

# Public Perceptions of Smoke

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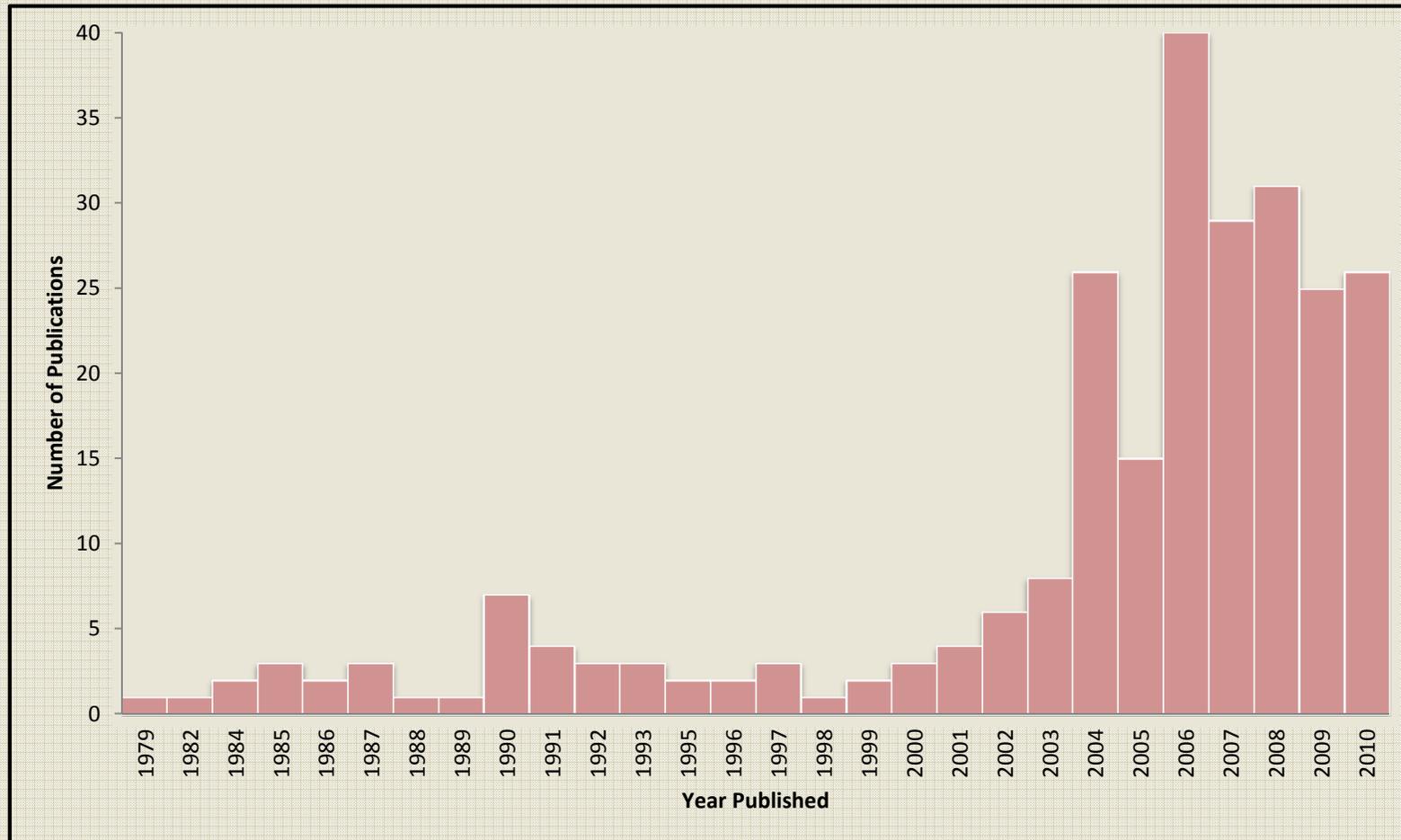
# Overview

- Brief fire social science intro
- Brief intro to projects
- Public perceptions
- Communicating about smoke
- Agency perceptions
- Future research
- Discussion



Scott Alan

# Wildfire Social Science Publications



Toman et al., 2013. Social Science at the Wildland-Urban Interface: A Compendium of Research Results to Create Fire-Safe Communities. GTR-NRS-111.

# What do we know about people, fire and smoke?

- Substantial body of fire literature
  - 200+ publications 2000-2010
  - 100+ authors
- Limited examination of perceptions of smoke
  - Maybe 1-3 questions
  - One study with smoke focus\*
    - Source of smoke can matter
    - Few distinguished between PF and wildfire smoke

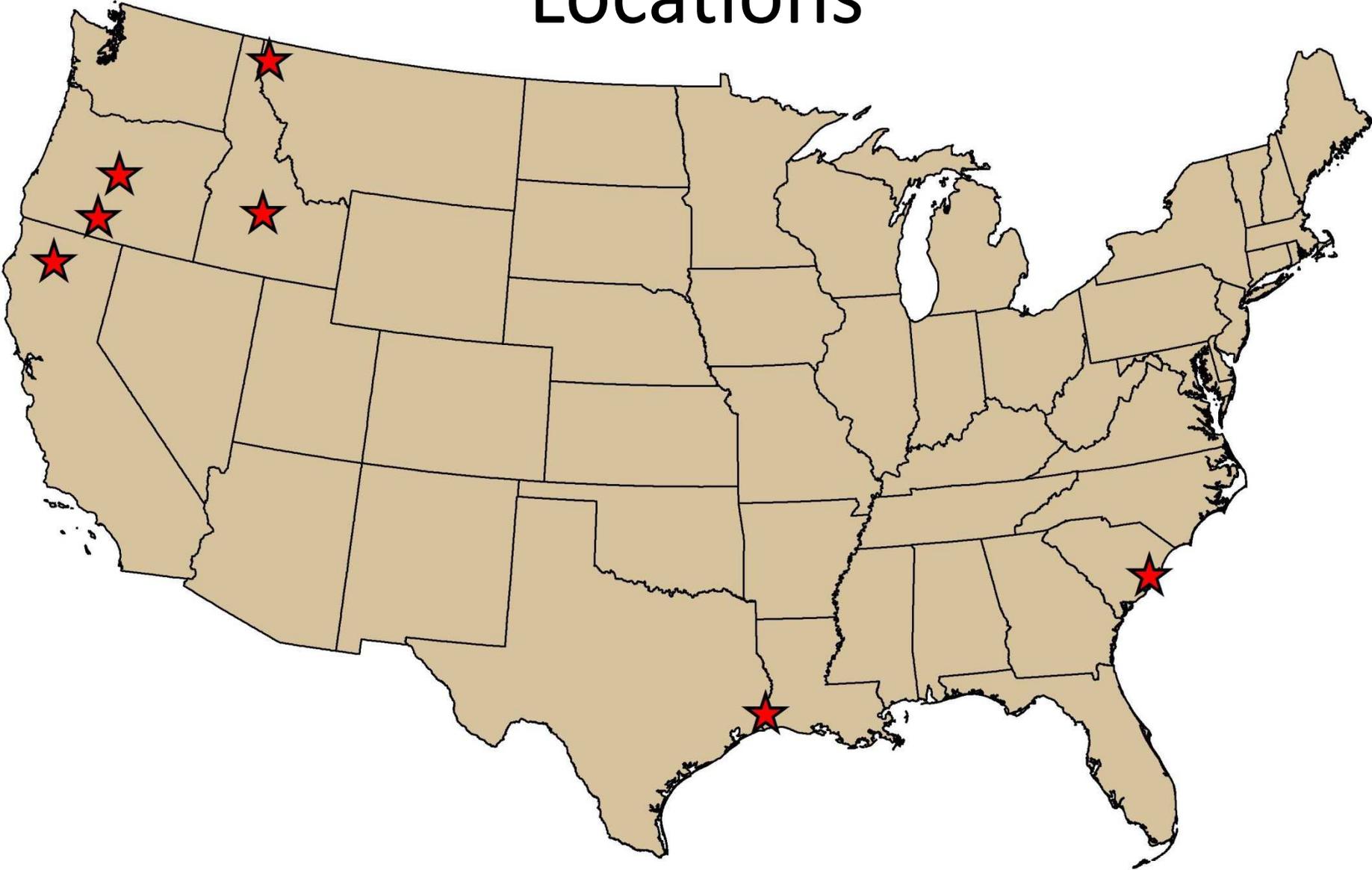
\* Weisshaupt et al., 2005. Acceptability of smoke from prescribe forest burning in the northern inland west: a focus group approach. *Journal of Forestry*.

# New Projects

## 3 Research Teams

- OSU/OSU – public and agency perceptions of smoke and smoke communication
- Idaho – public perceptions of smoke in WUI versus urban communities
- OSU/FS PNW – WUI homeowner mitigation behavior

# Locations



# Methods

- Interviews with managers, regulators, community orgs, private burners
  - 60 individuals
  - Systematic analysis to identify key themes
- General (random) public surveys
  - Rural/urban
  - WUI/urban
  - Intermix/interface

## Public Opinions about Smoke from Wildfire and Land Management Activities



### A Survey of Citizens in Southern Oregon

This questionnaire was developed by researchers at The Ohio State University and Oregon State University. The findings will be summarized to help forest managers and scientists better understand citizens' opinions of smoke management from fires. We are asking for your help because you live near public and private lands where management practices may result in smoke.

The first set of questions is about general land and smoke management. These are followed by questions about your trust in and communication with land and air management agencies. Finally, we ask a few questions about you so that we can better understand who our respondents are. All responses are confidential.

Oregon State  
UNIVERSITY  
College of Forestry



# Survey Responses = 3,437

OSU/OSU	Response Rate
Montana	33%
Oregon	24%
California	23%
South Carolina	14%
<b>Total</b>	<b>24%</b>

Idaho	Response Rate
Montana	31%
Idaho	24%
Texas	6%
Louisiana	6%
<b>Total</b>	<b>17%</b>

OSU/FS PNW	Response Rate
Oregon	31%

# Montana

- Non-attainment status
- Misunderstanding about regulation
- Cross-boundary smoke drift
- Airshed coordinating group



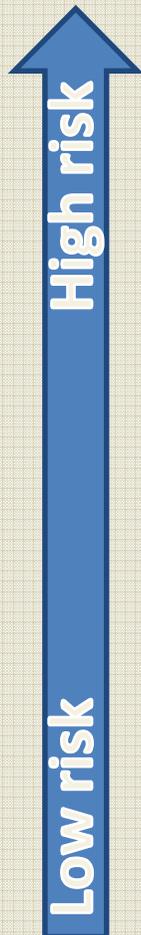
# Knowledge

Have you heard or read about (yes/no).....

	Rx Fire	Smoke Impacts	Fire Use	Fuel Reduction
CA	94	81	89	87
ID	97	82	96	82
OR	93	83	89	80
MT – UI	98	92	98	93
MT – OSU	97	82	93	89
TX	88	78	89	69
SC	88	77	83	61
LA	88	73	88	59

# Perceptions of Risk

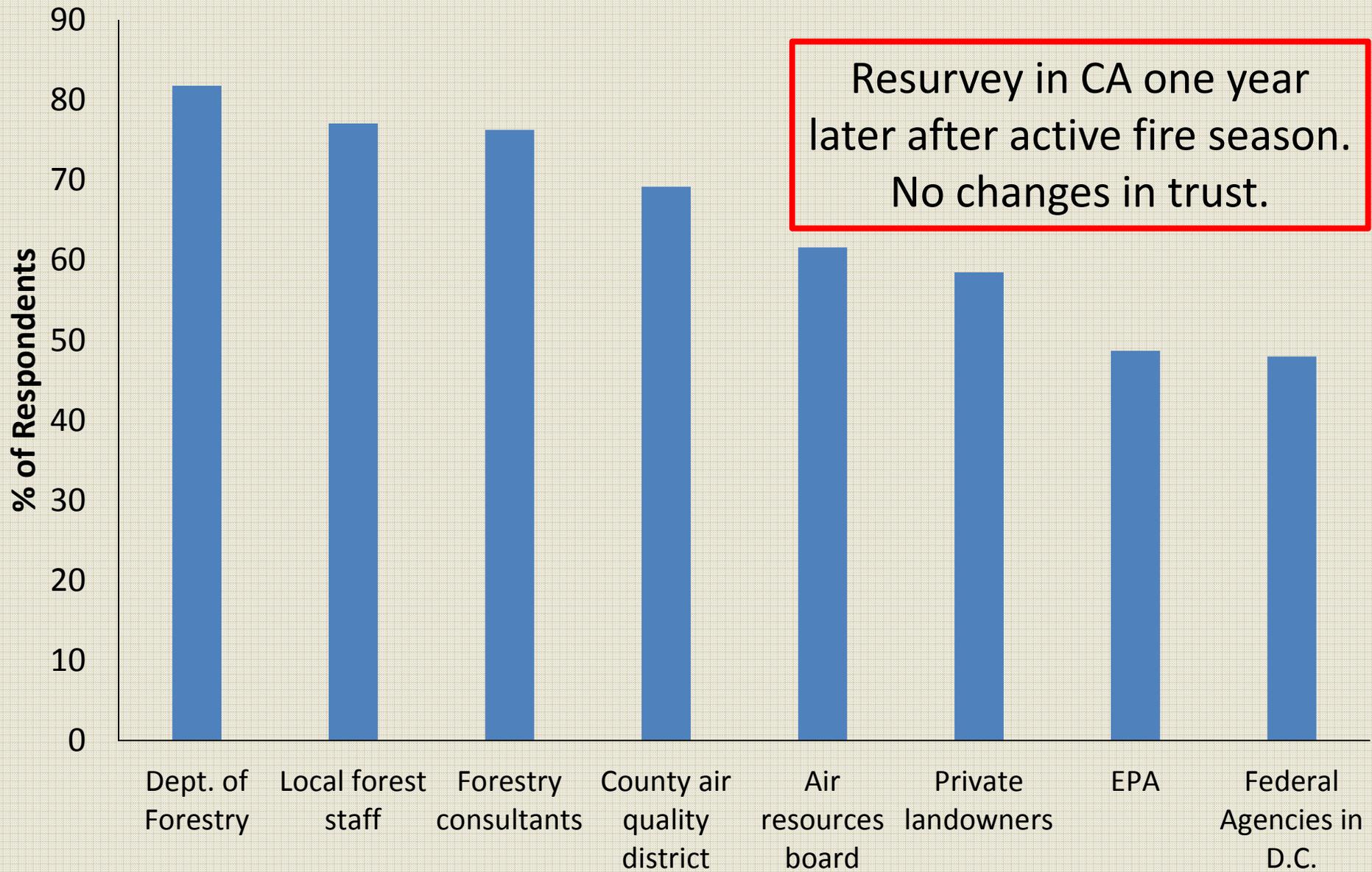
- 8 risk items - likelihood and severity



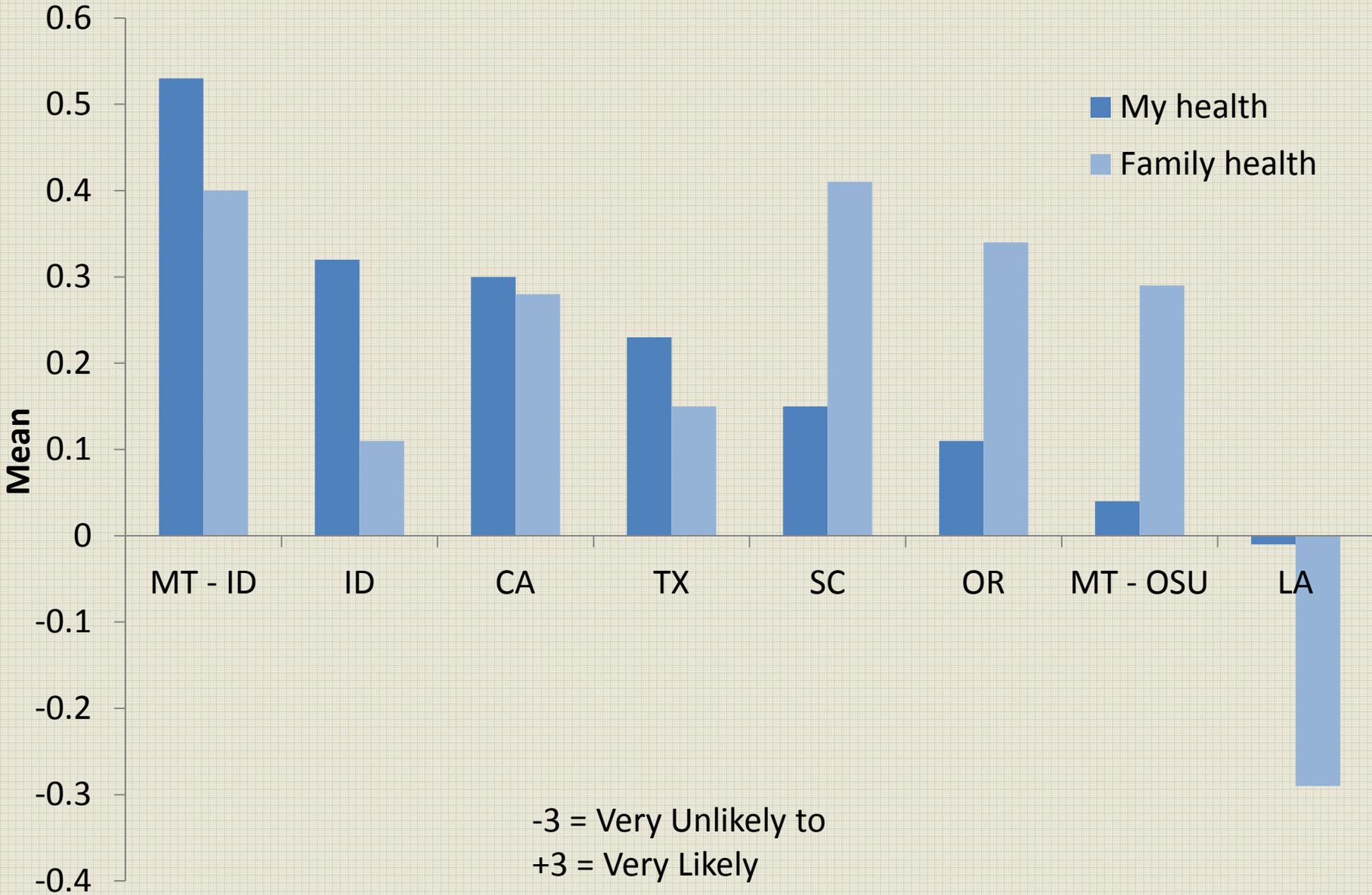
1. Family's health
2. My health
3. Negative impacts to scenery
4. Reduced tourism
5. Reduced opportunities for rec participation
6. Reduced ability to accomplish activities on my property
7. My travel (road closures)
8. My ability to work

1 = No Trust, 7 = Full Trust  
4+ is graphed

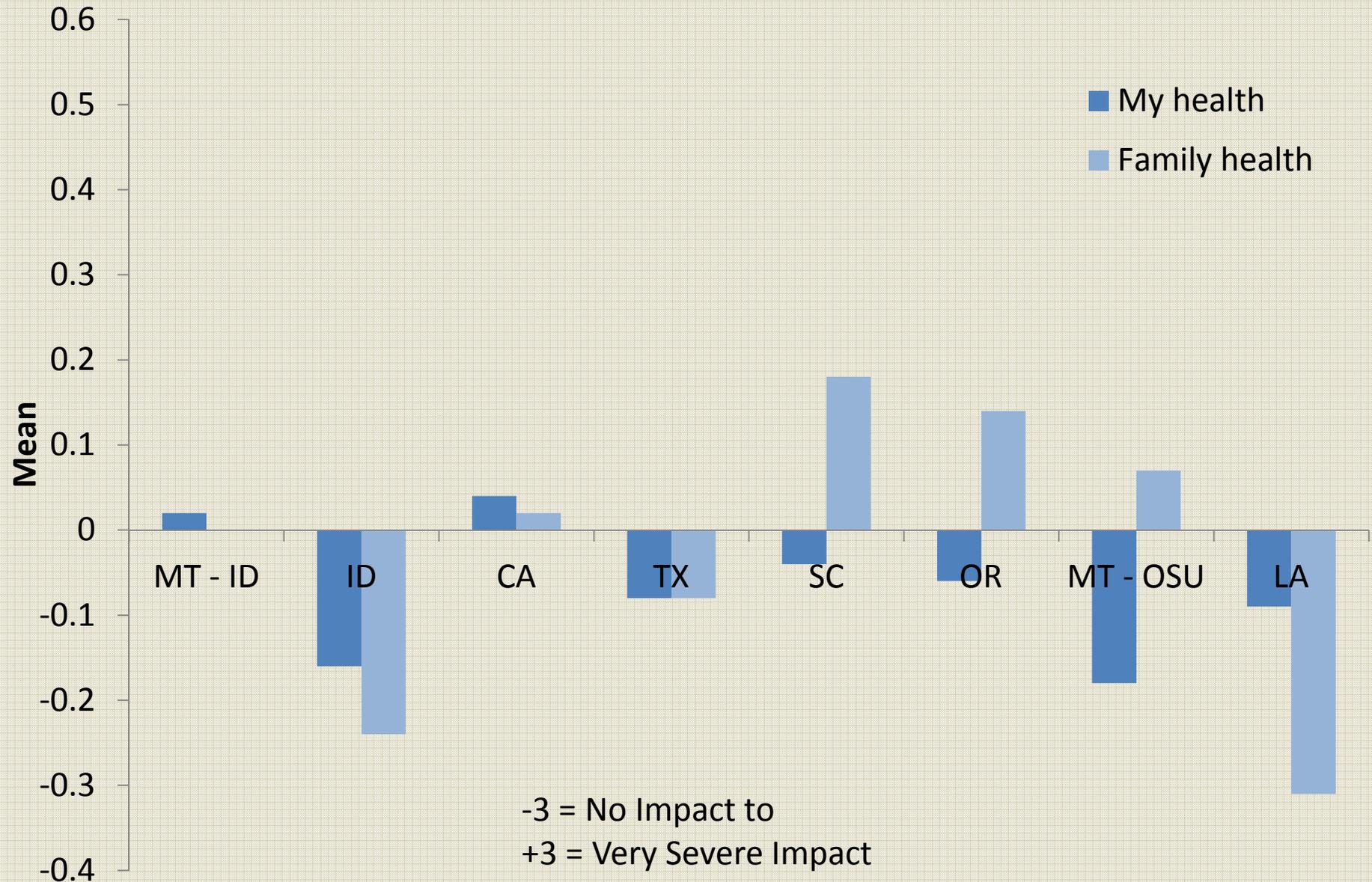
# Trust



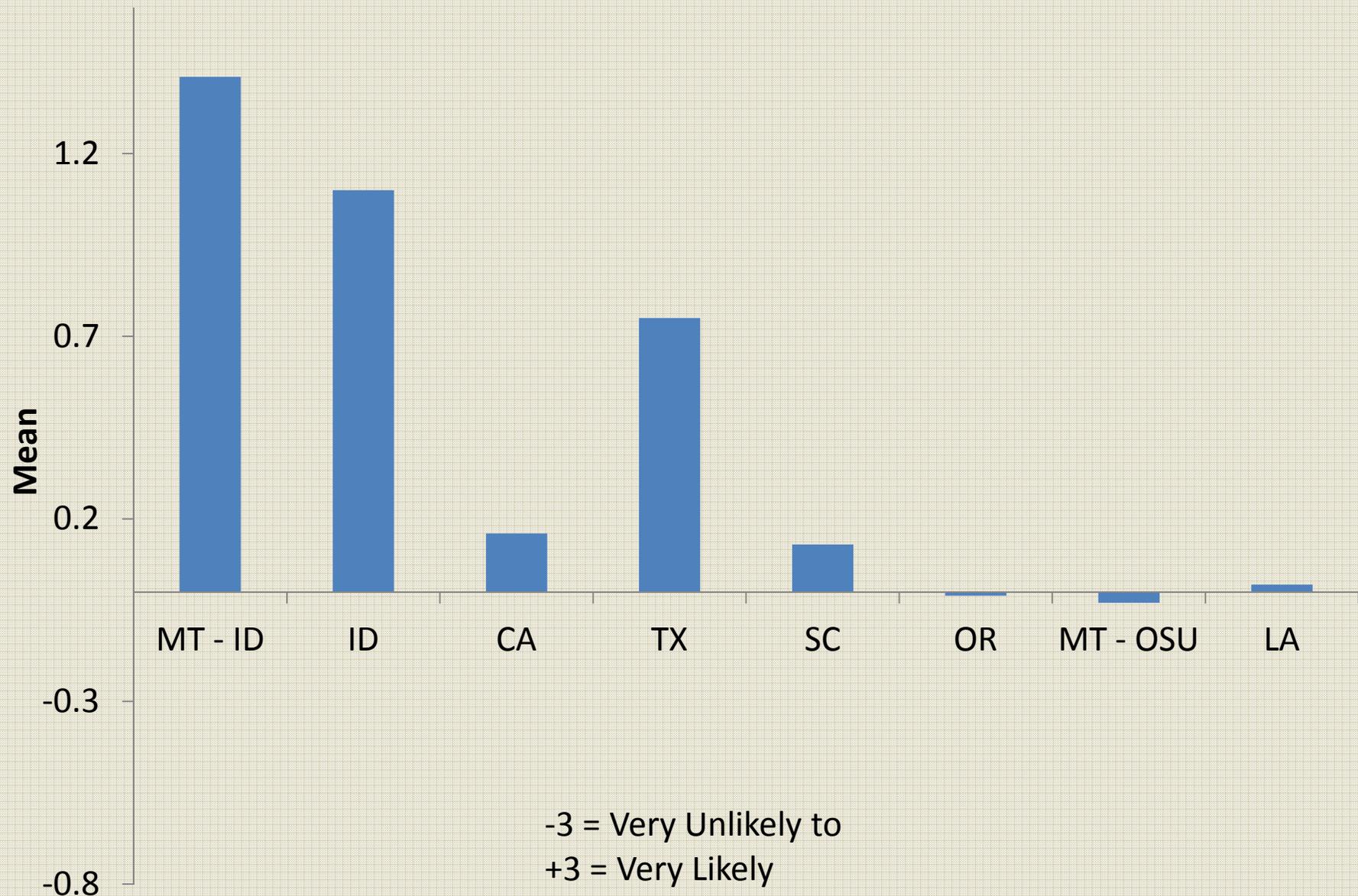
# Health - Likelihood of Impact



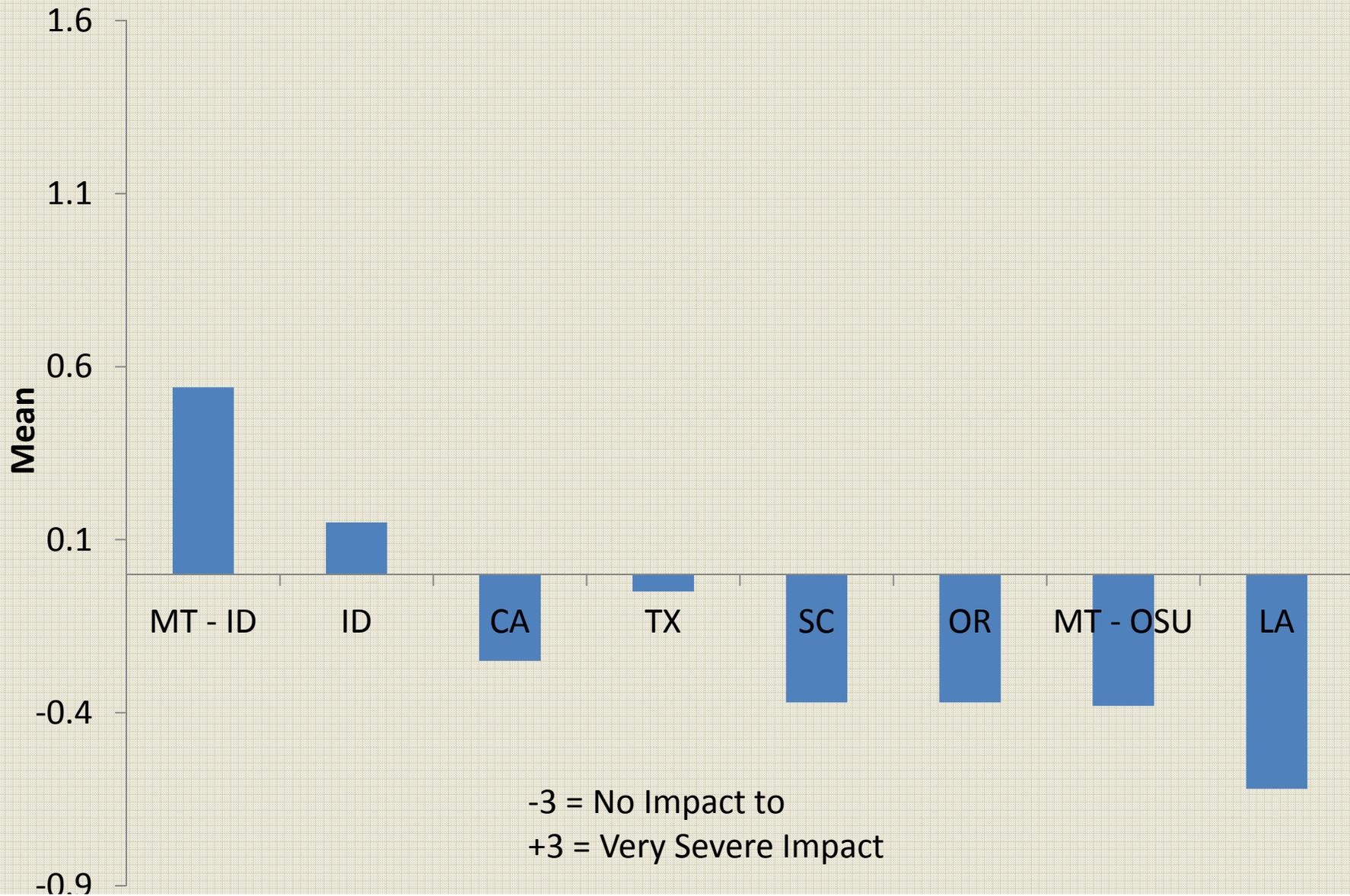
# Health - Severity of Impact



# Scenery - Likelihood of Impact



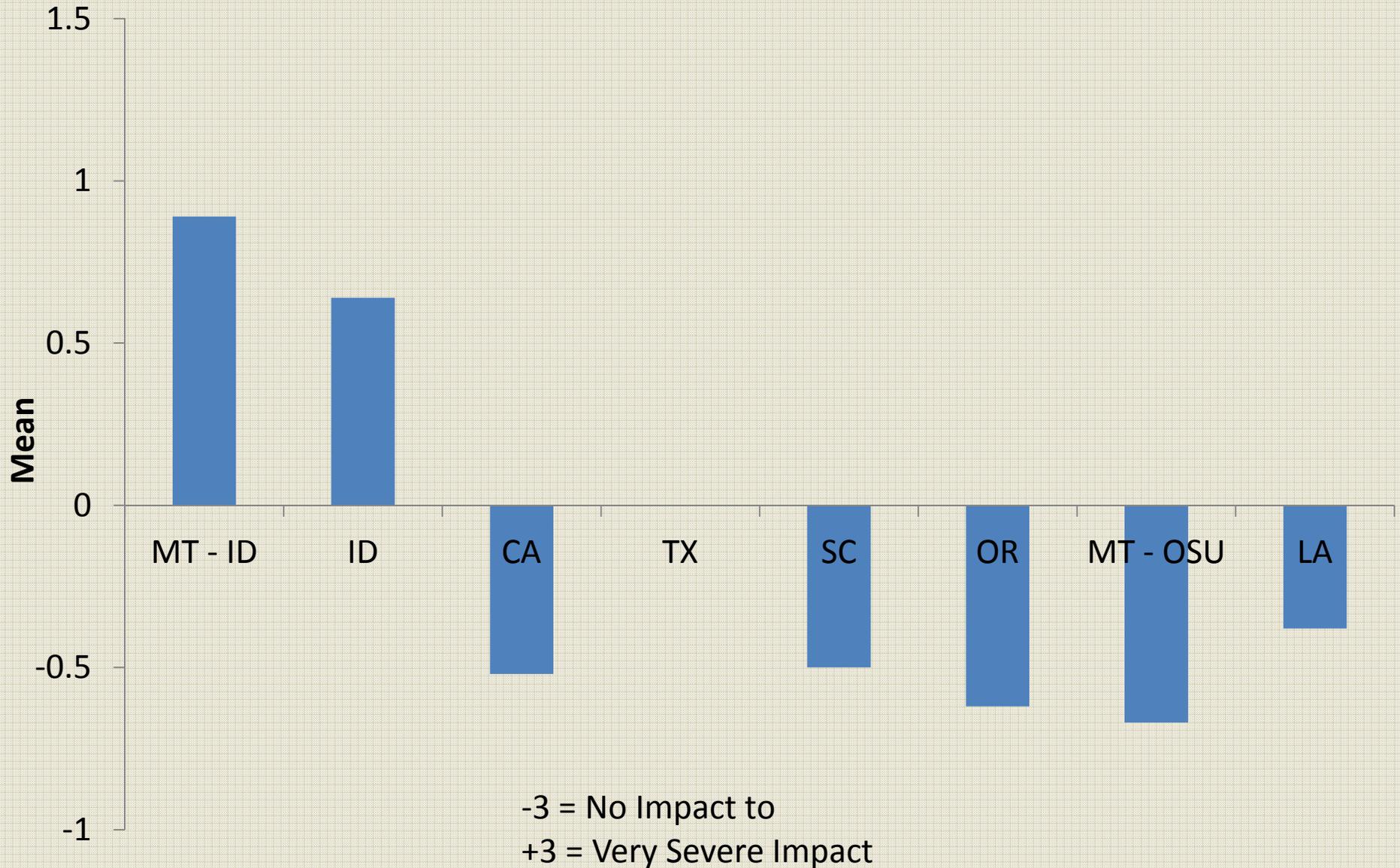
# Scenery - Severity of Impact



# Tourism/Rec - Likelihood of Impact



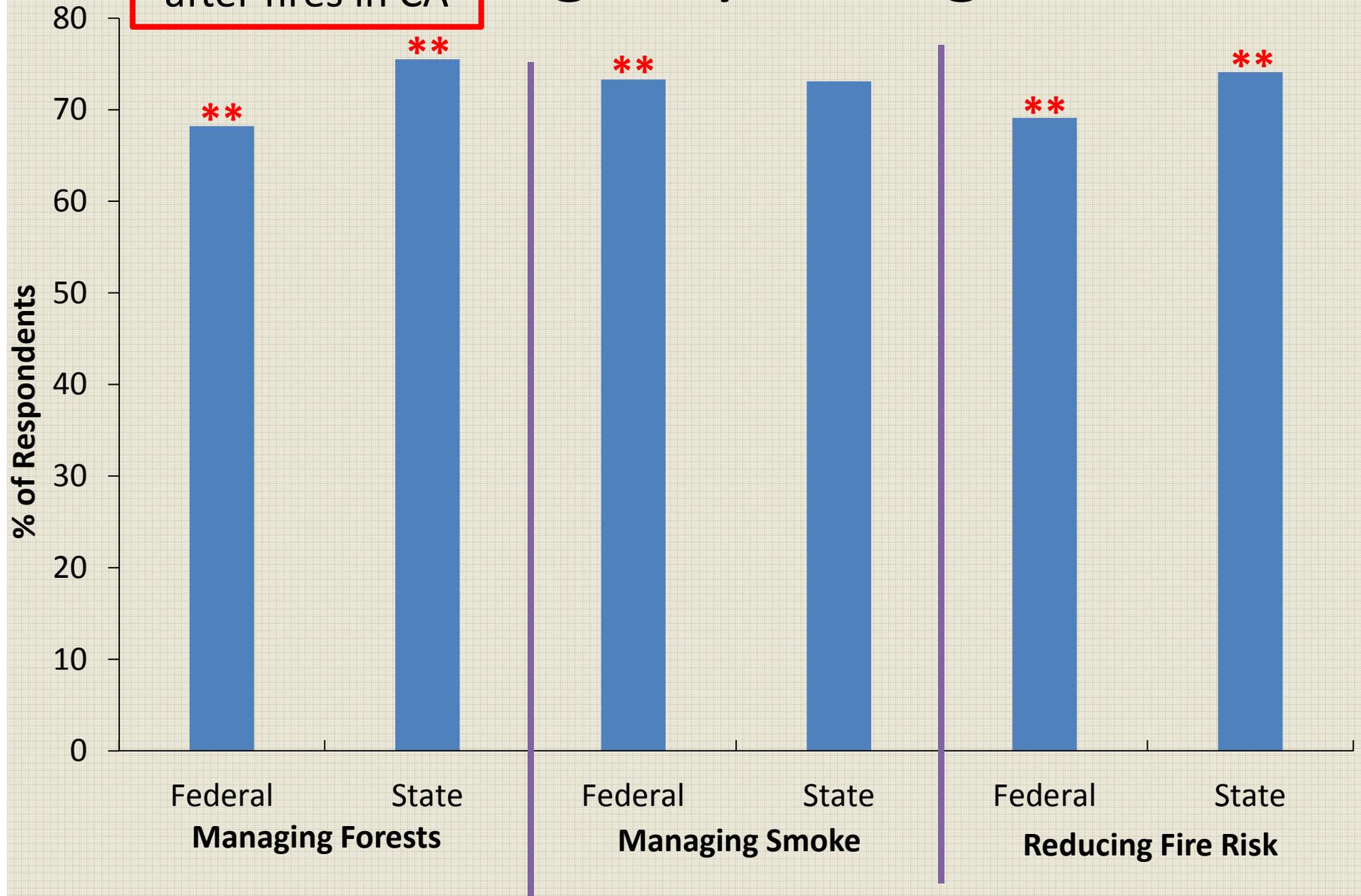
# Tourism/Rec - Severity of Impact



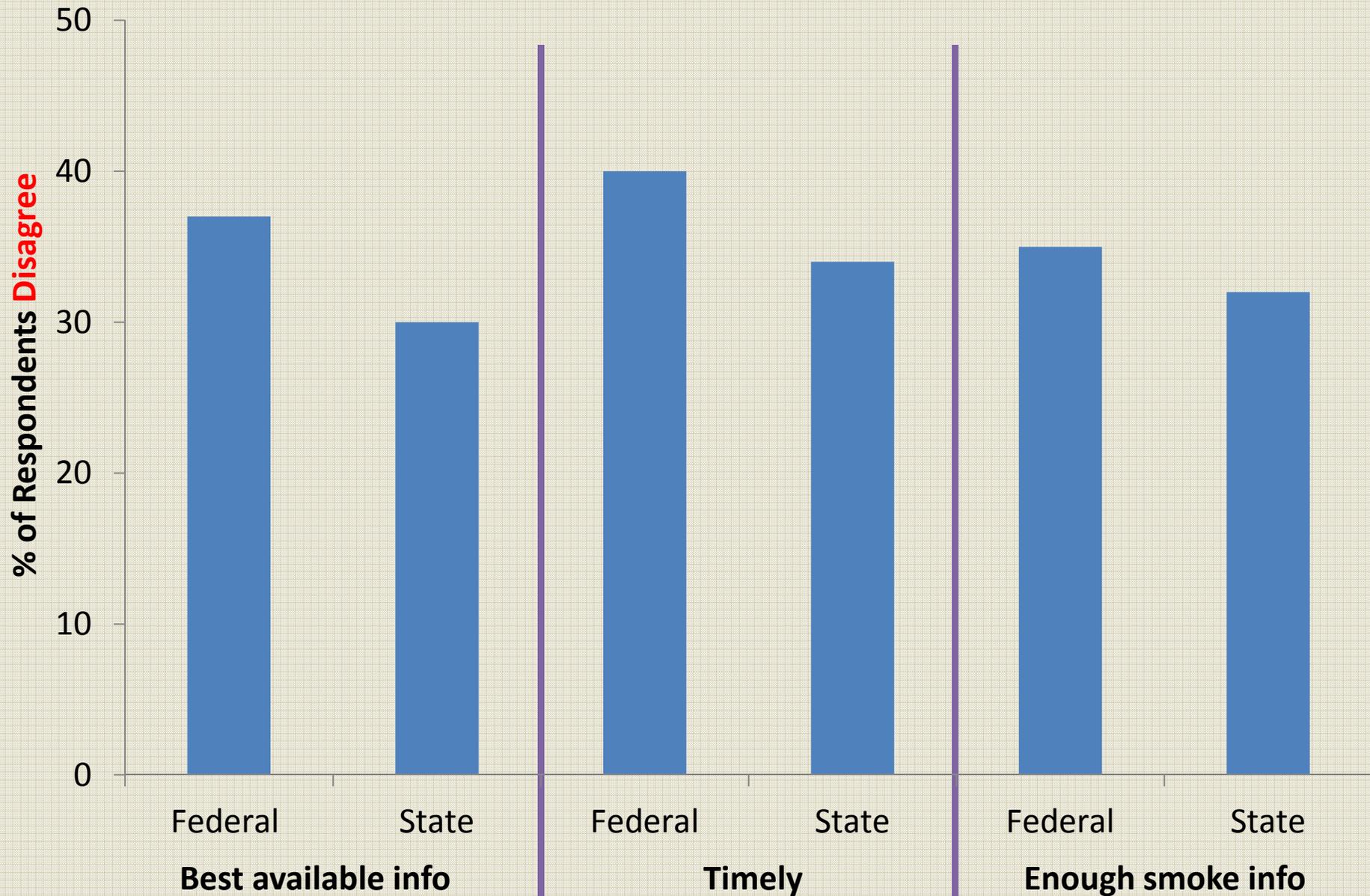
# Agency Ratings

1 = Poor, 7 = Excellent  
4+ is graphed

**\*\* Decreased  
after fires in CA**



# Communicating about Smoke



# Communication Source Usefulness

Very Useful  
Less Useful

1. TV and radio public service messages ( $m = 3.4$ ) \*\* ↑
2. Newspapers/ Magazines
3. Family/Friends/Relatives
4. Billboards and road signs
5. Visitor center/ interpretive signs
6. Informational brochures \*\* ↓
7. California air quality call line
8. Conversations with agency staff
9. General web pages
10. Forest Agency web pages
11. California air quality website
12. Newsletters
13. Educational workshops
14. Government public meetings
15. Environmental Protection Agency website
16. Flyers or door-hangers ( $m = 2.1$ ) \*\* ↓

\*\* Changed after  
fires in CA

1 = Not Useful,  
5 = Very Useful

# Seeking Information About Smoke

- 52% felt they didn't have enough info

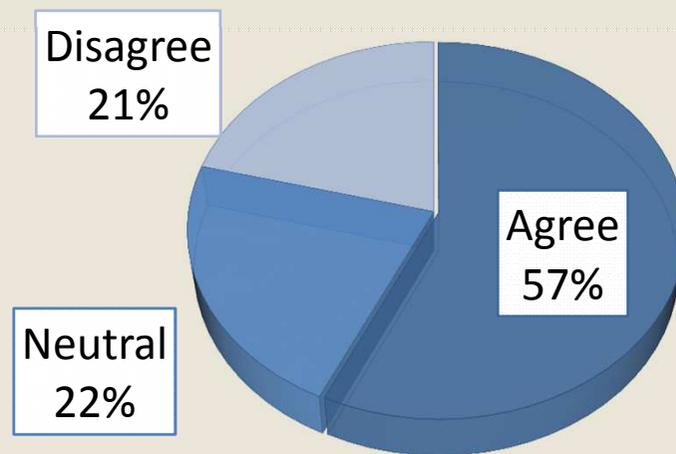
\*\* Increased  
after fires in CA

- Those who seek more smoke info:
  - Believe they don't have enough info
  - Already use more info sources
  - Believe it is difficult to find info
  - Are more worried about smoke
    - Believe they will be impacted
    - Live closer to burn areas

# Acceptance of Smoke

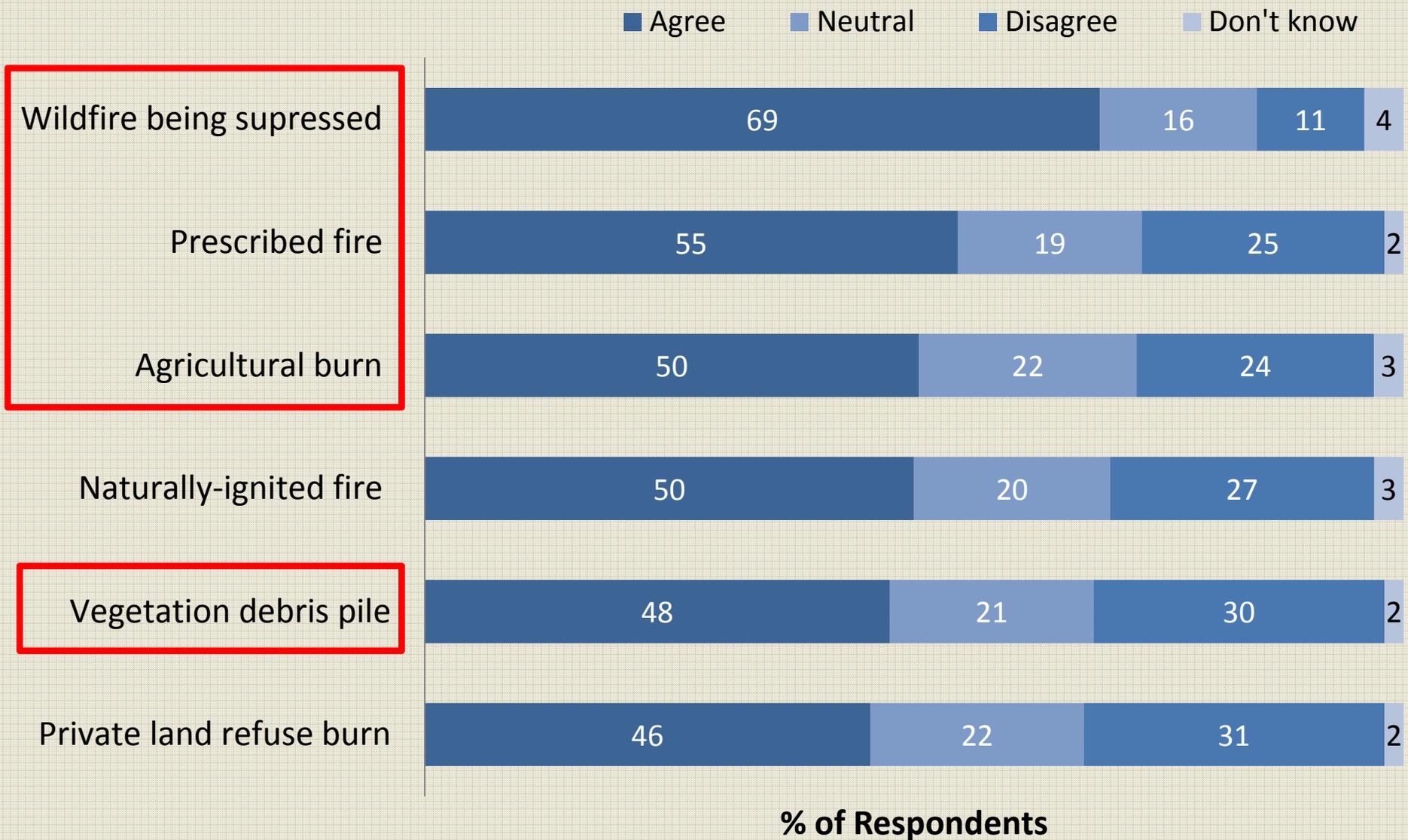
- What is acceptability?
  - Affective (values, emotions) and cognitive (knowledge, lack of understanding) comparison of alternatives
- Most (71%) can figure out source of smoke

**Acceptance of smoke influenced by fire type**



No change after fires in CA

# Acceptance of Smoke: Origin



# What Influences Acceptance?

	Wildfire	Prescribed	Let Burn	Pile
Smoke confidence	++	+++	+	
Smoke risk	---	---	---	---
Smoke impacts				
Fire type	+++			
Education			+++	
Age		-	-	
Comm experience				+
PF benefits		+++		
Adjusted R <sup>2</sup>	.12	.41	.17	.19

*p < 0.05, 0.01, 0.001*

# Agency Perceptions

- Conflicts between agencies
- Lack of resources
- Need internal support
- Need better communication
- Lack of consistent messaging
- Interest in novel ways to communicate

# Communication

- Challenges
  - Uncertainty about effectiveness
  - Conflicting and confusing messages
  - Internal priorities
- Addressing Challenges
  - Consistent/coordinated mgmt across boundaries
  - Improving communication
    - Institutional priority
    - Coordinating messages across/within agencies
    - Utilizing social networks
    - Optimizing resources
  - Fostering relationships with public
    - Engage in-person
    - Get involved in partnerships

# Future Research

# Collaborators and Funders

Dr. Eric Toman, Ohio State

Dr. Troy Hall, Univ of Idaho

Dr. Jeff Kline, FS PNW

Dr. Tom Spies, FS PNW

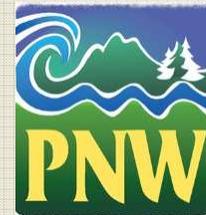
Stacey Frederick

Danielle Mazzotta

Jarod Blades

Kathleen Rose

Devyani Singh



# Discussion



Shasta-Trinity NF Fire

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