Research Insights into Effective Smoke Communication with the Public

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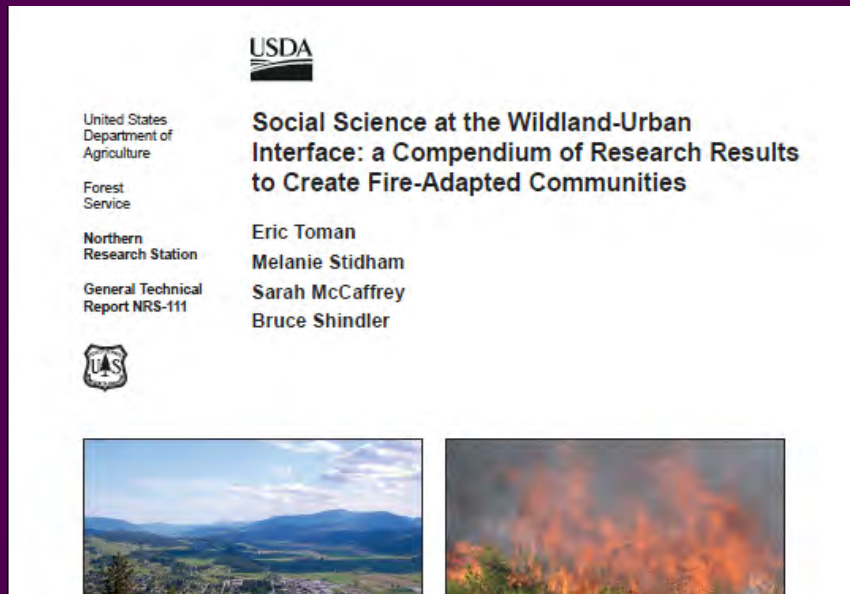**847-866-9311 ex 20**
McCaffrey - Smoke Ready, November 7, 2014
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Two Main Topics

1) What Shapes Public Acceptance:
Conventional Wisdom vs. Reality

2) Social Marketing

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Recent Syntheses of Social Science Research

USDA

United States
Department of
Agriculture

Forest
Service

Northern
Research Station

General Technical
Report NRS-111

Social Science at the Wildland-Urban Interface: a Compendium of Research Results to Create Fire-Adapted Communities

Eric Toman
Melanie Stidham
Sarah McCaffrey
Bruce Shindler

84 articles on homeowner mitigation
83 articles on public acceptance of fuels treatments on public lands

GTR-NRS-111

USDA

United States
Department of
Agriculture

Forest
Service

Northern
Research Station

General Technical
Report NRS-104

Research Perspectives on the Public and Fire Management: A Synthesis of Current Social Science on Eight Essential Questions

Sarah M. McCaffrey and Christine S. Olsen

Over 60 studies

Surveys, focus groups, interviews

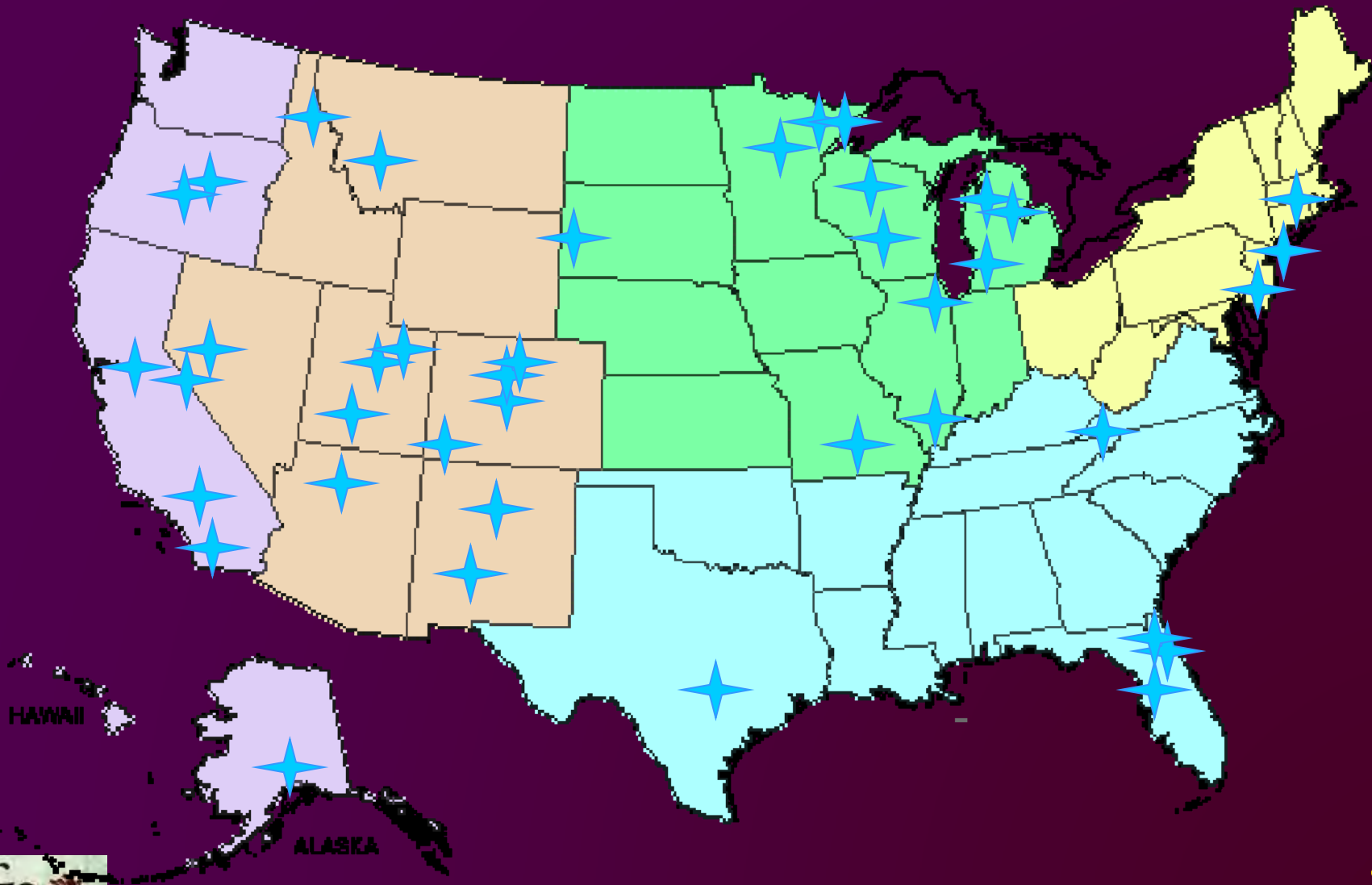*GTR-NRS-104*

http://www.treesearch.fs.fed.us/

Research Sites *(up to 2006)*

Primarily residents in moderate to high fire risk areas

HAWAII

ALASKA

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Overall, research findings <u>do not</u> support many of the Conventional Wisdoms about public response to fire management.

False Conventional Wisdom #1 –
Individuals don't understand the high fire risk

(Actually they do, but…..)

- Risk is a complex and subjective concept

- Risk = Probability x consequences

    - Technical (often just probability) vs. Lay assessment

    - Factors to consider – timeframe, spatial extent, type of damage

Risk Perception

- **Clear pattern of vicinity residents having a higher RP than interface and intermix**
  - **Balancing benefits**
  - **Self-selection…..**

Mary: We aren't allowed to burn at all at my house.

Alice: Well, you are in a canopy. You are right there in a canopy. That's one reason we didn't buy up there, I was terrified.

(Flagstaff)

Risk Perception

Higher risk perception does not necessarily lead to action. It is a necessary but not sufficient condition

- **Actual decision to mitigate will depend on other factors**
  - risk tolerance
  - trade-offs with benefits (nature, privacy, etc.)
  - individual capacity

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False Conventional Wisdom #2

"Smokey has taught the public to think all fire is bad" ..

Reality

- Consistent evidence public has a good (often quite sophisticated) understanding of fire ecology, including beneficial role of fire.

False Conventional Wisdom #2

"Smokey has taught the public to think all fire is bad" ..

But

80% see prescribed fire and thinning as an appropriate management tool

- **Roughly 30% give strong approval and another 50% give qualified approval**

Clear preference for active management

False Conventional Wisdom #3 – People don't take responsibility

Reality - Strong sense of *shared responsibility*

– **People recognize their responsibilities** – expect to reduce risk on own property

- *Recognize that risk is shared – concerned about actions on adjacent properties*

- *It is not their responsibility to make sure we are safe [from fire] but once they cut things down they need to follow through on that work. But we chose to be here, so we need to protect ourselves.*
  ~Oregon A Participant

Sense of shared responsibility

(Multiple studies)

– Expectations of government agencies (local, fed, etc.)

  – **That they take care of their land**

  – Education: Help understanding risk (fire behavior) and specifics on how to mitigate

  – Maybe help with some larger scale obstacles (disposing of materials)

Demographic *CW*

No consistent evidence that:

- **New residents are less aware and/or active in relation to fire mitigation**
  - **60% of moves are within county**
  - **Confirmation Bias - People who own their property for a long time may have formed their notion of fire risk a long time ago and be less responsive to new information.**

Demographic *CW*

No consistent evidence that:

- **New residents are less aware and/or active in relation to fire mitigation**

- **Part-time residents are less likely to understand fire risk than full-time**

Demographic *CW*

No consistent evidence that:

- **New residents are less aware and/or active in relation to fire mitigation**

- **Part-time residents are less likely to understand fire risk than full-time**

- Experience has a consistent effect
  - *Even Australia's experience has had mixed effects*

Demographic *CW*

No consistent evidence that:

- **New residents are less aware and/or active in relation to fire mitigation**

- **Part-time residents are less likely to understand fire risk than full-time**

- **Experience has a consistent effect**

- Few clear geographic or demographic patterns *(ed, income, etc)*

LOCAL CONTEXT MATTERS!

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So what does shape public views?

Understanding = Acceptance

- Greater knowledge of a practice associated with greater support and lower concern about negative outcomes

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Understanding = Acceptance

- **Massachusetts:** Knowledge most significant predictor of support for prescribed burning

(Ryan and Blanchard)

Those with some knowledge of PB were *less* likely to:

- think it was <u>too dangerous</u> a practice to be used

- be concerned about prescribed fires <u>near a home</u>

- be concerned about <u>smoke, appearance,</u> and its effects <u>on wildlife</u> and wildlife habitat

Understanding = Acceptance

Ecological benefits particularly important

Most important consideration in forest management decision?

(Shindler et al. -- WI, MN, MI survey)

– **40% rated managing <u>healthy</u> forests as the most important management issue**

– **12% rated <u>reducing wildfire risk</u> as most important**

Prescribed Fire Acceptance -
Ecological Benefits

- *California & Michigan -* Belief that prescribed fire improves wildlife conditions had positive effect *(Vogt et al)*

- *Oregon -* Smoke acceptable if helped forest health *(Shindler et al)*

- *Washington -* As participants learned more, particularly of beneficial ecological effect => more tolerant of PB and of smoke *(Weisshaupt et al)*

Prescribed Fire Acceptance
Escape

Winter et al 2006 - MI, MO, FL, CA

- Concern about escape was negatively related to acceptance

What percentage of USFS prescribed burns escape their boundaries? *(2014)*

City	Mean Score (%)
Hamilton	N/A
Boulder	17.6
Reno	17.1
Flagstaff	20.0
San Bernardino	14.7
Total	17.8

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Prescribed Fire Acceptance
Escape

But part of issue may be views based on a limited sample – only hear about escapes – not successes *(McCaffrey '04 focus groups)*

- *The only time you hear it is always the bad fires. I think that they* (prescribed burns) *are helping us a lot. I would say approximately* **5%** *goes out of hand. (San Bernardino)*

- *I think we need to know more. Just like John said, if* **90%** *of them are successful, we need to know about it. But we just hear about the ones that aren't. (Reno)*

Prescribed Fire Acceptance Smoke
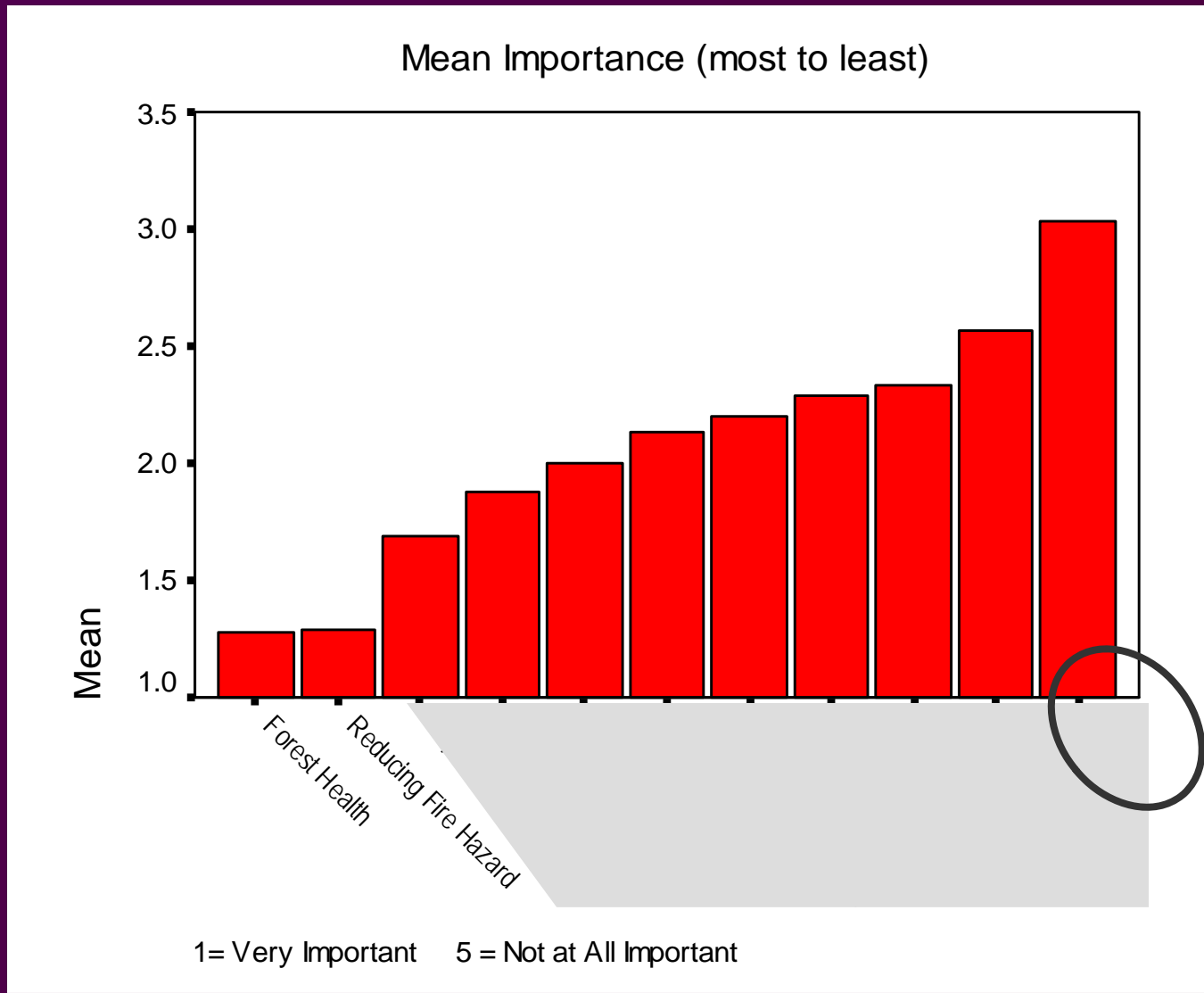
- **Health problem in 1/3 of households**

Importance in Ranking Treatment Preferences
(Blodgett Forest FFS Site) (McCaffrey et al)

Mean Importance (most to least)

1= Very Important   5 = Not at All Important

Trust

- Winter et al 2006. – Trust in government significant predictor of approval in all four sites

Trust in agency managers to use practice to reduce wildfire risk *(Toman et al. 2010)*

Mgmt Practice	Level of Confidence	OR A	OR B	OR C	UT A	UT B	Overall Sample
Thinning to Reduce Forest Fuels	Full	53	57	46	62	44	53
	Moderate	28	29	40	24	22	30
	Limited to None	18	12	12	5	11	13
	Not Sure	3	2	3	10	22	5
Prescribed Fire	Full	45	48	31	33	33	40
	Moderate	40	43	43	33	56	42
	Limited to None	8	9	20	19	0	12
	Not Sure	8	0	6	14	11	6

This is the only item predictive of acceptance

Trust

- **Government agencies generally have a high level of credibility.**
  - Local Fire Departments generally the most trusted
  - Followed by Federal land management agencies

- **MN study - FS had high level of credibility**
  - Much of this was developed through the Forest Service's hazard reduction response to a large blowdown event in 1999 *(Nelson/Monroe)*.

  "The Forest Service has done a good job at keeping the public informed and asking for input. I've been a critic of the Forest Service for years, but now I support them. They've made a 180 degree turn around."

Trust is important in acceptance

- Treatments generally are acceptable provided they are done by knowledgeable people, preferably locals familiar with the area

- If a practice is established, and there are high trust levels in those who are implementing the practice, acceptance will be high.

- In essence….people are willing to respect expertise but in return want their point of view and desire to be informed to be respected.

Do you believe that the practice of prescribed burning leads to overall more smoke, less smoke, or about the same levels of smoke as you would have if there were no prescribed burning? (%) *(2014 focus groups)*

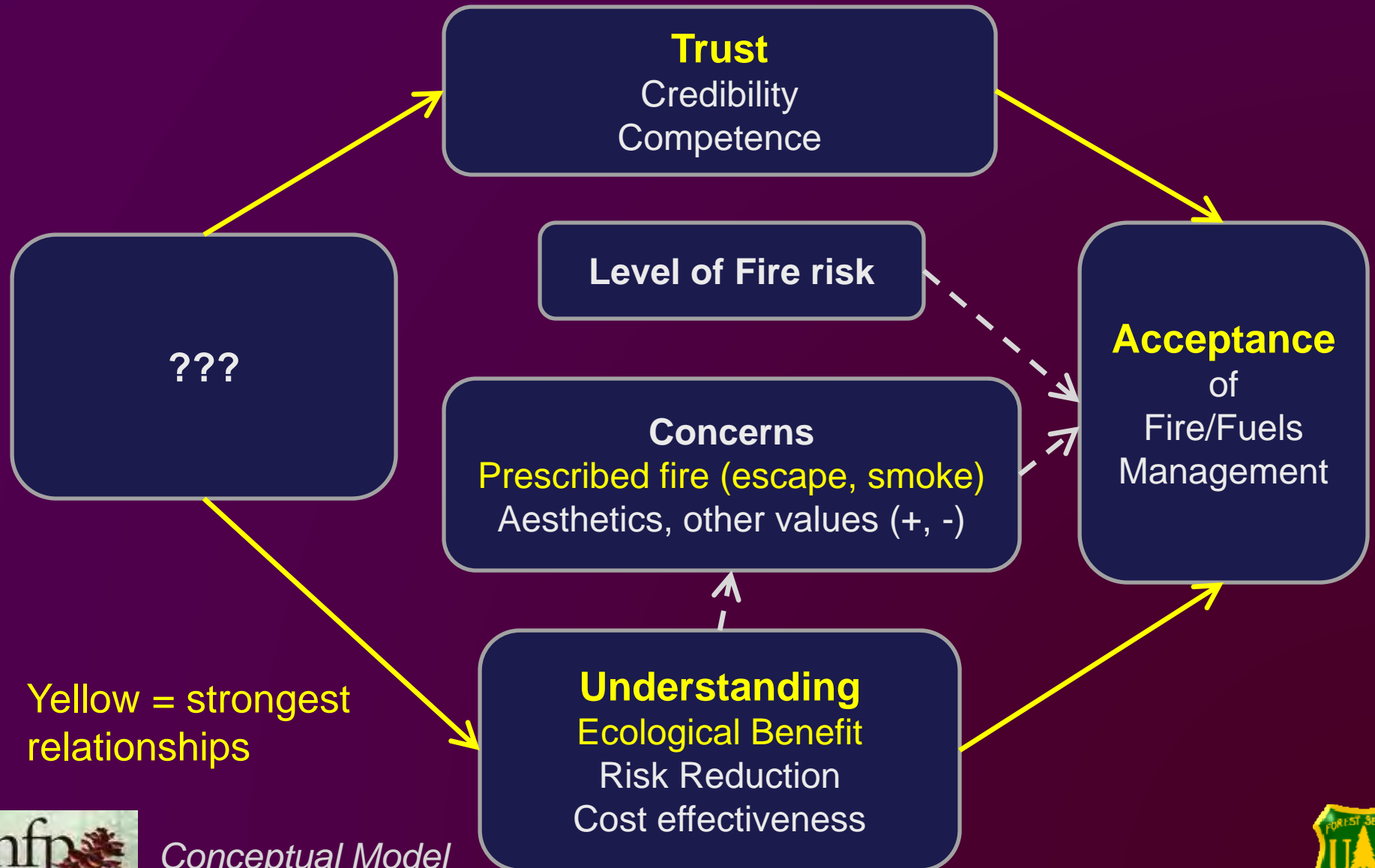| City	More	Same	Less
Hamilton	N/A	N/A	N/A
Boulder	22	43	35
Reno	37	37	26
Flagstaff	60	26	14
San Bernardino	13	52	36
Total	33	39	28

Should agencies conduct prescribed burning more, less, or about the same as currently? (%)
(2014 focus groups)

City	More	Same	Less
Hamilton	N/A	N/A	N/A
Boulder	43	41	16
Reno	16	58	26
Flagstaff	46	31	23
San Bernardino	32	58	10
Total	37	45	18

Fire/Fuels Management Public Acceptance Model
(Thinning, Prescribed Fire, WFU)

Trust
Credibility
Competence

Level of Fire risk

???

Concerns
Prescribed fire (escape, smoke)
Aesthetics, other values (+, -)

Acceptance
of
Fire/Fuels
Management

Yellow = strongest
relationships

Understanding
Ecological Benefit
Risk Reduction
Cost effectiveness

Conceptual Model
McCaffrey -Feb 2012

McCaffrey - Smoke Workshop - November 7, 2014

Fire/Fuels Management Public Acceptance Model
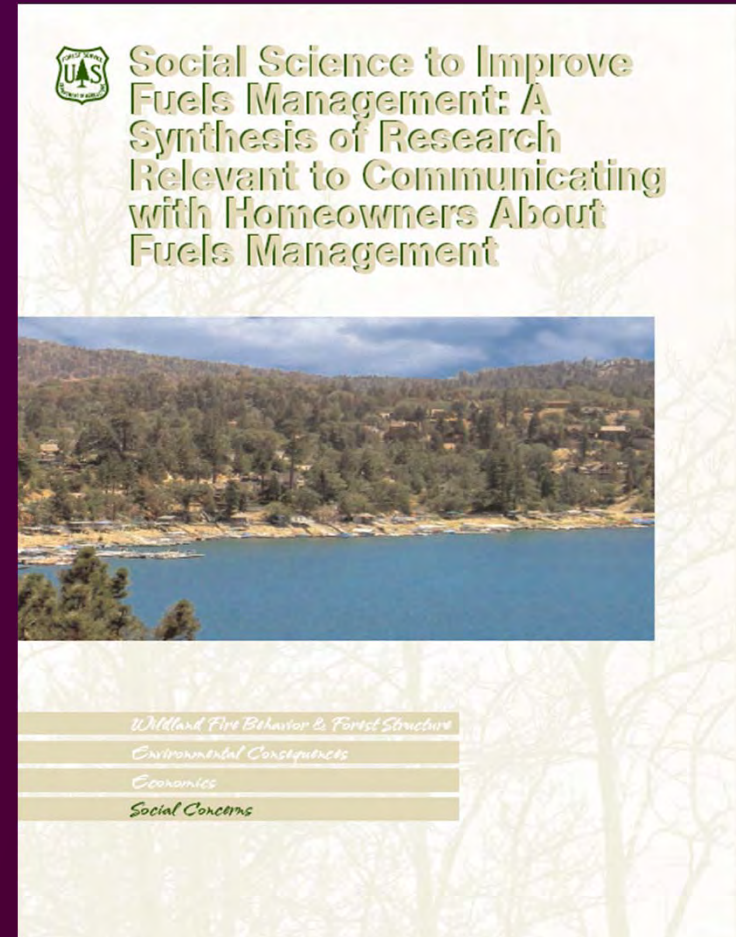## (Thinning, Prescribed Fire, WFU)

Trust
Credibility
Competence

Communication Process
Interactivity
Transparency

Level of Fire risk

Acceptance
of
Fire/Fuels
Management

Concerns
Prescribed fire (escape, smoke)
Aesthetics, other values (+, -)

Yellow = strongest relationships

Understanding
Ecological Benefit
Risk Reduction
Cost effectiveness
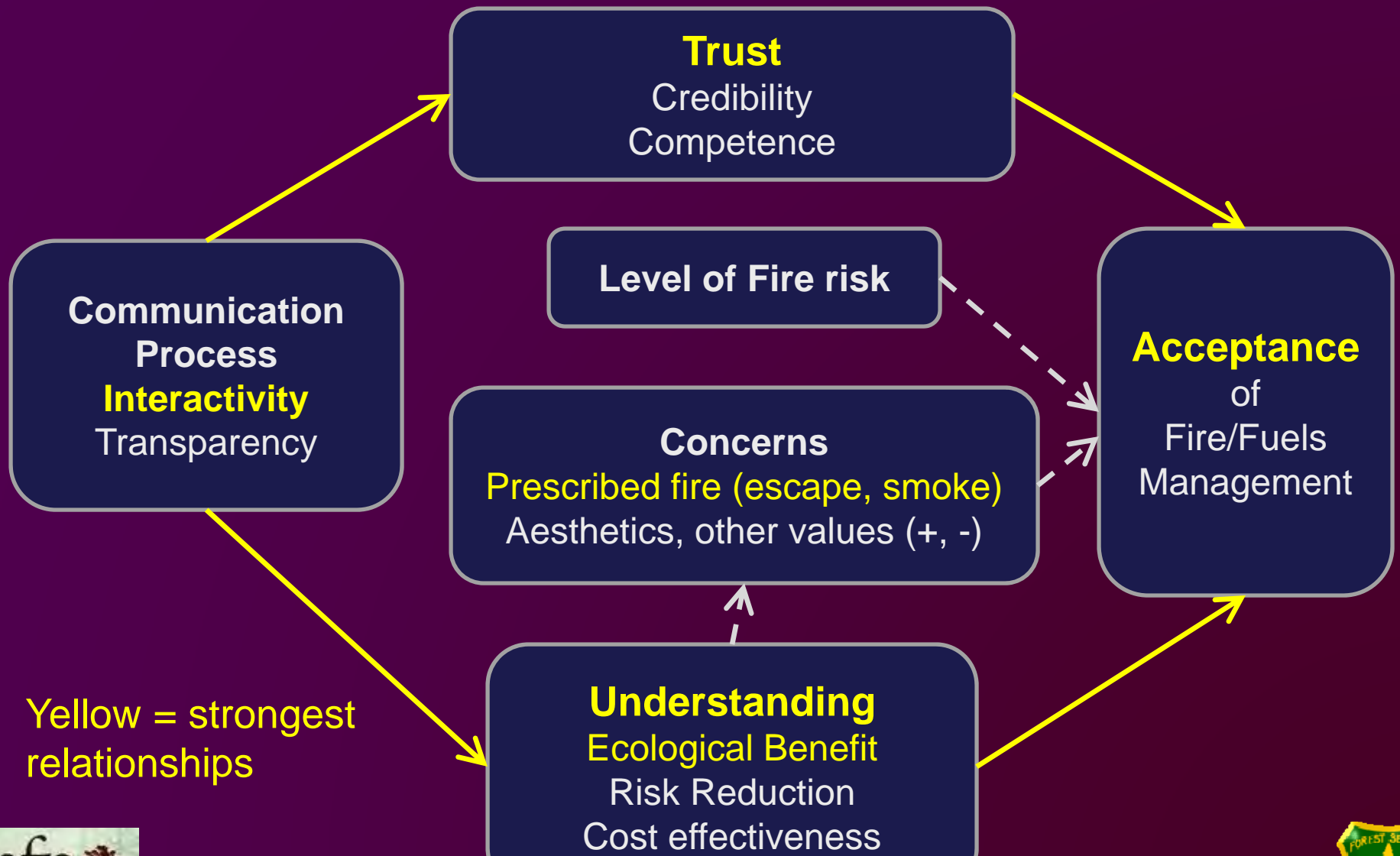
Conceptual Model McCaffrey - *Smoke Workshop - November 7, 2014*
McCaffrey -Feb 2012

Social marketing:
Change Behavior and/or Social Norms

- Drunk driving
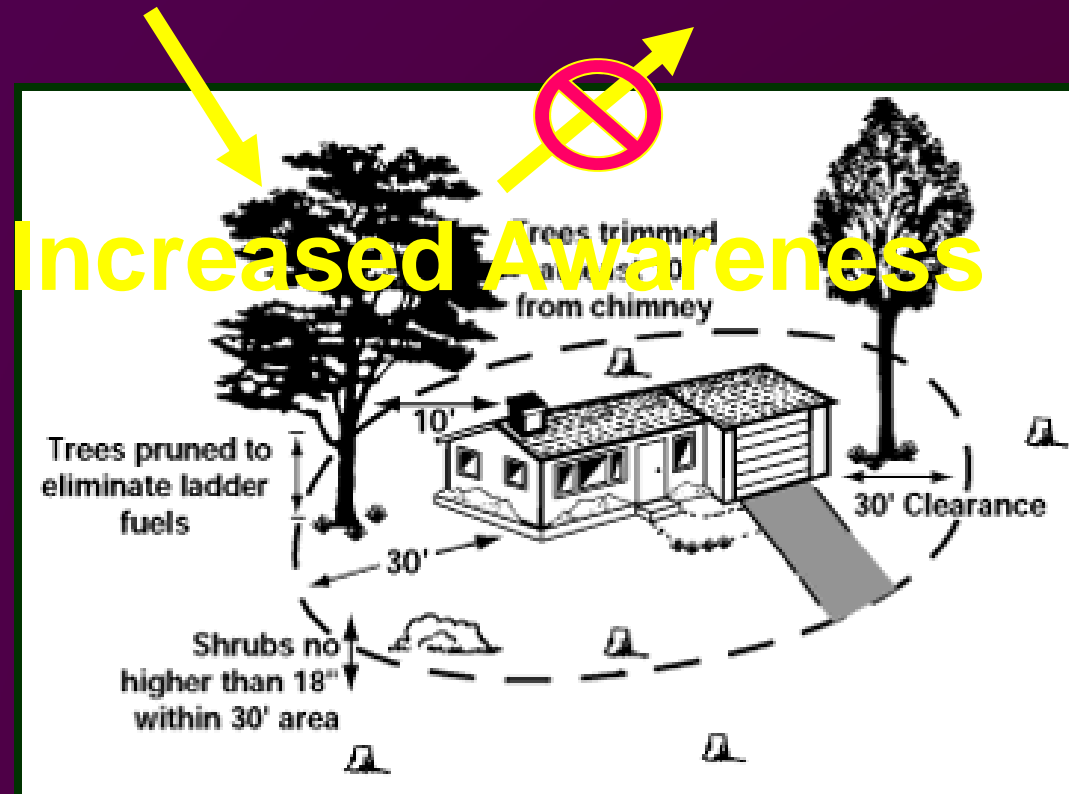
- Drug usage

- Smoking

- HIV/AIDS

- Child immunization

Social Science to Improve Fuels Management: A Synthesis of Research Relevant to Communicating with Homeowners About Fuels Management

Wildland Fire Behavior & Forest Structure
Environmental Consequences
Economics
Social Concerns

Understand your audience

- Deal with misconceptions
  - Avoid preconceived notions

- Multiple audiences - Tailor info for them
  - Avoid saying what audience already knows
  - Relate to what audience cares about and is interested in

- Identify resource limitations

Communication

Providing Info ⊘ Behavior Change

Increased Awareness

Trees trimmed from chimney

Trees pruned to eliminate ladder fuels

10'

30' Clearance

30'

Shrubs no higher than 18" within 30' area

Behavior Change

- ## Mass media?
  - Most effective for raising awareness levels
  - Not so good at changing behavior/attitudes
  - Brochures?
    - Effective if combined with other methods – provides people with something to refer to when interested

Behavior Change =
Interactive Communication

- Most effective means of fostering changes in behavior or norms

- Important for complex topics – allows for questions, clarification

- Particularly helpful with expert info sources

- Builds Trust

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Use all the good reasons

- One reason to change a behavior or a norm is not better than others

- Different people care about different reasons

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Use all the outlets

- Information Stream
  - Diverse Methods

- *Roadside signs - Drivers reminded of land managed with prescribed fire, even after the area was burned.*

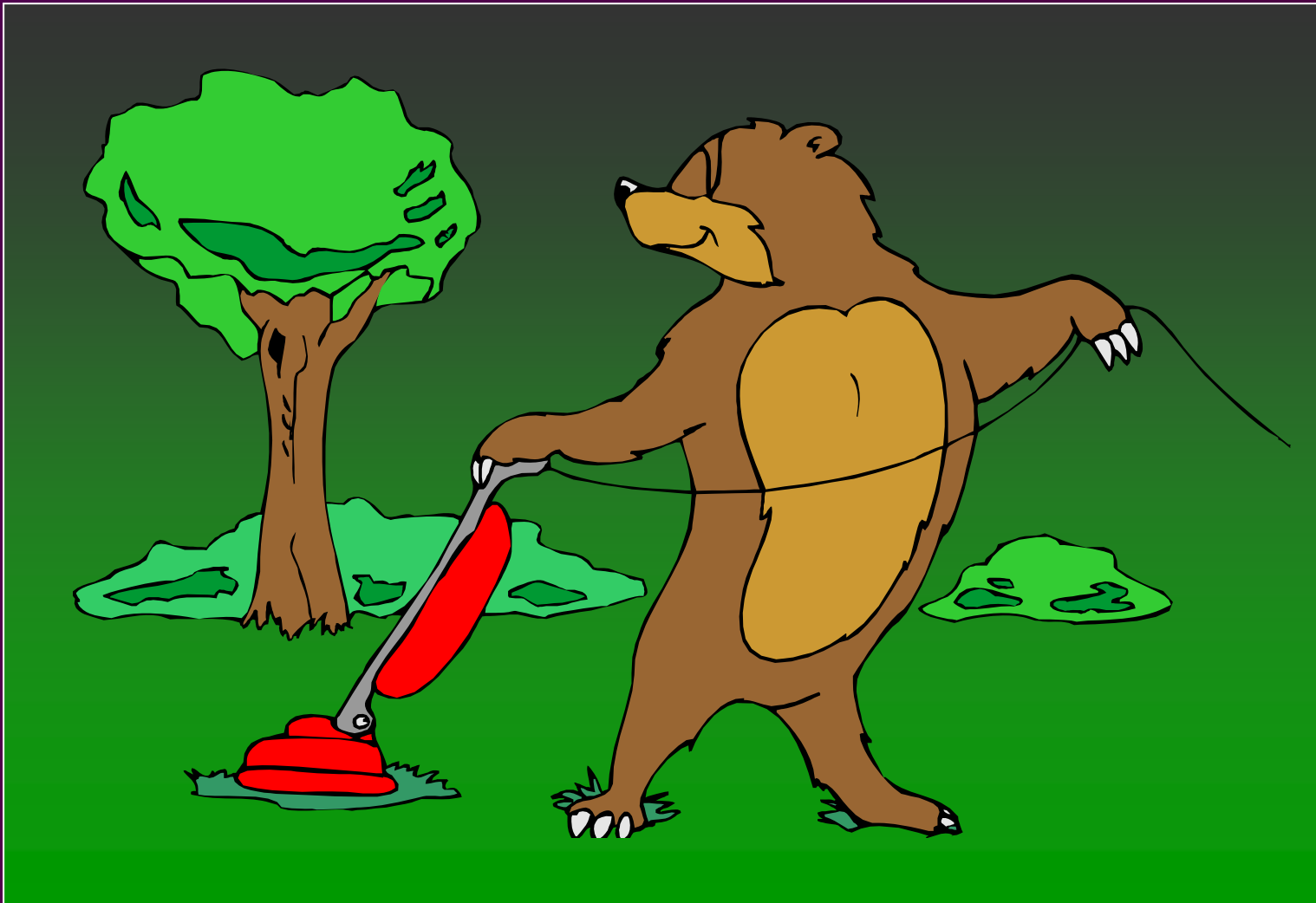# Picture of a Successful Program

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Advice?

- Tell us who you are, what you do, and why you are doing it
- Thank you for the work you do
- Thank you for asking us what we think
- Use science
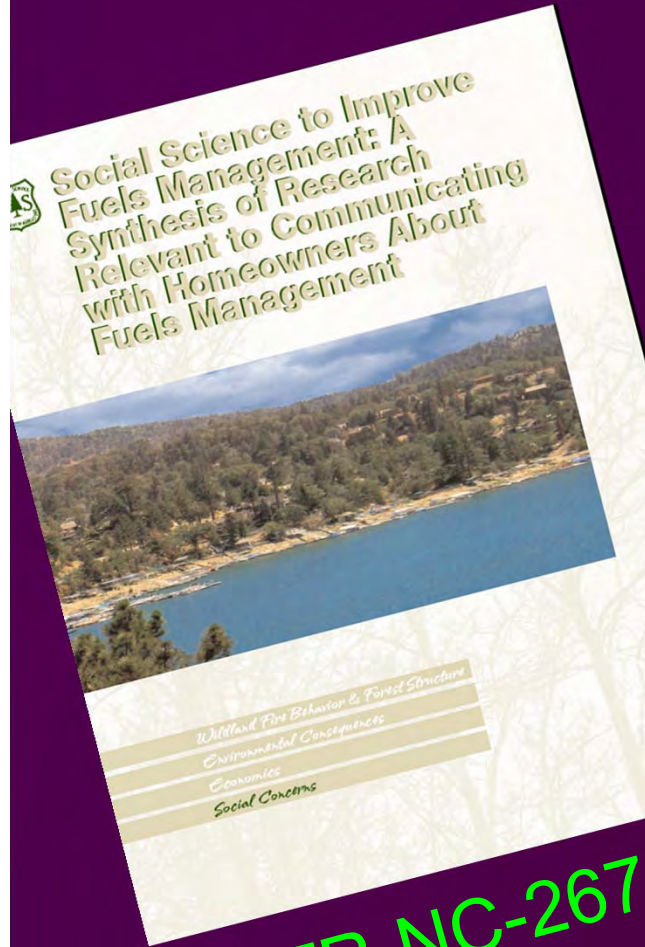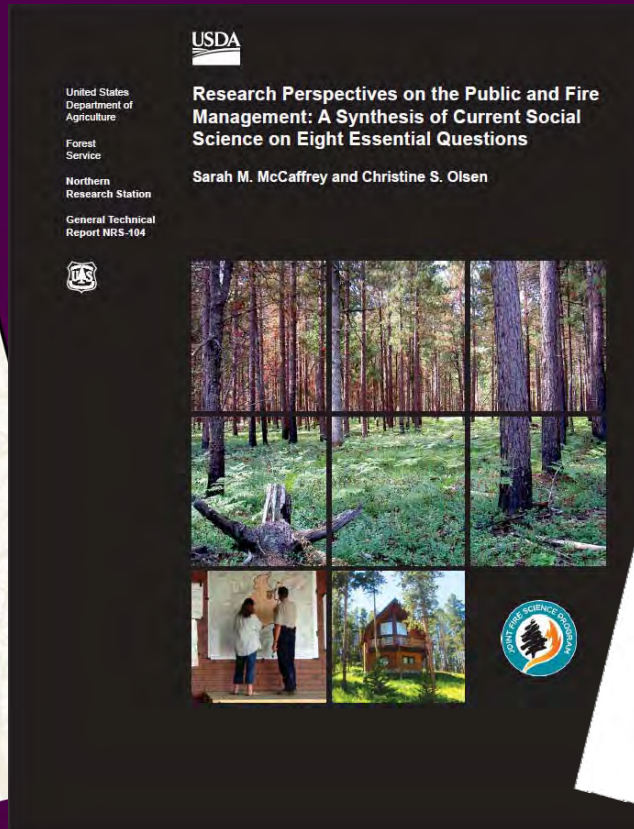- Listen to local views – both agency and citizens

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GTR-NRS-104

GTR-NC-267

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