The Fire Environment in the Southwest: Climate, Weather, People and Places

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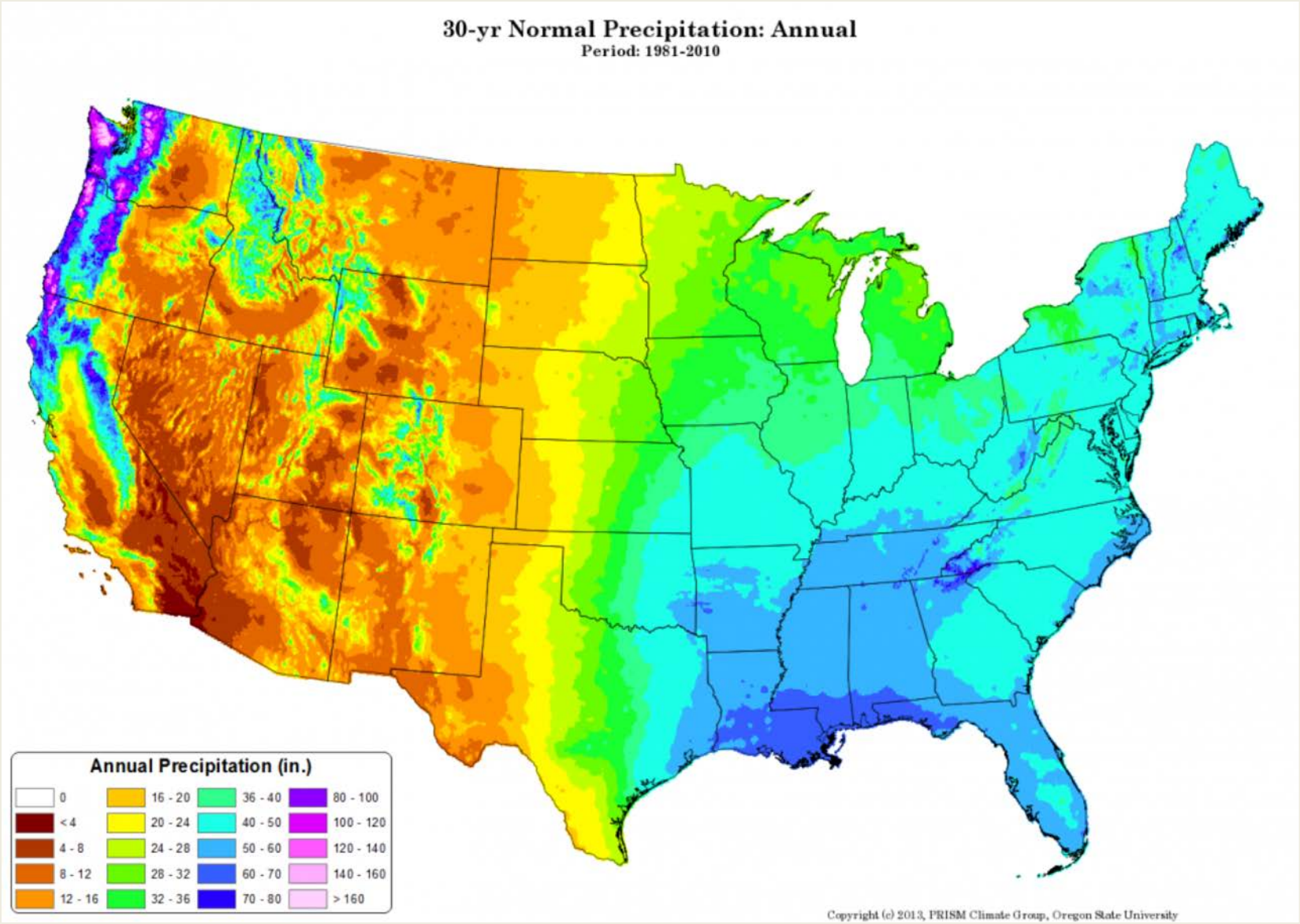
California-Nevada Climate Applications Program
A NOAA RISA team

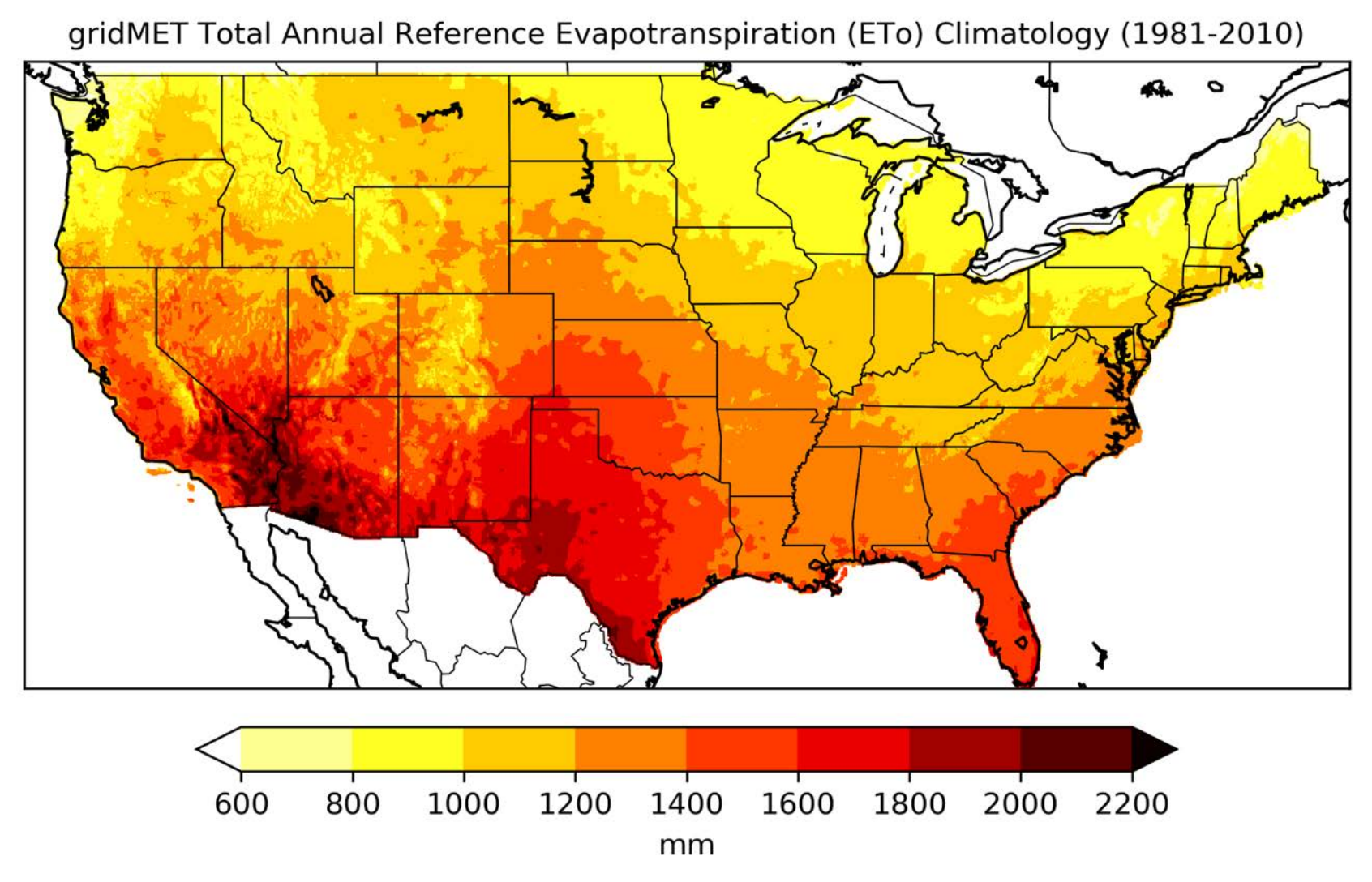
Western Regional Climate Center

CEFA
Climate Ecosystem Fire / Applications

A dry Southwest

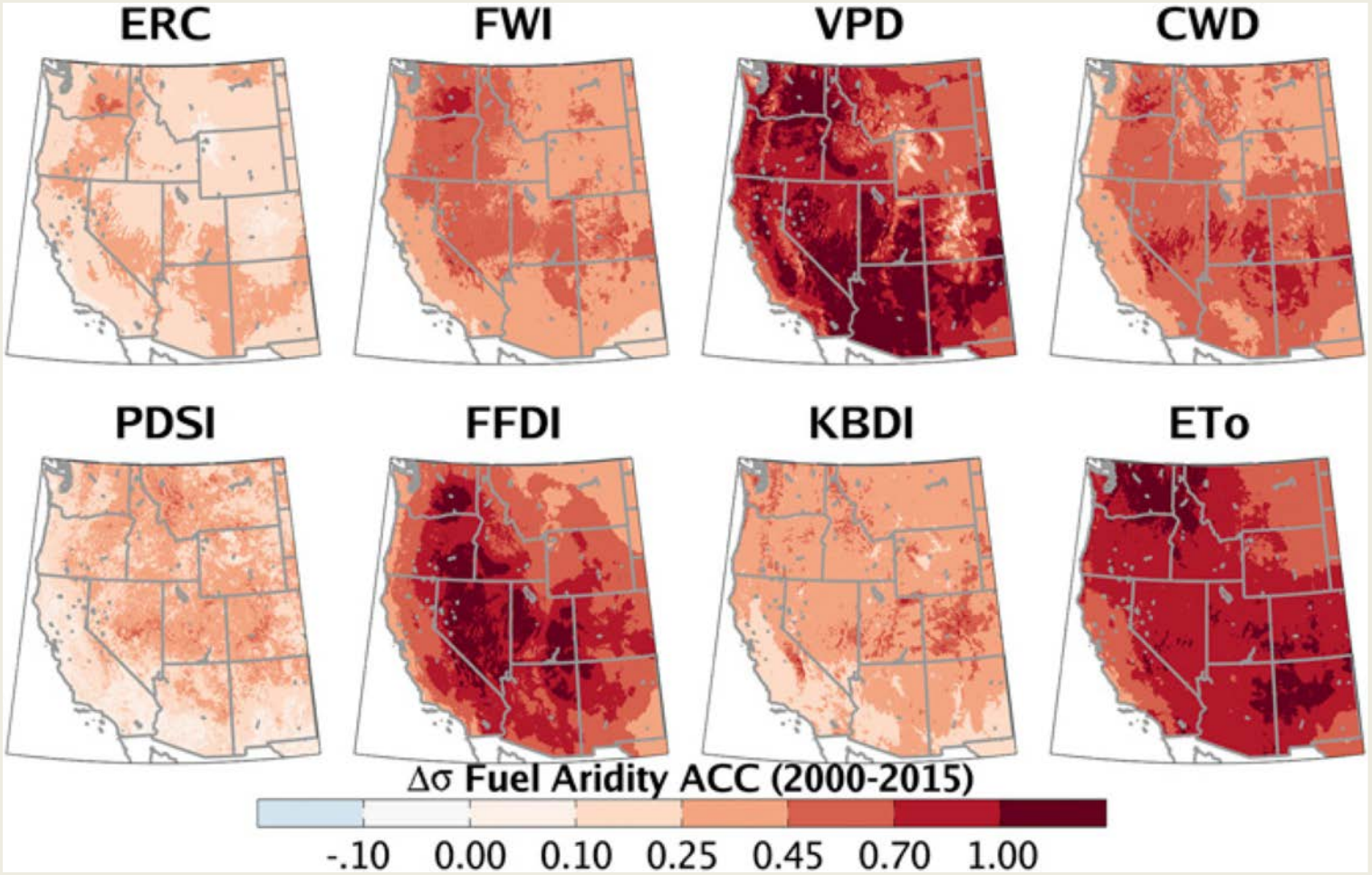


A dry Southwest



Source: Dan McEvoy, WRCC

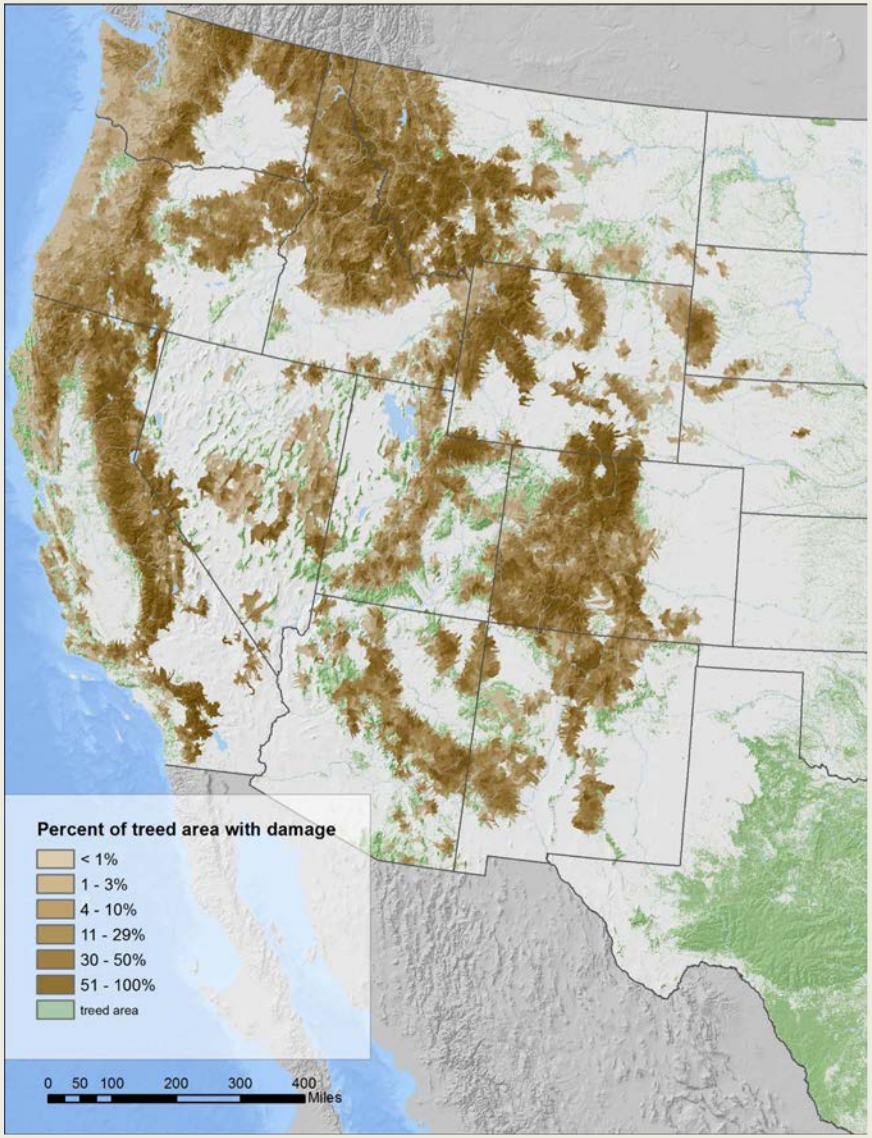
A warming and drying Southwest



Source: Abatzoglou and Williams, PNAS 2016

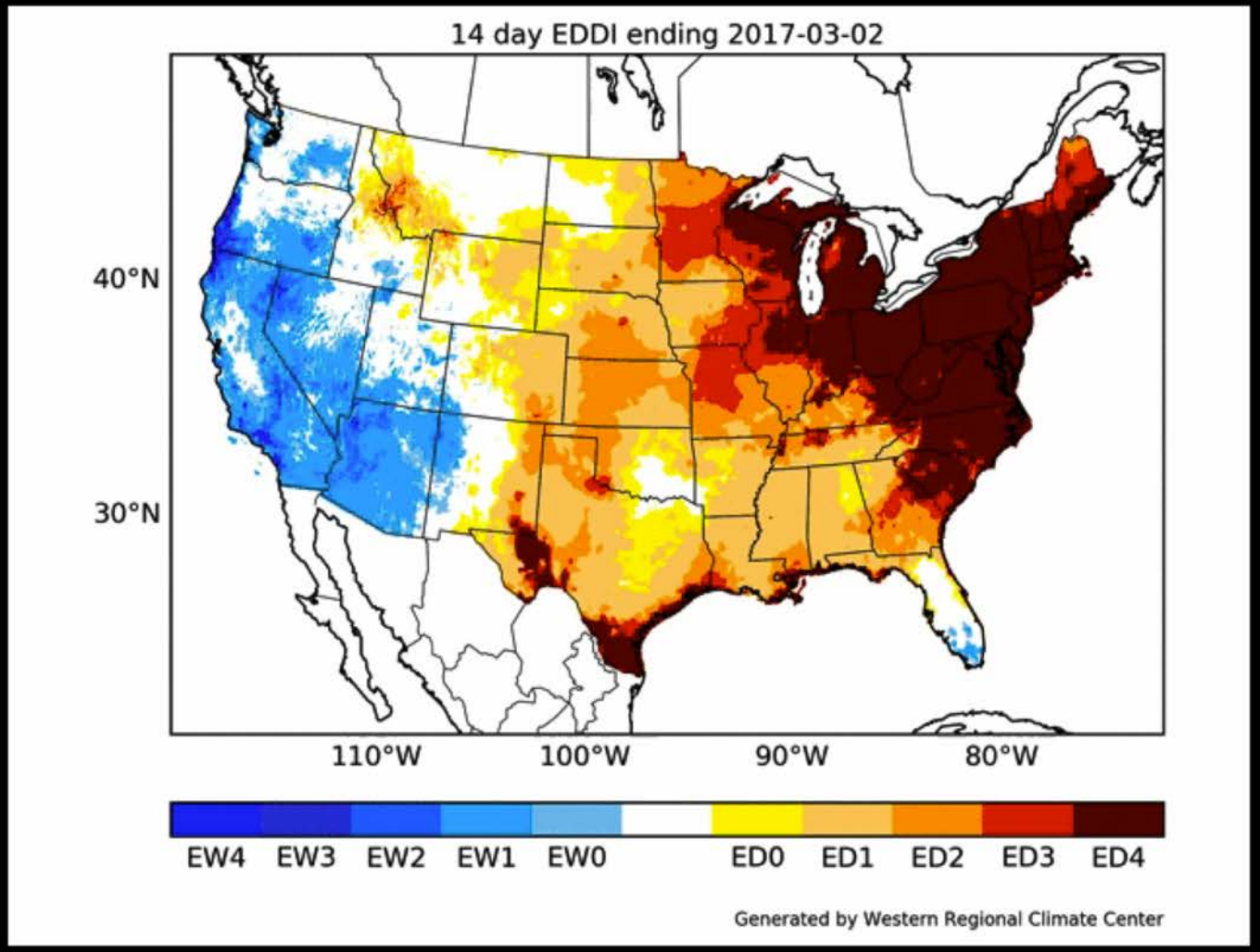
A warming and drying Southwest

AREA WITH TREE MORTALITY FROM ALL WESTERN BARK BEETLES 2000 – 2016

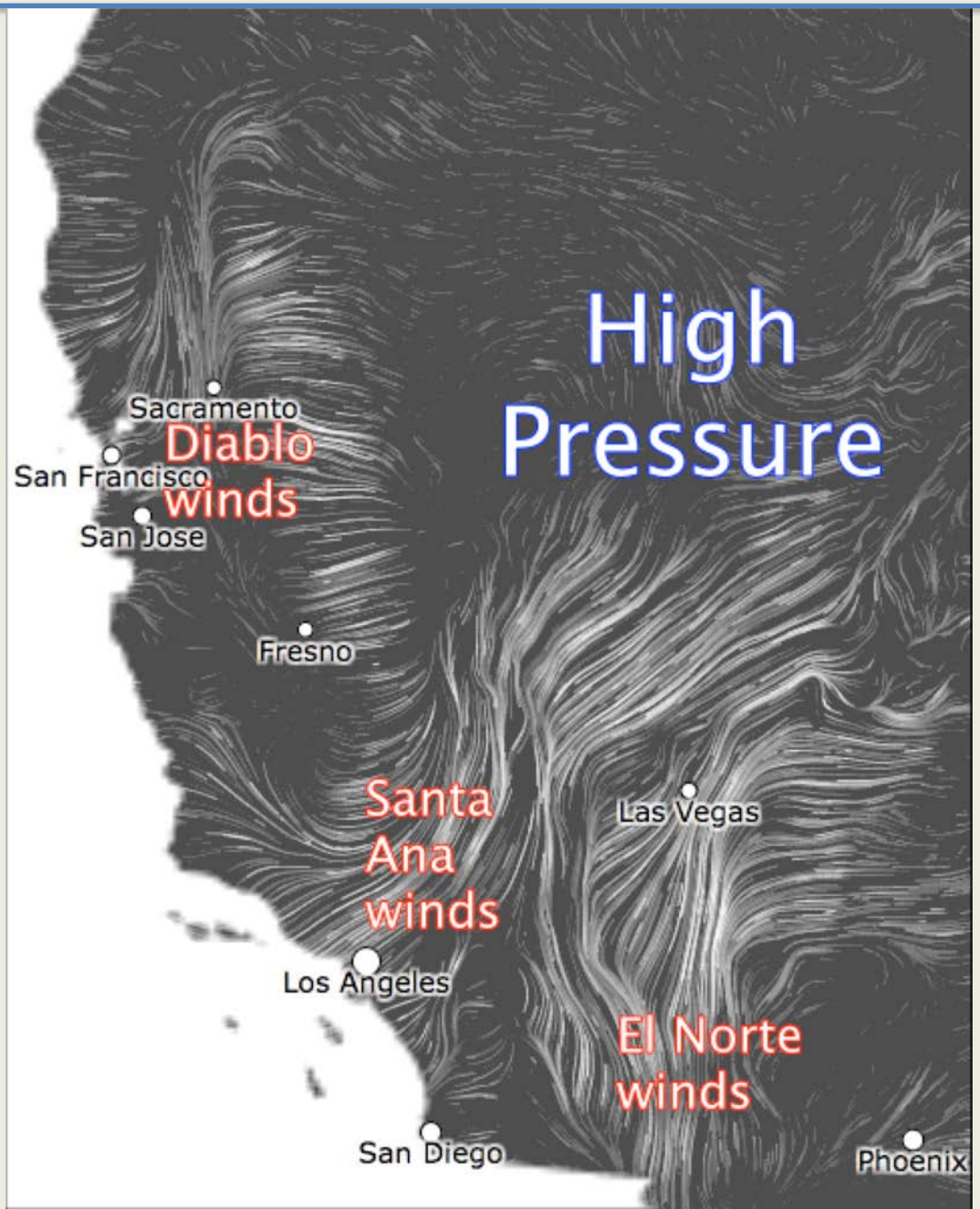


Source: US Forest Service

Evaporative demand

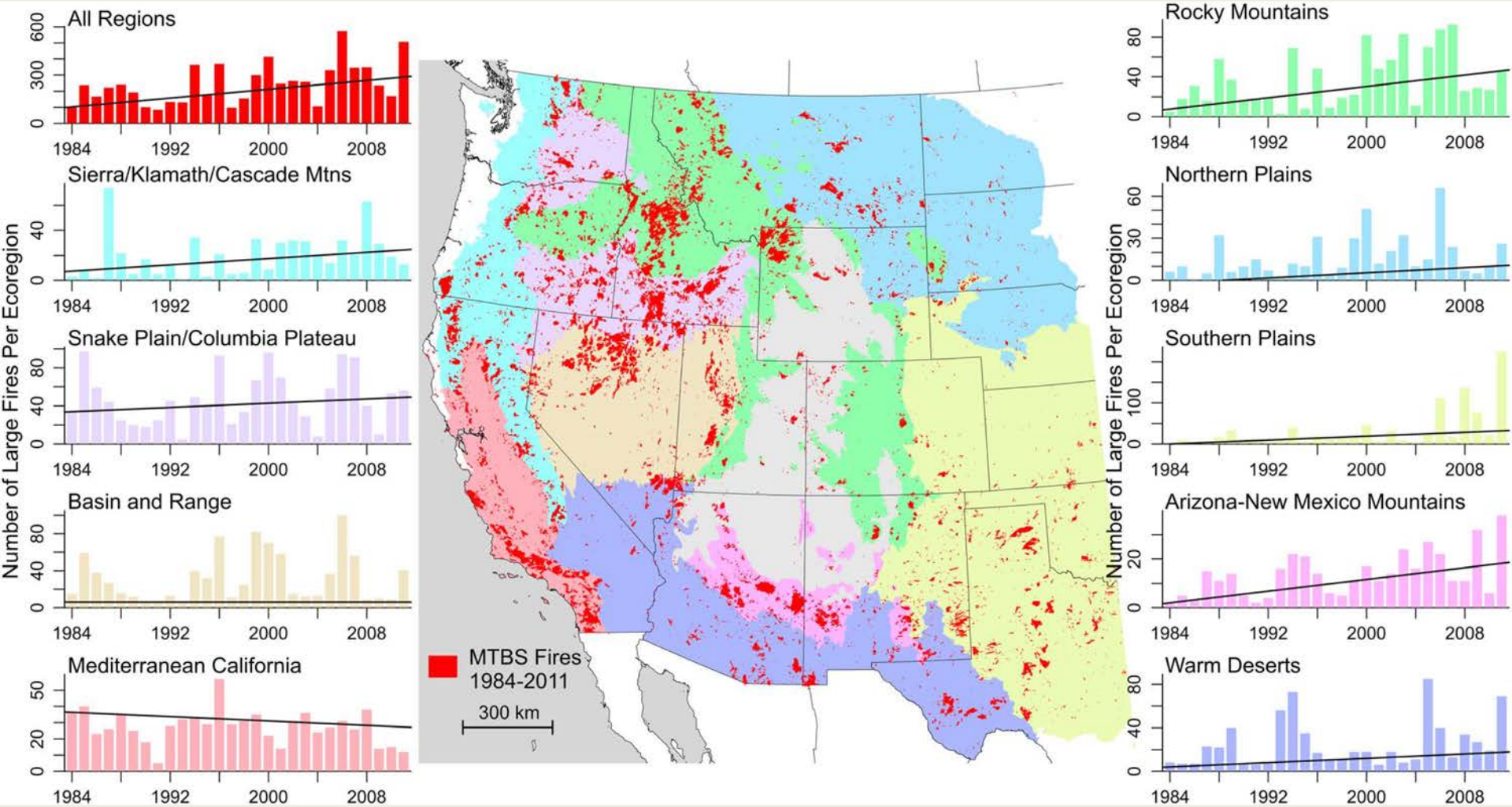


The winds over California



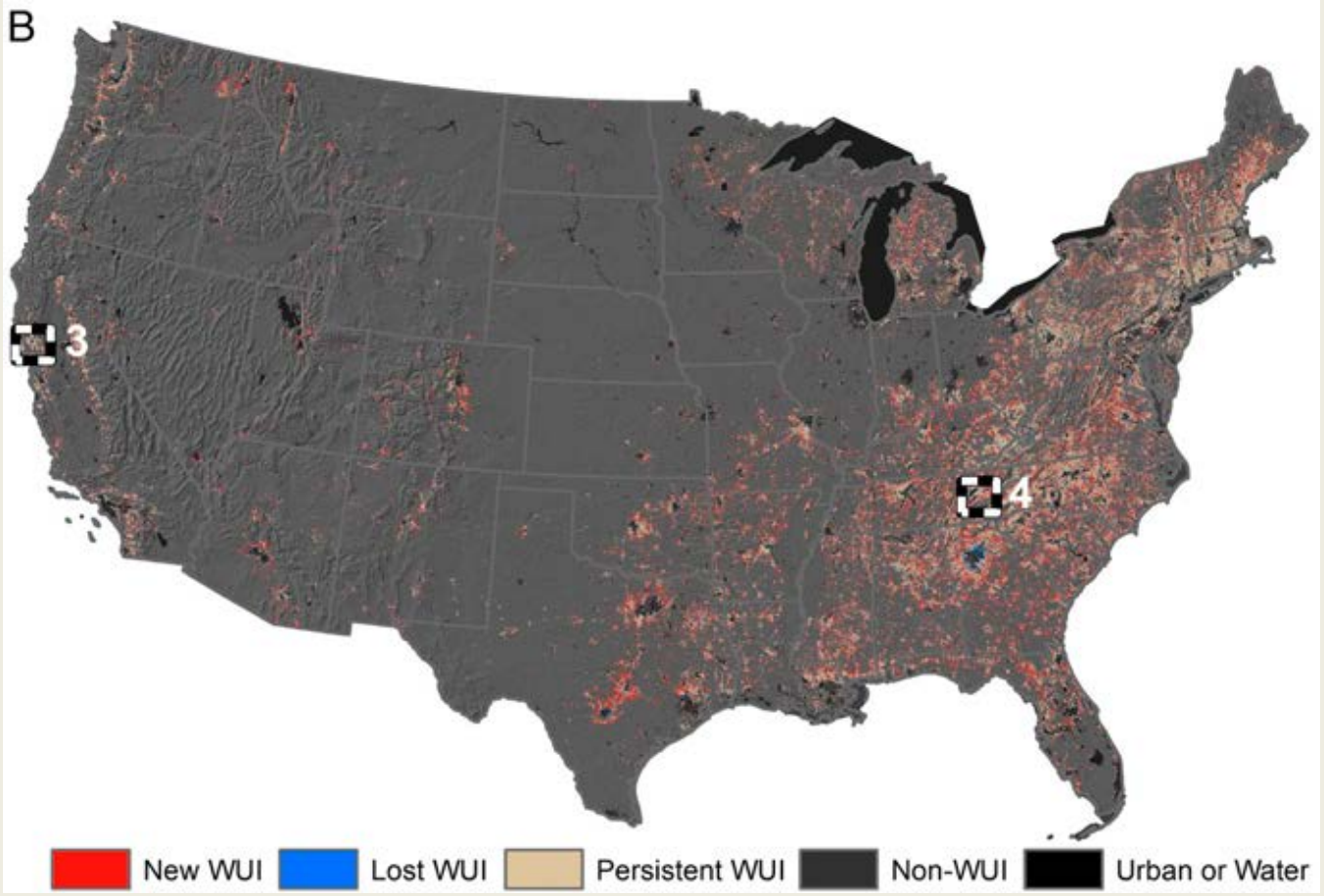
Source:
http://blog.weatherflow.com

Fire trend



Source: Dennison et al. GRL 2014

Population change

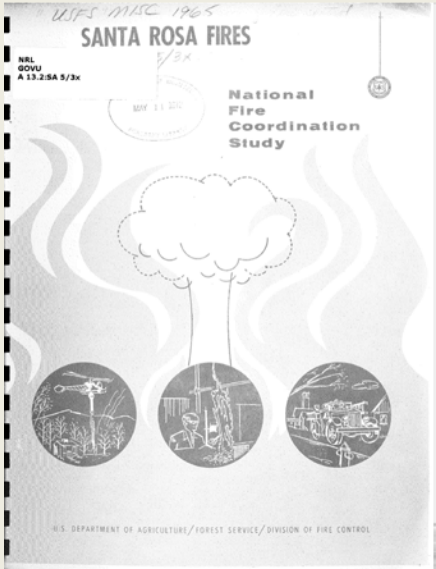


Source: Radeloff et al. 2017 PNAS

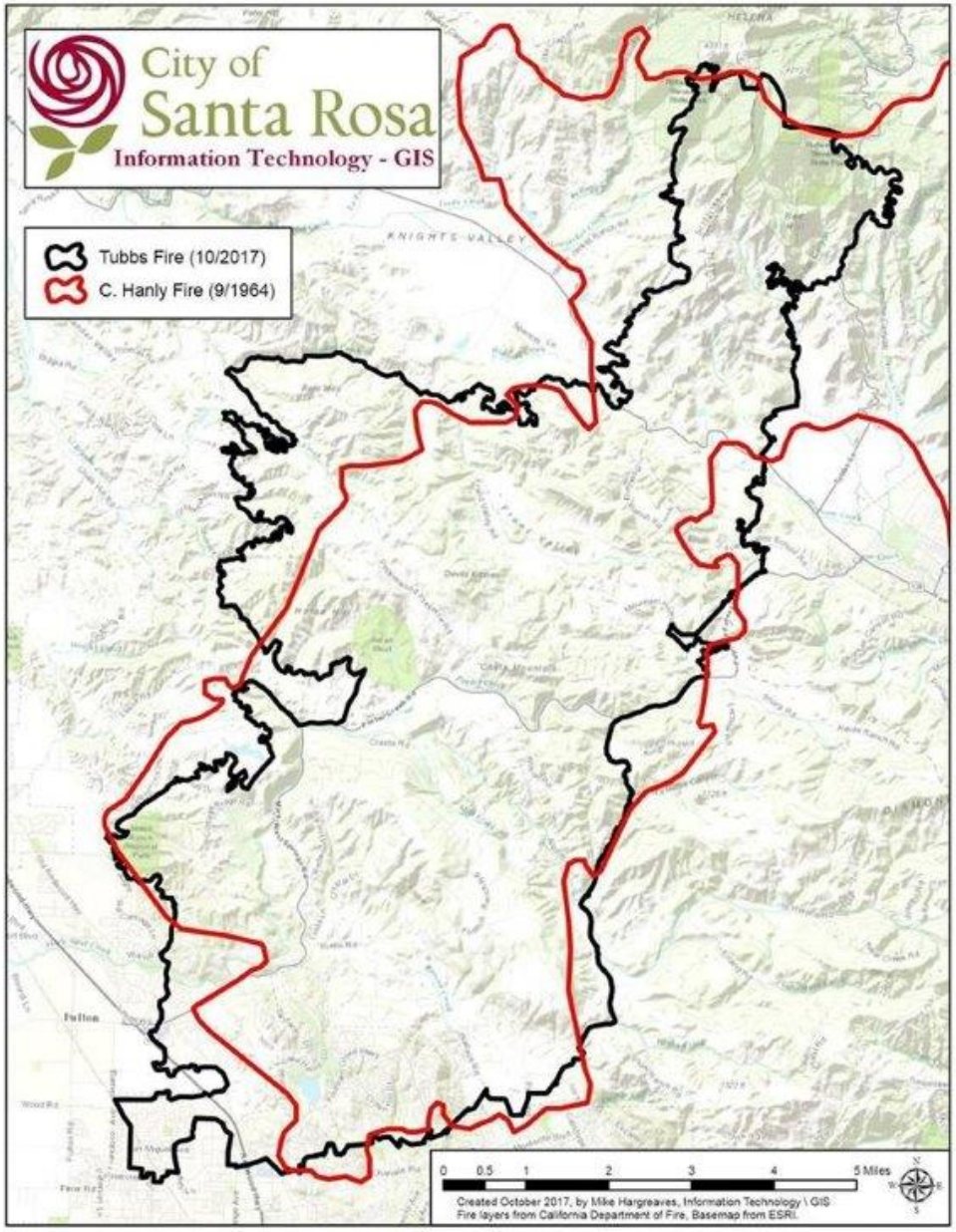
Santa Rosa study report results

- **Fires were close together and burning concurrently, creating a major conflagration which taxed the capabilities of the fire services involved**
- **They damaged or threatened urban and rural areas**
- **They induced several different fire suppression organizations to work together to achieve control**

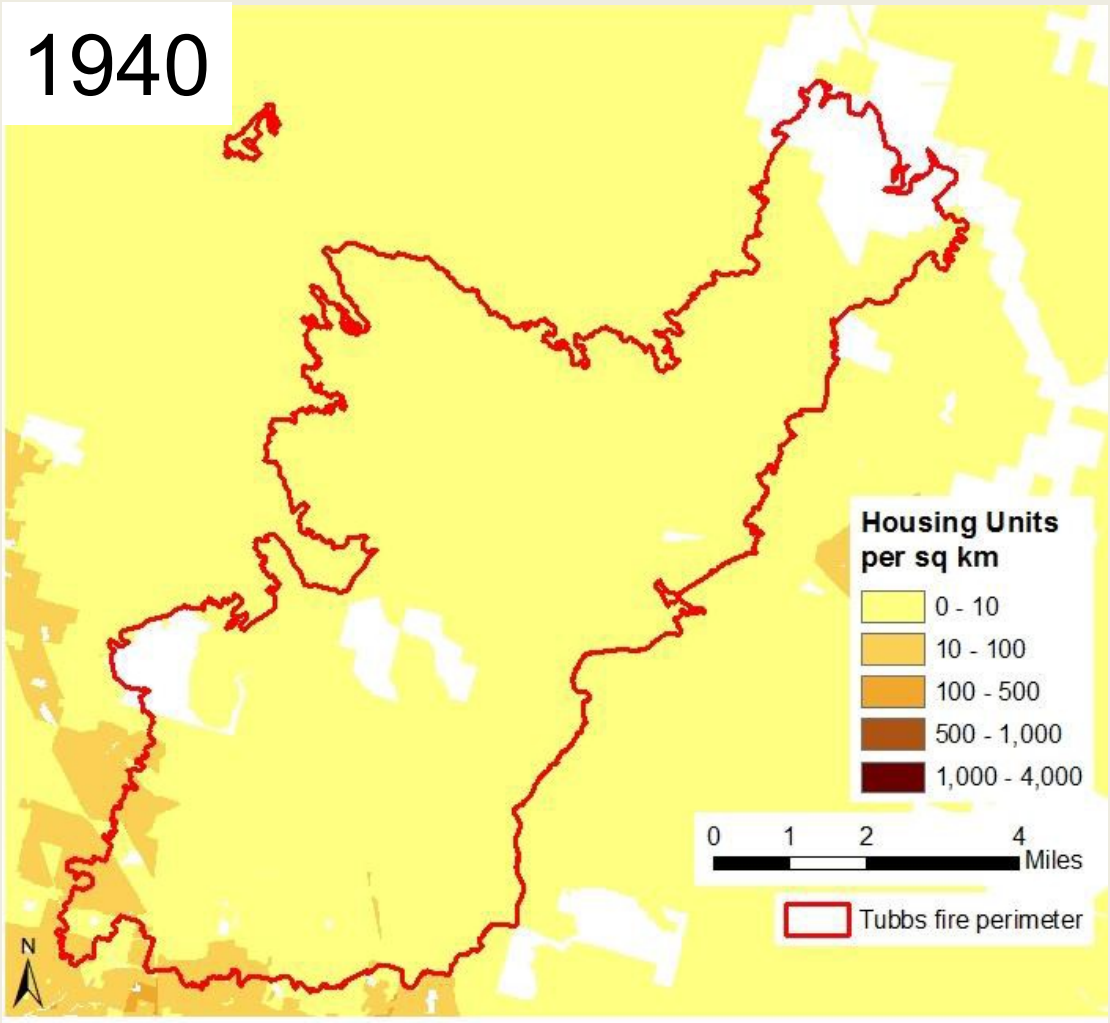
Summary from 1964 Report on the Santa Rosa fires



The two Santa Rosa fires

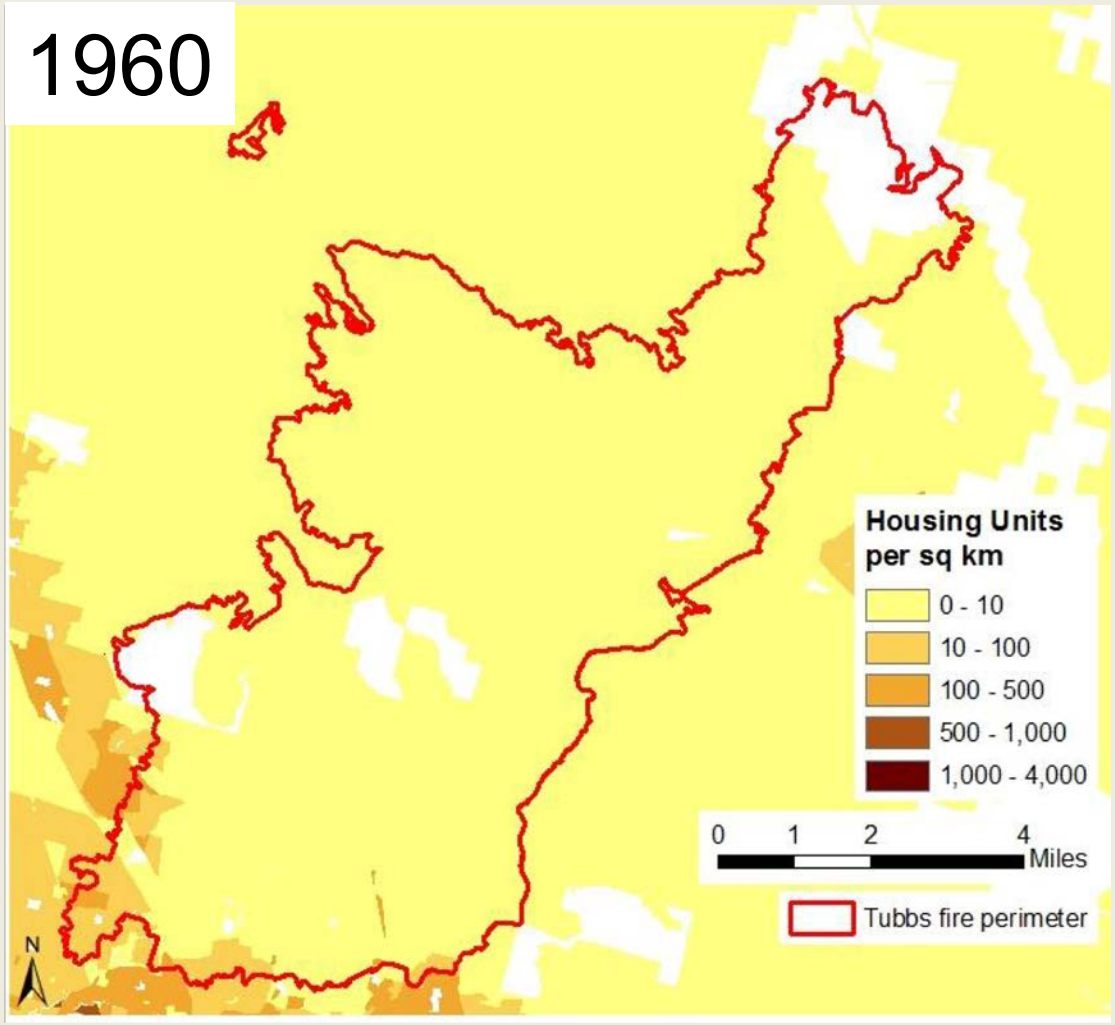


Santa Rosa population expansion



Source: Anu Kramer, SILVIS Lab

Santa Rosa population expansion



Source: Anu Kramer, SILVIS Lab

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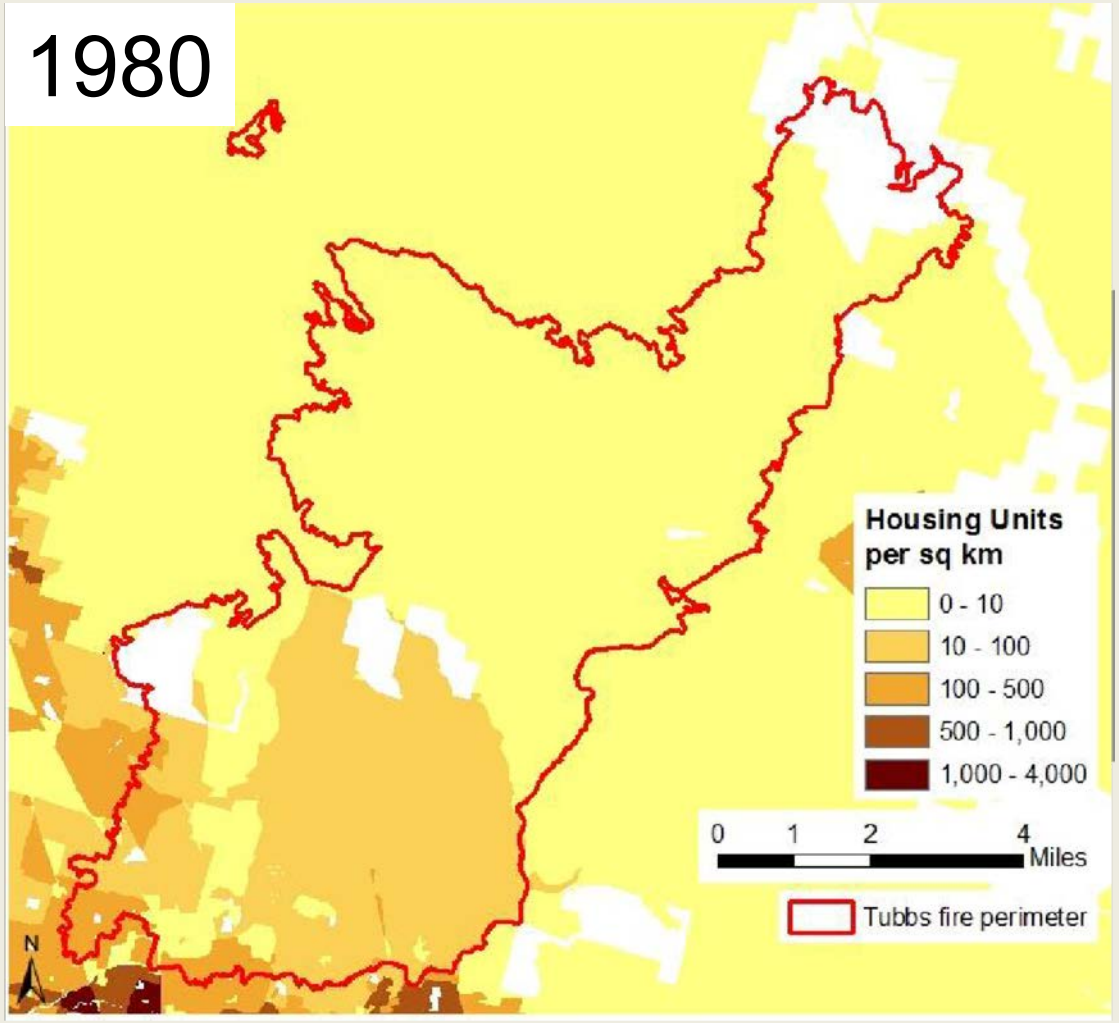
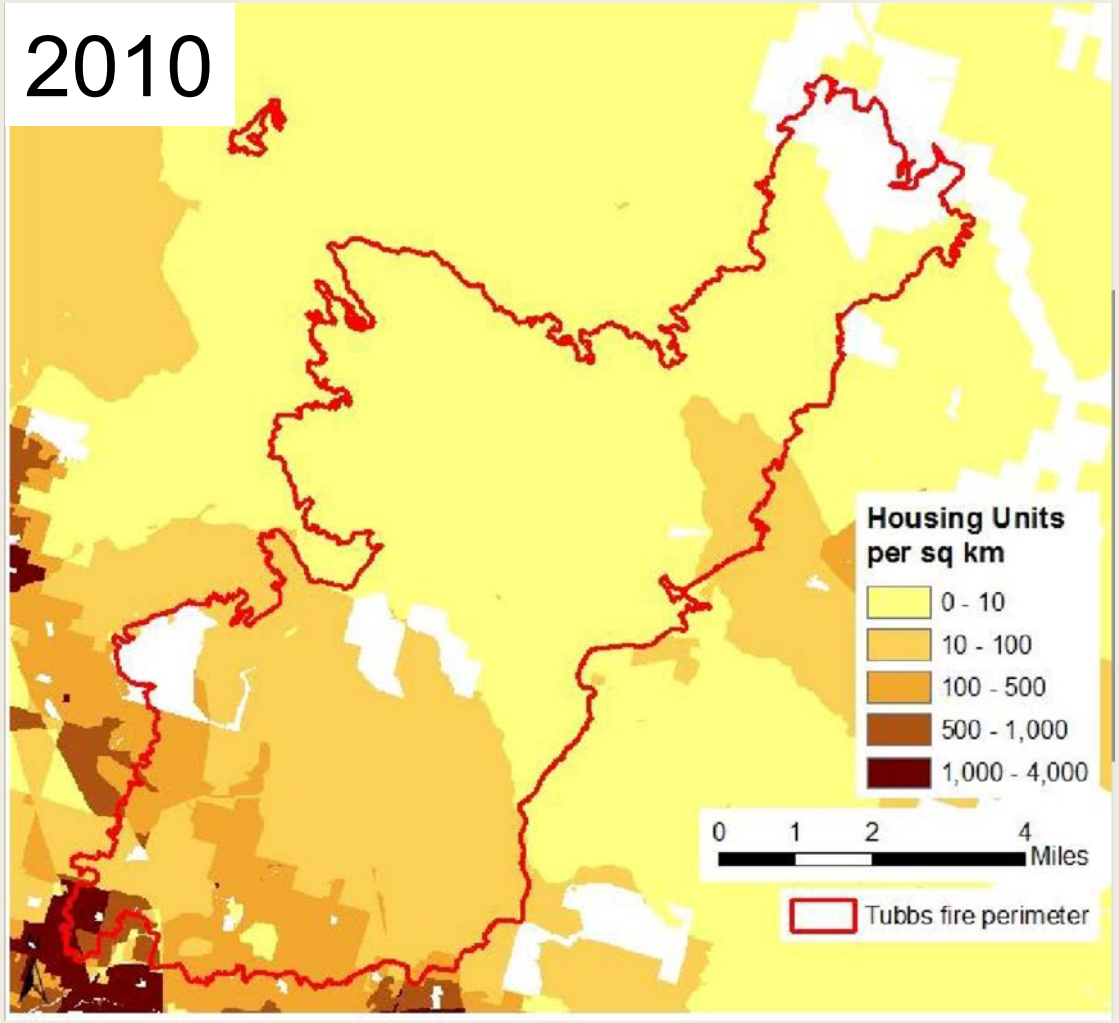


Source: Anu Kramer, SILVIS Lab

Santa Rosa population expansion

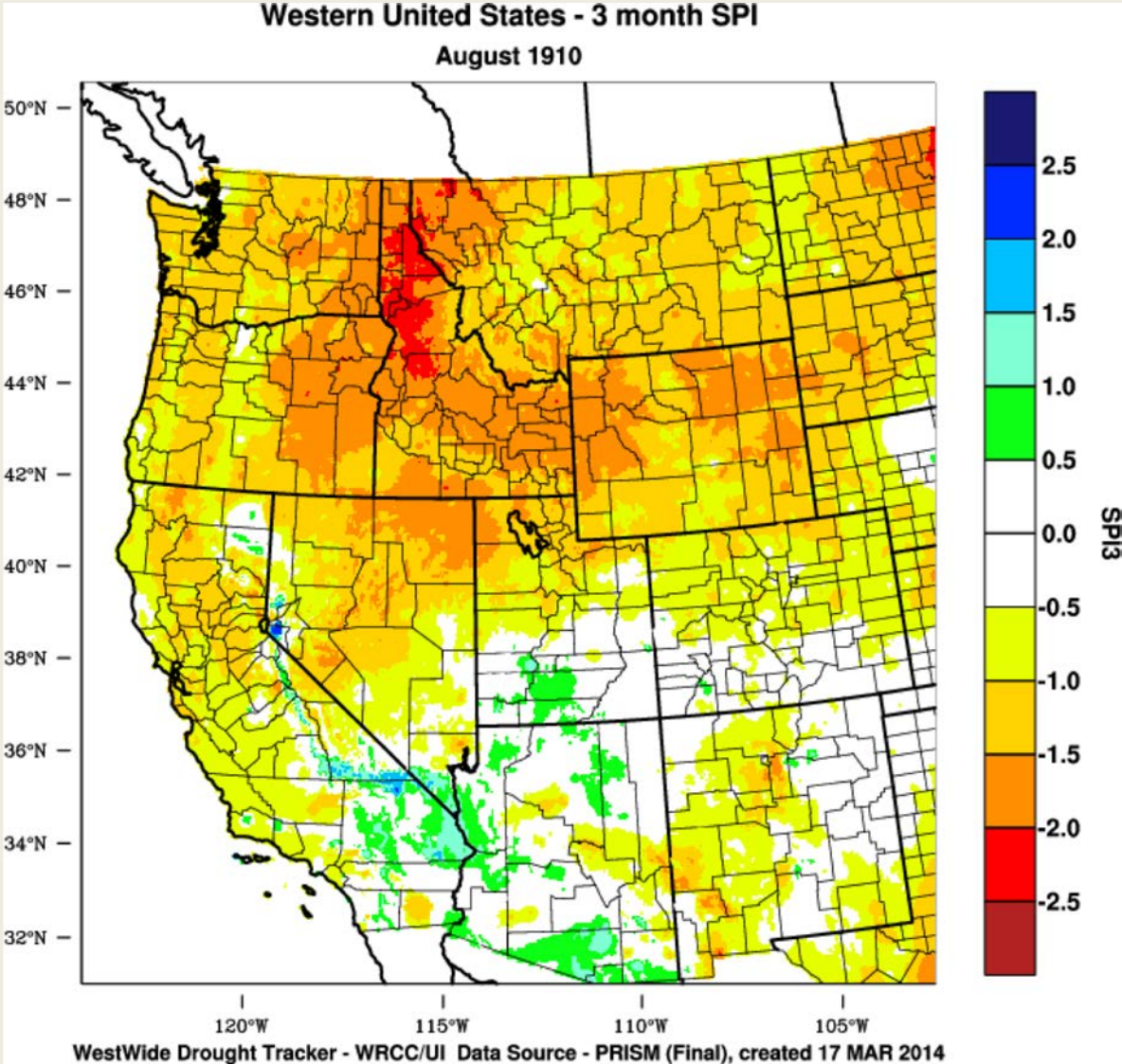


Source: Anu Kramer, SILVIS Lab

1910

- Forest Service Chief Henry Graves issued bulletin on Protection of Forests from Fire

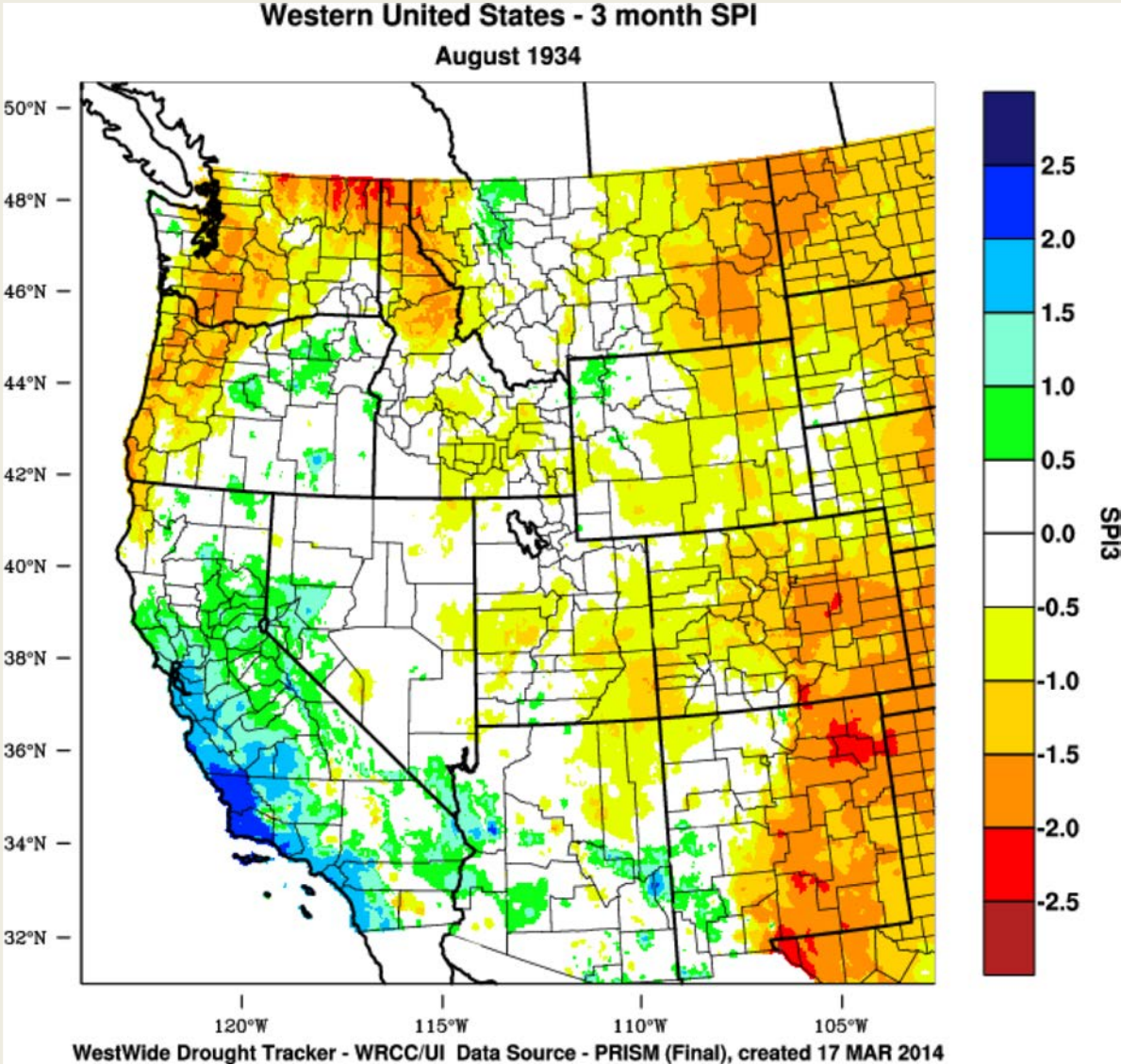
- 1911 – Congress passes Weeks Act allowing USFS to cooperate with states in fire protection, creating the first interagency wildland fire fighting effort



1934

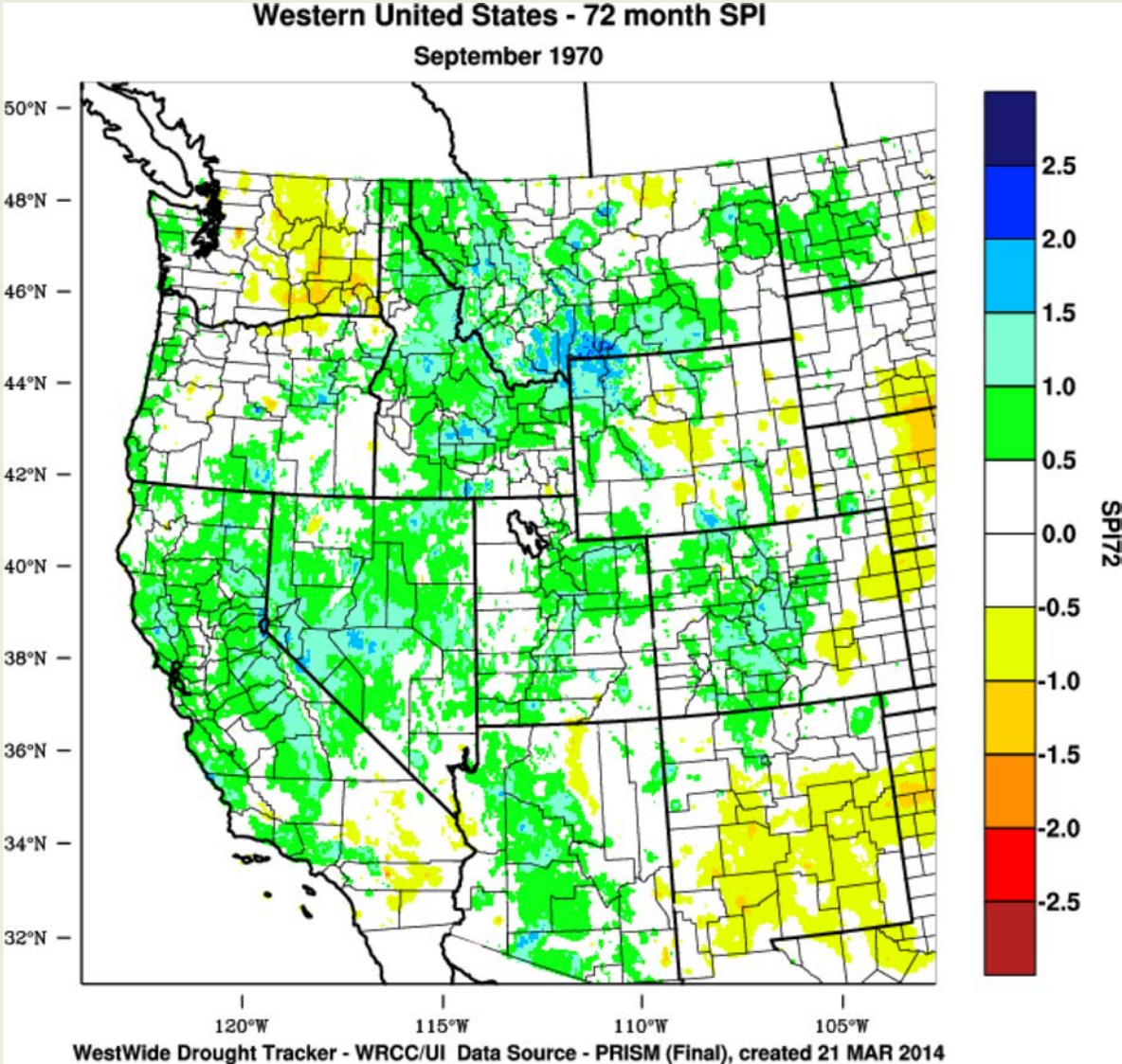
- 1933 - Civilian Conservation Corps (CCC) established in part for the prevention of forest fires

- 10 A.M. Policy adopted by US Forest Service



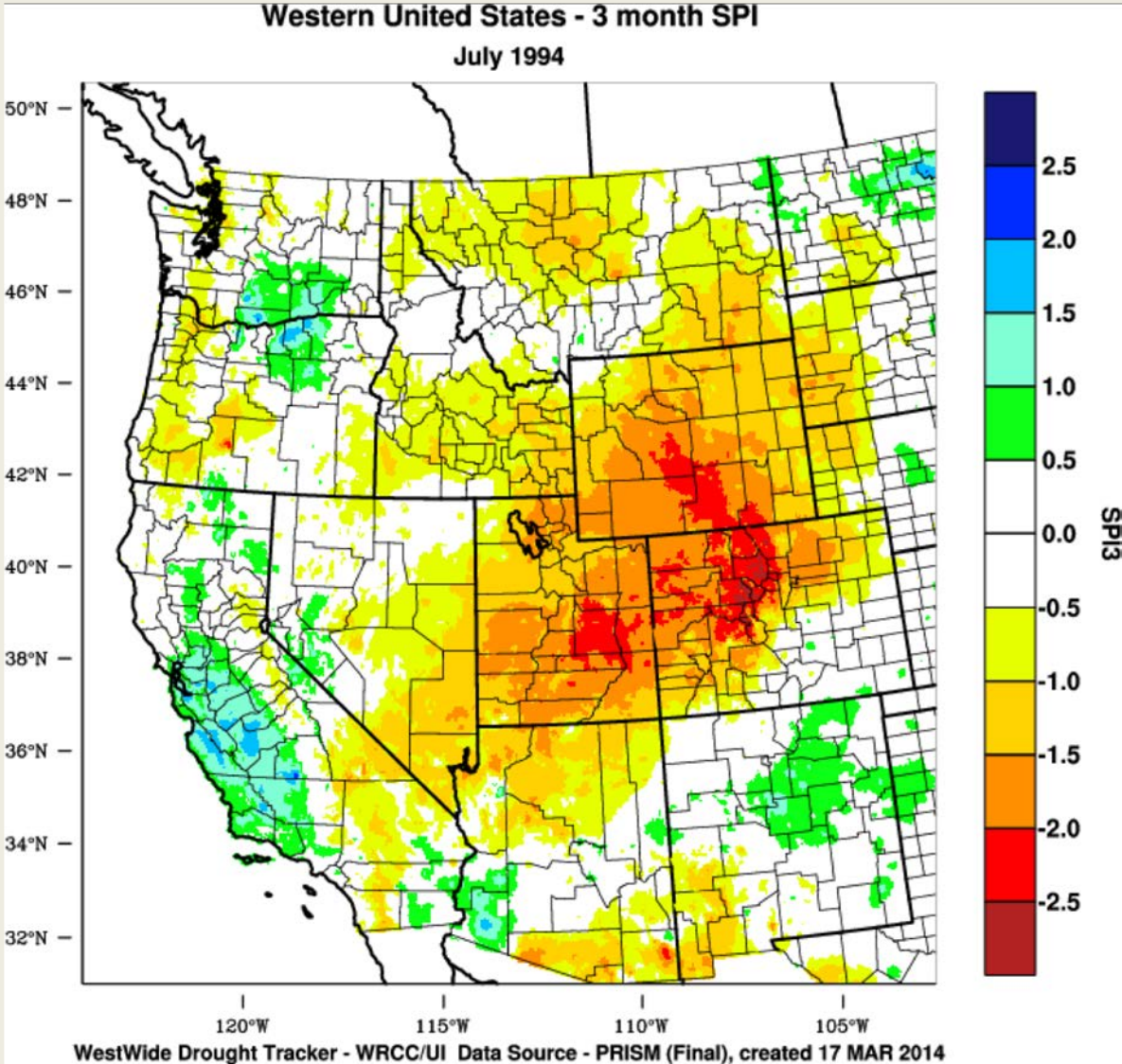
1971

- U.S. Forest Service modified its suppression policy and begins initiating natural fire experiments



1994

- 1994 - An interagency team was formed to investigate the fatalities (14) and contributing factors to the South Canyon Fire
- Led to first comprehensive wildland fire policy



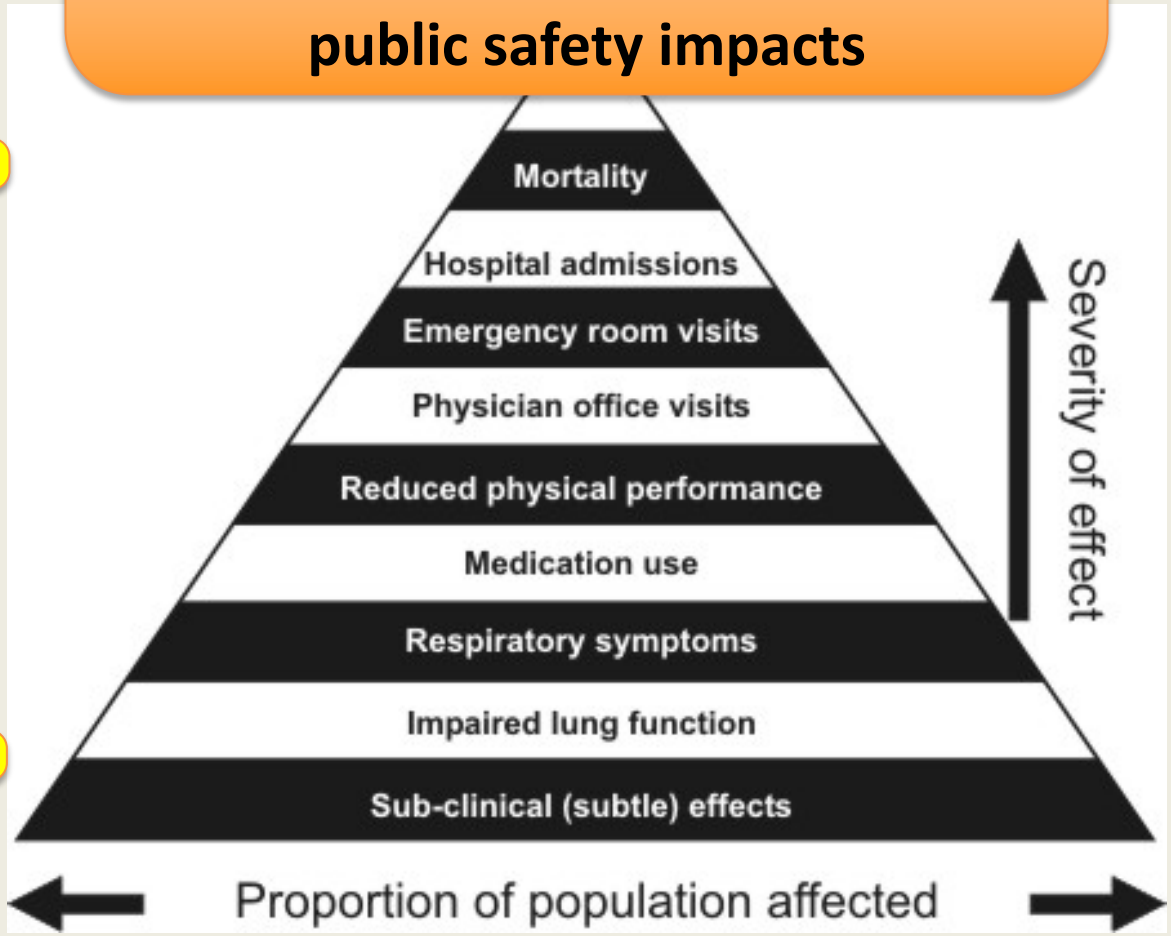
And then the 2000s

- Numerous high impact fires across the West
- Increasing climate and fire extremes
- A convergence of climate, fuels and people
- Changes in fire suppression tactical strategies
- Threats outpacing responses (S.Pyne)
- Institutional competing resources and requirements (S.Pyne)
- Development of a fire-industrial complex (S.Pyne)

A human health perspective of wildfire

Transition from public health to public safety impacts

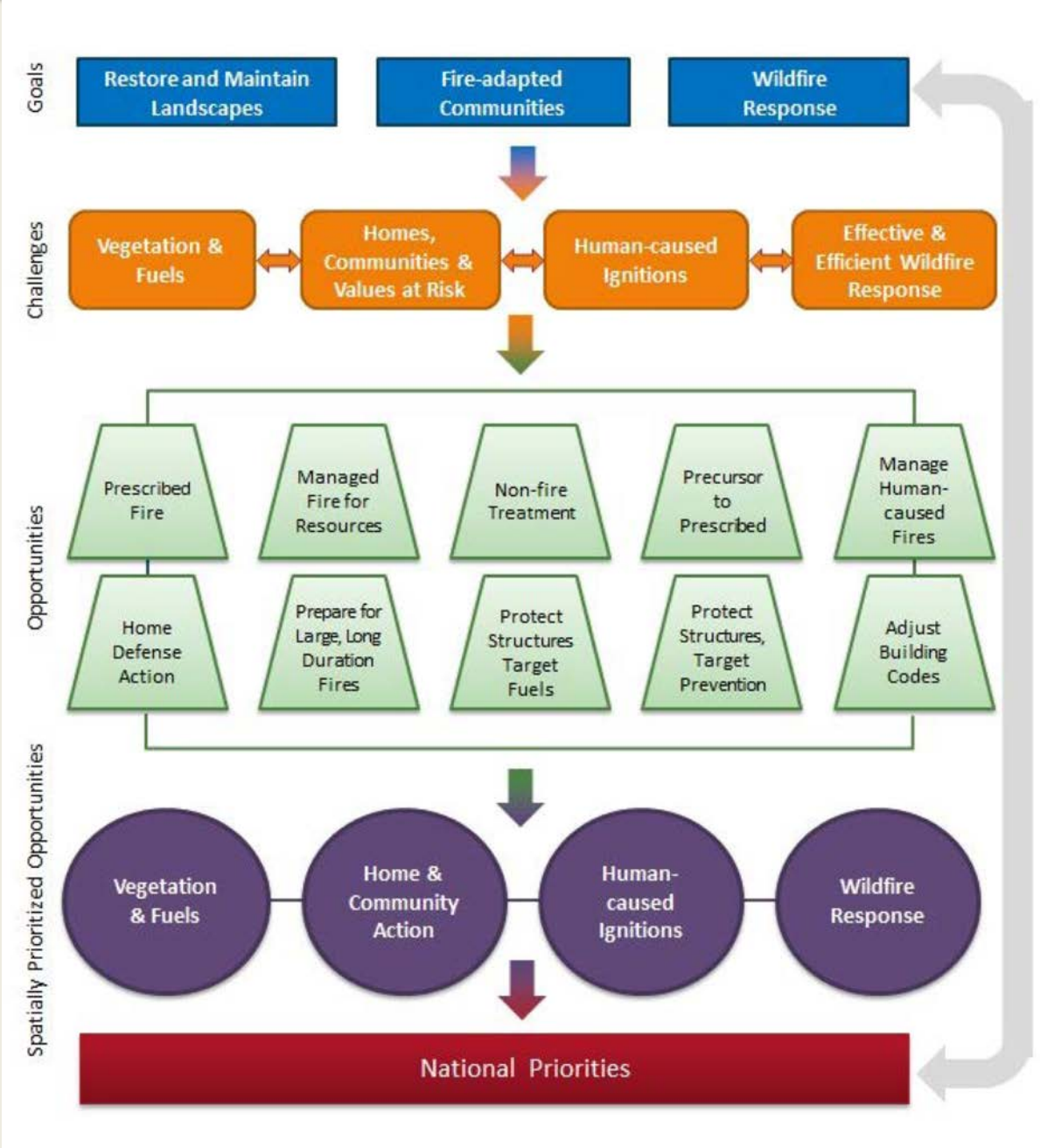
Safety



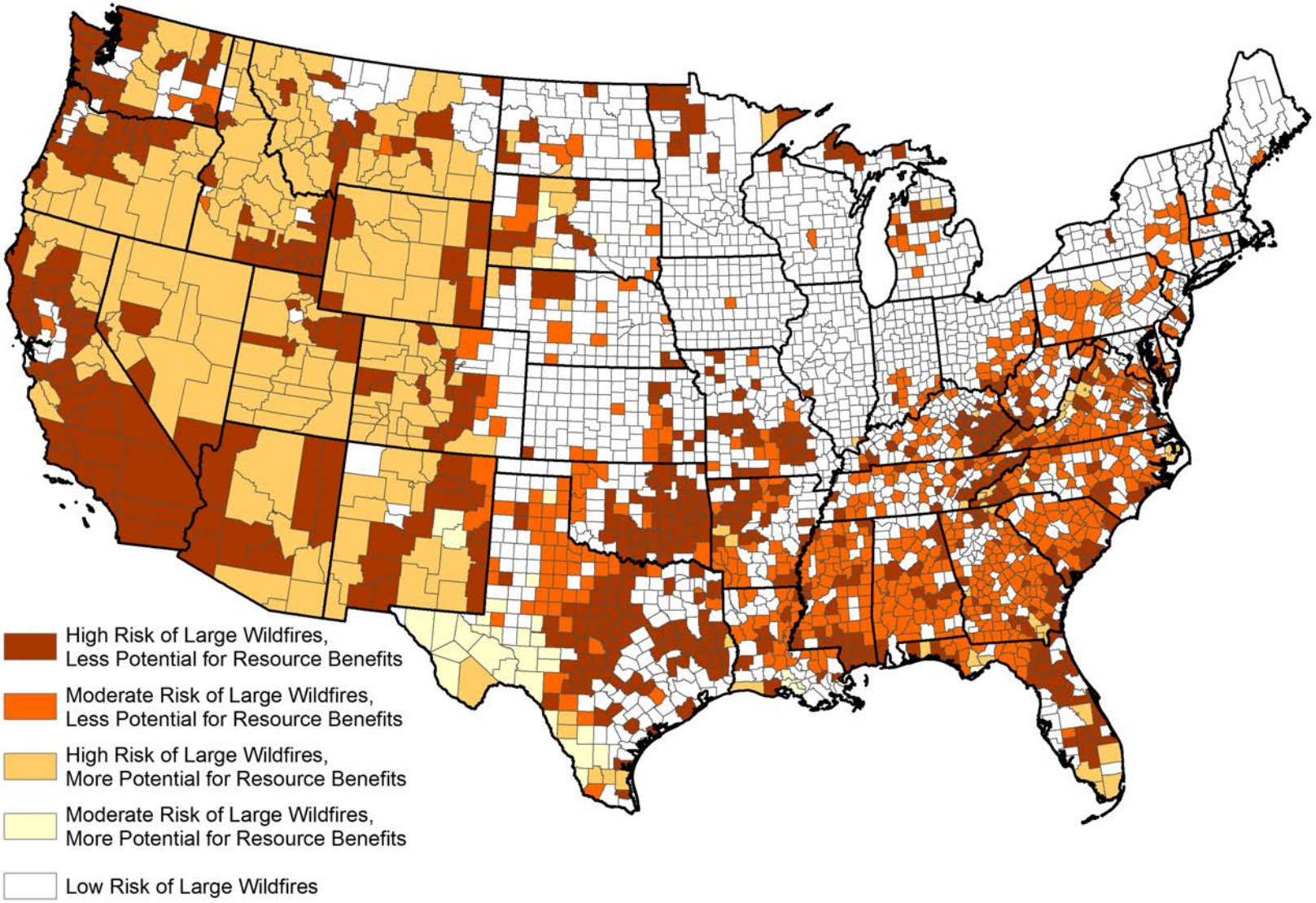
Health

Source: Pete Lahm, USFS

The National Wildfire Cohesive Strategy



The National Wildfire Cohesive Strategy



Summary thoughts

- **Climate enables fire and weather is a driver**
  - **Warming and drying is a major factor, but fire is also defined by human geography**
- **Key intersections that challenge fire planning and policy**
  - **Fire environment, fire management, population growth and development, and fire proneness**
- **What are the effects of recent catastrophic fires on wildfire management planning and policy?**
  - **Fire management is a societal and political problem, not a technological or scientific problem (S. Pyne)**

See LATimes article by Thomas Curwen featuring Stephen Pyne and Jack Cohen (22 Oct 2017)

Greetings From Reno!

Fire near Tim's house