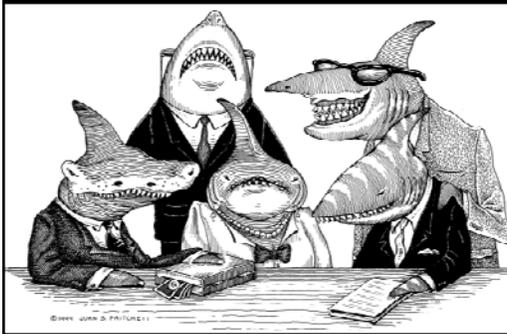
## Politics and fire...



- Canberra, Australia
- Mid-day, 2003

## Common arguments against...

- What about liability?
  - What about liability of evacuations???
- They don't have training!
  - So train them



## Not without controversy...



- International FireWise Conference
  - Denver 2006

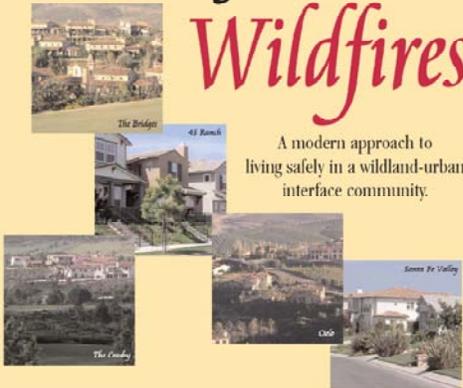


- James Hubbard
  - Deputy Chief, U.S. Forest Service
    - “We will **NEVER** have shelter in place in the United States”
      - San Diego 2006

Rancho Santa Fe Fire Protection District • [www.rsffire.org](http://www.rsffire.org)

# Sheltering in Place During Wildfires

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



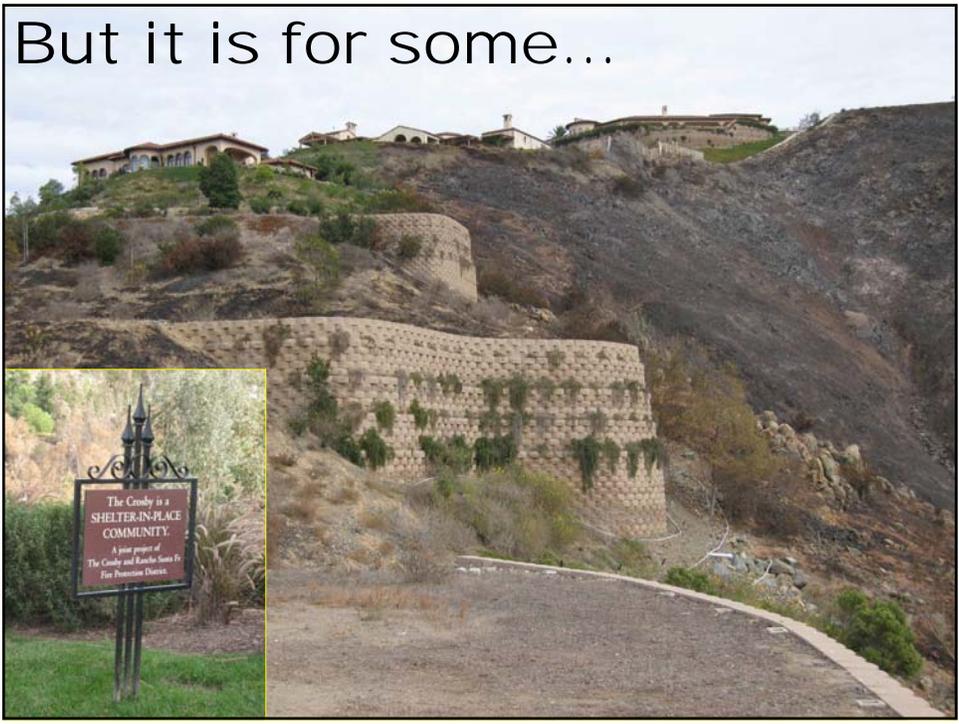
© 2001 Rancho Santa Fe Fire Protection District. All Rights Reserved.

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

## Silly politicians...

- Rancho Santa Fe was 20 miles from Conference
- 100% survival during Witch Fire





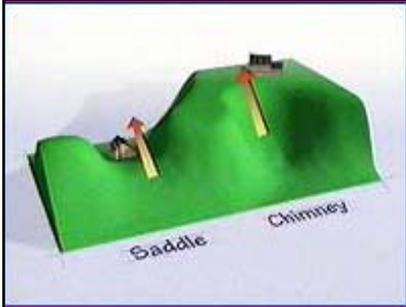
## Utilities

- Causes or exacerbates fire
  - Ignite vegetation
    - 2007 Witch & Harris Fires
  - Blocks roads

### Ignition traced to this pole... (Cause???)



### Structure placement...



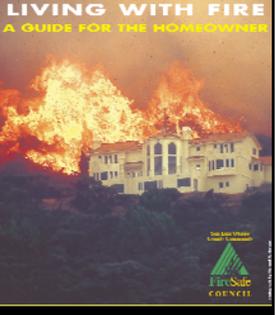
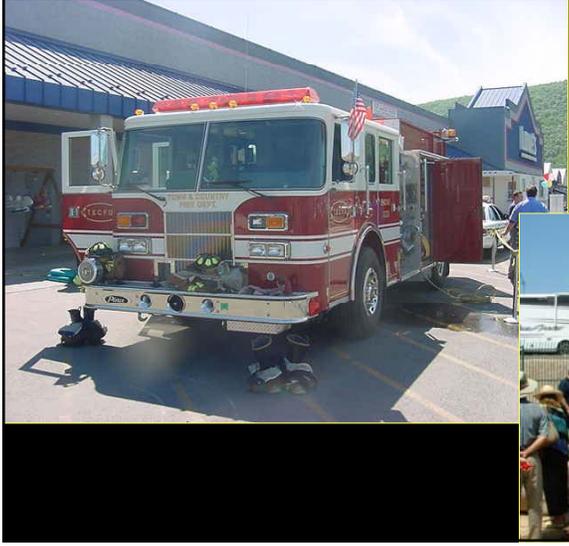
- No saddles or chimneys
  - Why???
  - Funnels heat toward house



- Away from slope
  - Why???
  - Little direct heat

- Community education and buy-in

♪... Taken' it to the streets...♪



**LIVING WITH FIRE**  
A GUIDE FOR THE HOMEOWNER

Fire Safe COUNCIL

**LIVING ON THE EDGE**  
A Wildland Fire Management Tool

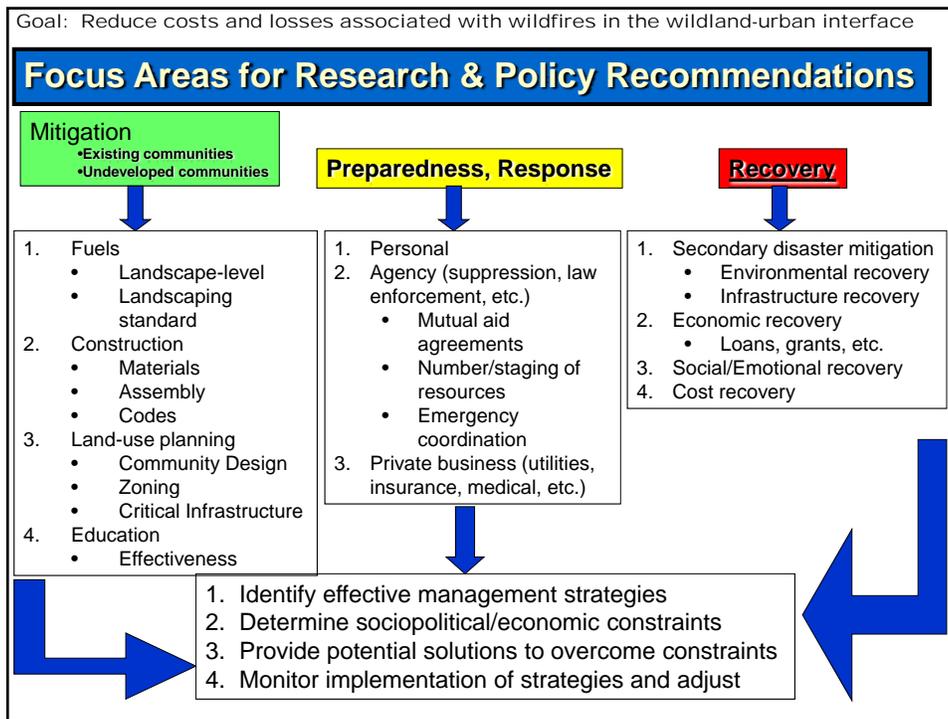
Collaboration is key!!!

♪ Kumbaya my Lord...



**FIREWISE**  
Community Fire Prevention Partnership  
©1999 CSES

San Luis Obispo County Community  
**FireSafe**  
COUNCIL



Human beings, who are almost unique in having the ability to learn from the experience of others, are also remarkable for their apparent disinclination to do so.

-- Douglas Adams, 1952 - 2001

