

Climate Change Impacts on Western Forest Wildfire

February 11, 2008

EESI Briefing:

*Effects of Climate Change
on Forest Resources*

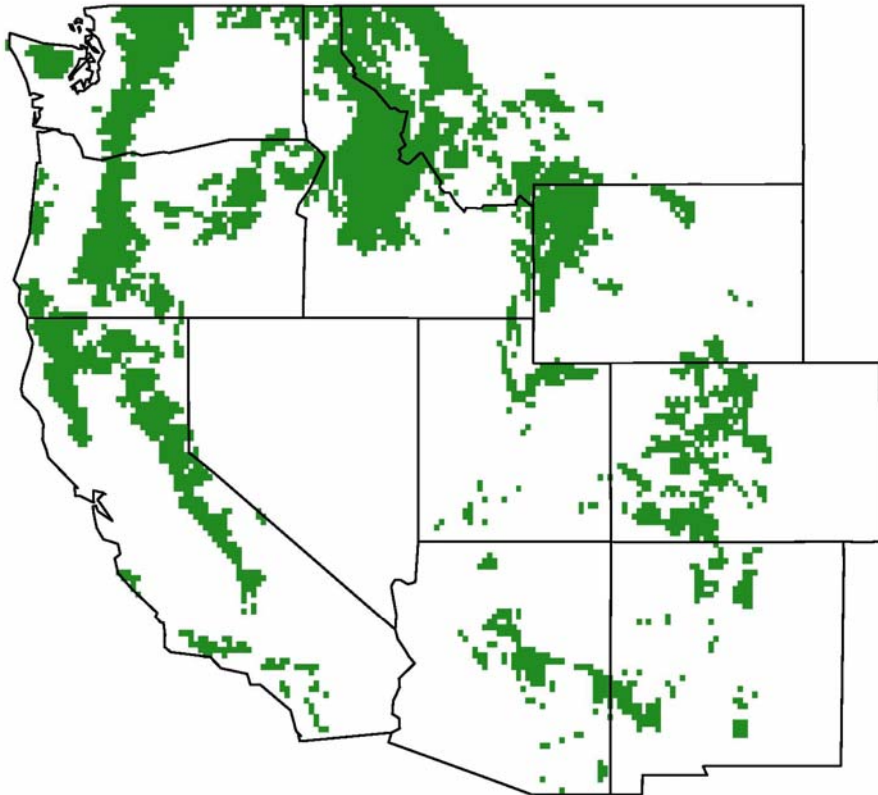
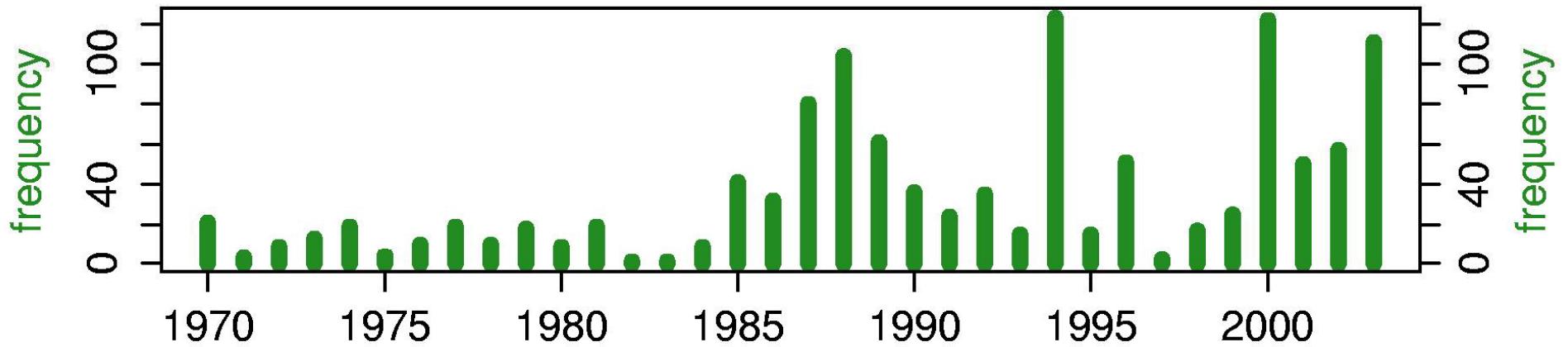
Washington DC

Anthony Westerling
UC Merced

NOAA OGP
USDA Forest Service
California Energy Commission



USF & NPS Large Forest Fires per Year



Forest Fires up ~300%

Area Burned up > 550%

Season up 78 days (64%)

Burn time up 400%

Consequences? Fuel accumulation reduces effectiveness of suppression

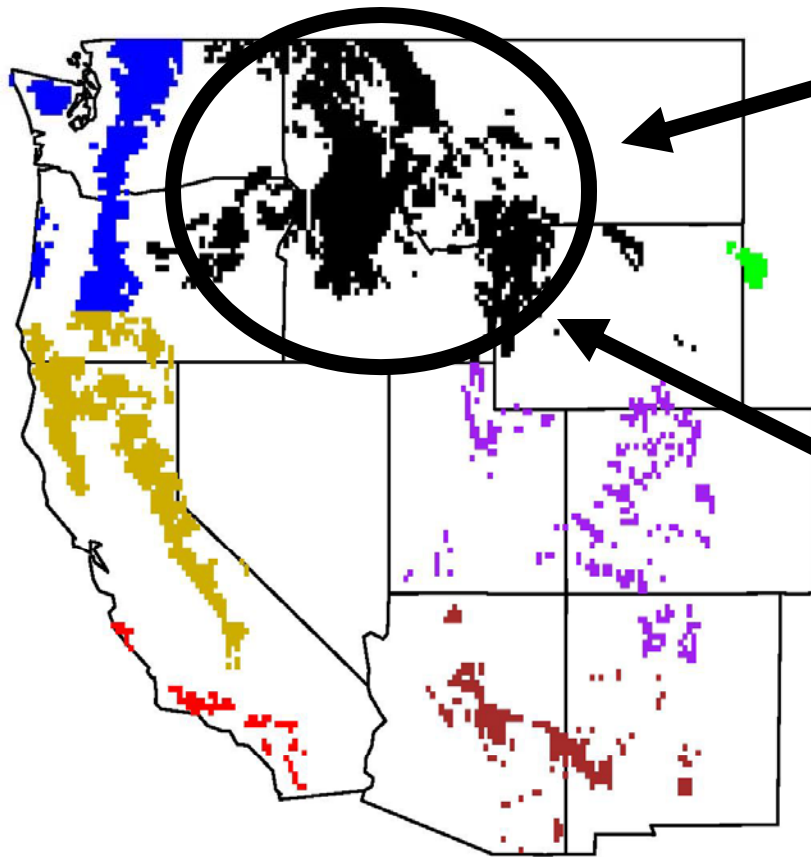
1867 American River



1993

American River

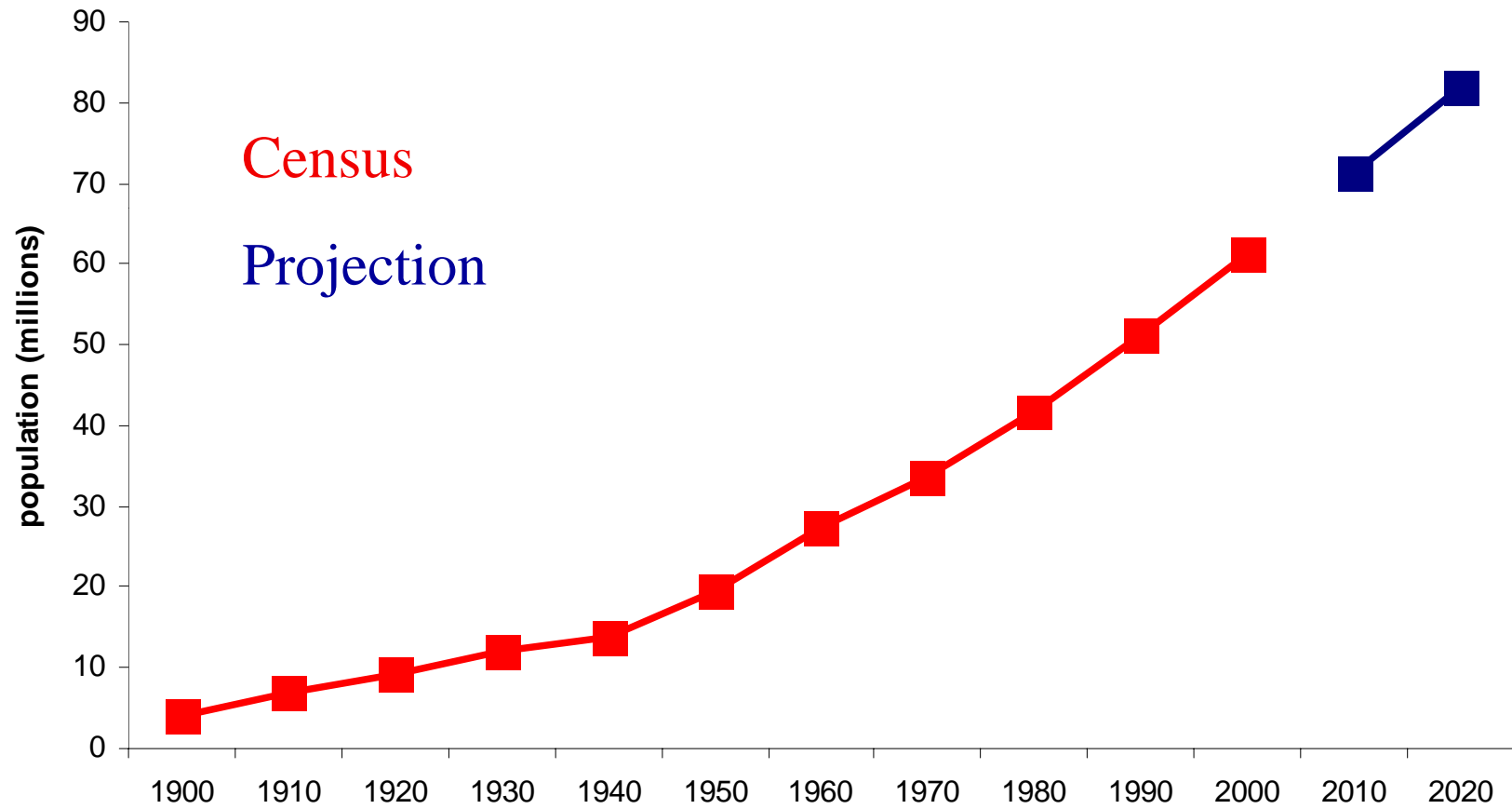




*biggest
increase
in wildfires*

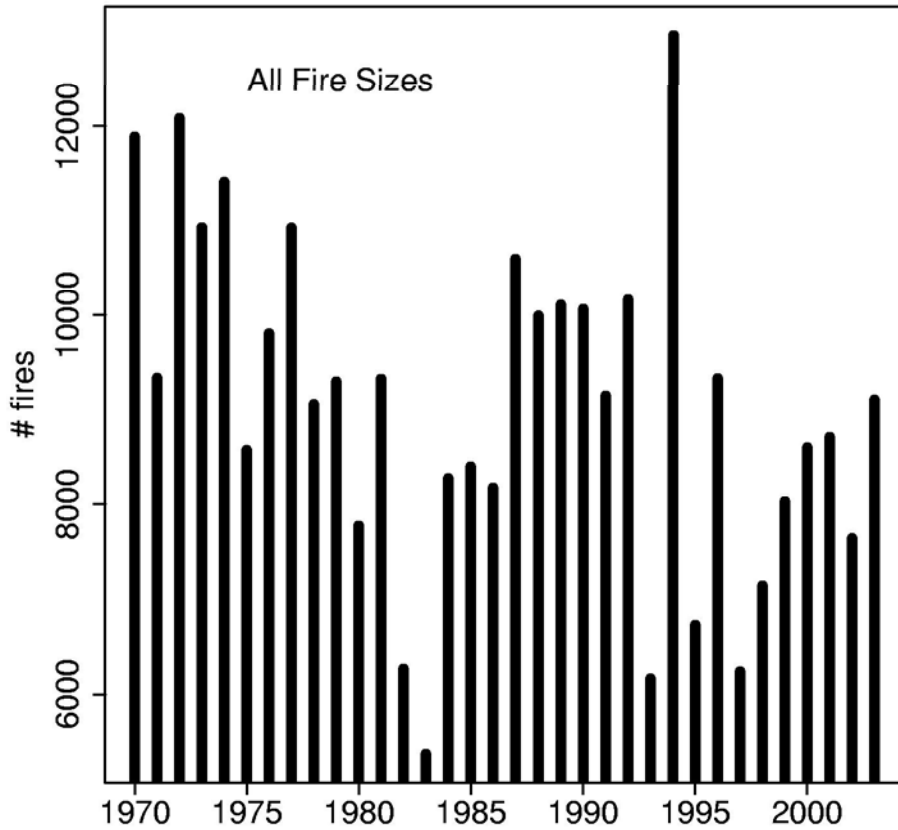
*risks least
affected by
suppression*

Western U.S. Population, 1900 - 2020

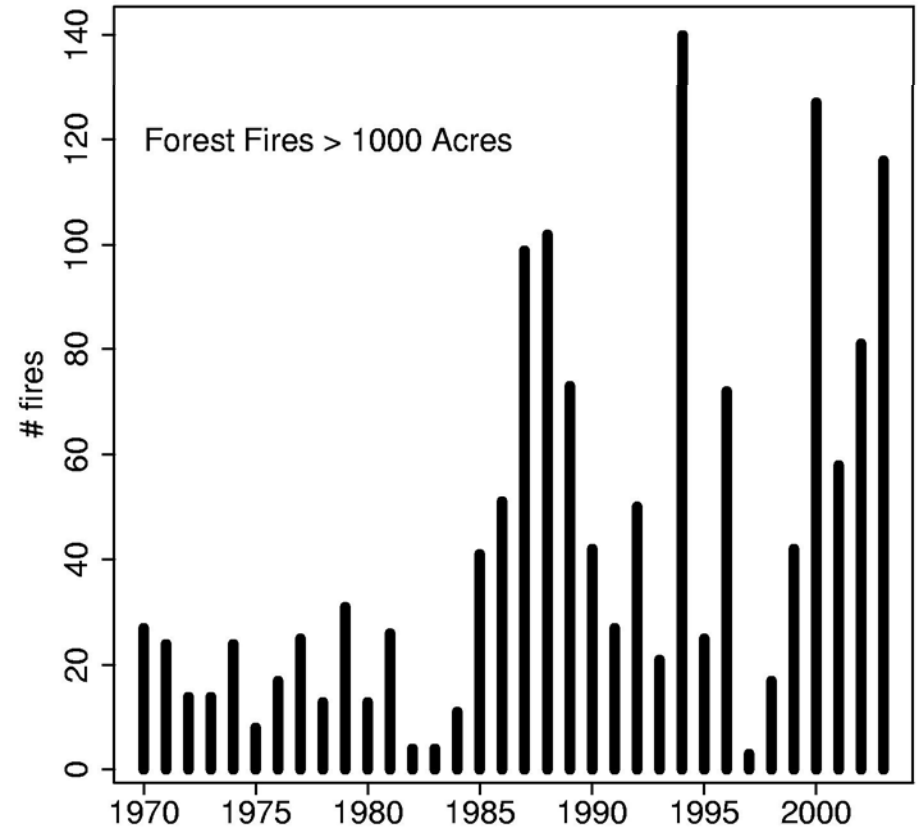


... but total ignitions have not.

Western U.S. FS Fire Frequency

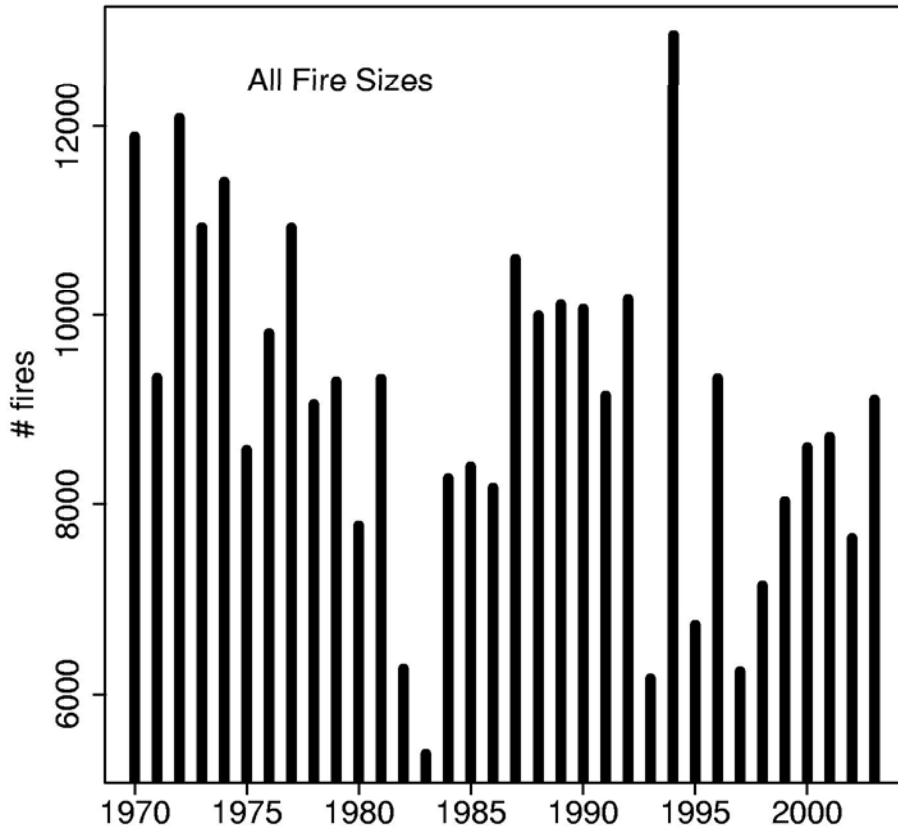


Western FS Large Forest Fire Frequency

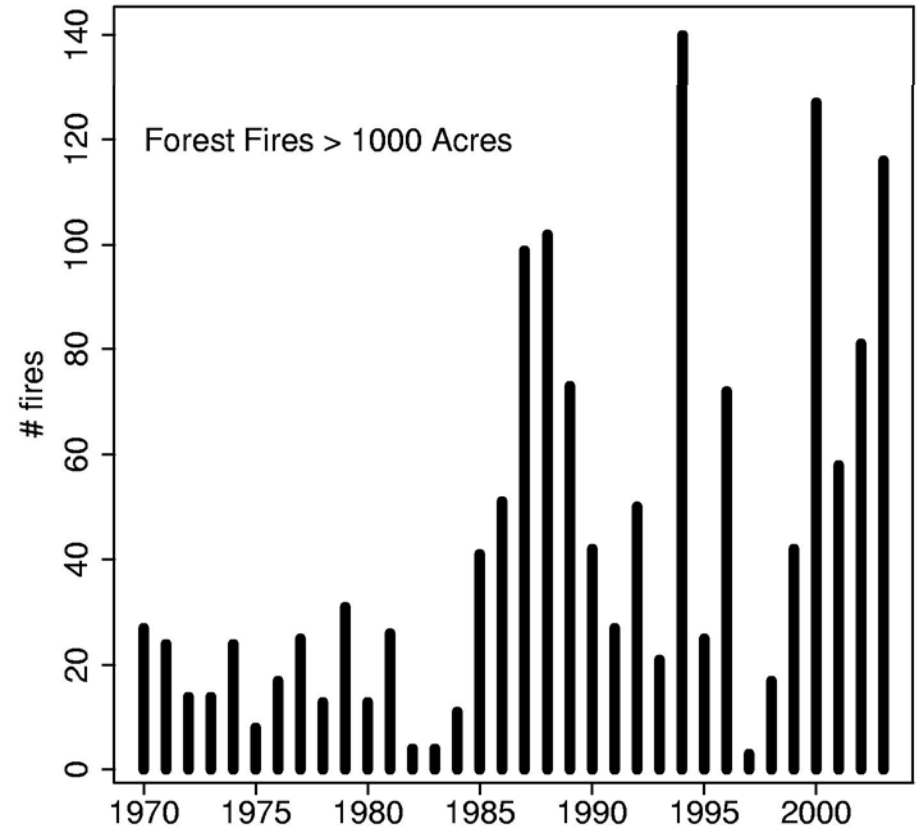


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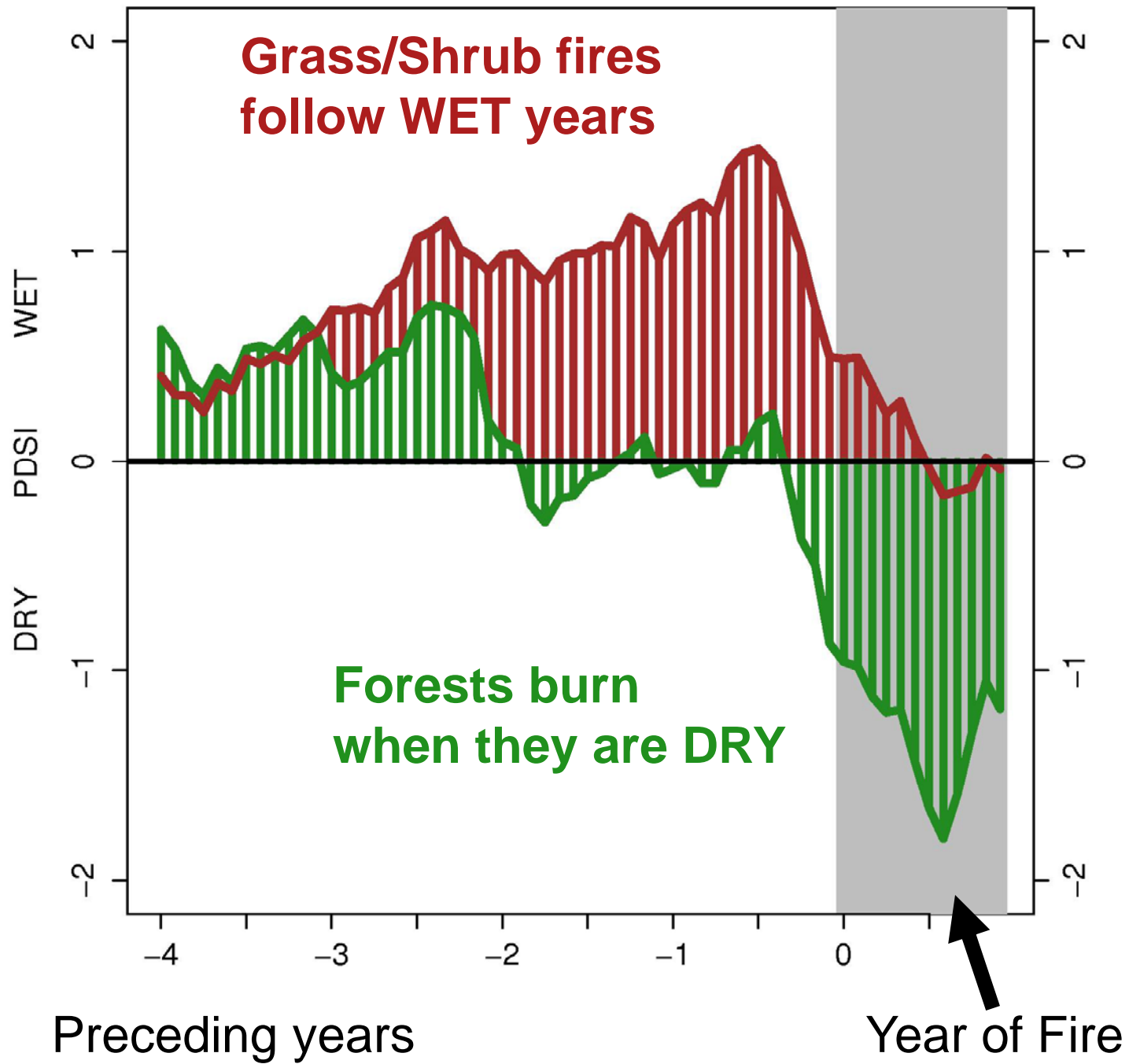
Western U.S. FS Fire Frequency



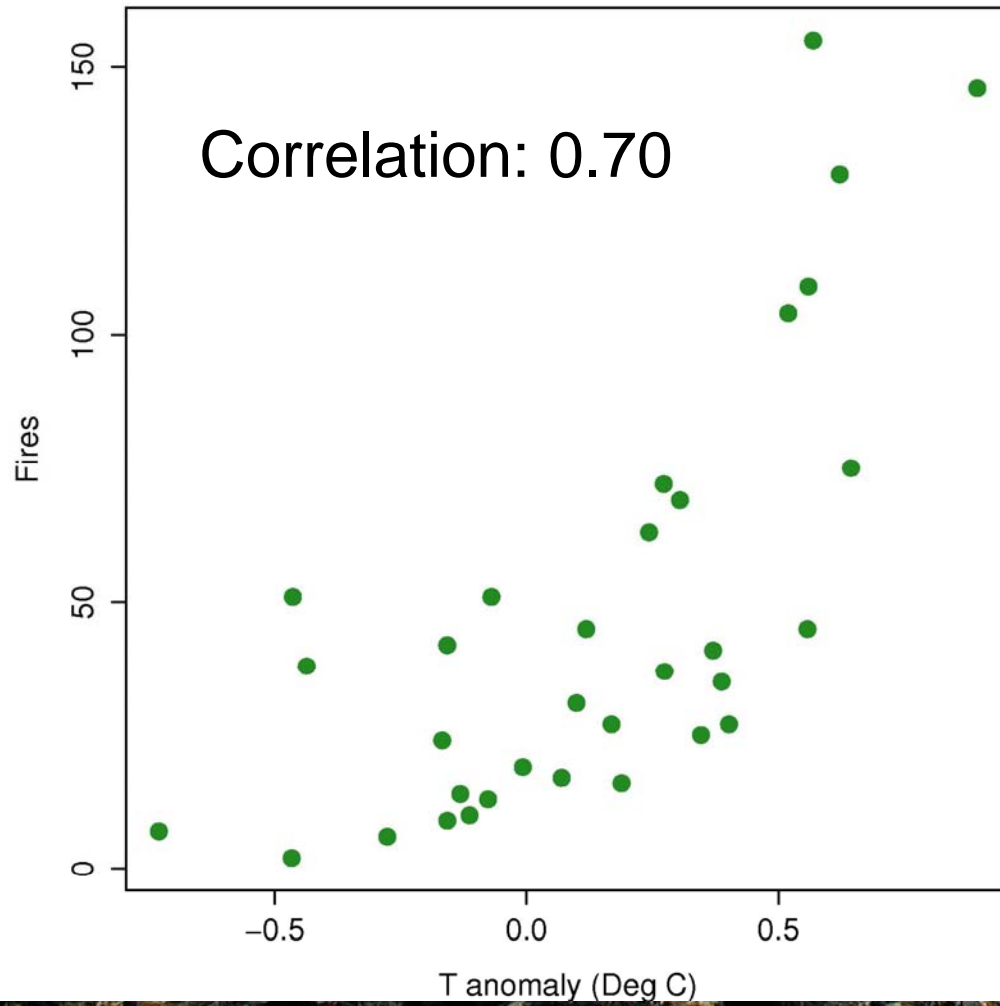
Western FS Large Forest Fire Frequency

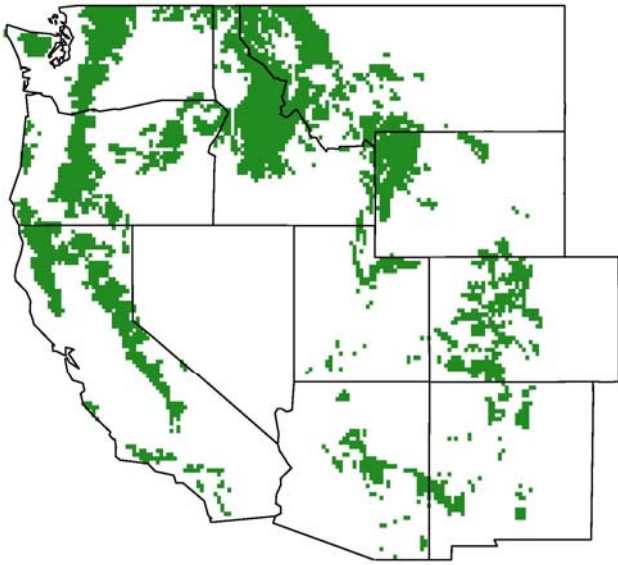


& 3/4 of the increase occurred among lightning-caused fires



Forest Fires & Temperature

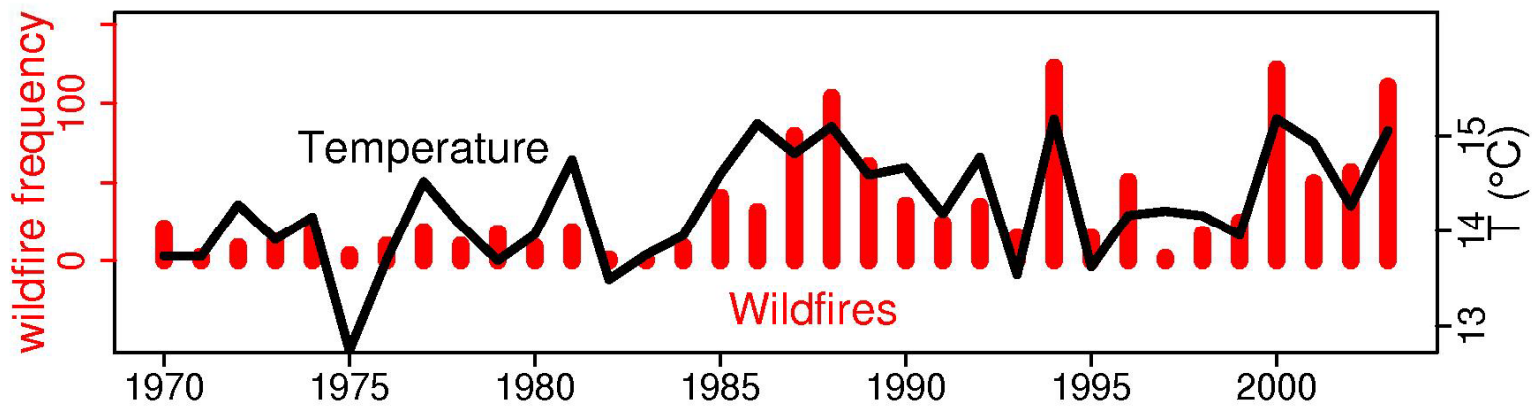




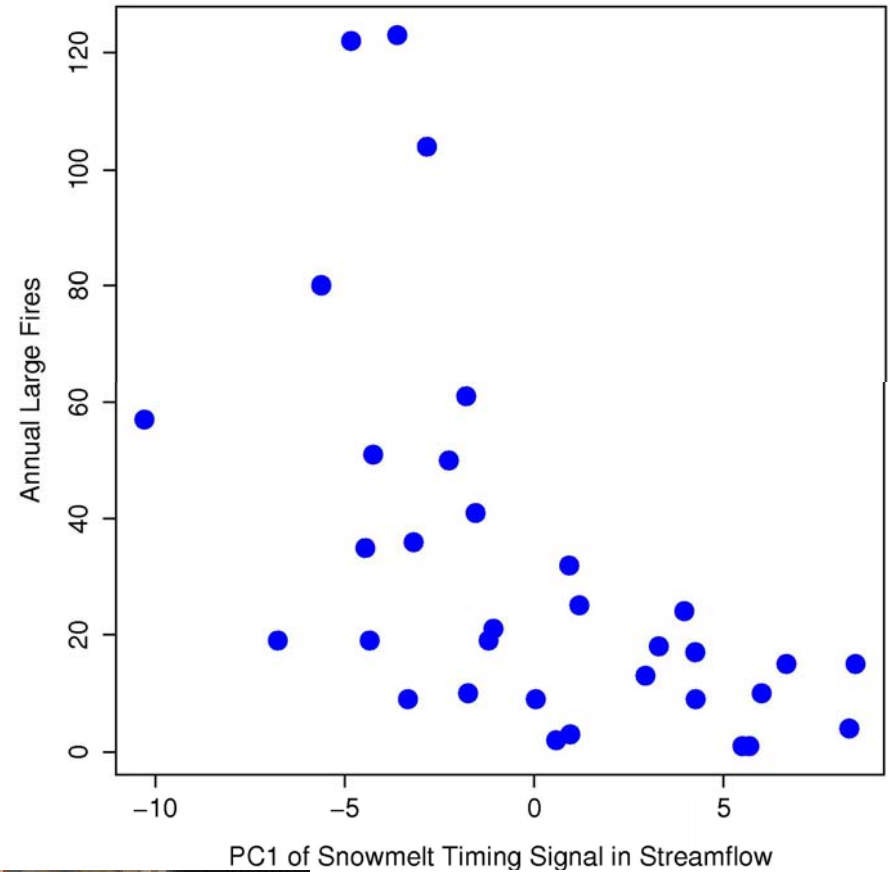
*Westerling et al,
2006 Science*



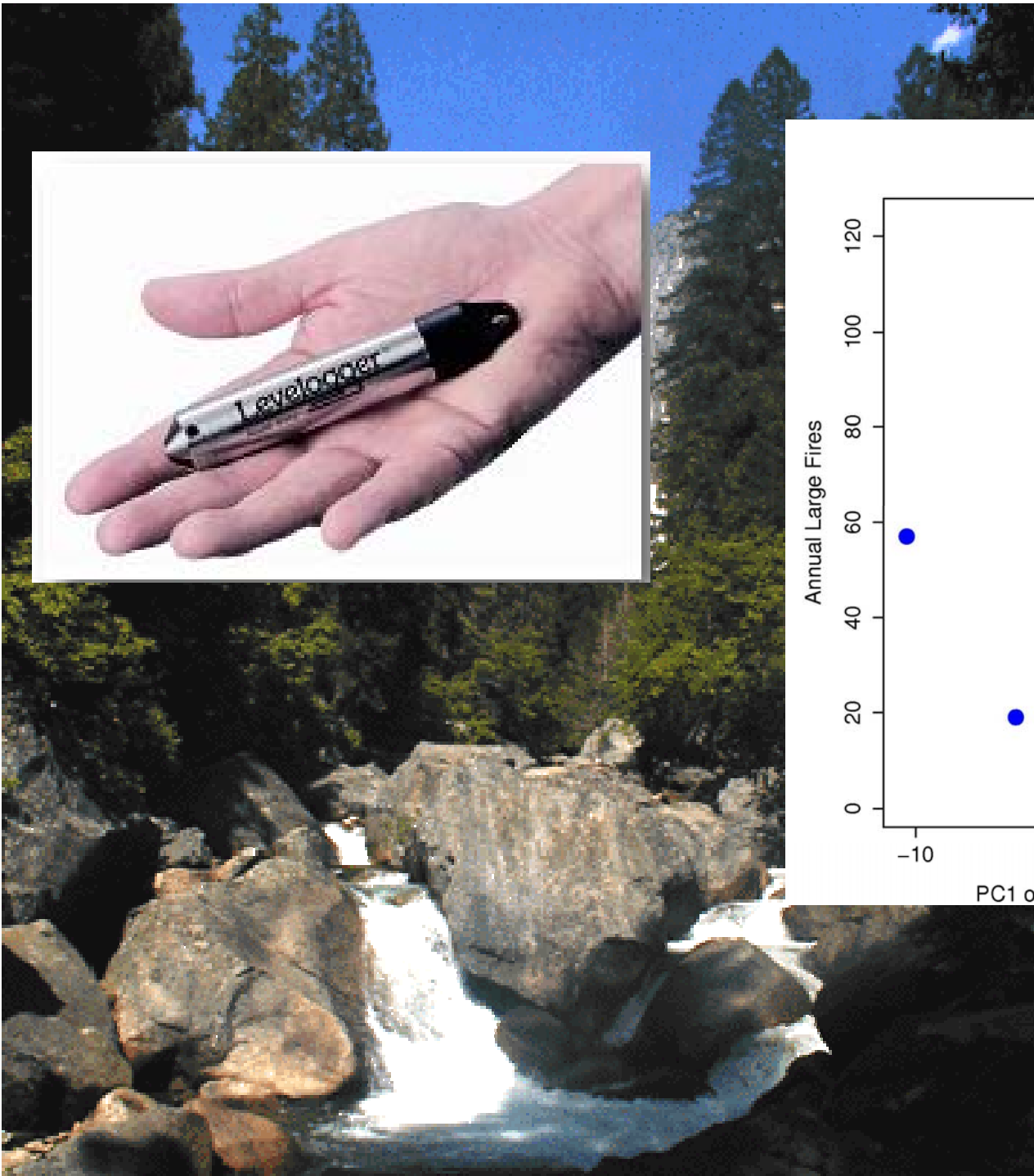
Western US Forest Wildfires and Spring–Summer Temperature



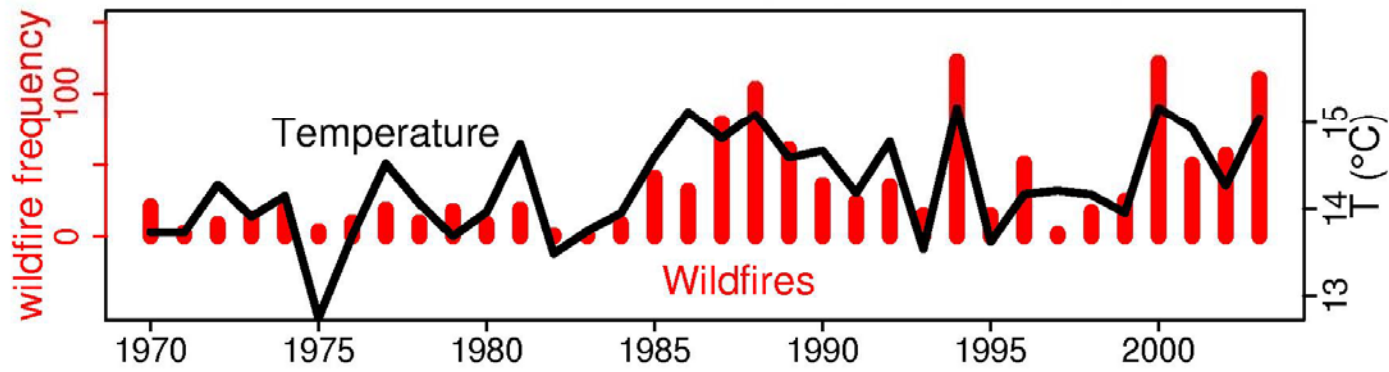
Forest Fires & Timing of Spring



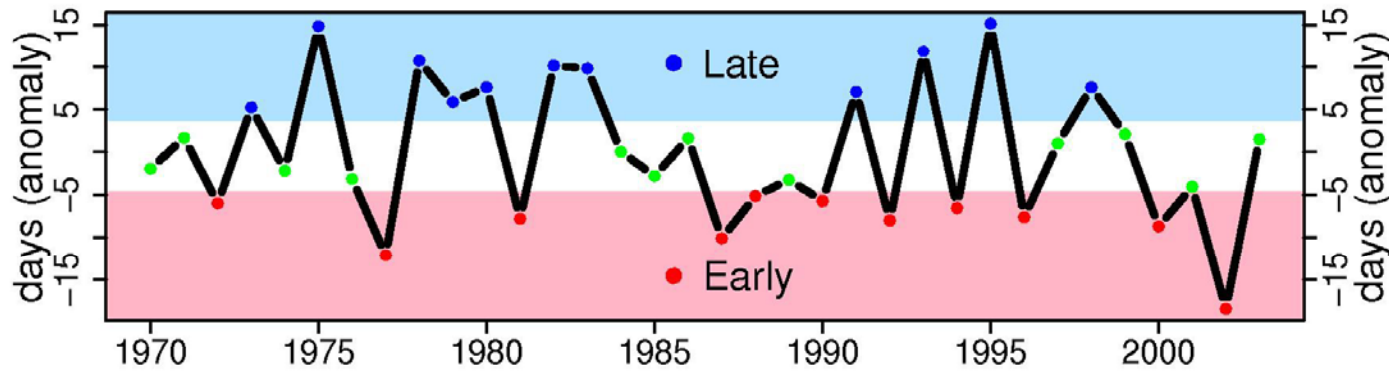
Correlation: 0.56



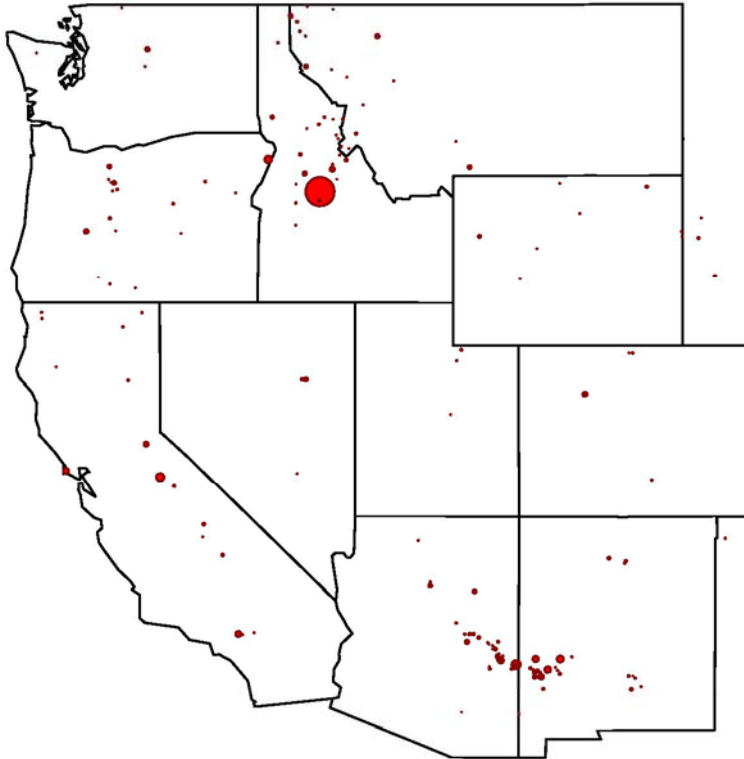
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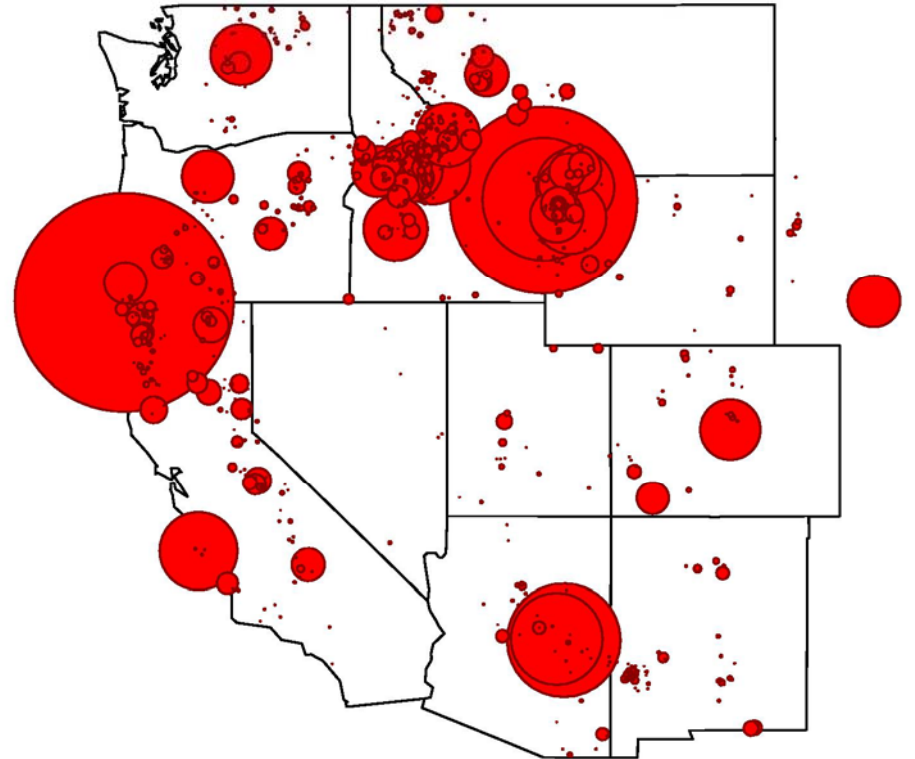
Timing of Spring Snowmelt



Late Snowmelt Years

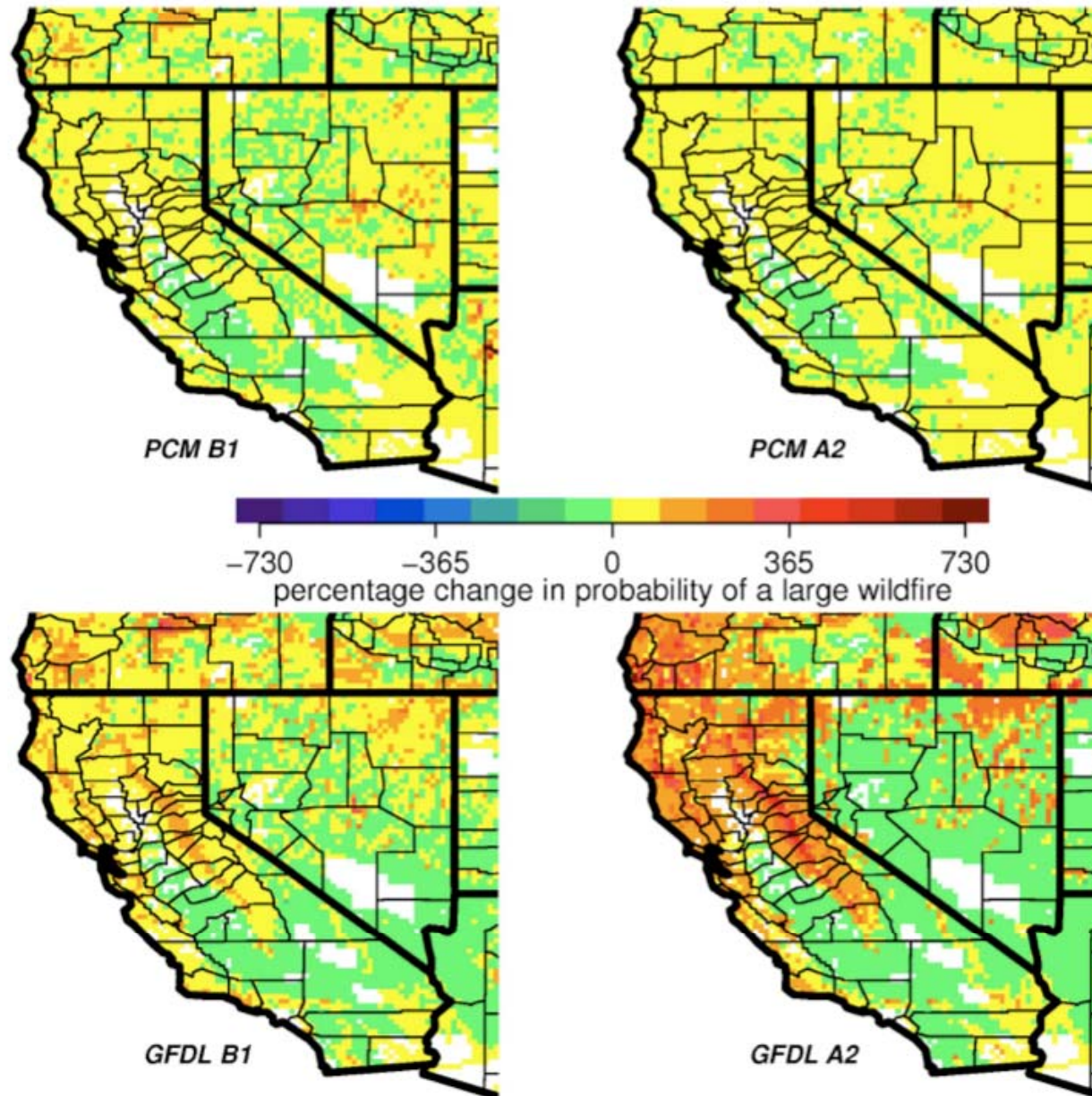


Early Snowmelt Years



1972 - 2003, NPS, USFS & BIA Fires over 1000 acres

Projected Climate Change Impact on California Wildfire by 2070-99



Forest Fires & Temperature

