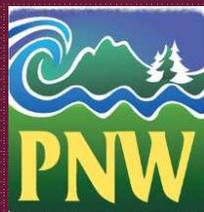


Perceptions of smoke management: Survey results from communities near four national forests



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Overview

- Background
- Methods
- Study Locations
- Survey Findings
 - Prescribed Fire
 - Smoke
 - Agency-Public Interactions
- Summary
- Next Steps



Air inversion in Oregon

Background



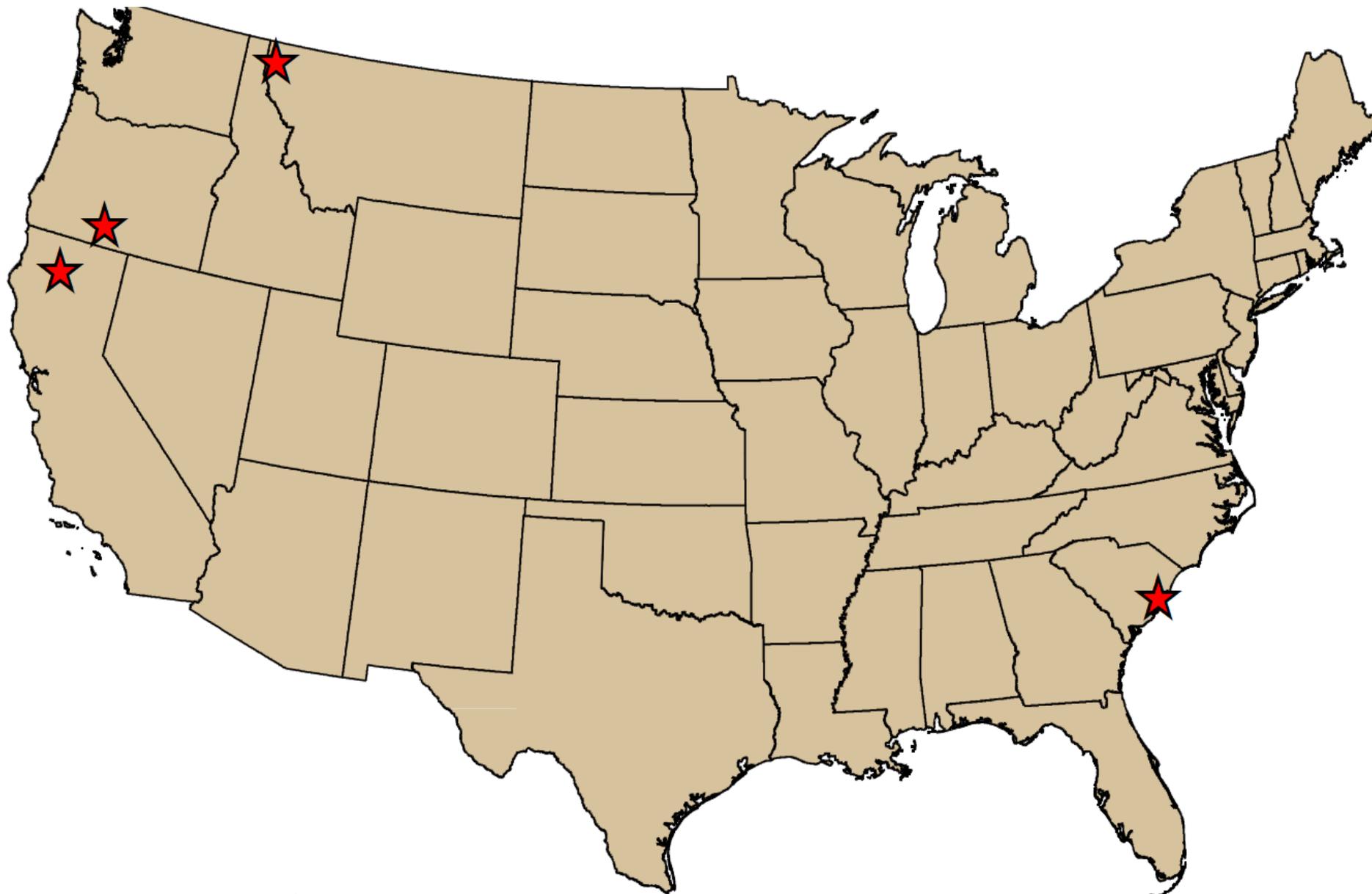
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Methods

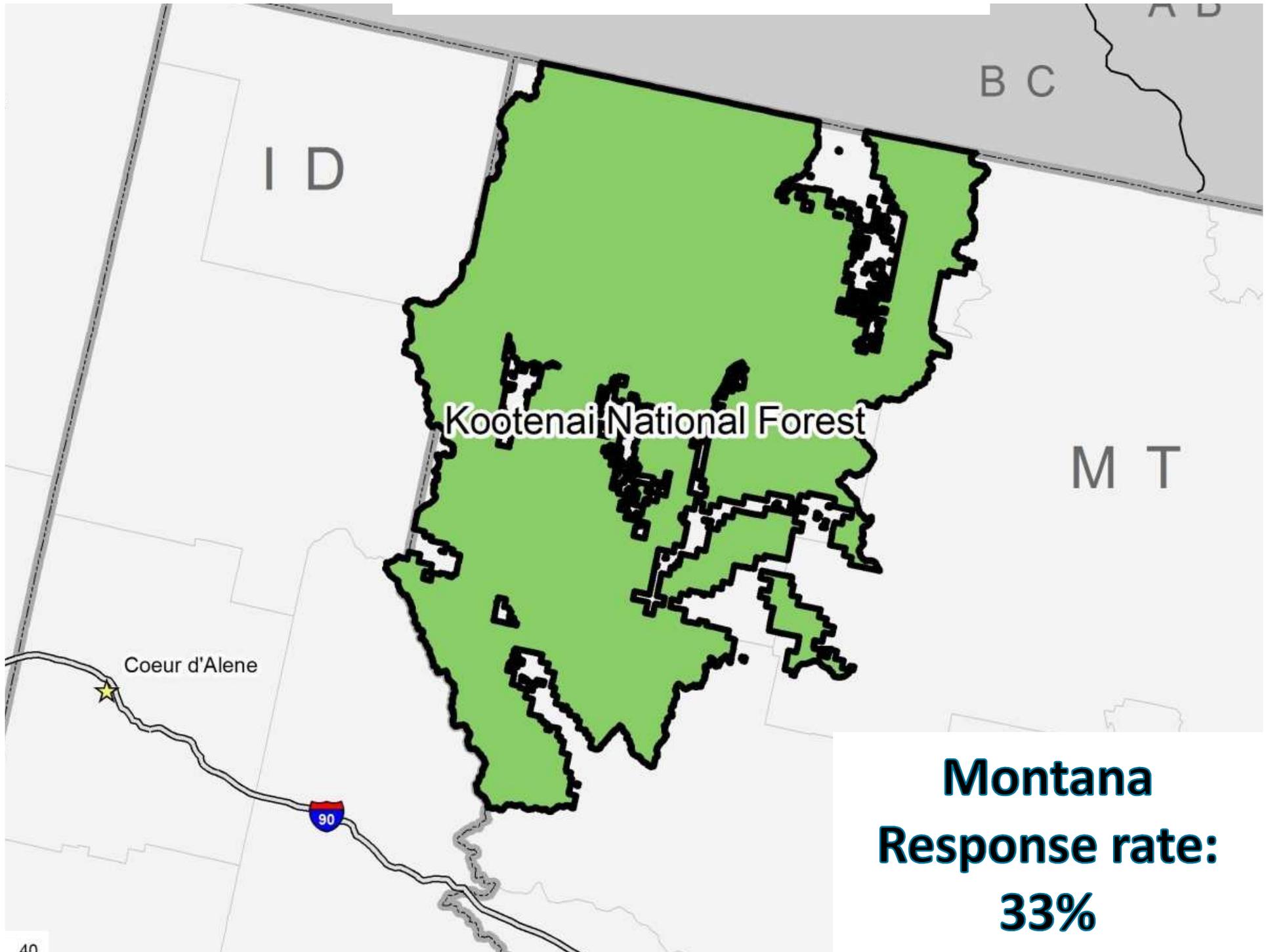
- Phase 2 of 3-phase project
- Phase 1: Interviews
- Phase 2: Random sample questionnaire
 - Modified Dillman approach
 - Starting Non-response bias checks



Site Locations

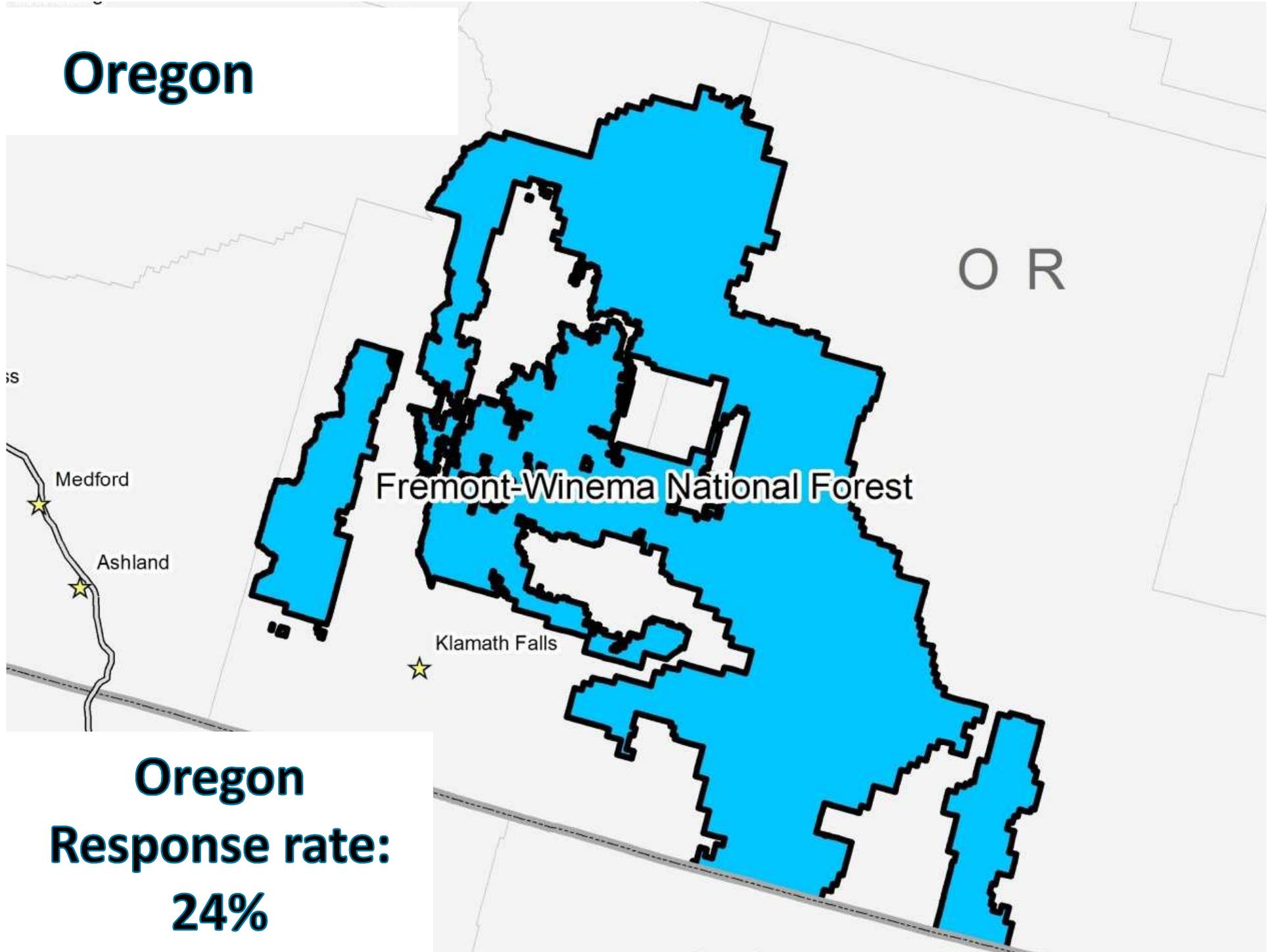


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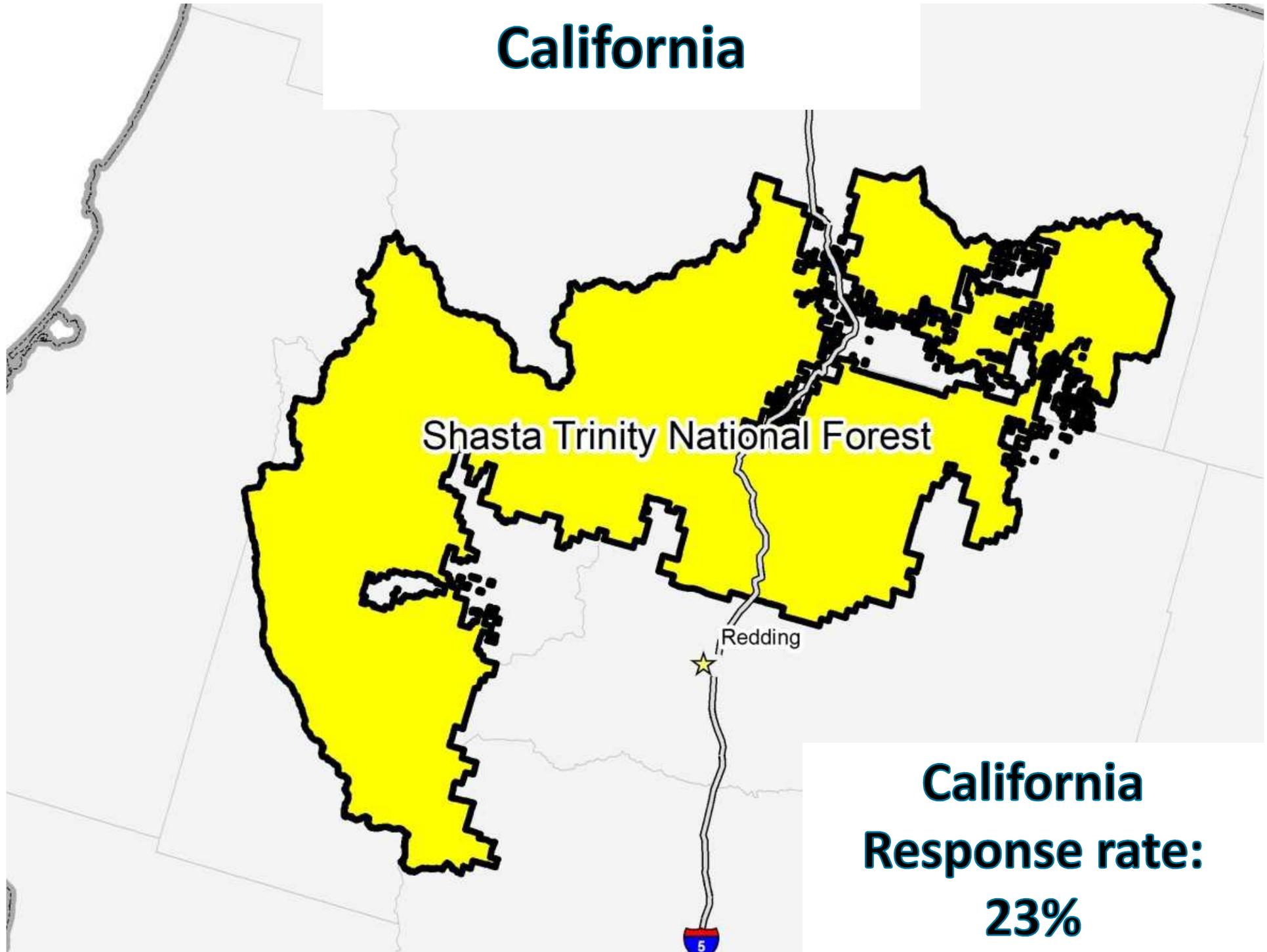
**Montana
Response rate:
33%**

Oregon



Oregon
Response rate:
24%

California



California
Response rate:
23%

South Carolina

Francis-Marion National Forest

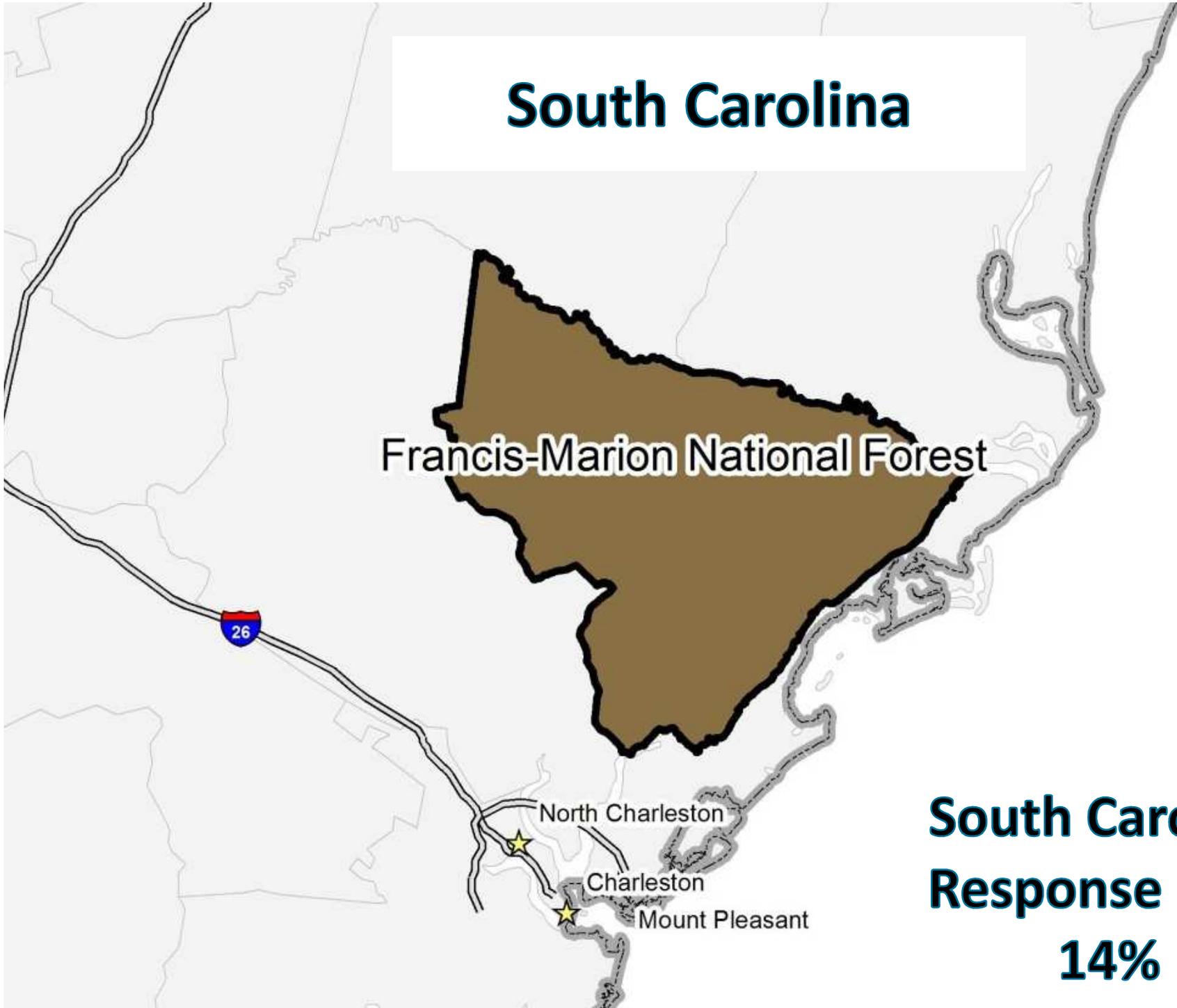
26

North Charleston

Charleston

Mount Pleasant

**South Carolina
Response rate:
14%**



Respondents

- N = 992
- 58% Male
- 61 years old
- 88% white/Caucasian
- 73% attended at least some college
- Middle class (\$40,000-60,000)
- Long-time residents (28 years)



Survey Findings

- Case-study and non-response bias check not complete
- State comparisons
 - Anova and post-hoc, significance level of $p < .01$
 - “Didn’t know” option excluded from tests
 - Majority did not have statistically significant differences; if did, noted with either * or †

Public Perceptions of Prescribed Fire

- Prescribed fire is becoming more acceptable

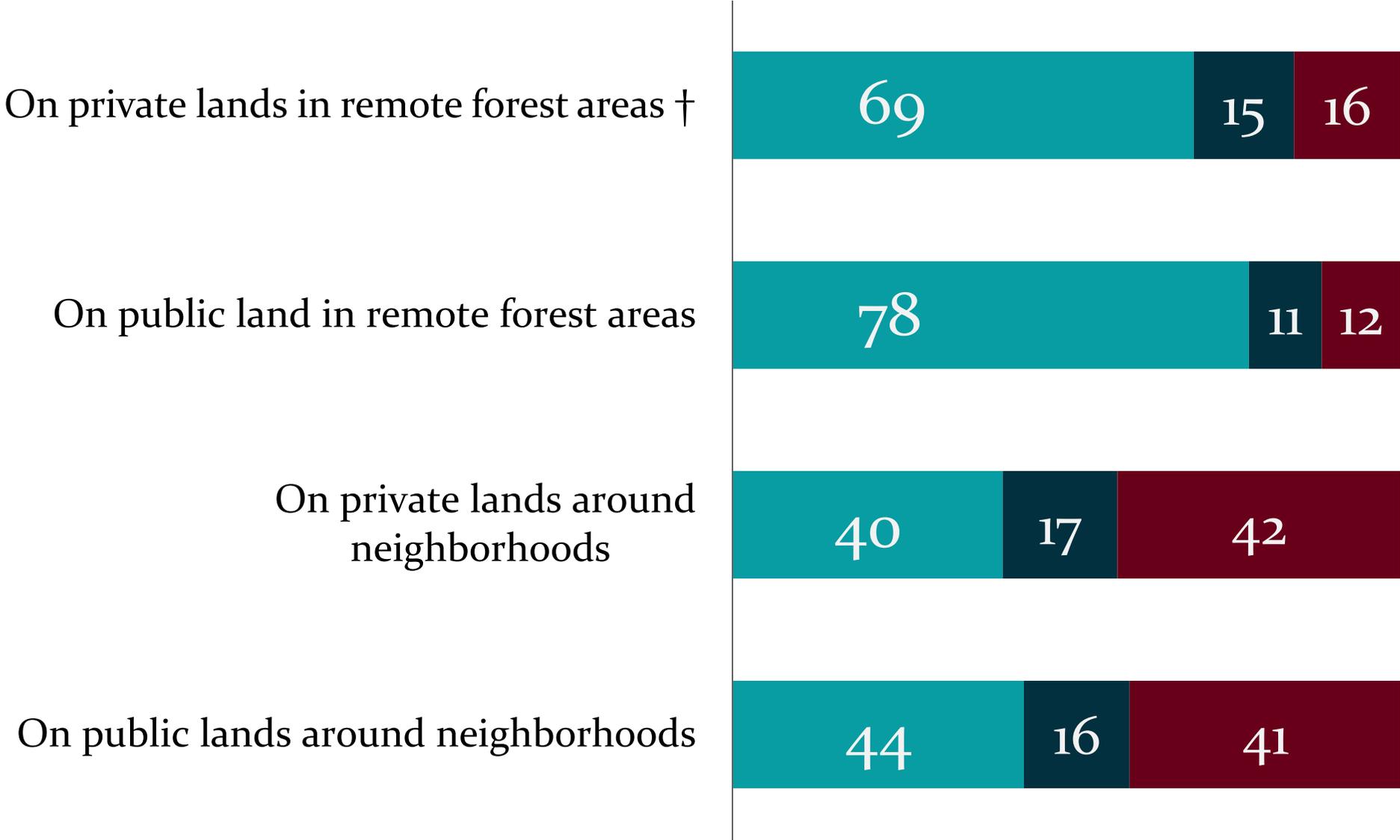
(Brunson and Shindler 2004 ; Loomis et al. 2001; Shindler and Toman 2003; Winter et al. 2002,)

- What about smoke?

(Brunson and Evans 2005; Shindler et al. 2009 Weissaupt et al. 2005).

Prescribed Fire Acceptance by Location

■ Agree ■ Neutral ■ Disagree

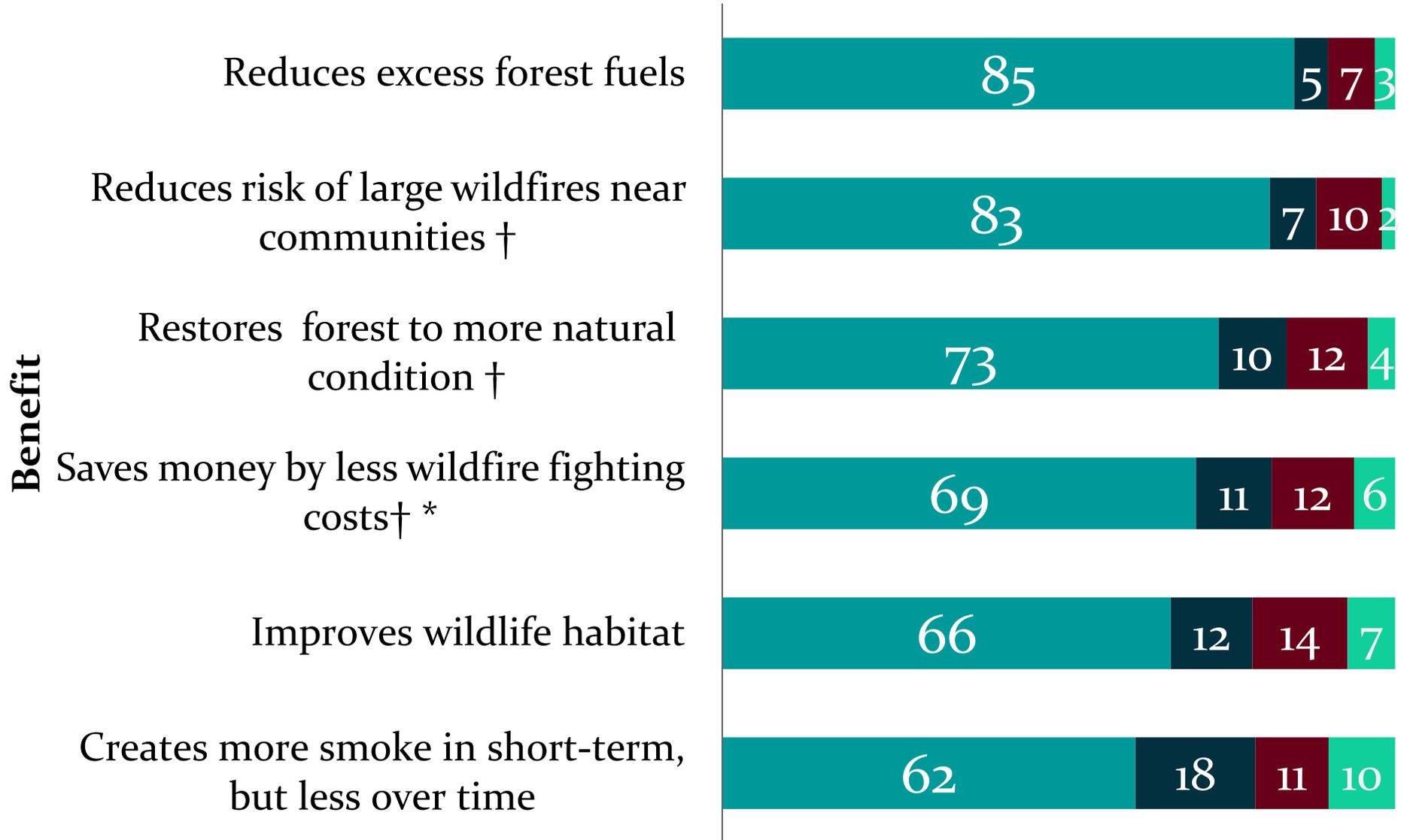


% Respondants who agree with Rx fire use here

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Prescribed Fire Percieved Benefits

■ Agree
 ■ Neutral
 ■ Disagree
 ■ Don't know



% Respondents that agree with benefits

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Smoke Associated with Prescribed Fire

■ Agree ■ Neutral ■ Disagree

Smoke is acceptable if it results in healthier forests



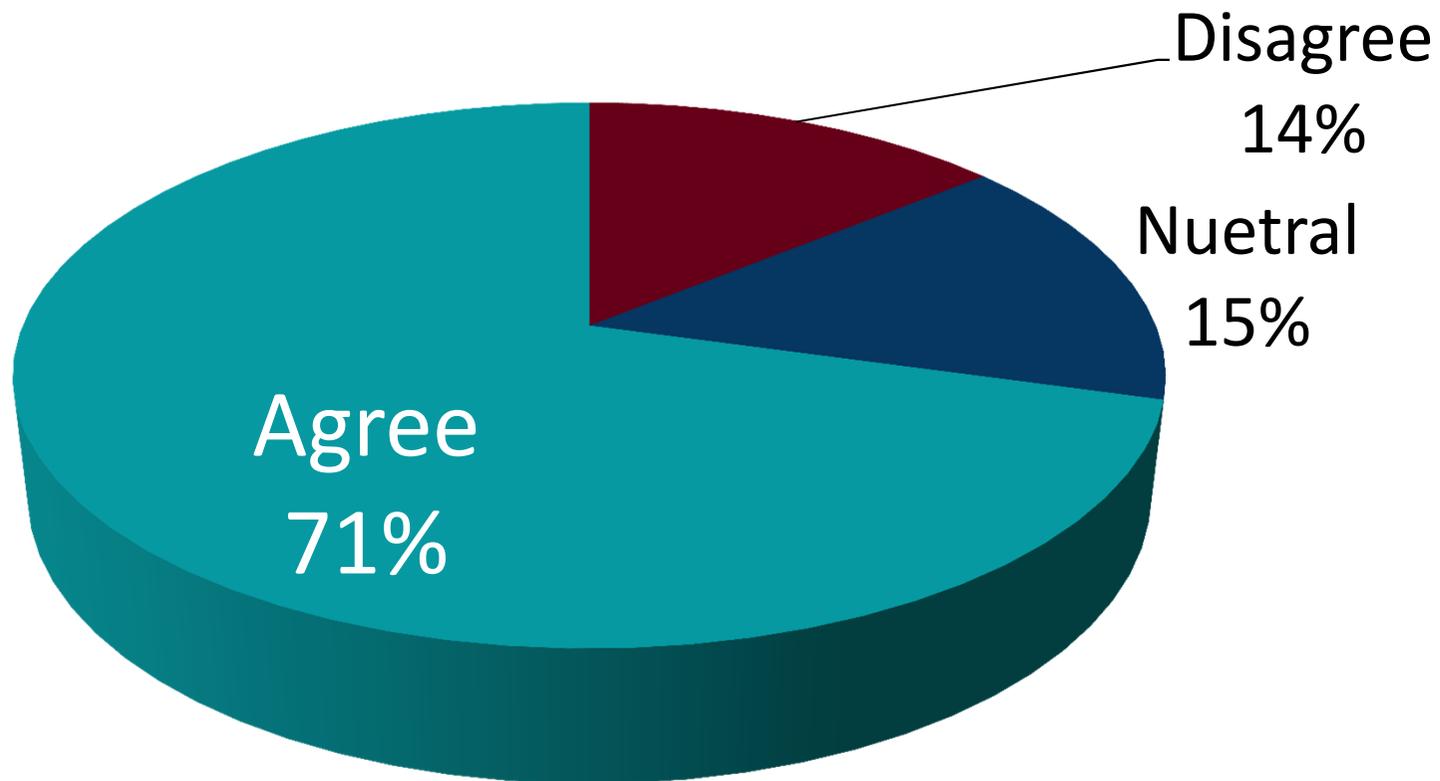
Smoke from prescribed burns is a necessary inconvenience



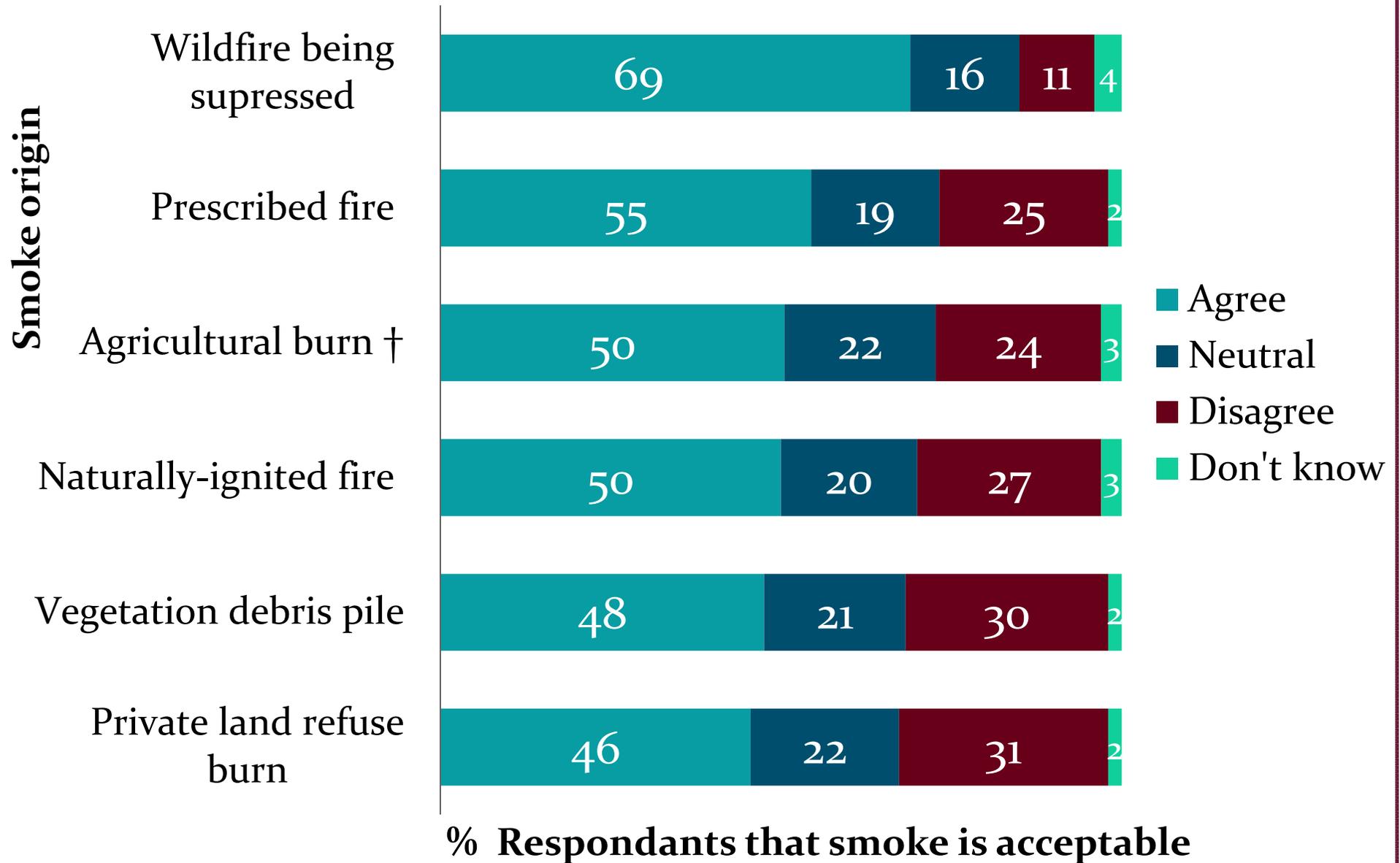
% Respondents that agree with statement

Smoke Origins Findings

**When I notice smoke, I can usually figure out
it's source †**



Smoke Acceptability of Different Origins



Public-Agency Relations Findings

- Meeting needs
- Trust
- Communication

Agencies Meeting Information Needs

Agency fire managers provide...	State Agency (mean)	Federal Agency (mean)
<i>...enough smoke information so I can decide what actions I should take</i>	4.0	3.8
<i>...timely information regarding smoke</i>	3.9	3.7
<i>...the best available information on smoke issues</i>	4.0[†]	3.7

All significantly different at $p < .001$

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Trust in Agencies to Achieve Objectives

How would you generally rate the agencies for...	State Agency (mean)	Federal Agency (mean)
<i>...how well they manage public forests in your area?</i>	4.4 [†]	4.1 [†]
<i>...specifically reducing fire risk?</i>	4.3 [†]	4.1 [†]
<i>...for managing smoke?</i>	4.2 [†]	4.1 [†]

All are statistically significant differences at $p < .01$ or less.

† In all cases, residents in South Carolina rated the agencies higher than in the Western States.

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Trust in Agencies and Personnel

Agency/Personnel Type	Trust to Make Good Decisions about Smoke Management (mean)
<i>State Forestry Department/Division</i>	4.6[†]
<i>Local Forest Service Staff</i>	4.4[†]
<i>Forestry Consultants</i>	4.4[†]
<i>Local/State Air Quality Programs</i>	3.8
<i>Private Landowners</i>	3.7
<i>U.S. Federal Agencies</i>	3.3^{†*}
<i>Environmental Protection Agency</i>	3.3

Useful Communication Sources

Communication Source	Usefulness of source (1-5 scale, mean)
<i>Educational Workshops</i>	3.9
<i>State air quality websites</i>	3.8
<i>General web pages</i>	3.7
<i>Forestry Agency webpages</i>	3.7
<i>Billboards and Road signs</i>	3.7
<i>Visitor center/interpretive signs</i>	3.7
<i>Conversations with agency staff</i>	3.7

Key Points

Survey results:

- Rx Fire Acceptance :moderate-high, situation dependent
- Benefits of prescribed fire are being recognized
- Smoke from prescribed fire is fairly acceptable
- Origin of smoke influences acceptance
- Opportunities in communication and information sharing by agencies exists
- Local entities remain more trusted and are rated higher than more distant entities
- A variety of information sources are considered useful for smoke

Next Steps

- Non-response check
- Further statistical analysis
- Model information needs, sufficiency, access, and smoke acceptance
- “Didn’t know” frequency state comparisons
- Longitudinal panel study of one site
- Supply findings for phase 3 – site testing of experimental interventions



Questions?

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References

Brunson, MW and J Evans. 2005. Badly Burned? Effects of an Escaped Prescribed Burn on Social Acceptability of Wildland Fuels Treatments. *Journal of Forestry* 103(3): 134-138.

Dillman, DA. 2007. *Mail and Internet Surveys: The Tailored Design Method*. Hoboken, NJ: Wiley.

Loomis, JB, LS Bair, and A Gonzalez-Caban. 2001. Prescribed Fire and Public Support: Knowledge Gained, Attitudes Changed in Florida. *Journal of Forestry* 99(11): 18-22.

Riebau, A. R. and D. G. Fox. 2010. Smoke Science Plan (SSP) Implementation. Joint Fire Science Program.

Shindler, B and E Toman. 2003. Fuel Reduction Strategies in Forest Communities: A Longitudinal Analysis of Public Support. *Journal of Forestry* 101(6): 8-15.

Shindler, B, E Toman, and S McCaffrey. 2009. Longitudinal Analysis of Public Responses to Wildland Fuel Management: Measures to Evaluate Change and Predict Citizen Behaviors in Agency Decision Processes. Final Project Report to the JFSP, Project Number 06-4-1-26. Accessed November 14.

Weisshaupt, BR, MS Carroll, KA Blatner, WD Robinson, and P Jakes. 2005. Acceptability of Smoke from Prescribed Forest Burning in the Northern Inland West: A Focus Group Approach. *Journal of Forestry* 103(4): 189-193.

Winter, GJ, C Vogt, and JS Fried. 2002. Fuel Treatments at the Wildland-Urban Interface: Common Concerns in Diverse Regions. *Journal of Forestry* 100(1): 15-21.