Understanding Public Acceptance of Fuel Treatments at the Wildland Urban Interface

2001 Progress Report to the Joint Fire Sciences Program Board

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What we've learned so far…

- Importance of acceptance factors varies by
  - Fuel treatment (FT) type
  - Site characteristics (*especially* past agency performance)
- Managers need to
  - Listen to residents' reasons for non-acceptance
  - Develop FT programs sensitive to beliefs about FT outcomes & FT attitudes
  - Deliver key informational messages that relate to likely concerns

Agenda

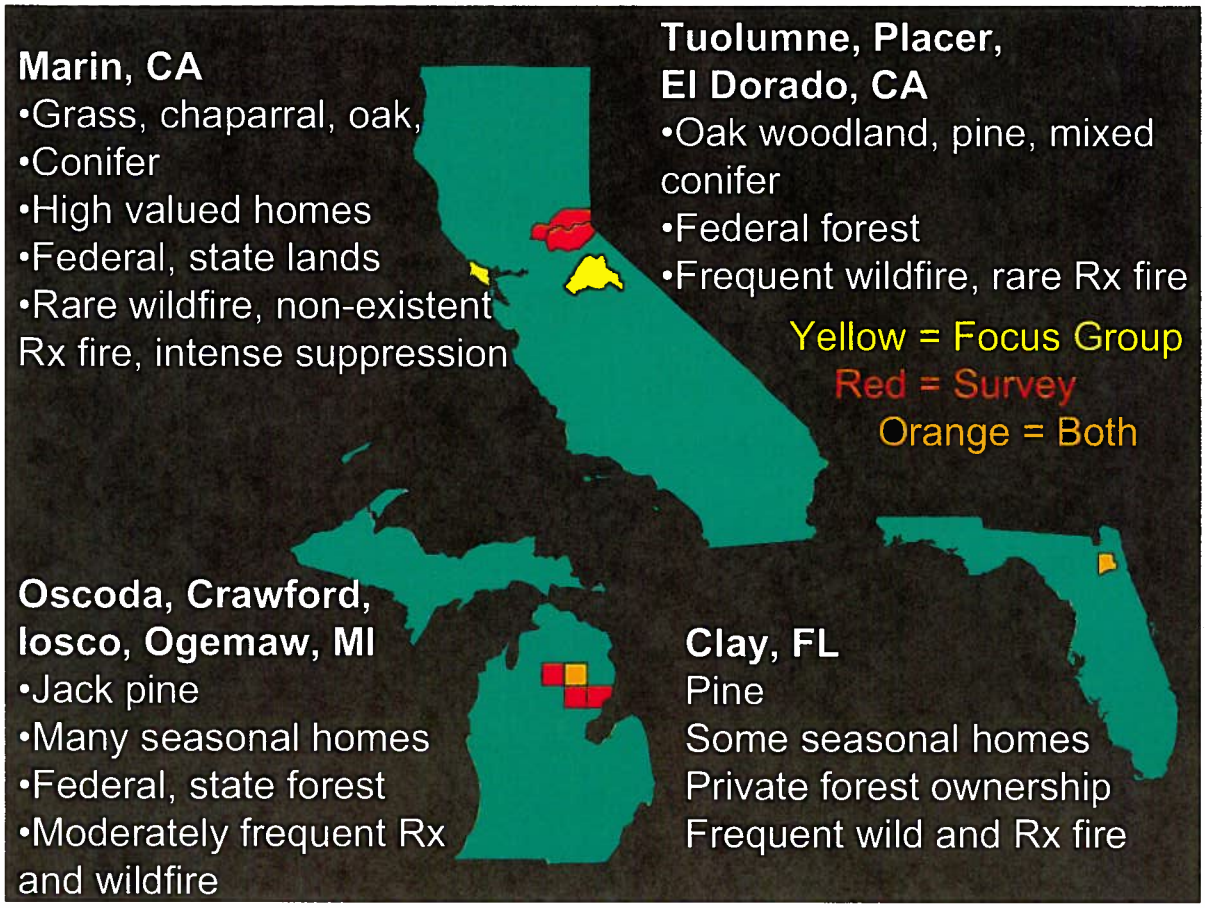
- Objectives, phases, locations & conceptual model
- Focus group protocol, coding, findings, deliverable
- Survey design, implementation, preliminary results
- Acquisition of geographically referenced data
- Spatial variables to be generated and tested
- Summary of accomplishments to date

Objectives of Study

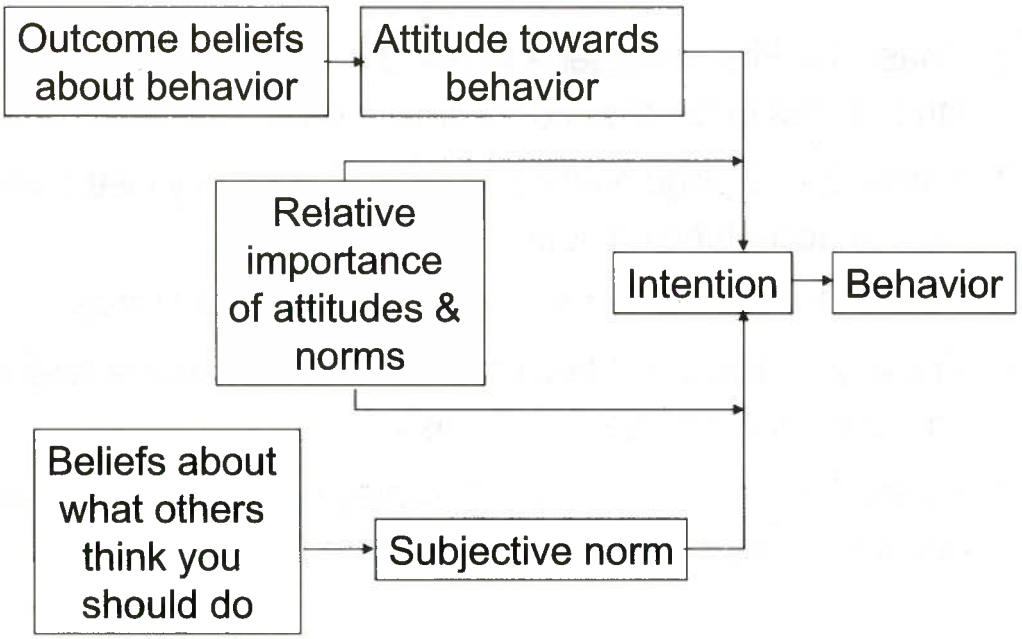
- Understand the decision process of WUI residents concerning acceptance of fuel treatment
- Build models that predict acceptance
- Empower fire managers with analytic tools to collect & analyze acceptance related information from residents
- Further improve on the level of public participation in land and resource issues and management plans

Components of the study

- Phase 1 – Fire manager and resident **focus groups** in 4 study areas to develop conceptual model
- Phase 2a – Design nationally applicable survey instrument to assess acceptance of fuel treatments
- Phase 2b – Administer the **survey** in two study areas
- Phase 2c – Build and test predictive model using survey data and conceptual model from phase 1
- Phase 3 – **Spatial analysis** of survey results in the context of geographically referenced fuel and fire history data



Theory of Reasoned Action



Resident Focus Groups

Site	Groups	Participants
Tuolumne County, CA	4	26
Marin County, CA	3	21
Oscoda County, MI	2	12
Clay County, FL	3	19
Total	12	78

Focus group protocol

- What are some your **likes and dislikes about living near the Forest/Park**?
- Could you tell me **all you know about fires/fire management**?
- I'd like to hear more about your **personal experiences** with forest fires.
- How does the fire program, as you understand it, affect the **health of the local forest**? You and your community?
- As residents and property owners of this area, what are the **pros and cons** of this fire management strategy [prescribed burning, mechanical thinning, defensible space]?
- **Tell us whether or not you support** the land manager's use of each of these fire management strategies [see above] and **why or why not**?

Transcript Analysis Example

- "I don't care if they call it controlled or prescribed, you can't control it and the only thing that is really going to work is mechanical. Yes, it's more expensive but the other alternative is people can die and homes can burn. I'm not willing to take that chance." (Oscoda, MI)

Coding Results

- 1,745 remarks analyzed for:
  - Acceptance of treatments (319 remarks)
  - Factors affecting acceptance:
    - Fuel treatment outcome beliefs (221 remarks)
    - Personal importance (16 remarks)
    - Situational specificity (22 remarks)
    - Agency trust (67 remarks)

Key Findings – Acceptance (1)

- "I prefer the controlled burning because of the fact that it is controlled and generally speaking they do take precautions and make sure the fires don't get out of control"
  (Florida resident)

Key Findings – Acceptance (2)

- "I support both if it's done under the right conditions -- if they get somebody that has some experience and not some greenhorn out there that starts to burn up the whole state."
  (California resident)

Key Findings – Acceptance (3)

- "Personally, one of the reasons I live where I live is because I like the trees and I like the vegetation that is around my house. If I had to clear all that out of there, what would be the sense of living there? … I might as well live in the city, and that's why I pay insurance."
  (Michigan resident)

Outcome Beliefs: Air Quality

- "When you have a lot of burns, you're going to have some air quality problems"
  (Florida resident)
- "I think the smoke in the environment is the pits"
  (California resident)

Outcome Beliefs: Cost

- "Even though a burn sounds like it will be cheaper, if it got out of hand, it costs more, so there's a higher risk there"
  (California resident)
- "think of clearing 40 acres with machines or by hand or whatever, getting all that brush out of there. You're talking a lot of money"
  (Michigan resident)

Outcome Beliefs: Escapes

- "If somebody came to me and said, We're going to have a controlled burn out here, what do you think of that? Up until Los Alamos, I would have probably said, "Go for it." But now I would say, "Boy, I don't know, who is going to be in control there?""
  (California resident)

Outcome Beliefs: Aesthetics

- Us local guys never realized how wide that thing is until some flatlander came up here and said, "Hey, well look at that. That looks ugly." And then you stop and look at it and say, "Jeez, you know, you're right."
  (California resident)

Personal Importance

- Vegetation amenity – desire to live with "all the trees"
- Property rights – desire for autonomy, privacy
- Smoke impacts – subgroups that are smoke sensitive

Situational Specifics

- How much area involved
- How much pre-planning undertaken
- Sufficiency of firefighting resources
- Proximity to developed areas

Agency trust

- Ability to control fire
- Professional skills
- Agency credibility and communication effort

Survey

- Statistically representative sample
- Clay County, FL & El Dorado/Placer Counties, CA
- Fireplan funds through NC Station (Dwyer) supported the addition of a Michigan survey site
- 1200 surveys sent per site
- Treatments: Rx fire, mechanical, defensible space
- Standard Dillman mail survey methods used
- Timing may have influenced response rate

Topics of survey questions

- Fuel treatment acceptance
- Attitudes towards fuel treatment
- Beliefs about fuel treatment outcomes
- Personal importance/level of concern
- Agency trust
- Past loss experiences with fire
- Past actions to protect against fire

Very preliminary survey results

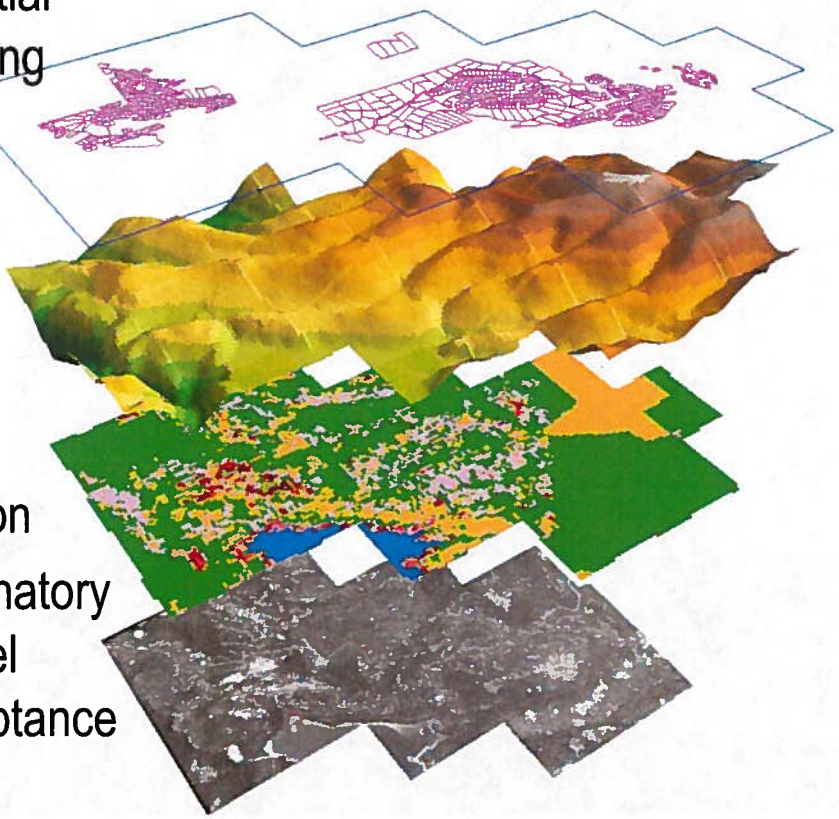
Percent who report they'd **vote No**

	County		
	Clay	El Dorado	Placer
Rx Burning	13	28	34
Mechanical Treatment	20	19	6
Defensible Space	58	27	21

Progress on spatial analysis

We know from where the surveys came…

- Assembled spatial datasets including
  - Land parcels
  - DEMs
  - Current fuels
  - Orthophotos
  - Fire activity
  - Transportation
- Will build explanatory variables for fuel treatment acceptance



Can characterize fuel environment for every household at multiple scales (radii)

Potential spatial autocorrelation in acceptance may lead to improved sampling efficiency

Green = Vote for Rx burn tmt; Red = vote against Rx burn tmt

Recap: 2001 Progress

- Conducted focus groups at 4 sites
- Analyzed focus group transcripts
- Reported focus group results in *Journal of Forestry* (Jan/Feb issue)
- Designed and pre-tested survey instrument
- Administered survey at 2 sites
- Generated external funding for 3rd site in Michigan
- Assembled geographic data

Take home message

- Importance of acceptance factors varies by
  - FT type
  - Site characteristics (esp. past agency performance)
- Managers need to
  - Listen to residents' reasons for non-acceptance
  - Develop FT programs sensitive to beliefs about FT outcomes & FT attitudes
  - Deliver key informational messages that relate to likely concerns