

TRENDS IN PRESCRIBED FIRE ON PUBLIC LANDS IN MISSOURI

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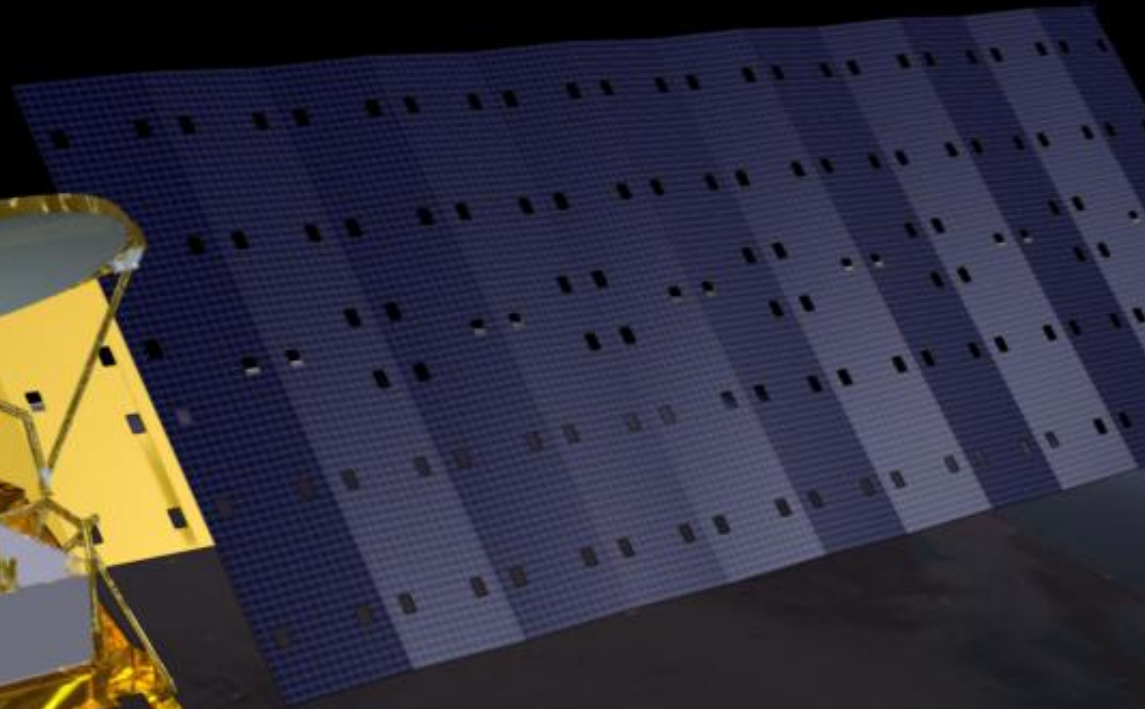
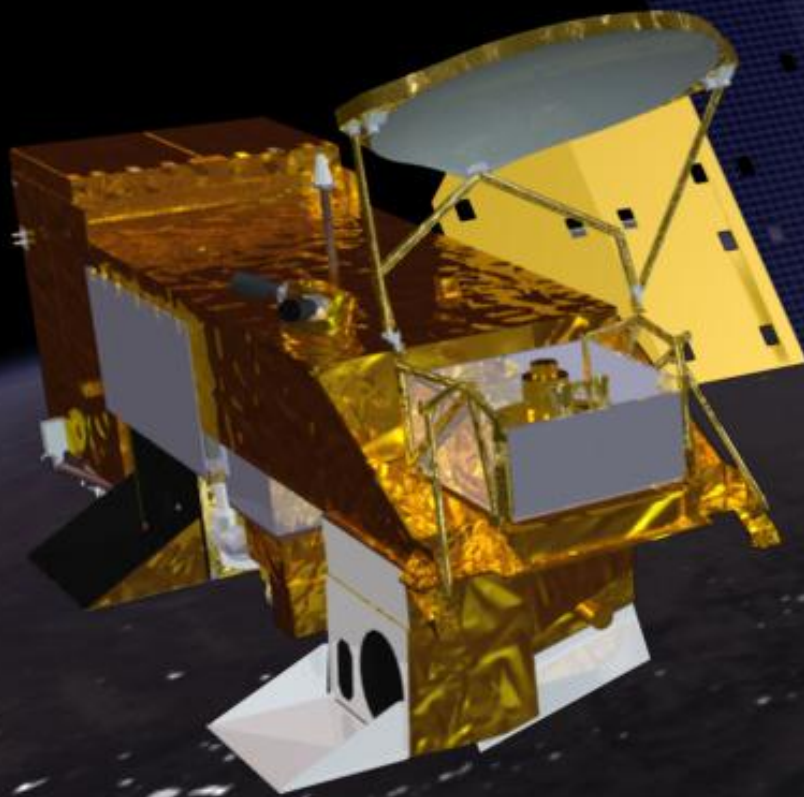
Who's burning what?

A photograph of a wildfire. In the foreground, several tall, thin, dry grass stalks are visible, some in sharp focus and others blurred. In the background, a large fire is burning, with bright orange and red flames rising from a dense area of vegetation. The sky above the fire is dark and smoky. The text "And where?" is overlaid in the center of the image in a yellow, sans-serif font.

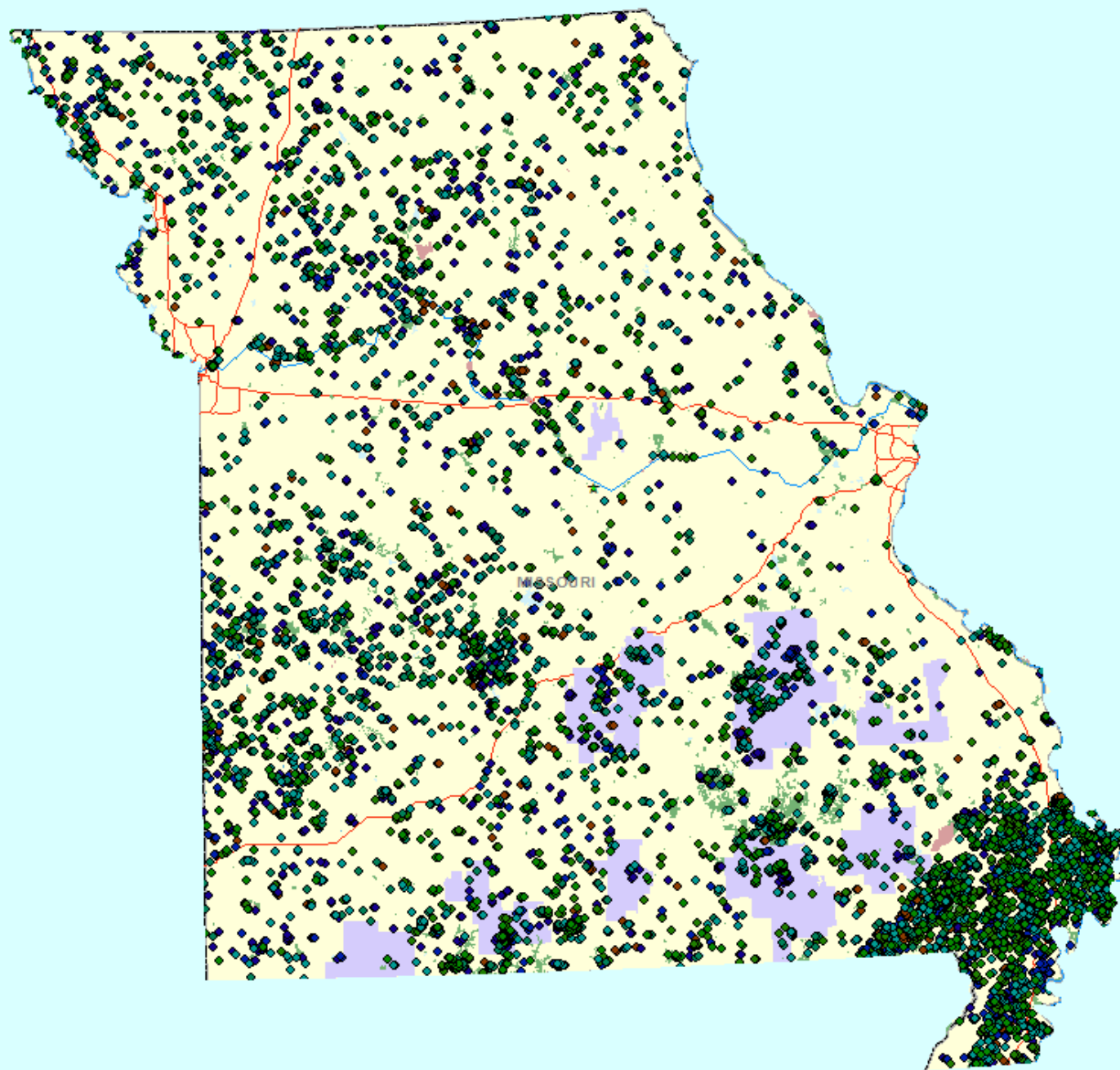
And where?



We just don't know.



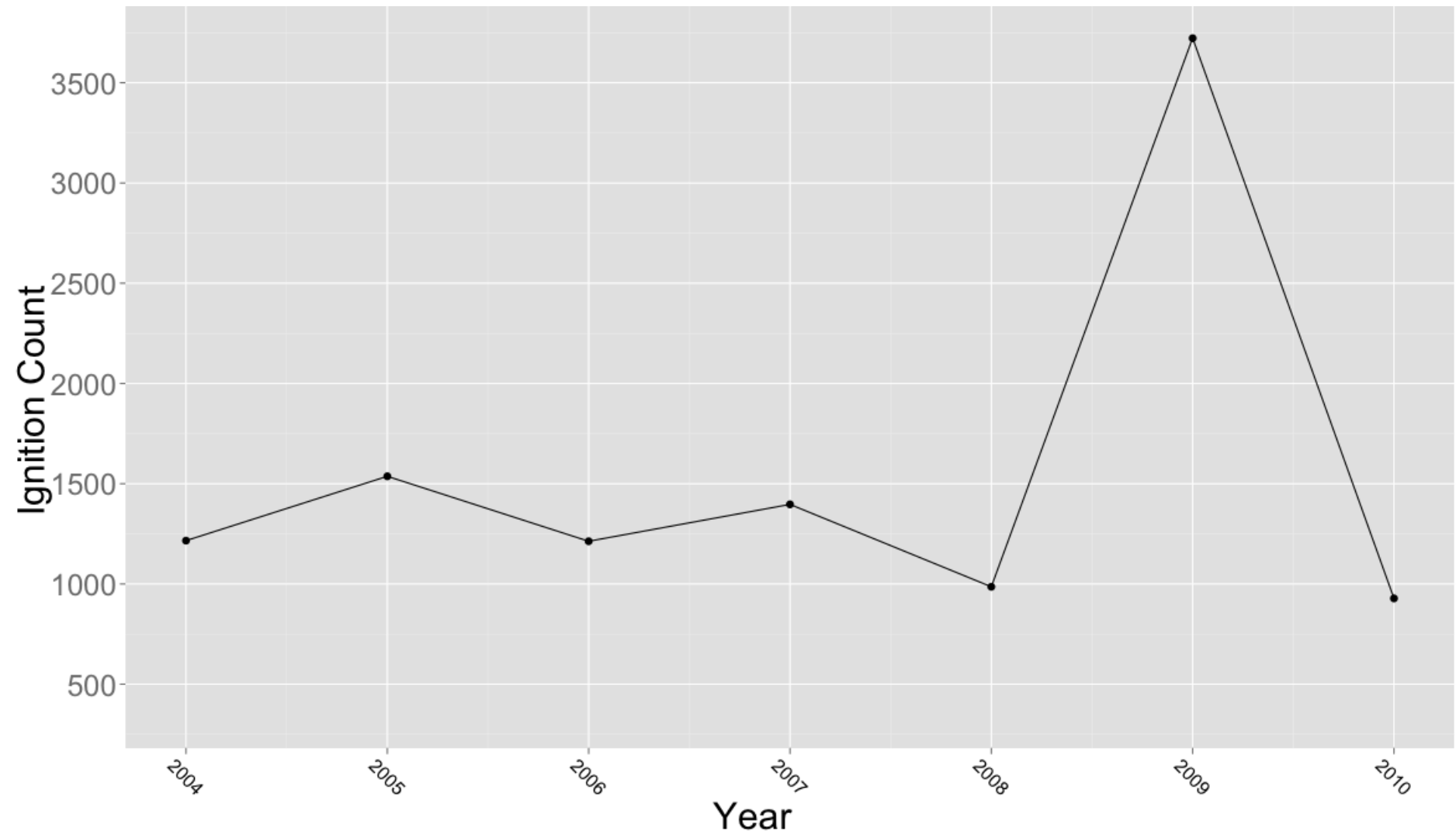
MODIS to the rescue?



Legend

- TNC
- MDC
- USFS
- USFWS
- MODNR

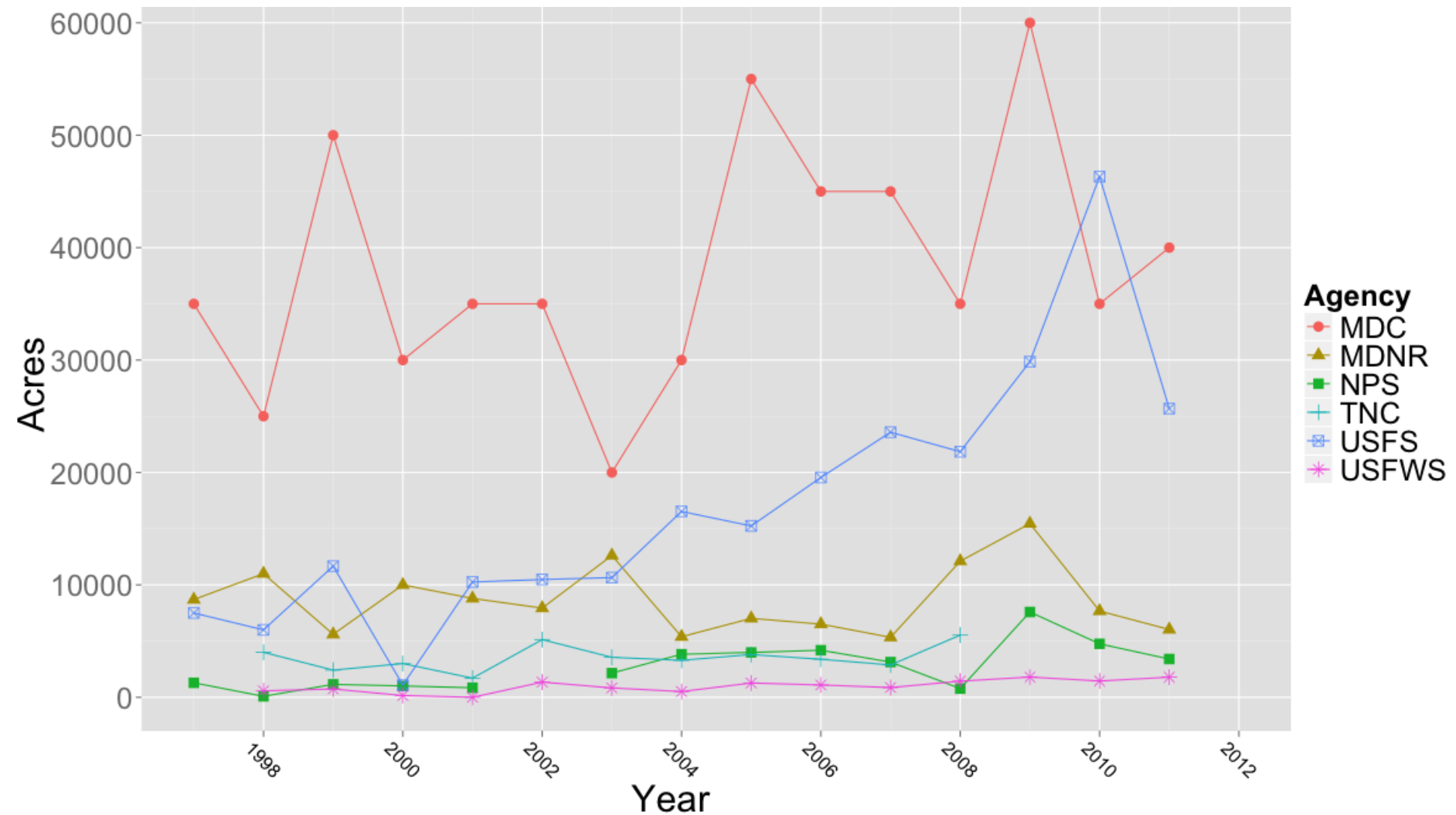
MODIS IGNITION DETECTIONS



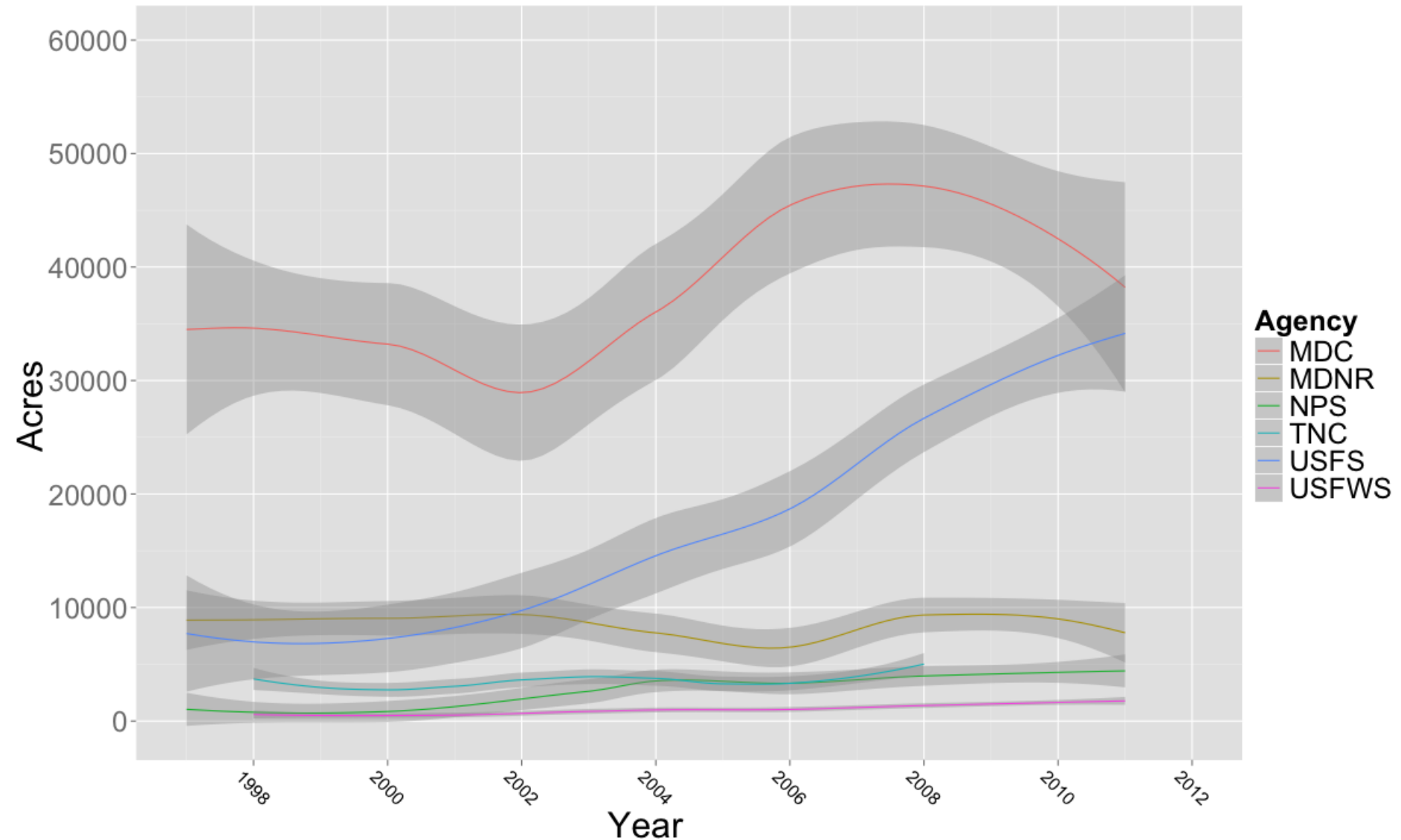


Not the best...

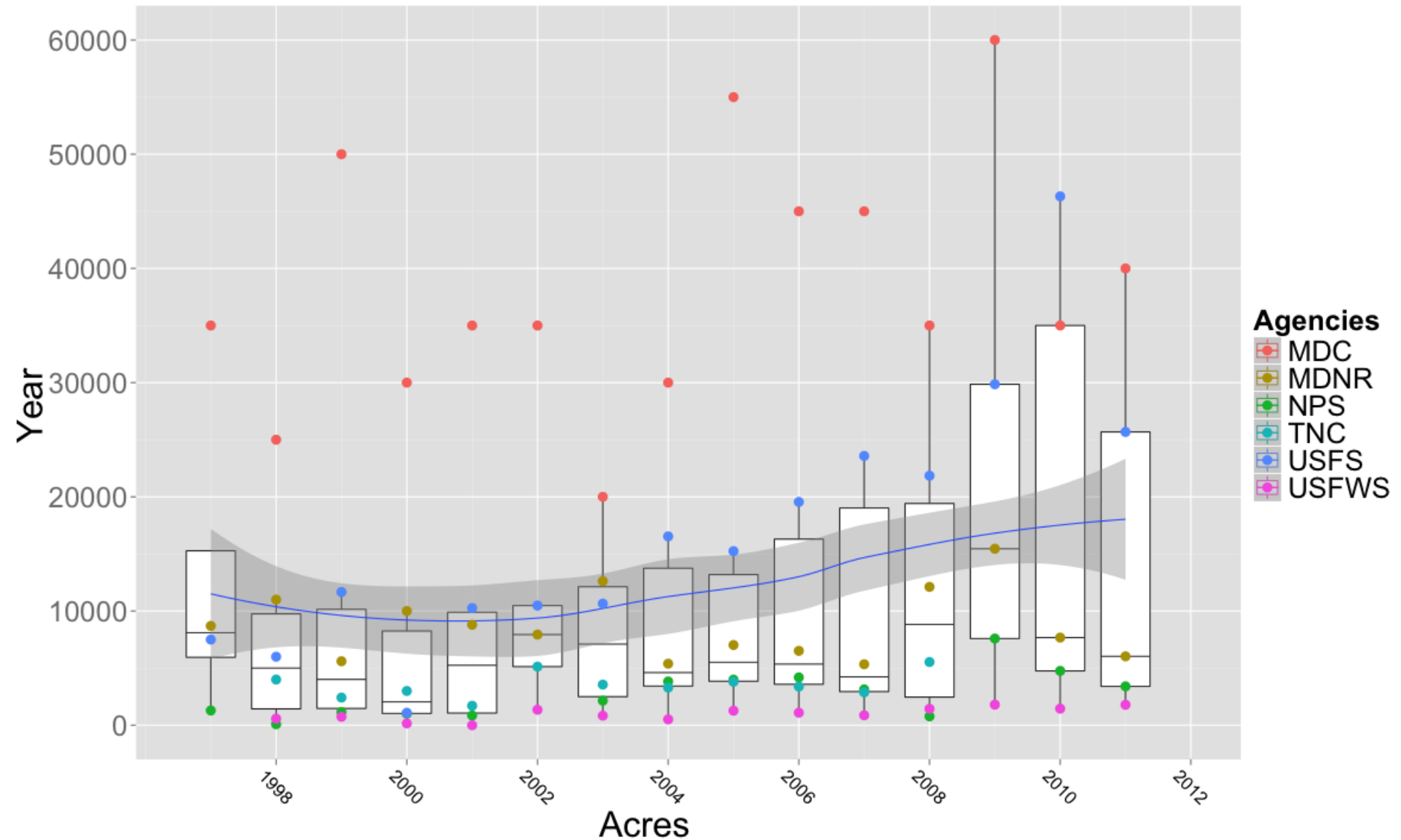
PUBLIC LANDS RXF – BY AGENCY



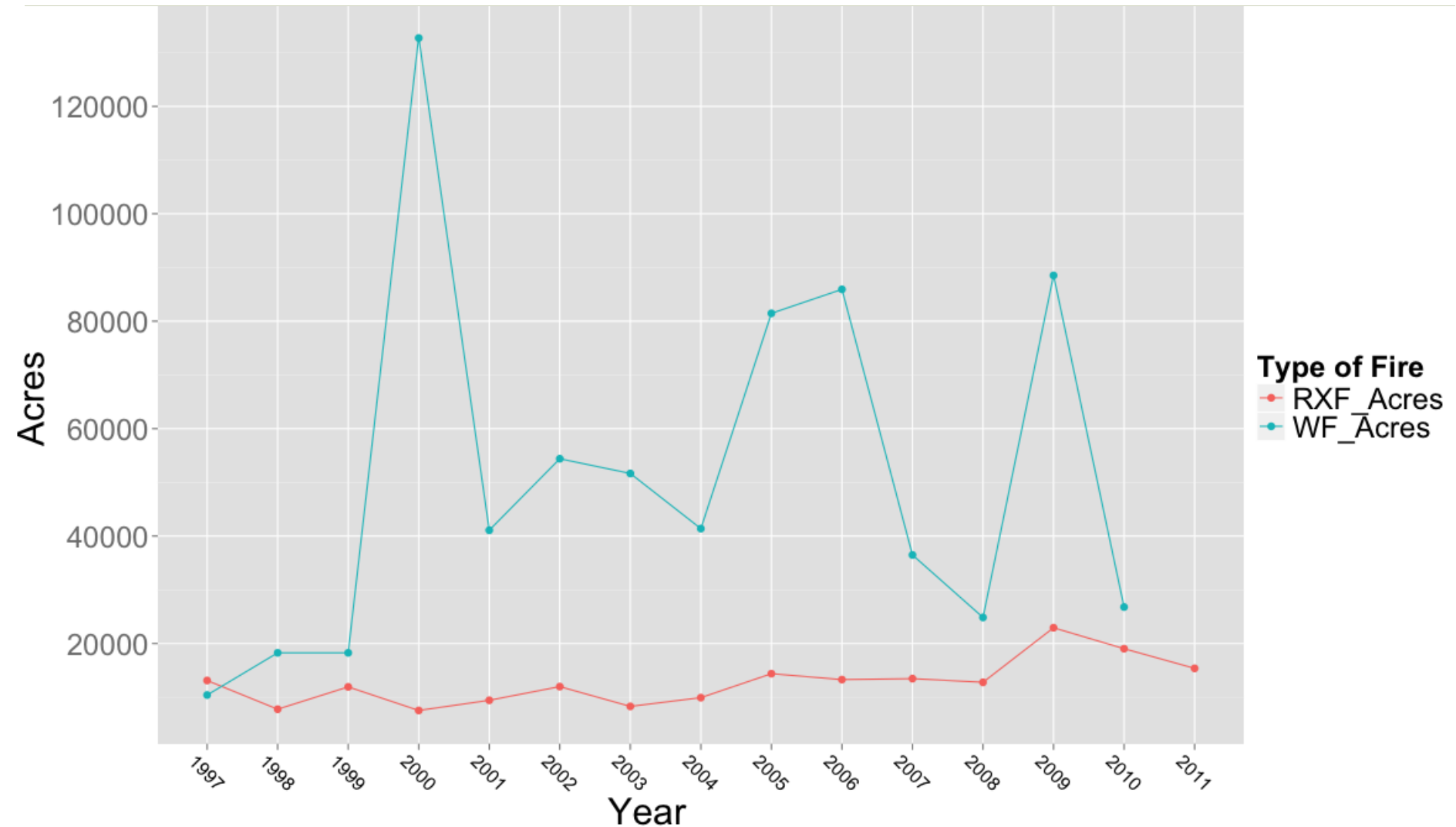
PUBLIC LANDS RXF – BY AGENCY



RXF ACRES/YR DISTRIBUTION



WILDFIRES AND PRESCRIBED FIRE



WHAT'S THE STORY – DROUGHT



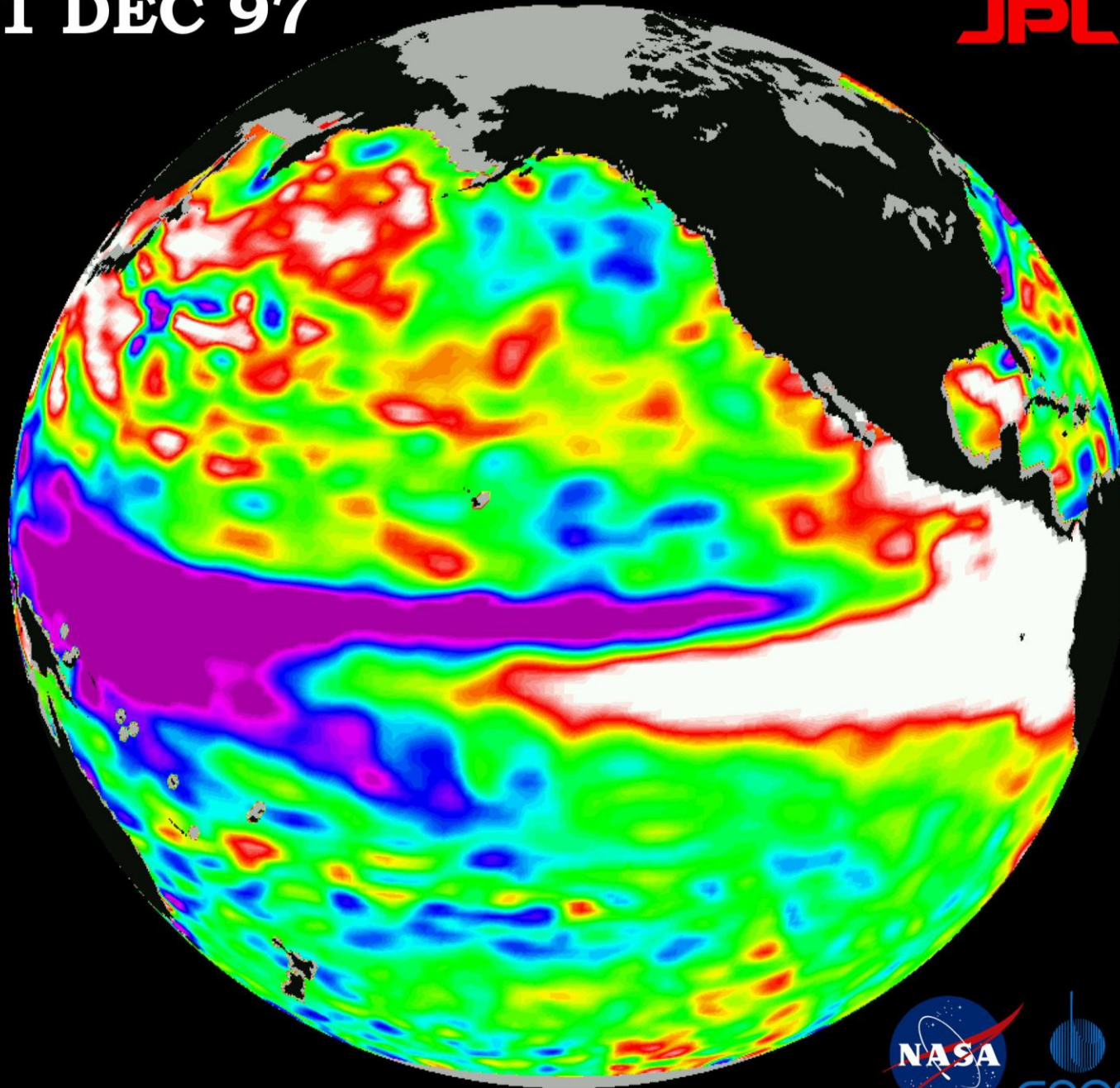
The diagram consists of two large, red, stylized arrows pointing in opposite directions, one to the left and one to the right. They are positioned side-by-side, with a small gap between them. The left arrow is wider at its base and tapers to a point on the left. The right arrow is wider at its base and tapers to a point on the right. Both arrows have a white outline and a slight 3D effect with a darker red shadow on the right side of the left arrow and the left side of the right arrow. The background is a solid light green color.

**- 4: Severe
Drought**

4: Very Wet

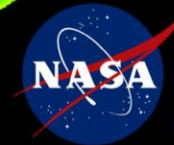
1 DEC 97

JPL

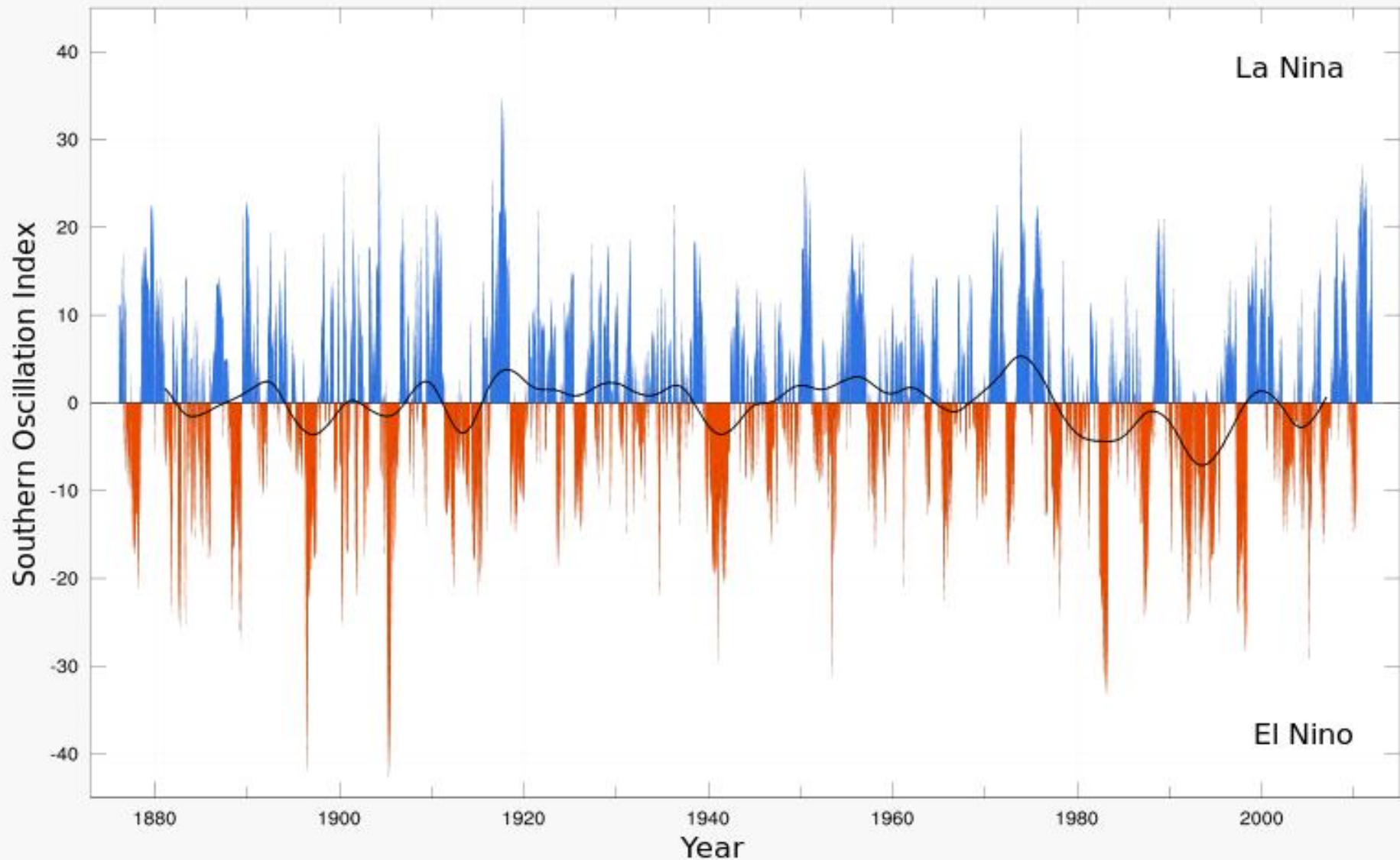


WHAT'S THE STORY

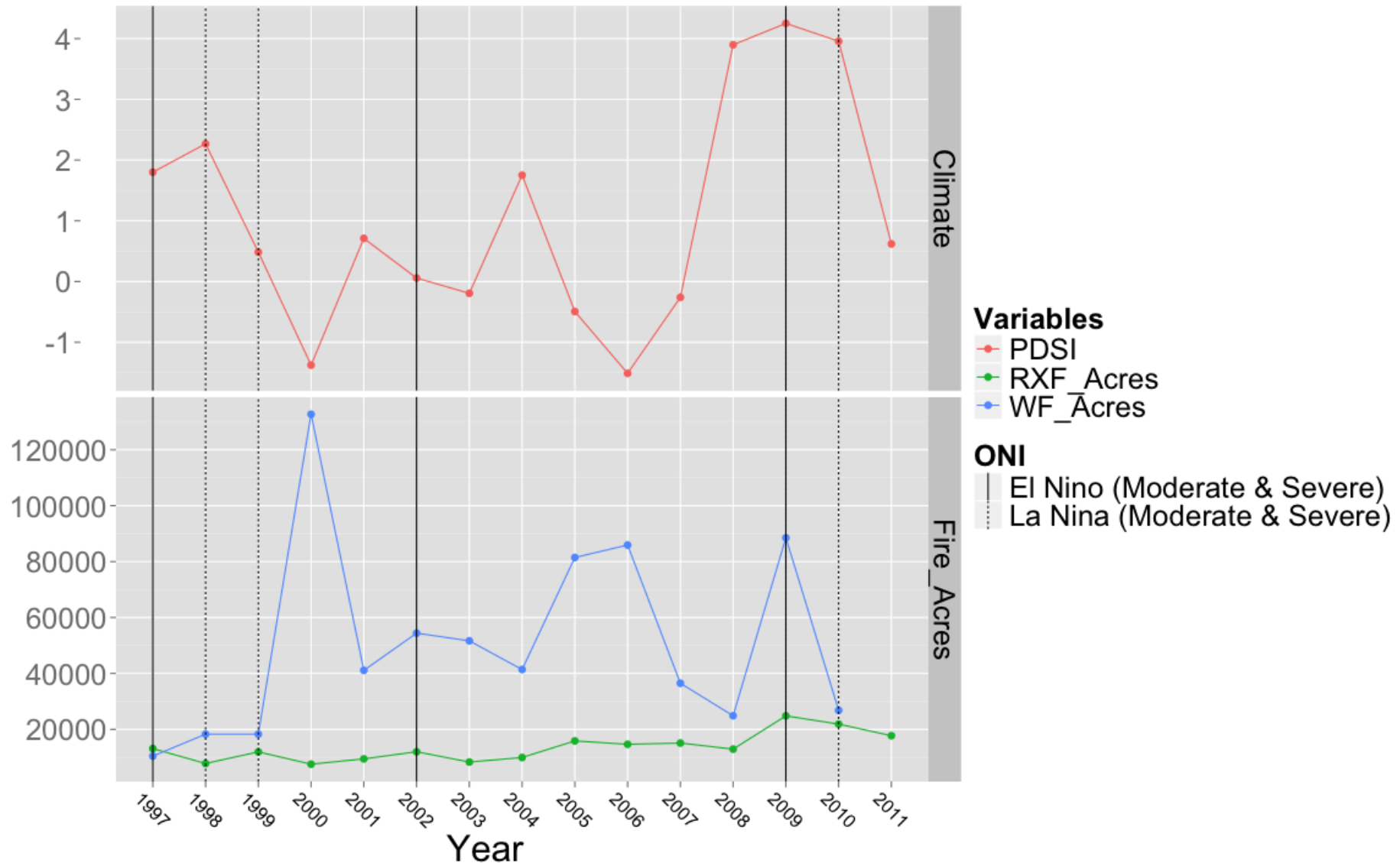
El Nino



WHAT'S THE STORY – EL NINO



EXPLAINING THE BIG STUFF



WHAT DO WE KNOW SO FAR?

- Fire is widespread in Missouri
- Wildfire acres are increasing, but not very predictably
- Prescribed fire acres on public land are increasing slowly

MODELS

- Generalized linear models (GLM) using stat package in R statistical environment
- Annual Southern Oscillation Index to explain RXF or WF?
 - NOT SIGNIFICANT

MODELS

- Annual Palmer Drought Severity Index to explain Wildfire?
 - Not significant
- Annual Palmer Drought Severity Index to explain Prescribed Fire?
 - Significant! ...but not very.

RECAP – WHAT EXPLAINS ACREAGE

Wildfire Acres

- Not annual drought index
- Not El Nino

Prescribed Fire Acres

- Annual drought index
- Not El Nino

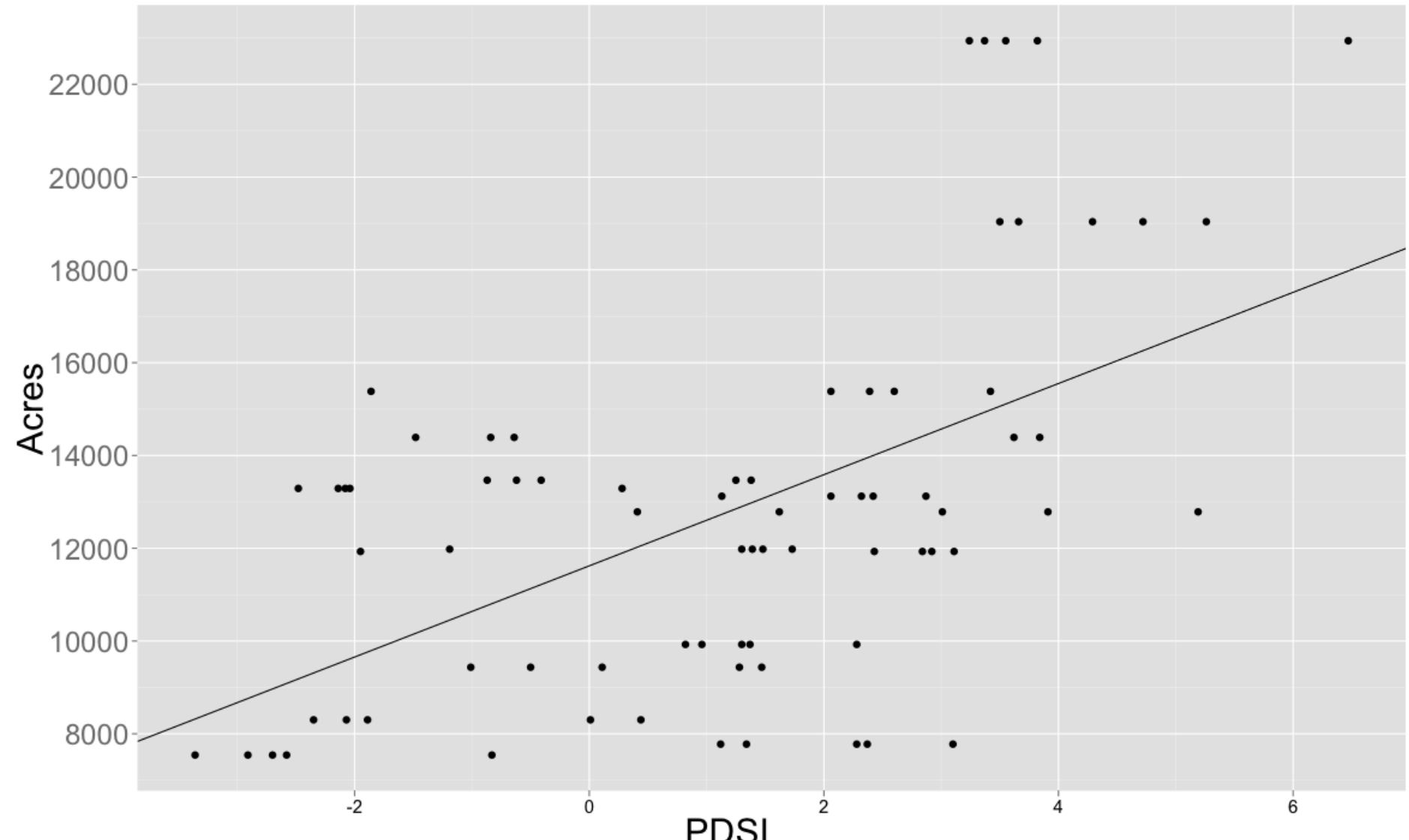
FIRE SEASONS

- Fall: September, October
- Spring: February, March, April

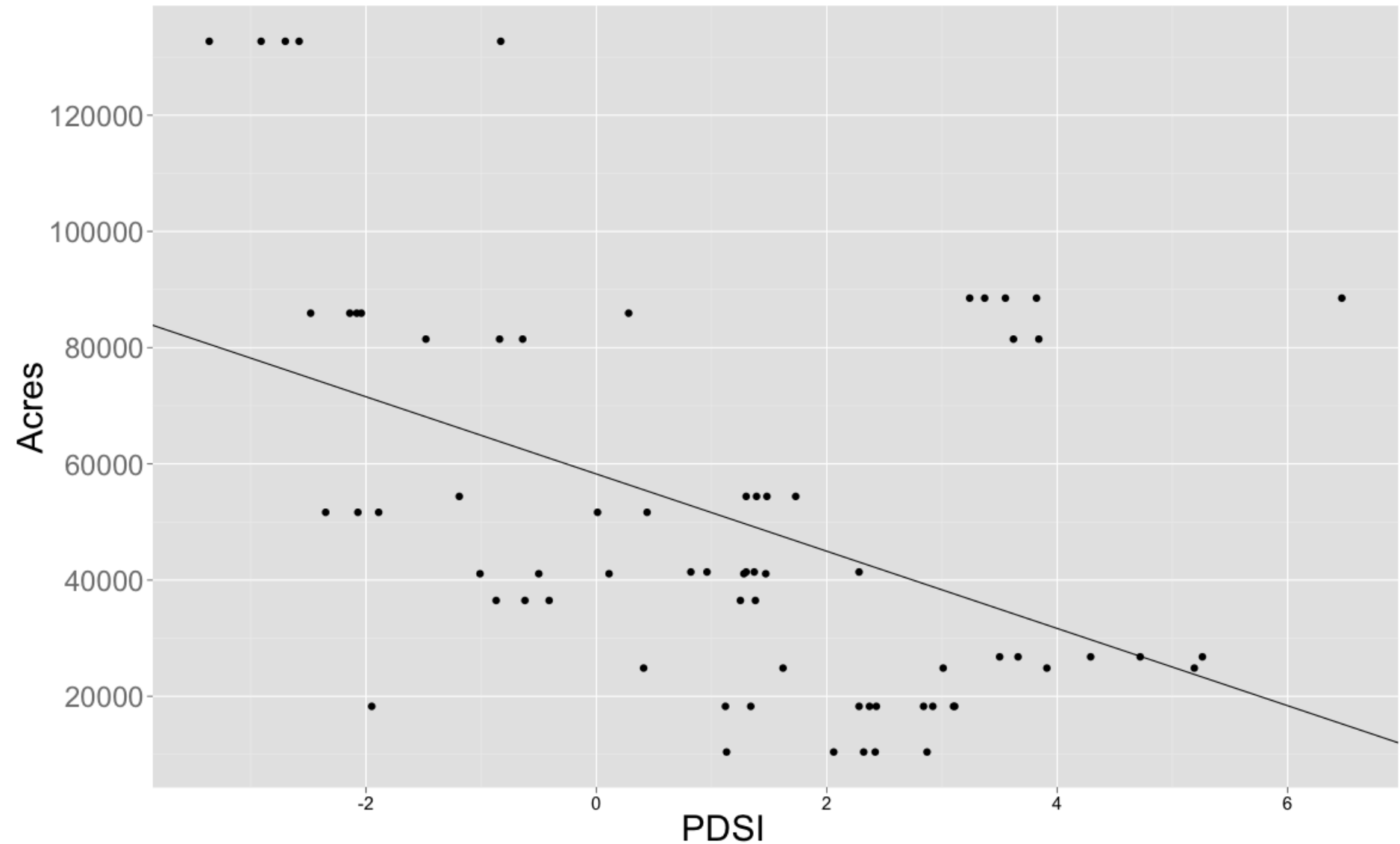
MODELS

- Burn Season Palmer Drought Severity Index to explain Wildfire?
 - VERY SIGNIFICANT
- Burn Season Palmer Drought Severity Index to explain Prescribed Fire?
 - VERY SIGNIFICANT

PRESCRIBED FIRE ACRES AND BURN SEASON DROUGHT



WILDFIRE ACRES AND BURN SEASON DROUGHT

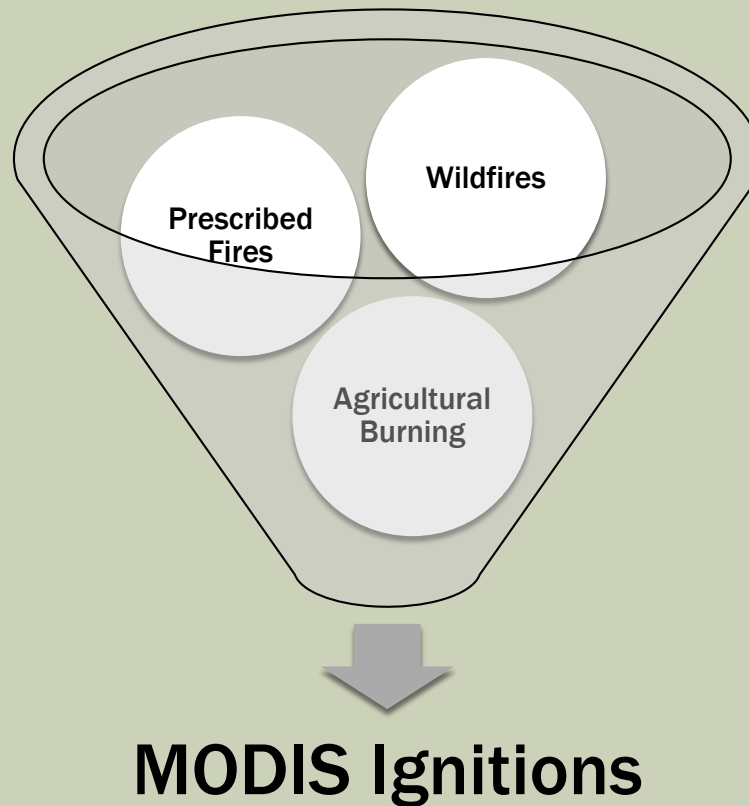


SO WHAT?

- Wildfire and Prescribed Fire may be affected by monthly drought differently
 - More drought: less prescribed fire, more wildfire
- Confirms the utility of PDSI at the monthly scale...but not annual.

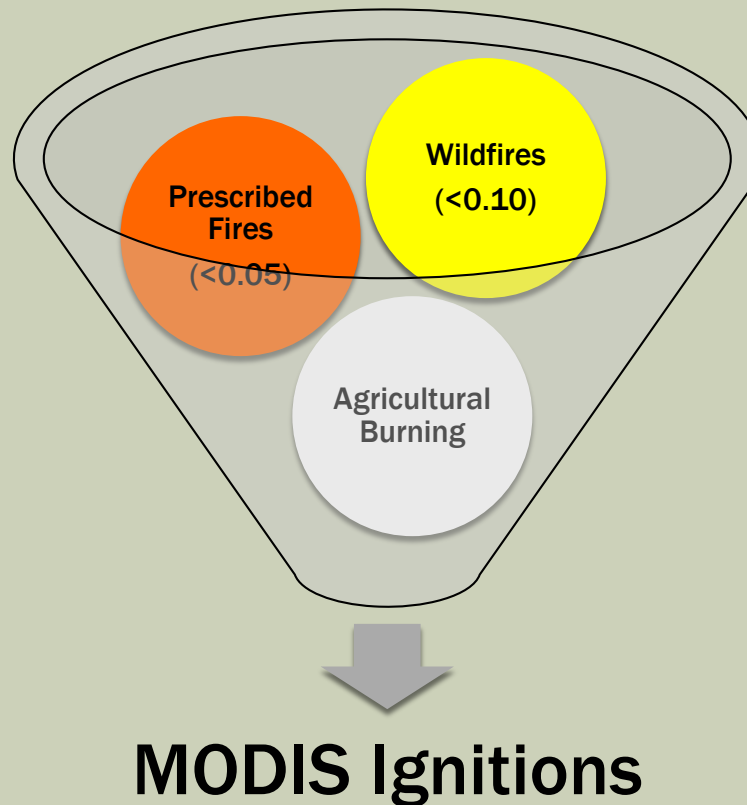
BACK TO MODIS

- What is MODIS capturing?



BACK TO MODIS

■ Generalized Linear Models & Significance:



MODIS CONCLUSIONS

- MODIS is probably capturing prescribed fires, not wildfires.
- Public agencies are burning on the same days that private individuals are burning

CONCLUSIONS

A photograph of a controlled fire burning in a field of dry brush. The fire is bright orange and yellow, with thick black smoke rising from it. In the background, there are bare trees and a cloudy sky. The word "CONCLUSIONS" is overlaid in large, bold, yellow capital letters.



Prescribed fire on public land in
Missouri is increasing...

...and wildfire is increasing statewide

There is more wildfire during burn
windows of drought...

...and less prescribed fire



WHAT WE STILL DON'T KNOW

- Private lands fire: who, what, where, when, and why.
- How much “should” we be burning? Are we in fire surplus or fire deficit?

THANK YOU!

Ken McCarty, MoDNR
Aaron Stevenson, MDC
Sherry Leis, NPS
Zach Prusak, TNC

