

Demographic and Geographic Approaches to Predicting Public Acceptance of Fuel Management at the Wildland-Urban Interface

Focus Group Report

Prepared for

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Introduction

Between June and November 2000, fourteen focus groups were held in four selected sites to elicit and document the range of perspectives, concepts and lexicon for discussing fire management and fuel treatment. Scales for fuel treatment acceptance factors such as fire knowledge, attitudes toward fuel treatments, and beliefs about the outcomes of fuel treatments will be developed from the focus group data.

This report summarizes the transcription, coding and analysis of remarks from these focus groups by frequency and distribution. This is an intermediate work product for use in the development of the Phase II survey instrument. A subsequent report in the form of a journal manuscript will follow.

Overall study objectives

1. Identify the issues related to fire management generally, and fuel management specifically, which are salient to residents of fire-prone wildland-urban interface areas across the U.S.; inventory the language and terminology that experts and publics use to express issues, concerns, and beliefs relating to fire and fuel management.
2. Test individual questions and scales (sets of questions) to develop a set of reliable and valid measures of knowledge, attitudes, beliefs and individual characteristics (e.g., demographics, past experience) relevant to fire and fuel management.
3. Develop and test a model of the causal factors and processes by which individuals evaluate the acceptability of a fuel management policy or plan.

Sites

Focus group interviews were conducted with fire managers and homeowners in wildland-urban interface (WUI) areas in northeastern Florida, the Sierra foothills and the Bay Area in California, and Michigan's northern lower peninsula. The sites were chosen to provide variation in important attributes including fire regime, fire history, cultural interactions with fire, land use and ownership patterns, and socioeconomic profile.

Marin County, California is characterized by expansive state and federal land where the primary use is recreation and preservation. There is little, if any, extractive use of forest resources. Fire managers are concerned that (1) WUI homeowners are not adequately prepared for large wildland fires, which are expected to occur, and (2) the population does not accept prescribed burning as a fuel treatment. The population is relatively high-income and property values are very high (median home value countywide exceeds \$600,000).

Tuolumne County, California in the Sierra foothills is dominated by large expanses of National Park and Forest. Unlike Marin County, extractive uses, including timber production, remain a significant contributor to the local economy. This rural site also includes a novel interagency initiative to work cooperatively with homeowner associations in an effort to create fire-safe landscapes in subdivisions along the main highway corridors.

Clay County, Florida includes relatively little public land, but many large pine plantations and an economy that relies heavily on the wood products industry. Here, rapid population growth makes sprawl and associated WUI issues highly relevant to fire managers and residents.

Oscoda County, Michigan, a rural area with a low-income resident population and high prevalence of seasonal homes (>50%), is dominated by federal and state land, featuring jack pine forests that are home to the endangered Kirtland's Warbler. It is also the site of the 1980 Mack Lake fire, an escaped prescribed burn that claimed one life and 44 structures. That event and other recent fires are, evidently, important factors in local residents' fuel treatment attitude formation.

Methods

Data collection

Resident focus group participants were recruited at random from a sample frame of resident homeowners extracted from each county's tax assessor database. Researchers used advance letters with return postcards (to indicate level of interest in participating) and follow-up phone calls to recruit volunteer participants (Appendix A). Focus group size ranged from 4 – 10 participants, averaging 6.5 per each of the 12 groups (Table 1).

Table 1. Resident focus group participants by area

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 data consists of the moderated group discussions, each of which followed a standard interview (Appendix B). The interview guide was designed to elicit discussion related to the component variables of a conceptual model of an individual's behavioral intention to accept the use of various fuel treatments for forest and fire management.

Data processing

Focus group discussions were audio-recorded and transcribed. In all but one case, the analyst used transcript-based coding to analyze the data. In one case, the audio taping equipment failed and the analyst relied on the detailed notes of the recorder/observer.

Data analysis

Resident homeowner focus groups

Transcribed focus group discussion remarks by individual participants were coded according to a hierarchical framework based largely on the proposed conceptual model of fuel treatment acceptance. First, the analyst assigned one or more relevant model variables to each remark (Table 2).

Table 2 Focus group participant remark coding by model variable

Model Variables	Operational coding definition	Example
Acceptance	Indicating a preference or perceived societal preference for a particular technology or action	I have a very grave concern about anything herbicide and it goes beyond just the wildlife and beyond that, it goes to my ground water. I have a deep concern about that because I have to drink it and I don't want it ruined.
Agency competence	Evaluating or expressing a preference for the performance quality of an agent's (public or private) actions	Our fire departments are literally invisible to us, unless they're invited to come out for fire. Our public agencies are not supporting us in trying to keep from either being too afraid of this, or being prepared for this.
Fire experience	Relating personal knowledge of fire-related or fuel treatment-related actions through direct or indirect experience	We were all very, very concerned. Every one of us left Clay County. I could see it burning on both sides the road. Coming back we saw it right on our access road two miles from the house.
Factual knowledge	Demonstrating knowledge (accurate or inaccurate) of scientific, technical, or historical fact related to fire and fuel treatments	I know that the climate is different now than what it was. We're about 15 degrees warmer now in the month of November than what we normally are.
Outcome belief	Stating that particular effects are likely to occur as a result of a general class of events	It helps tear neighborhoods apart too though, when you catch somebody in your neighborhood burning when they shouldn't be.
Personal importance	Indicating the degree to which a policy, technology, event or issue is personally salient	It's been a couple of years but it's not out of our minds. I know it's not out of mine. For weeks, we had boxes by the front door with the pictures and memorabilia and stuff packed, ready to go.

Next, the theme or subject of each remark was recorded. For example, if the remark was assigned to the model variable "acceptance," the theme code would refer to the object of acceptance, such as "prescribed burning." Finally, up to three factors associated with the theme

were coded for each remark. For example, if the participant had remarked on her acceptance of prescribed burning because she feared for her safety if the fire escaped, the factors “safety” and “escaped fire (escape)” would be assigned to the theme, “prescribed fire.”

Finally, the codes for all transcripts were combined and imported into an SPSS data file for data reduction and analysis. Data were analyzed using crosstabulation to find common themes and factors across sites.

Agency fire manager focus groups

The primary purpose of the agency focus groups was to familiarize the researchers with the local area, especially with respect to local forest and fire management issues, fire history and current and planned use of various fuel treatments. Additionally, the focus groups presented excellent opportunities to elicit fire manager perceptions of fuel treatment acceptance factors. Therefore, the agency fire manager focus group transcripts were analyzed by the same coding scheme as above, however the analysis was limited to those remarks that were coded as “acceptance” variable.

Findings

Agency fire managers: perceived acceptance factors

Demographic factors: urban vs. rural; newcomers

Fire managers at three sites discussed two demographic characteristics they thought were related to fuel treatment acceptance: whether individuals are from urban or rural environments and, how long individuals have lived in the area around which fuel treatments are necessary (Table 3). Some agency representatives also believe that individuals who are “close to the land” in terms of their upbringing or professions (i.e., agriculture or natural resources-related employment) are more likely to be supportive of fuel treatment policies. Draft survey instrument items 1, 2, 3, 29 and 31 will be used to test these hypotheses (Appendix H).

From what I hear going around in town, the people that are from the area, locals that are from the area are very supportive of it, but when you go into the market on a Saturday, and you have the people from the Bay Area that aren't familiar with conditions, like you say, six months ago, the Pilot Fire. You know, 'what was a pilot fire?' People that don't live with it are the people who are the most disgruntled. They come up for the weekend, and there's smoke, or this, that, or the other thing. These people are the ones that don't live here, and don't understand the ramifications of not tending the land. (Tuolumne)

Flagler County was still a rural county, the only ones that were really fighting that herbicide issue was the Palm Coast people, the people who moved in from somewhere else. But the locals

supported everything that was going on, but the ones that really got it moving were the ones from Palm Coast. (Clay)

I think the people in a municipality rely on their government so much to take care of them, they've almost become the babysitters of them. Where as the people in the rural areas do depend on local government, but they sustain themselves on their own. And they're used to doing that where the other people aren't. (Marin)

Air quality

Smoke emissions and associated air quality problems were cited by fire managers at three of the four sites as a significant acceptance factor for prescribed burning. Oscoda County fire managers did not discuss air quality as a significant acceptance factor, nor did air quality emerge as a significant fuel treatment acceptance factor for Oscoda County residents. Items from the draft survey instrument questions 6, 9 and 10 will be used to assess the importance of air quality as a fuel treatment acceptance factor.

Well, I've talked to people when there's smoke in the air that say, "You sound like a broken record. I heard recycling nutrients and good for wildlife from everybody I've talked to today. You guys all read this off the same page?" Well, when there's smoke in that guy's back yard, he's pissed. He understands the program. He's watched the Discovery channel and all the different programs that have been out there. You keep that smoke out of his yard, he'll be fine. (Tuolumne)

I think of all the treatments, [prescribed burning] is probably the one that is most accepted. I wouldn't go so far to say that it's fully accepted though. I think that everybody would accept it. I'll accept fire in Okeechobee County, but once that fire smokes out my house and my kids are hacking and wheezing and stuff like that then I'm going to have a problem with it. And I think that's kind of what happens. Overall, yeah, fire is great and the results are good. But you know, once you smoke out a road or once you smoke out somebody's house, I think they're going to have a different view about it. It's that whole "not in my backyard." (Clay)

Burning in the interface or mechanical treatment in the interface and mechanical treatment wins hands down because you don't have to put up with the smoke. (Clay)

In our community, I think it was about twelve years ago, might be fifteen now, there was a prescribed burn. And it was done in an area called the Country Club Estates. And it's basically very large acreage. Box canyons. And there was a mosaic burn done in the canyon, which created a huge amount of smoke, and the neighborhood adamantly opposed doing any more of that. (Marin)

Notification

Managers at two sites proposed timely *notification* as a way to mitigate the erosion of public acceptance. Items from the draft survey instrument questions 16 will be used to assess the importance of notification/communication as a fuel treatment acceptance factor.

It's easy to let us know when they're not happy, and I think as long as we let them know, and really the burden is on us to do good P.R. To put fliers in people's mailboxes, and talk to the homeowners association. And just work with those kinds of people, and get the word out. Sort of a saturation operation. To just post fliers all over. Anywhere we can think of. And if they know in

advance that we're going to be burning in September and October, I'm sure there's always a couple that don't like, we'll hear from them. But, you don't hear much. (Marin)

We tied in an education program that said there will be smoke. We're going to burn a week from these days, and it will take this number of days, and you can choose to stay out of the area these hours, or you know, the whole "close your windows, and stay away from the smoke," education program. And it was successful. (Tuolumne)

Education

Some fire managers see themselves as educators that must interface with members of the public to explain their agencies' fuel management objectives. In some cases, education is challenging due to competing messages from media reports or rumors in local communities. This has been a particularly vexing problem for managers in Oscoda County where rumors about the circumstances of a recent wildfire caused a noticeable amount of agency mistrust (See "Trust" below). Items from the draft survey instrument questions 16 will be used to assess the importance of education/communication as a fuel treatment acceptance factor.

Here is an involvement in the education of the public where they buy into the process. And the process is to do a plan in this area and there are a whole bunch of things that are available in order to enhance their safety. And I think that that's probably the single biggest benefit I've seen out of this project...But more than that, the biggest benefit is educating the public in the beginning, so that they have some property rights in the things that are going to be happening. So when you talk about mechanical modification of fuels or you talk about prescribed fire, they have a much better idea, a much better appreciation. (Tuolumne)

I think it really does take a one-on-one land manager or forester or park ranger to get to know these people, to share a little bit of philosophy with them. Public education is really what it comes down to. Media, reports on television and radio-newspaper are good. But there is nothing quite like meeting your neighbors and explaining to them. And that's part of our responsibilities as public employees. We have to take the opportunity for public education. (Clay)

Fire history and experience

Fire managers point out that local and national fire events have profound effects on public acceptance of fuel management policies. Catastrophic wildfires such as the Oakland Hills and Palm Coast fires have increased support for fuel management practices; however, damage caused by escaped fire from prescribed burns (actual or perceived) can just as readily erode support for this particular fuel treatment. Items from the draft survey instrument question 6 will be used to assess the importance of fire history and experience as a fuel treatment acceptance factor.

I believe it might have gained a little bit more acceptance because it's an issue that was wrapped up in a larger issue, which was the '98 fires. If somebody was asked a question removed from catastrophic fire, "do you believe in fire in the woods?" I think, they're probably going to say, "No," because you've always been taught that fire is bad. (Clay)

When we started in the early 80's, getting people to accept the problem. And I think the Oakland Hills Fire and the insurance were two biggies that got people to accept the problem. (Marin)

The Pablo and New Mexico fire: everybody got all worked up. I know _____, came in and tried to pass an ordinance to prohibit burning. I said, "well you'd better get in and do some public information management here, because we can't afford to have that." If they pass one, that would just set a string along the state. "Oh, Oscoda, that township," or "that county did it," and then the next county would do it, and I see that as a step backwards myself. So, everybody got together. And I think they were successful. The ordinance didn't pass. (Oscoda)

The Mack Lake fire was started by a local [prescribed] burn, and that is very much engraved in anybody who was here at that time. (Oscoda)

Regulation and enforcement

An important distinction of the two sites in California is the presence of Public Resources Code 4290 that gives state and local government the authority to enforce defensible space regulations (i.e., minimum flammable vegetation clearance). The first remark below by a fire manager in Clay County demonstrates the recognition among managers outside California of the important role local ordinances can play in promoting safety. The draft survey instrument uses a defensible space ordinance as one of the three alternative fuel treatments.

I've been dying to say this to somebody for some time, but you talk about fuel management and you talk about how to gain public acceptance for it and all of this and it's the pessimistic side of me, but if you look back at fire history in the United States, and looking at it from the structural side, the reason that hotels and houses and restaurants and warehouses and stuff like that don't burn down everyday, it's because over time local governments and at the national levels have come in and designed and implemented and passed fire codes that people who own publicly owned buildings have to abide by. And I'm a regulator and that's the one side of my job that I don't like, but I really believe that if you are ever going to be successful in fuel management programs and solve the interface fire problems, it's going to have to be done through similar type codes in an interface environment where local government -- and I believe it has to be done at local government, -- that local government says. "thou shalt control that vegetation." (Clay)

[Public Resources Code 4290] is widely accepted. It's accepted by the development community, as a part of doing business. They have to generally come up with a landscape and development [plan], and working with the planners, getting them educated about what types of fuels are fire hazards, and what types are not necessarily water eaters, but that don't use quite as much water to meet the needs of the water district. That's worked really well. (Marin)

The extension of MSU has a pretty positive relationship because we are education, informational, and we don't have this big stick behind our back called regulation that we can crack down on. (Oscoda)

Public Resources Code 4290 clearance inspections. And that's why it is so widely accepted, because we have an enforcement program that a number of them get tickets and they go to court and then they tell their neighbors about it and the neighbors hear about it ... and they go clean their property. So there is an inspection program and it is the attitude, you get what you inspect. If we didn't have an inspection program, I don't think we would have as high of compliance as we do. (Tuolumne)

One of the things that I've found to really gain a lot of homeowner support is our rules, so to speak, outweigh the planning issues. And many of these people who build desire a view, and I've found approaching them and saying, "Let's sit down and go over your vegetation management plan, and combine with these things. Because if we say no, you can't plant here, they need to go,

they go” And generally when you bring that to homeowners, and as long as you sit down and work with them, they are very receptive to that. (Marin)

Trust

Uniquely, in Oscoda County, agency trust and credibility emerged as a fuel management acceptance factor. This perception among fire managers was confirmed during the resident focus groups. The problem appears to be closely related to a series of recent fires, including the Pablo Fire, a wildfire suppressed by local forces, and an unrelated habitat enhancement prescribed burn in the region. Apparently, one or more local residents mistakenly believe that local fire managers purposely let the Pablo Fire burn rather than suppress it (which they did). Rumors to this effect spread widely among County residents. Memories of the catastrophic Mack Lake (1980) and Stephan Bridge Road (1990) fires exacerbated the concern among residents. Items from the draft survey instrument question 16 will be used to assess the importance of agency trust as a fuel treatment acceptance factor.

The key is credibility in a lot of these. You know, I can have lots of money, which I'd like more of, just to get the concept out. But to get people to buy into it, and to believe it, you have to have somebody credible. And I'm not knocking our agency, but it used to be all this time that people, the DNR people would go down to the coffee shop and interface with the locals. We're too busy to do that anymore. You work your straight hours, and work through lunch. We're losing that in small towns. We're losing that interface. It used to be you'd know the public. They'd say, "Well I know Jay, I'm going to give him a call. There's this rumor going around, and I don't know if that sounds right." We're losing that. And because of that little bit of credibility and that personal interface, we're just an agency off to the side. We're this nameless face in a uniform. (Oscoda)

Well, it's like when we had the Pablo fire. We had some folks that kind of thought that they put two and two together. They thought that the Pablo fire started from a forest service control burn that got away. The day before, they had a burn, a marsh burn. Actually a wildlife burn over to the marsh in Oscoda area. That they burned. We had been talking back and forth on the radio, and somebody, I don't know if they had a scanner or what, but somehow or another, they thought they put two and two together, and they said, "Ah ha, the foresters had a burn that got away, and they didn't tell anybody." (Oscoda)

On that rumor mill over that fire too. You know, once that was kind of put to bed in terms of, "No, it was not a prescribed burn." Well, then everybody was convinced that the Forest Service took a hands off policy. Once they got the fire going, well they let it go. (Oscoda)

Table 3. Agency fire managers' perceived fuel treatment acceptance factors

Fuel treatment acceptance factor	Percent of remarks					# of sites per factor
	SITE					
	Clay	Marin	Oscoda	Tuolumne	All Sites	
Air quality	10.00%	5.90%		4.80%	4.60%	3
Demographics	5.00%	11.80%		4.80%	4.60%	3
Urban/rural	5.00%	5.90%		9.50%	4.60%	3
Education	5.00%		3.40%	4.80%	3.40%	3
Notification		5.90%		14.30%	4.60%	2
Enforcement		11.80%		4.80%	3.40%	2
Regulation		11.80%		4.80%	3.40%	2
Fire experience	5.00%		3.40%		2.30%	2
Regulation	5.00%		3.40%		2.30%	2
Trust			13.80%		4.60%	1
Landscaping		17.60%			3.40%	1
Aesthetics			10.30%		3.40%	1
Agency competence			10.30%		3.40%	1
Endangered species			10.30%		3.40%	1
Amenity value		11.80%			2.30%	1
Compliance				9.50%	2.30%	1
Los Alamos fire			6.90%		2.30%	1
Purpose				9.50%	2.30%	1
Communication	10.00%				2.30%	1
Safety				9.50%	2.30%	1
Agency competence				4.80%	1.10%	1
Catastrophic fire		5.90%			1.10%	1
Duration				4.80%	1.10%	1
Fear	5.00%				1.10%	1
Herbicides	5.00%				1.10%	1
Knowledge of results				4.80%	1.10%	1
Mack Lake fire			3.40%		1.10%	1
Oakland Hills fire		5.90%			1.10%	1
Pablo fire			3.40%		1.10%	1
Palm Coast fire	5.00%				1.10%	1
Personal importance			3.40%		1.10%	1
Private landowners	5.00%				1.10%	1
Resource-dependent				4.80%	1.10%	1
Seasonal occupant		5.90%			1.10%	1
Cost			3.40%		1.10%	1
Duration	5.00%				1.10%	1
Fire history			3.40%		1.10%	1
Hunting			3.40%		1.10%	1
Local government	5.00%				1.10%	1

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Fuel treatment acceptance factor	Percent of remarks					# of sites per factor
	SITE				All Sites	
	Clay	Marin	Oscoda	Tuolumne		
On-site	5.00%				1.10%	1
One-on-one	5.00%				1.10%	1
Personal importance			3.40%		1.10%	1
Personal risk	5.00%				1.10%	1
Property rights				4.80%	1.10%	1
Public meeting			3.40%		1.10%	1
Subjective norm			3.40%		1.10%	1
Timing	5.00%				1.10%	1
Agency tours	5.00%				1.10%	1
Volunteers			3.40%		1.10%	1
Wildlife			3.40%		1.10%	1
Site total	100.00%	100.00%	100.00%	100.00%	100.00%	

Resident Focus Groups: Salient forest management issues

The resident focus group interview protocol (Appendix B) included an opportunity for participants to list “three issues that you think the land managers should discuss with local residents.” The purpose of this pencil and paper exercise was to examine the relative importance of fire management as a public land management issue.

Resident focus group participants listed a total of 212 issues that were coded into eight categories (Table 4). *Forest fire* issues accounted for 21% of all listed issues and *fire management* and *fire prevention* were common themes observed as listed issues at least once per site.

Overall, *forest use and access* were cited most frequently as issues that public land managers should discuss with local residents (31% of the listed issues).

Participants from all sites said that *forest management policies and practices* should be discussed with local residents (29% of the listed issues). *Timber harvest practice* is the only forest management theme common to all four sites.

A list of all forest management issues can be found in Appendix C.

Table 4. Forest management issues “that should be discussed with local residents

Category Theme	Number of issues per category and theme				Total	Percent of all issues
	Site					
	Clay	Marin	Oscoda	Tuolumne		
Forest use/access	15	7	18	26	66	31.1%
Access (general)	4	3	11	8	26	12.3%
Recreation	4	2	0	0	6	2.8%
Abuse	1	1	1	2	5	2.4%
Multiple use	1	1	0	3	5	2.4%
Off-road vehicles	0	0	3	1	4	1.9%
Other	2	0	0	1	3	1.4%
Use (general)	1	0	0	2	3	1.4%
Facilities	0	0	0	2	2	0.9%
Hunting	1	0	1	0	2	0.9%
Local stewardship	0	0	0	2	2	0.9%
Safety	0	0	2	0	2	0.9%
Trail maintenance	0	0	0	2	2	0.9%
Education	1	0	0	0	1	0.5%
Grazing	0	0	0	1	1	0.5%
Road maintenance	0	0	0	1	1	0.5%
Traffic	0	0	0	1	1	0.5%
Forest management	16	27	8	11	62	29.2%
Arboriculture	3	11	0	0	14	6.6%
Timber harvest	1	1	7	5	14	6.6%
Conservation	4	3	0	0	7	3.3%
Exotic species	0	6	0	0	6	2.8%
Forest health	2	1	0	3	6	2.8%
Preservation	4	0	1	1	6	2.8%
Silviculture	1	1	0	1	3	1.4%
Other	0	2	0	0	2	0.9%
Biodiversity	0	0	0	1	1	0.5%
Erosion	0	1	0	0	1	0.5%
Land use	1	0	0	0	1	0.5%
Regulations	0	1	0	0	1	0.5%
Forest fire	11	14	6	14	45	21.2%
Fire management	4	5	4	4	17	8.0%
Prescribed burning	5	0	0	4	9	4.2%
Fire protection	1	5	0	1	7	3.3%
Prevention	1	1	1	2	5	2.4%
Fuel treatment	0	2	0	1	3	1.4%
Mechanical treatment	0	1	0	1	2	0.9%
Catastrophic fire	0	0	0	1	1	0.5%
Emergency response	0	0	1	0	1	0.5%
Wildlife	4	6	3	0	13	6.1%
Habitat	2	2	0	0	4	1.9%
Wildlife protection	1	2	0	0	3	1.4%
Endangered species	0	0	2	0	2	0.9%
Biodiversity	1	0	0	0	1	0.5%
Hunting practices	0	0	1	0	1	0.5%
Wildlife control	0	1	0	0	1	0.5%
Wildlife preservation	0	1	0	0	1	0.5%
Biocide use	0	1	0	7	8	3.8%
Biocide use	0	1	0	7	8	3.8%
Urban growth	3	0	0	2	5	2.4%
Urban growth	2	0	0	2	4	1.9%
Deforestation	1	0	0	0	1	0.5%
Other	5	1	4	3	13	6.1%
Other	5	1	4	3	13	6.1%

Resident Focus Groups: Fuel treatment acceptance factors

After coding the focus group transcripts for model variables, themes and factors, the coded remarks were analyzed quantitatively for the frequency of remarks with specific codes across individual groups (12) and sites (4). Themes and factors common across multiple sites are considered to be important concepts in the homeowners' consideration of forest fire and fire management issues.

Analysis schemes were employed to capture (1) the common themes that emerged during the discussions, (2) the range of themes, and (3) the common factors or elements associated with model variables. A total of 1,745 individual remarks were analyzed for theme and factor frequency. Of that total, 516 remarks were associated with the dependent variable *acceptance*. The range and frequency of themes and factors associated with particular model variables are displayed in Appendices E and F.

Fuel treatment acceptance is the conceptual model's dependent variable. The focus group protocol was designed to elicit those factors associated with the acceptance of prescribed burning, mechanical treatment and, in Clay County only, herbicide applications. Not surprisingly, these fuel treatments and *fuel treatments* in general were the most common themes of participant remarks associated with *acceptance*. Focus group participants also discussed other policies and practices, often in ways that demonstrated particular acceptance criteria. Participants discussed various self-protection policies such as creating defensible space, communication practices and forest management in general.

The focus group interview protocol was designed to encourage participants to reveal their decision-making criteria for acceptance of specific fuel treatment options. Remarks that indicated a preference or perceived societal preference for a particular technology or action were assigned to the "Acceptance" variable of the conceptual model. Questions 18-25 of the draft survey instrument will be used to assess the respondent's fuel treatment acceptance.

Agency competence

Agency competence remarks (positive and negative) were primarily focused on prescribed burning. Participants consider the ability of an agency to successfully contain forest fires as a key factor in decisions about fuel treatments, particularly prescribed burning. Degrees of professional skill and perceived credibility of agency personnel are important dimensions agency competence. Often, participants commented on how well the agency communicates with the public. Some remarked on how well agencies cooperate in fire management activities, the adequacy of firefighter training, and how successful suppression operations have been. Participants also shared their views on agencies' competence in developing and carrying out forest management policies not necessarily related to fire. Items from the draft survey instrument question 17 will be used to assess the importance of agency competence as a fuel treatment acceptance factor.

Ability to control fire

Participants recognize the catastrophic potential of wildland fire and some question the land manager's ability to control it. Direct and indirect experiences (through the news media, for example) are often associated with remarks about the ability to control wildland fire.

Well that's what they thought out west too and look what happened. When the federal land managers set a fire they couldn't put out. (Clay3)

They just let it go until it got right up to the border: "Oh, we guess we better do something!" (Tuolumne4)

The burning of the underbrush scares me and that's the reason I didn't put it first, because of personal-not personal experience to my own property, but being involved in various areas during these fires that were just out of control. And since I can't control that, it's one of those control issues, I would have to put that completely in the hands of someone else. (Clay1)

How can they predict no wind? Because I imagine that wind is the most feared thing in controlled burning. (Marin1)

Professional skills

For both mechanical treatment and prescribed burning, the perceived degree of professional skill influences participants' acceptance decision. Indicators of professional skill include, experience, education and training. Participants commonly summarized this consideration, preferring agencies and personnel who "know what they're doing."

Controlled burns, yes, as long as they are done by professionals and the conditions -- they know what they're doing -- let them handle it. (Clay2)

I would be very happy if the state had controlled burns in Jennings Forest. People who know what they're doing. I have no problems with controlled burns with state and federal lands, but on private lands where we have no control over people who don't know what they're doing, they are probably a greater fire hazard. (Clay3)

I would not be willing to support them unless I knew what it was they were doing and why, and who was in charge, and how educated they were about it. ...If people know what they're doing, if they can reassure us that they know what they're doing, then probably they would get a lot more support. (Marin1)

If inexperienced people try to set backfires, they can do more damage than what you're intending to do. And the Park Service doesn't have that many experienced people there. (Tuolumne2)

A controlled fire works well in a lot of areas, and obviously, they've had some disasters like New Mexico -- bad weather conditions, and bad judgment. That's really what it comes down to I think. The people who run these programs, if they're confident and well trained, then I think we're probably safe. (Marin3)

I support both [mechanical treatment and prescribed fire] 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. (Tuolumne4)

That's what happens when you get any government program going. I mean you're going to have those who are going to use it and the ones that could put it to good use. And under proper management you could probably use such a program in areas that can be done [mechanically]. It would take a lot of people and give them jobs and put them to work. It's something to think about. (Tuolumne1)

I've been a cop for 32 years, and I've done just about everything that you could possibly think of, and I wouldn't be a fireman to save my soul. Those guys and ladies are just incredible. I mean, they parachute into forest fires. They are some outstanding people. (Marin2)

Agency trust, credibility

Issues of trust and credibility surfaced occasionally during focus group discussions. Most notably during the focus groups in Oscoda County, where rumors about local agencies and their responses to recent wildfires appeared to have taken hold and, evidently, influencing participants' fuel treatment acceptance decisions.

I think this summer's fire was set by the Forest Service. (Oscoda2)

Perceptions of credibility can be more subtle than what was observed in Oscoda County.

But I kind of wonder sometimes as to whether they actually have things under control, the way they try to ensure us that they have things under control. (Clay1)

Agency trust was not limited to negative perceptions.

I have a lot of trust in people making the decisions, that they will be thoughtful about the wildlife. (Marin1)

Communication

Participants commented on local agencies' *effort* to communicate with the public. Comments are both positive and negative.

They're also pretty conscientious about advising all of us who live in these heavily wooded areas to try and keep the brush away from the house for some distance. I think the prescribed distance is something like 30 feet or so from the walls of the house. So, some effort is being made. (Marin2)

The communication [between the forest management agencies] isn't there. (Oscoda2)

As far as fires go, we don't have a whole lot of heads up on these things. And of course there are some that happen by nature and by accident that they don't have a heads up on either. (Oscoda1)

Once a year the ranger or one of her staff people comes to a homeowners meeting and gives us a face to face talk, answers questions and so on. I think we have pretty good communications there at that level. (Tuolumne3)

On the use of prescribed fire, I think the forestry people have been doing a good job in terms of notifying the public before they do the prescribed fire. (Tuolumne4)

In addition to remarks about public communication *effort*, this participant also expressed a preference for the communication *message*.

The fire department has been very good about indicating to keep your land clear 30 feet. But they haven't been very clear about all of the other ways in which people can keep themselves safe from forest fire. (Marin3)

Outcome beliefs

Focus group participants commonly referred to smoke, escaped fire, catastrophic fire, home loss as negative outcomes of fire management, including fuel treatments. Positive outcomes included: “regeneration” of the forest and replenishing soil nutrients. Two outcomes were either positive or negative depending on the particular fire management policy being discussed: *cost* and *air quality*. Participants commonly discussed the cost of alternative fuel treatments, however there is no apparent consensus regarding which fuel treatment is more cost-effective. All of the aforementioned outcomes were mentioned at least once at each site and several were mentioned at least once during each of the 12 focus group discussions. Items from the draft survey instrument questions 7 and 8 will be used to assess the importance of outcome beliefs as a fuel treatment acceptance factor.

Air quality/smoke

Participants acknowledge the relationship between prescribed burning and air quality.

When you have a lot of burns, you're going to have some air quality problems. (Clay3)

The smoke pollution can be kind of nasty if it's a big enough burn. (Marin2)

They also express varying degrees of tolerance for the smoke generated by either prescribed burns or wildfires.

I think the smoke in the environment is the pits. (Marin2)

I personally would gladly put up with it if it does the job. (Tuolumne4)

I can deal with the smoke and a little bit of ash. (Clay3)

They get a lot of flack from the visitors and others, and it's very difficult to do what they want to do. The smoke gets in people's noses and often times they have to stop it if it gets too much. (Tuolumne2)

One participant echoed the thoughts of some of the agency focus group participants when he observed that the issue of fire management becomes relevant to some homeowners only when they are personally affected by smoke.

And the next time it is an issue for them is if there is prescribed burning and the smoke blows through their neighborhood. That becomes a definite issue for them. But there is no correlation or trying to understand that smoke in the middle of November might save their house come January or July. (Tuolumne3)

Certain population subgroups are particularly smoke sensitive, including those with respiratory ailments such as asthma.

It effects the air that we breath and of course we have a lot of people like myself in Florida that have asthma and stuff like that. It effects them a lot, especially when there is fire in the area where the smoke is so thick you could almost cut it with a knife, which it was in 98'. (Clay2)

Participants view air quality outcomes as either positive or negative depending on the fuel treatment.

Yeah, less smoke [with mechanical treatment] because that affects our health. (Tuolumne1)

They keep the kids in too, at school if there is a lot of smoke from a fire. (Tuolumne2)

Cost

Frequently, participants considered costs in their evaluation of fuel treatments. Often, they associated costs with the physical resources required for the job.

I think the mechanical means would really be expensive-to have a man go out to the woods, 100 guys doing that. (Clay1)

I'm just trying to think about this in my mind if I had 1,000 acres of woods, I would much rather manage it at a low cost way and mechanical is going to be a lot more money to go in there. I mean, 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. (Oscoda1)

I would be more inclined to go mechanical around homes than [to use] fires. And I think it would be more cost-effective to do a mechanical than it would be to do a burn. (Marin2)

Some considered as unacceptable costs the risk of escaped fire from prescribed burning, and its associated negative outcomes.

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. (Marin2)

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. (Oscoda1)

One participant saw cost as a barrier to creating defensible space around homes.

[Regarding self-protection] It costs several thousands of dollars a year to maintain a piece of property. Just from a fire standpoint. I would say there are numerous people in our neighborhood that don't have the couple thousand dollars, and only fear will cause them to pony up the money to do it. It's money. (Marin3)

Escaped fire

Participants at all sites acknowledge the possibility that prescribed burning will result in an escaped fire. Some acknowledge that the risk of escape is small.

The thought occurs to me that we receive the news on forest fires that have gotten out of control. But, it seems to me, that it just doesn't happen. They do prescribe burns every once in a while. They must do it all the time. (Marin2)

[I prefer] the controlled burning because of the fact that it is controlled and generally speaking they do take precautions and make sure that the fires don't get out of control. (Clay2)

Still, the effect of catastrophic fires from escaped prescribed burns has certainly left its mark on participants' views. Participants referred often to the recent escaped fire near Los Alamos, New Mexico. Oscoda County participants referred to the 1980 Mack Lake fire.

If somebody came to me and said we're going to have a controlled burn out here, what do you think of that? And 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?" (Tuolumne2)

New Mexico. That was a really bad one. Anyway, I think that certainly got a lot of press. I don't think it produced a lot of good relations for prescribed burns. I think that's something that people have to be calmed down about. How is that not going to happen again? (Marin1)

But a controlled burn is a risk. People could not have been better prepared than the National Forest Service in Los Alamos: knowledge, information, and as you say, almost half the state burned down. (Marin3)

I know that everybody around here has got a bad taste for prescribed burns because of Mack Lake and all that. (Oscoda1)

Catastrophic fire

Generally, acceptance of treating fuels is sometimes related to an acknowledged risk of fuel build-up that can lead to catastrophic fires.

Rather than having to manage burns that they do have. The clearing of underbrush is an essential part of it. If it isn't done, then we end up with the fires like we've had in the last couple of years. (Clay1)

I think there has to be some way to take the underbrush out to make it possible to fight these things. Okay, now you remember a few years ago in the Yellowstone, they just let it go and it got out of hand. (Tuolumne3)

Loss of homes is widely recognized as a possible negative outcome associated with wildland fire.

I'm not directly impacted. I might suffer consequences when roads close, etc. But the people living there in trailers and in that area, will be burned out and why it should be caused. We have to help those guys out. So why did it start in the first place? And I attribute that to lack of land management. (Clay1)

You take such a chance of burning out people. (Oscoda1)

I think it is unfortunate when homes are burned and animals, you know, when they're killed. (Tuolumne1)

And [the fire department] just came right out and said to the public, when they had a dinner meeting here, "If your house is surrounded with trees and vegetation, and there is another house down the way that is beautifully trimmed, that house is going to be defensible, and your house is not." (Marin3)

Aesthetics

Participants expressed an interest in the aesthetic outcomes of prescribed burning, mechanical treatment and defensible space. As with the issue of cost, there is no consensus on whether one fuel treatment is superior in this regard.

[I would want to know] where did they last do something that was similar to this? What did it look like before? And what does it look like now? (Marin1)

But-and as far as a fire break, you know, us local guys we never realized how wide that thing is until we 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." (Tuolumne4)

Factual Knowledge

Focus group participants demonstrated knowledge of concepts that are relevant to fire management decisions including: the problems created by years of "suppression only" policy, the effect of stand structure (density and fuel ladder arrangement) on fire management outcomes, and endangered species as a consideration in fire management decisions. Also common across all sites was the topic of who benefits from forest and fire management policies. At each site, at least one remark referred to policies that primarily benefit commercial interests over the public interest. Not surprisingly, participants also discussed communication and the important information sources from which they learn about forest fires and fire management. Items from the draft survey instrument question 15 will be used to assess the importance of factual knowledge as a fuel treatment acceptance factor.

Communication

Indicating a lack of knowledge on certain topics, participants often called for more education and better communication with land managers.

I would need to know a little bit more about how prescribed burning works. I don't really know. I'll need my imagination, but I don't know exactly how that works and how it's controlled. (Clay1)

Rather than coming to us and saying, "Now you must do this, because we're concerned." they should have started informing us of the dangers of fire: what one does about it; how to prevent them; the history of our area; the woodlands; what it takes to suppress, etc. (Marin3)

I think it boils down to the lack of communication. They tend to forget that it's our forest and not their forest. (Oscoda1)

We really don't know enough [about prescribed burning] – only a small article in the newspaper. Most people are not informed. (Oscoda2)

And then, if I was satisfied with all the information I got [about a proposed fuel treatment] if it had really been a thoughtful process, then I would try and be supportive, and I would try and educate other people about it. But, if it wasn't, I would do everything in my power to figure out how to stop them. (Marin1)

Management objectives

Sometimes, participants preferred more communication on management objectives.

I'd like to see if they looked into seeing if this was the best way to do it, versus the cheapest way to do it. Why this way, and not that way? (Marin1)

[We] need more public education. Need to know why. (Oscoda2)

I really don't know that much about the individual manager's philosophy. (Tuolumne2)

Stand structure

Forest characteristics such as density and age diversity emerged as common considerations in the discussion of fuel treatment pros and cons. Participants generally understood the relationship between the physical configuration of the forest and the potential for catastrophic fire.

The only alternative [to mechanical treatment] would be controlled burns. Certainly certain forestlands would be so thick you couldn't get any equipment in there to do it anyway. (Clay2)

I'm concerned about taking out the younger trees and messing with the age diversity of the forest. So, the whole biodiversity issue comes up. (Marin1)

But if you've got the forest where you've got to dodge trees to walk to your house through your driveway to cut a path, you know [you've got to solve that problem], like my uncle's house. I mean you couldn't even see the road because there were so many trees on it. (Oscoda1)

I think there has to be some way to take the underbrush out to make it possible to fight these things. Okay, now you remember a few years ago in the Yellowstone, they just let it go and it got out of hand. (Tuolumne3)

Escaped fire

Several participants demonstrated knowledge associated with the frequency of, or factors that contribute to escaped fires.

Every now and then you will get a wind that will come up and exceed the boundaries that were expected. That's probably where the fear issue comes from. Now we have an uncontrolled burn and where's it going to stop? Nobody knows. And that's the difference between an uncontrolled burn and, hopefully, a controlled burn. (Clay1)

*It turns out that only a tenth of a percent or one percent of those fires get out of control.
(Tuolumne1)*

By the way, on that Los Alamos fire apparently what caused that fire to do all the damage was when they decided to put out the prescribed fire. I talked with some of the people that were involved in that and the backfire was the one that got away when they tried to put out the prescribed burn. (Tuolumne2)

*I think in terms of fire management, the build up of lots of fuel is not a good idea. I think that controlled burning is scary, because there has been a build-up of a lot of fuel. So, I'm a little bit concerned about a fire going out of control, but it seems like they've been doing a good job so far.
(Marin1)*

Local fire history

Not surprisingly, since all four sites are near recent significant wildland fire events, many participants remarked about those events, noting their size, location, dates of occurrence, and outcomes.

Yeah, that's where he's talking about. And it's happened twice in the last 10 to 15 years. It happened once and burned the area out just about totally. (Clay1)

It was burning out on Cannon, I guess, as far south as past Daytona, I guess. (Clay2)

*I think that's what started that fire down at Grant Landing and Old Jennings Road actually.
(Clay3)*

*It burned up this side; it burned from the forest side in this area and this side of the Yosemite.
(Tuolumne1)*

It went all the way up to the park and into the park a little bit. And it went all the way down to the river and across the river. It was something like 50,000 acres. It was really big. (Tuolumne2)

Oh, the big Point Reyes fire. Oh, Point Reyes burnt to a crisp. (Marin1)

*I do know that people are extremely concerned. The last big fire on Mt. Tam was about 1925.
(Marin2)*

We had a very serious fire in [Mack Lake]. It started out as if it were a managed area. (Oscoda1)

*[We have] more fires in the south part of the county, not the northwest part of the county.
(Oscoda2)*

Ignition

Participants demonstrated knowledge that a variety of ignition sources are responsible for wildland fire, and some noted the frequency of lightning fires.

I do know from what I've read and from what I've heard that most fires are caused naturally by lightning and when it's a pine tree, if it strikes a pine tree, it will sit there for a half hour and then all of a sudden that tree will just explode into a fire. (Clay1)

Ninety-eight or some percent of the fires at the Yosemite are lightning caused. It's very rare that a human causes fires. (Tuolumne2)

And it can happen in a drought season just by a drop of a cigarette, just about by any spark whether it be from a car or what. You can pull off along side of the road and a catalytic converter can start a fire. (Clay2)

It was a terrible fire. Some kids had a campfire and didn't put it out. It roared through Point Reyes National Seashore. (Marin1)

That was the one that started on the top. The wind was blowing, and it just took it all the way, about halfway across Dell Ridge. It started with a turkey vulture [that had become entangled in electric wires, causing sparks that ignited a fire]. (Marin2)

Weather

Participants cited weather as a contributing factor in ignition and propagation of wildland fire.

A wind can come up, and all of a sudden, it's out of control. (Marin2)

Most fires take off, or the wind changes. (Oscoda2)

It happens so suddenly too. Just a couple of days of warm wind. (Tuolumne4)

Those kind of days are the kinds that it is still in the morning, but the thunderstorm hits in the afternoon and the wind picks up to 30 miles an hour and then it becomes a problem. (Clay3)

But we do get a lot of fog in here. So, it keeps things more moist than if you go further inland. (Marin3)

Specific fuel treatment techniques

The focus group interview protocol was intended to guide the discussion of fuel treatments in a manner that considered specific classes of fuel treatments (primarily prescribed burning and mechanical treatment), but not specific techniques within each class. However, it's worth noting that some participants expressed preferences for specific techniques, notably, firebreaks and the use of livestock grazing.

Firebreaks

They should make more fire lanes, where they can have a controlled burn, they should have fire lanes between the highway and the forest where they keep it tilled up all the time so that it's not going to automatically go into the forest. (Clay2)

The best way to control the situation is mechanically bring things down. Cut trees or cut fire lanes or whatever to control a possible fire. (Clay3)

Use machinery to make fire breaks. (Oscoda2)

[In] one area you might want to put a fire break and you might have to have it 15 feet wide or you might have to have it 150 feet wide. You know, it depends on where it is and what the growth is all around it. But fire breaks are excellent. (Tuolumne4)

Livestock grazing

I guess there is room for some kind of natural way of controlling those things. I know that in the city of Erie, they have goats around the water supply that eat the grass down so they don't have to mow it because they can't. (Clay1)

Bring in the goats...to reduce the shrubbery and some of the non-native species. Certainly they don't take care of the trees, but they do reduce some of the fire danger. (Marin1)

I like the mechanical approach around homes. I think it's safer, and I don't think the heavy equipment would be the answer, but certainly, I've seen what the cattle do around my place. And I like what they do. (Marin2)

[Growth] needs to be eaten down by goats or whatever it takes-whether it is cows or whatever. (Tuolumne4)

Situation-dependent

Participants commonly expressed the view that whether one class of treatment is acceptable depends on the situation, and they noted these site-specific considerations.

Well I think all three[fuel treatments] have a place in our system because there are areas that limit themselves to use of one of the three. There are areas that you can't do control burns and there are areas that probably the herbicide would be a more appropriate means of control. And then there are areas that the mechanical would be more appropriate. So I think all three have a place. (Clay3)

How about a combination of the two? The only thing I can see is if you use it all in the mechanical way, then you're not really allowing nature to do what it does on it's own, which is having some sort of a fire. So, you're not doing what you need to do with the seeds, and the ground, and all of that stuff right? If you're just removing things that start a fire. So, if you could maybe do a combination of the two. Do the removal, the mechanical part first, which would help them have more control over a prescribed burn. There would be less chance of it getting out of hand. And then maybe have smaller and less frequent and more certifiably controllable burns. Maybe that would be a way to go. (Marin1)

I would support both ways. One, mechanical probably around homes with owned property I suppose. Fire, I guess, if you were more out in the woods you would have [a large expanse of] natural forest. (Oscoda1)

[The fuel treatment technique] depends on the area. Because on one side of the hill there is some type of growth and on the other side of the hill there is something else because "mother earth" is not the same all over. So you have to have all of these working together and there is no single one that I think is better than the other. (Tuolumne4)

Site-specific considerations

Commonly, participants viewed all fuel treatment techniques as tools that should be used selectively, sometimes in concert with each other depending on site, or agency-specific

situations. Participants said their decision to accept an agency's use of particular fuel treatment techniques would be dependent on the size of the fuel treatment (in area), the degree of planning that preceded implementation and the adequacy of the resources (human, equipment, and fiscal) available to the managing agency.

Planning

I think if they plan this and were able to keep it under control, I would be all for it. (Clay1)

We have enough natural fires here. I know we have a few prescribed burns and I'm not sure how much planning goes into those. (Tuolumne2)

How do they choose where [a fuel treatment] happens, like your corridor idea. What goes into the planning. I think that would be important. (Marin1)

I'd have to have more information. I'd have to know how close it is. How big the burn area is supposed to be. I'd have to know what kinds of plans they had in reserve in case the thing got out of hand, and they had 500,000 guys standing around with hoses. I'd feel a lot more secure about the idea of a controlled burn. (Marin2)

I'd like to see some planning go into it. (Marin3)

I think if they are going to have a prescribed burn, they should figure out where they want to have it and take about a year ahead of time and look at it. (Oscoda1)

Proximity to developed areas

If I [was told by] anybody that controlled burning [was proposed for] my forest next door, I'd be scared to death. (Clay1)

It would not be appropriate to have a little burn too close to Pine Mountain Lake, but certain elevations and so forth. (Tuolumne2)

One is not better than the other. For instance, around homes, I would presume that mechanical would be better, and out in more rural areas, a fire would be better. (Marin2)

Firefighting resources

If I realized that [a prescribed fire near my home] was professionally done and they've got the trucks and they've got the firefighters standing by to protect anybody's property, that would be all right. (Clay1)

I am in favor of prescribed burning if it is done properly with sufficient personnel. (Tuolumne2)

I would have a whole squadron is C47's out there all full of borate, on the line, all the time, year in and year out, just for that kind of thing. I think that sooner or later, it's going to happen, and if it does, I think you're going to have a hard time stopping it. Because an uphill fire, those things move so fast. (Marin2)

They should make sure they have enough manpower before they strike the first match. (Oscoda1)

Size of fuel treatment

Do they burn a 100 acres at a time and all the wildlife goes with this big ton of acres? (Clay1)

If they are small enough and controlled enough, it seems to me, that would be the most reassuring to absolutely everybody. It would have less chance of getting out of hand – more chance of protecting the wildlife. (Marin1)

I'd have to have more information. I'd have to know how close it is; how big the burn area is supposed to be. (Marin2)

They should be realistic on how much they are going to burn. (Oscoda1)

Personal importance

The pencil and paper exercise indicated that the issue of wildland fire is frequently cited as an issue that land managers should discuss with local residents; however, it was not the most frequently cited issue. Regarding fuel treatments in particular, three factors emerged that were associated with personal importance: the amenity value of participant's vegetation, perceived property rights, and smoke impacts (see the Outcome belief section for quotes about air quality and smoke).

Vegetation amenity

Clearly, the amenity value of vegetation surrounding homes in WUI areas is a prime consideration in creating defensible space. In addition to the consideration of the capital investment in creating defensible space, the perceived opportunity cost of eliminating or reducing vegetation on one's lot is a potent barrier to defensible space compliance.

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? So, I understand where they are coming from, but if I'm going to clear out all the trees and the shrubs and everything that is around my home for the certain amount of space all the way around my house, I might as well live in the city and that's why I pay insurance, so that if there is a fire and my house goes ... I don't want to live in the city, I want to live with the trees and the shrubs and all the stuff that's there. (Oscoda1)

When I picked my piece of property, the gentlemen that cleared it there said, "You tell me what you want gone and tell me what you want cleared and that's all I'll touch." And all I had him take was just where my house was going to be and I did the rest. And you look around and you see homes now and there's nothing on their property. And I don't understand; why did they move to the woods? You know? They live on a piece of dirt. (Clay3)

In my opinion, I think people, and I'm as guilty as anybody, but they have a responsibility to maintain their property. I know nothing about landscaping. I don't want to cut it down. (Marin3)

Property rights

The issue of property rights may also enter the acceptance decision, particularly when one considers the acceptability of enforcing a defensible space ordinance.

I think the con is, how do you manage mechanically the control of growth, and not invade people's privacy and their own control of what they want for foliage around their homes? (Marin3)

Over his otherwise strong objection to the use of herbicides, one participant recognized the rights of private property owners to employ certain fuel treatment techniques despite the preferences of others.

The land management from a corporate standpoint is, "I own that tree farm, by God, I'll do what I want to with that tree farm." Now I may not like the use of herbicides on that, but [it's not] my right to dictate that they can't use it? (Clay3)

Occasionally, participants refer to the relationship between individuals and public land vis-à-vis land management (not necessarily fuel treatment, specifically).

I would like to see an attitude toward the forest that it's national property, it's not the property of the local people or the local loggers or whatever and it's there for posterity and you do what you can to ensure diversity and look at it that way. (Tuolumne2)

I think it boils down to the lack of communication. They tend to forget that it's our forest and not their forest. (Oscoda1)

Fire experience

At all sites and almost all focus groups (11) participants described local wildfires, often as direct observers or being otherwise directly affected by the fires. Common factors of the wildfire experience include fear, evacuation, and smoke. Occasionally, participants had observed prescribed fires. Indirect fire experiences are often associated with various forms of agency communication or the print and broadcast media. Another experience common to all sites was being present in the face of a neighborhood fire hazard. Items from the draft survey instrument question 4 will be used to assess the importance of fire experience as a fuel treatment acceptance factor.

Wildfire

Clearly, for some participants, the experience of witnessing a wildfire was scary.

It was really scary because when it starts heading down that way and it starts heading towards your home -- I mean towards anybody's home -- that's devastating enough. (Clay3)

The smoke was coming over on the family. We're new [here] and we're thinking, "Gosh, are we going to be burned out of here? This could be the end." It was a little disconcerting and nobody else seemed to be concerned. Then just a month ago or so there was a fire down here and the smoke and the ash came over and settled on us. And you know, I'm thinking, "Gosh what did we move into?" (Tuolumne2)

But the grass was only this high and it was moving fast because it was a windy day. But, nobody's home was ruined. It was well controlled. I was impressed. A little scared you know. (Marin2)

But I saw that thing go up there, and it scared the ____ out of me. Fire is one of these things that you see on T.V. You don't get it until you see the real thing. (Marin3)

Few participants describe first-hand observations of suppression efforts.

*When we moved in last year they had that fire over by Willows Springs area, on the ridge right across one lake. I saw the CDF planes coming over and dropping the borate. I mean they did a fantastic job. They had the fire ten feet from the house. It scorched the paint on a lot of the houses over there but they didn't lose the house. I mean they have excellent fire protection up here.
(Tuolumne3)*

Some participants had been evacuated during past wildfires, though no one reported direct experiences with fire-related injuries or property damage.

It was that close and they had already been around telling us that they were going to give us 30 minutes to get out. (Clay1)

We had summer school going on and my school is just right down from where we're talking about and there is only one way into our school and there's only one way out. And they did a mandatory evacuation during the summer school day, which has never happened. (Clay3)

Of the four sites, comments about road closures due to smoke and fire suppression activities were most common in Clay County.

I was in Orlando for a program in '98, I flew down for a meeting. Left down there at eight o'clock at night and I couldn't get home. I literally could not get home; 95 was closed. I tried coming up 75 to Gainesville and 24 was closed to Waldo, so I couldn't come up 301. Okay, get back, go to I-10, I-10 was closed. It took almost five hours to get home going through back roads and skirting around roadblocks, trying to get back to the house. I mean [the fires] basically shut down most of northeast Florida in two weeks. (Clay2)

Participants report observing post-fire effects at home and on vacation. Sometimes these observations were accompanied by a structured interpretive program or guided tour (see *Communication* below).

*By spring you have new growth coming up already. I noticed on [Route] 120, you know they have a few little fires right by the roadside and it just basically burned the underbrush and that sort of thing. They weren't controlled burns; they were actually fires that were caused by lightning.
(Tuolumne1)*

After being in Yellowstone last summer, I was amazed, because I can remember it almost as seeing it now, the fires at the time. And I thought they were so awful. And I started reading articles about how fires are good for the area. And I found that hard to believe. But seeing it now is just amazing. (Marin2)

Prescribed burning

At all sites at least one participant had observed a prescribed fire, though not always where he or she currently live.

*When I've seen them do it in the Yosemite between here and there it's been in the fall.
(Tuolumne1)*

There was a burn right up next to my house about 20 years or so ago. Fortunately, the house that's there now, wasn't built [yet]. It's a panicky feeling. And I did smell the smoke from the control burns, because they were just about a mile away. (Marin1)

[My learning about fire has] been more hands on...Like when they are burning here in the spring and they close the bridge in McKinley across the river and the state police are coming into the store to get a pop and this and that. (Oscoda1)

I grew up on a 10,000 acre wildlife preserve in South Georgia, which is just north of Tallahassee. And my father was superintendent and did control burns and that's how the vegetation was kept under control and we never had a major forest fire. But I'm 59 years old and I can remember all my life, my father doing the burns and the fire lanes, cutting the fire lanes. We never worried about a major forest fire, but that's not happening here, so we do worry. (Clay3)

Control burns are probably not well handled. That's a stupid statement, but I can remember when I owned some property out in Menlo Park and we went up there. I hadn't seen it since the winter so I drove out there in the spring and they burned in the fall and my God, the place was still hotter than a firecracker. They had little fires all over heck out there and they really didn't follow-up. So a lot of it is just a lack of management. (Tuolumne4)

Smoke

Wildland fire smoke experiences range from once smelling smoke from a distant fire to sustained periods of more bothersome levels.

It's not a question that you come home and see it on the evening news or smell smoke in the afternoon and think there is a fire somewhere, but you live with it around the clock. In the middle of the night, you smell smoke and you get up and check what's going on. You have that day after day after day and it's numbing after a while. (Clay3)

There was a burn right up next to my house about 20 years or so ago. Fortunately, the house that's there now, wasn't built. It's a panicky feeling. And I did smell the smoke from the control burns, because they were just about a mile away. (Marin1)

Fire hazard

A common complaint among participants is a neighbor whose behavior creates a fire hazard.

The neighbor behind me set a trash fire and it got out of hand. It ended up burning 20 acres. A week and a half after that fire burned, the neighbor on the other side of us had a trash fire get out of hand. I walked out my back door and the flames were going 20 feet up in the trees next door, so we had the fire trucks out, the second time. Two weeks after that one, the neighbor on the other side, had a fire going. He runs a land clearing business and he brings all his trash home so he doesn't have to go to the landfill and he had a huge bonfire in his yard that sent sparks up into the air and it lit the yard across the street. (Clay2)

They've got a burn ban going and you see your neighbor burning, you're over there on him: "What are you doing!?" (Clay3)

I live in the forest and I think about fires. I complained once about kids shooting fireworks in the forest. [People] don't want their houses burned down. (Oscoda2)

Communication

Generally, the most common fire experiences are indirect through various forms of communication. The comments below are primarily responses to the focus group interview protocol question that asked participants, “From what information source have you learned the most about fire?” At one end of the spectrum are the rich, hands-on or interpretive experiences, usually initiated by government agencies and conducted by their officials.

I fortunately went to the environmental workshop for a couple of weeks in the woods. It was with foresters and forest rangers. We got to actually see them set control burns and watched how they did it and saw how fire moves, and they talked about how the fire will crown and all the conditions to set fire. I mean it was very educational. I learned an awful lot from that. (Clay3)

They took us on a bus trip through the area. Last year we went up towards Jupiter, where they had the forest fire sometime ago? And one of the things that they were interested in was grazing. This one particular individual he has a cattle ranch up there. (Tuolumne3)

I learned most [about forest fires] around campfires when we took the kids camping. Every summer we took them camping for a week up in the Humboldt redwoods. And we learned almost everything around campfires from the rangers. (Marin2)

Sometimes the interpretive experience is unguided.

My first contact with [forest fire] was in Yosemite reading about it. Because they have big descriptions of how they manage the forest up there, and that they do prescribe burns to preserve the trees and so forth and so on. (Marin1)

At least two participants are engaged in advocacy groups related to fire.

I have been very active with [an organization] called People for a Healthy Forest. It's fighting the application of herbicides in the forest as an aftermath of fire, so I learned a little bit about fire crosses as a result. (Tuolumne2)

Some participants are familiar with, and have received agency literature advising them to create defensible space around their homes.

I remember some kind of bulletin like that going out about cutting back from your fences. (Marin2)

Many participants experience wildland fire indirectly through the print and electronic media, sometimes in the form of notices about upcoming prescribed burn activities.

I read about controlled burns in the paper, somewhere in the town section, saying this is going to be happening -- or the town newsletter perhaps. (Marin1)

Several participants had previously work for an organization that worked directly with wildland fire.

I worked with the volunteer fire department. We went out door to door. I think there are people still doing that. I haven't been able to because I am too wrapped up with my family, but we went around door to door and told people about getting their [house] numbers out there and how far they had to get things cleared away from their houses and that sort of thing. (Tuolumne4)

Validation of findings

The findings of this study were used to develop a survey instrument to further validate the proposed conceptual model of fuel treatment acceptance (Appendix H). The survey instrument will quantitatively test the relationship between the dependent variable – fuel treatment acceptance -- and the independent variable components of the theory of reasoned action: beliefs, attitude and subjective norm. Our model also incorporates independent variables suggested from the literature and this study: value orientation, factual knowledge, perceived agency competence, personal relevance, and demographic characteristics such as tenancy (permanent or seasonal) and urban or rural upbringing.

Appendix A: Focus group recruitment material

Please return this postcard after indicating your interest and willingness to participate in a group discussion on forest management on **Monday, November 13th at the Clay County Cooperative Extension Office**

- I am not willing to participate.
- I am interested and will come if I can.
- I am very interested and will definitely attend.

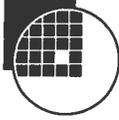
Name: _____

Town/State/Zip: _____

Phone number: _____

E-mail: _____

Figure 1. Sample focus group recruitment postcard



Research
Planning
Grantsmanship
Community Development

Paul Schissler Associates, Incorporated

1101 Harris Avenue Bellingham, WA 98225 Tel: (360) 671 5100 Fax: (360) 676 8500

July 7, 2000

«Owner_first»
«Mail_street_addr»
«Mail_city», «Mail_state» «Mail_zip»

Dear «Owner_first»:

A federally funded study of public acceptance and understanding of forest management practices is being conducted in your area. Researchers and state and federal forest management agencies are interested in obtaining a better understanding of your perspectives about forest management in Tuolumne County. Towards this end, researchers will be conducting several group interviews in your community. We'd like you to participate in a group interview on **Wednesday, July 26, 3:00 – 4:30 PM** at the following location:

Groveland Community Hall, Main Street, Groveland, CA

Your participation is voluntary. We appreciate how valuable your time is; that's why we promise that the meeting will last no longer than one and a half hours. The group discussion will be tape recorded so that valuable comments are not lost; however, your name will not be used in any reports produced from these interviews.

Please read the attached information sheet, then fill out and return the enclosed postcard right away. We will call you next week to confirm your willingness to participate and to arrange a convenient time for the group interview. If you have any questions please call me at our toll-free number: **1-877-872-9377**.

Sincerely,

Greg Winter

Research Director

Figure 2 Sample focus group recruitment letter

Appendix B: Interview protocol

DGA Project focus group interview protocol

[Moderator Script]

Introduction:

For the purposes of our research study, we're talking to people who live in and near forested areas about forest management. By "forest management" we mean those things that public and private forest landowners do to make sure the land can provide certain uses and values such as:

- Recreation
- Wilderness
- Commercial uses such as timber
- Safety

We're interested in knowing:

- Why people choose to live in these areas,
- What their experiences have been like living in these areas,
- What forest management issues are important to area residents,
- How forest management activities affect nearby residents and their communities.

We're holding group interviews like these in different areas of the country and we'll use what we learn to design a mail survey questionnaire that can be used to help public land managers better understand the views of the people who live near forest land and may be affected by forest management decisions. We think this is one useful way for residents of an area and land managers, such as _____ to have a dialogue.

[HAND OUT CONSENT FORMS]

As we mentioned in the letter you received, your participation in this group interview is completely voluntary and you may leave at any time. We will be tape recording the discussion so that we don't miss any of your comments, but your names will not be used in any of our reports. By signing this consent form, you agree to those conditions.

[COLLECT FORMS]

There are just a few simple guidelines to make this discussion as useful as possible. We are tape recording so it's important that only one person speak at a time. Also, we have limited time together so I may have to cut the discussion of one topic short to make sure we get through all the topics in the allotted time.

DGA Project focus group interview protocol

Construct	Question
Local context	1. Let's take just five minutes to go around the room and introduce each other. Just tell us a little about why you decided to live in this area. Also, describe the area where you live.
	2. Some of you mentioned the [forest, natural environment] as a reason for moving here. For the rest of you, how did the forest affect your decision to move here?
	3. <i>[To everyone]</i> What DO you like about living near _____?
	4. What DON'T you like about living near _____?
	5. <i>[Moderator will hand out issue survey forms and pencils]</i> I would like to make a list of the most important issues that _____ should discuss with local residents and I could really use your help. Let's think broadly.
Personal importance/ Saliency Knowledge of results, factual knowledge, understanding of management goals and strategies	6. Some of you mentioned fires/fire management. Could you tell me all you know about fires/fire management? We're interested in what you know about fires and fire management in general and specifically as it applies to the Groveland/Sonora area. 7. I'd like to hear more about your personal experiences with forest fires.
Knowledge	8. From what information sources have learned the most about local fires and fire management.
Beliefs about fire management outcomes	9. A. How do the fire management programs, as you understand them, affect the health of the local forests? B. How do the fire programs, as you understand them, affect you and your community?
Fuel treatments introduction	I'd like us to talk more about certain fire management techniques that are used by public and private land owners. They generally fall into ___ categories: mechanical treatment, prescribed burning and _____. Mechanical treatment refers to the physical removal of vegetation to control how a fire would behave if a fire occurs. Examples include, cutting a firebreak around a subdivision or clearing vegetation around a home to protect it from an advancing fire and make it easier to for firefighters to protect it. Or, thinning the undergrowth in a forest so that a fire can't climb into the larger

DGA Project focus group interview protocol

	<p>trees, possibly causing a more intense and dangerous fire.</p> <p>Prescribed burning refers to using fire under controlled conditions to manage vegetation for certain purposes. Examples include, using prescribed fire to reduce the amount of fuel in a forest so that an uncontrolled, catastrophic fire is less likely to occur. Or, to create forest conditions that are more natural than if we always put out all fires; OR, to make the forest more suitable as habitat for wildlife.</p> <p>Other treatment _____</p>
<p>Beliefs about fire management outcomes</p>	<p>10. [Describe fuel treatment such as prescribed burning]. As residents and property owners of this area, what are the pros and cons of this fire management strategy? [Then the next fuel treatment, etc.]</p>
<p>Support/ acceptance</p>	<p>11. I'd like to go around the table with these last two questions. First, tell us whether or not you support the [Land Manager's] use of each of these fire management strategies [list them] and why or why not?</p>

Focus Group Consent Form

Groveland, California

July 26, 2000

I am volunteering to participate in the group interview conducted by Paul Schissler Associates on July 26, 2000. The group interviews are being conducted as part of a federally funded study of public acceptance and understanding of forest management practices. I understand that the group discussion will be tape recorded so that valuable comments are not lost, and that my name will not be used in any reports associated with this research.

Signed: _____

[PAPER AND PENCIL EXERCISE]

LAND MANAGEMENT ISSUES

We are interested in knowing what forest land management issues are most important to you and your neighbors.

Please list three issues that you think the land managers should discuss with local residents.

1. _____

2. _____

3. _____

Additional comments:

**Appendix C: Data from paper and pencil exercise
during resident focus gorups**

Forest management issues that should be discussed with local residents

Site	Participant ID#	Comment number	Respondent comment	Category	Theme
Tuolumne	1	1	Fire protection/ Control Burns	Forest fire	Prescribed burning
Tuolumne	3	3	Fire control- control burn	Forest fire	Prescribed burning
Tuolumne	4	1	Forest fire and regrowth control	Forest fire	Fuel treatment
Tuolumne	2	3	Good fire management	Forest fire	Fire management
Tuolumne	3	3	More control or control burning	Forest fire	Prescribed burning
Tuolumne	4	3	Ways of eliminating forest fires	Forest fire	Prevention
Tuolumne	5	2	The fires suppression policies- Let burn, extinguish, and "controlled burns".	Forest fire	Prescribed burning
Tuolumne	6	1	Fire control	Forest fire	Fire management
Oscoda	1	1	All fires	Forest fire	Fire management
Oscoda	3	3	Emergency plans in event of forest fires	Forest fire	Emergency response
Oscoda	6	2	Fire control	Forest fire	Fire management
Oscoda	7	3	Fire management	Forest fire	Fire management
Oscoda	10	1	Local control	Forest fire	Fire management
Oscoda	11	2	How to protect and form fires when having a high fire danger	Forest fire	Prevention
Marin	1	1	Fire control	Forest fire	Fire management
Marin	10	2	Trimming and thinning trees particularly for fire management	Forest fire	Mechanical treatment
Marin	1	1	Forest fires-land management to decrease severity when they happen. Definite plans to combat- or not- the flames	Forest fire	Fire management
Marin	1	2	Undergrowth management to decrease fire damage	Forest fire	Fuel treatment
Marin	3	1	Fire control, brush clearing, etc	Forest fire	Fire management
Marin	4	2	Fire management by reduction of vegetation	Forest fire	Fuel treatment
Clay	2	1	Forest management need to ass more control burns	Forest fire	Prescribed burning
Clay	3	2	Fires	Forest fire	Fire management
Clay	4	1	Controlled burns to prevent possible out of control fires	Forest fire	Prescribed burning
Clay	6	1	Need to have controlled burns	Forest fire	Prescribed burning
Clay	8	1	Control of fires	Forest fire	Fire management
Clay	9	1	Control burns	Forest fire	Prescribed burning
Clay	12	1	Controlled burning -residents should know if and when	Forest fire	Prescribed burning
Marin	6	3	Fire hazard considerations of the trees "already" and "to be planted"	Forest fire	Fire management
Clay	7	2	Fire management	Forest fire	Fire management
Marin	2	2	Education of residents towards prevention of careless fire starting	Forest fire	Prevention
Tuolumne	8	2	Potential for large uncontrollable fire	Forest fire	Catastrophic fire

Site	Participant ID#	Comment number	Respondent comment	Category	Theme
Tuolumne	4	3	Fire policy (Safety of our home)	Forest fire	Fire protection
Marin	2	1	Fire dangers	Forest fire	Fire protection
Marin	5	1	Making the community fire safe	Forest fire	Fire protection
Marin	7	1	Fire safety	Forest fire	Fire protection
Marin	9	1	Fire danger form trees to close to homes	Forest fire	Fire protection
Clay	19	3	Forest fire dangers- cut trees as necessary to protect homes	Forest fire	Fire protection
Marin	8	1	Making residents aware of what types of trees are fire hazards	Forest fire	Fire protection
Clay	13	3	Fire management	Forest fire	Fire management
Tuolumne	6	2	Forest Management-Lumber fire protection	Forest fire	Fire management
Tuolumne	5	2	Clear cutting and fire management	Forest fire	Fire management
Tuolumne	6	1	Fire prevention practices	Forest fire	Prevention
Clay	8	2	Prevention of fires	Forest fire	Prevention
Tuolumne	7	1	Fire protection-fuel breaks between residential area and river canyon	Forest fire	Mechanical treatment
Marin	1	2	Wildfire management-overpopulation	Forest fire	Fire management
Tuolumne	7	3	Logging-effect on adjacent rivers, clear cuts and recovery over time.	Forest management	Forest health
Tuolumne	8	1	Forest Health issues, i.e. Management vs. Non-management	Forest management	Forest health
Tuolumne	7	2	What protection does it need to preserve its health	Forest management	Forest health
Tuolumne	7	1	Retention of old growth forests	Forest management	Preservation
Oscoda	10	3	Preservation of the environment	Forest management	Preservation
Marin	2	3	The death of Marin's Oak trees	Forest management	Forest health
Marin	3	1	Protection of natural resources in the area	Forest management	Conservation
Marin	3	2	Maintenance of natural resources in the area	Forest management	Conservation
Marin	3	3	History of natural resources in the area	Forest management	Other
Marin	7	3	Ask residents for their suggestions on how to respectfully co-exist within nature	Forest management	Other
Clay	1	1	How to conserve the land in out area	Forest management	Conservation
Clay	6	2	Saving of large oak in populated areas	Forest management	Conservation
Clay	8	3	Preservation of resources within reason	Forest management	Preservation
Clay	14	2	Insure natural beauty of the land	Forest management	Forest health
Clay	15	1	Importance of preserving our forests for future generations	Forest management	Preservation

Site	Participant ID#	Comment number	Respondent comment	Category	Theme
Clay	16	1	Protection of overall ecosystem in each area	Forest management	Forest health
Clay	16	3	Set aside 100% natural forests for preservation and no visitors	Forest management	Preservation
Clay	17	3	Encroachment -buffer zone	Forest management	Conservation
Marin	9	2	Protection of existing forest lands open to the public	Forest management	Conservation
Clay	15	2	Don't strip the land either for personal use or commercial entees.	Forest management	Conservation
Clay	18	3	Saving old growing areas	Forest management	Preservation
Tuolumne	7	2	More diversity in plantation- more varied vegetation	Forest management	Biodiversity
Tuolumne	1	1	Post fire forest management (Re: Reforestation)	Forest management	Silviculture
Oscoda	8	1	Clear cutting large plots	Forest management	Timber harvest
Oscoda	9	1	Tree cutting	Forest management	Timber harvest
Oscoda	12	1	Timber harvesting	Forest management	Timber harvest
Marin	4	3	Maintaining the trees-pruning	Forest management	Arboriculture
Marin	5	2	Vegetation control around residences	Forest management	Arboriculture
Marin	5	3	How to control mature vegetation in community and around homes	Forest management	Arboriculture
Marin	6	1	Planting of trees and their subsequent care when mature	Forest management	Arboriculture
Marin	6	2	TYPE of trees to be planted	Forest management	Arboriculture
Marin	7	2	Native vs. Non-native plants	Forest management	Exotic species
Marin	9	2	Erosion of hillsides whether tree covered or not	Forest management	Erosion
Tuolumne	5	1	The impact of "clear cutting" forest management	Forest management	Timber harvest
Tuolumne	2	1	Over cutting, particularly clear cutting of forests	Forest management	Timber harvest
Marin	9	3	Non-native species taking over meadow land-ie eucalyptus and broom.	Forest management	Exotic species
Marin	10	1	Non native trees, particularly eucalyptus	Forest management	Exotic species
Marin	11	1	Proper tree selection, planting and care of private property forested areas	Forest management	Arboriculture
Marin	11	2	Types of vegetation most suitable for the area	Forest management	Arboriculture
Marin	11	3	Responsibility of neighbors to manage overgrowth and view preservation of their trees and shrubs	Forest management	Arboriculture
Marin	4	1	Appearance of the area	Forest management	Arboriculture
Clay	5	1	Greenways creation and management	Forest management	Arboriculture

Site	Participant ID#	Comment number	Respondent comment	Category	Theme
Marin	3	3	Weed control	Forest management	Exotic species
Marin	4	1	Control of non-native plants	Forest management	Exotic species
Marin	6	2	Methods of logging if needed	Forest management	Timber harvest
Marin	6	3	Methods of controlling non-native pest plants	Forest management	Exotic species
Marin	9	3	Regulations/codes , etc. Needed to care for forests and wildlife	Forest management	Regulations
Marin	8	1	Anything involving the removal of trees, (chapparell etc.) For development	Forest management	Arboriculture
Clay	6	3	Planting of trees and shrubs in road medians	Forest management	Arboriculture
Clay	7	1	Harvesting forest-reforestation and replanting	Forest management	Silviculture
Clay	17	1	Land use and habitat	Forest management	Land use
Clay	19	2	Determine when the land will be replanted and make user there is not clearing or runoff problems	Forest management	Arboriculture
Marin	4	1	Appearance of the area	Forest management	Arboriculture
Oscoda	14	1	Forest management, specifically timber management	Forest management	Timber harvest
Marin	2	2	Maintenance responsibilities	Forest management	Silviculture
Tuolumne	4	1	The type of timber cutting to take place	Forest management	Timber harvest
Tuolumne	3	1	Logging	Forest management	Timber harvest
Tuolumne	6	2	Clear cutting and logging practices	Forest management	Timber harvest
Oscoda	13	1	Why they use certain harvest methods	Forest management	Timber harvest
Oscoda	4	3	Timber management	Forest management	Timber harvest
Oscoda	7	1	Timber harvest	Forest management	Timber harvest
Clay	16	2	End logging in national and local parks and forests	Forest management	Timber harvest
Tuolumne	2	1	Over building	Urban growth	Urban growth
Tuolumne	3	2	Overbuilding/development	Urban growth	Urban growth
Clay	3	1	Clay county becoming ever developed	Urban growth	Urban growth
Clay	4	3	Over development	Urban growth	Urban growth
Clay	2	2	Stop the stripping of land from all trees	Urban growth	Deforestation
Tuolumne	2	2	Spraying	Biocide use	Biocide use
Tuolumne	3	1	Spraying	Biocide use	Biocide use
Tuolumne	5	3	Herbicides and chemical spraying	Biocide use	Biocide use
Tuolumne	8	1	Pesticide use	Biocide use	Biocide use
Tuolumne	9	2	Herbicide use	Biocide use	Biocide use
Tuolumne	1	1	Herbicide usage	Biocide use	Biocide use
Tuolumne	7	3	Use less herbicides in reforestation of NF	Biocide use	Biocide use
Oscoda	1	3	Rivers	Other	Other
Oscoda	9	3	Water management	Other	Other
Marin	8	4	Any use of any herbicides	Biocide use	Biocide use

Site	Participant ID#	Comment number	Respondent comment	Category	Theme
Clay	9	3	Keeping the natural waters clean- education and scheduled cleanups on personal properties as well as county and state properties	Other	Other
Clay	11	2	As homeowners move into developments, they are using fertilizers that pollute our streams and lakes	Other	Other
Clay	12	2	Rules and regulations for accessing the forest	Use	Access
Tuolumne	2	1	Closing of open BLM and other forests	Use	Access
Tuolumne	2	3	Ability to use lands recreationally	Use	Access
Tuolumne	3	2	Forest usage	Use	Use
Tuolumne	4	2	Area abuse by transient people	Use	Abuse
Tuolumne	5	1	Multiple use of forest facilities	Use	Multiple use
Tuolumne	5	3	Less than intrusive behavior	Use	Abuse
Tuolumne	6	1	Land closures	Use	Access
Tuolumne	7	2	Control of off road vehicles	Use	Orv
Tuolumne	8	3	Open access to public lands	Use	Access
Tuolumne	1	2	Forest road maintenance	Use	Road maintenance
Tuolumne	1	3	Establishing and maintaining hiking trails	Use	Trail maintenance
Tuolumne	4	2	Types of volunteering residents can be involved with forest monitoring	Use	Local stewardship
Tuolumne	5	1	Public access and use of forest	Use	Access
Tuolumne	6	3	Balance between forest enjoyment by many and preservation	Use	Multiple use
Tuolumne	7	1	What function does the forest serve to the residents and visitors	Use	Use
Tuolumne	7	3	What role can residents play in its use and care	Use	Local stewardship
Tuolumne	8	2	Roads in the wilderness	Use	Access
Tuolumne	9	1	Forest uses and conflicts with users	Use	Multiple use
Tuolumne	9	3	Cattle grazing	Use	Grazing
Tuolumne	1	2	Trail maintenance	Use	Trail maintenance
Tuolumne	1	3	Camping fees	Use	Access
Tuolumne	3	1	Explain why forest-service land is being closed off to the public	Use	Access
Tuolumne	4	1	Camping facilities	Use	Facilities
Tuolumne	4	2	Motels and Hotels to stay at	Use	Other
Tuolumne	6	2	Traffic control	Use	Traffic
Tuolumne	6	3	Medical facilities	Use	Facilities
Oscoda	1	2	Hutting (maybe hunting)	Use	Hunting
Oscoda	2	1	Trails closing	Use	Access
Oscoda	3	1	Location and use of trail systems	Use	Access
Oscoda	3	2	Access sites on ausable	Use	Access
Oscoda	4	1	ORU use	Use	Orv

Site	Participant ID#	Comment number	Respondent comment	Category	Theme
Oscoda	5	1	Road closing	Use	Access
Oscoda	5	3	Lack of additional trails for recreation	Use	Access
Oscoda	6	1	Trails	Use	Access
Oscoda	6	3	Charging for public use	Use	Access
Oscoda	7	2	Road closing	Use	Access
Oscoda	8	2	Road closings-too restrictive	Use	Access
Oscoda	8	3	Warbler closings	Use	Access
Oscoda	9	2	Trash dumping	Use	Abuse
Oscoda	11	3	Increase patrol/safety for those using the land (drugs, alcohol, speed)	Use	Safety
Oscoda	12	2	Land use and accessibility	Use	Access
Oscoda	13	2	Law enforcement	Use	Safety
Oscoda	13	3	Orv's	Use	Orv
Oscoda	14	2	Recreation activities, ORV over usage	Use	Orv
Marin	1	3	Recreational use- trails	Use	Access
Marin	7	3	Recreational use of public land	Use	Recreation
Marin	2	1	How to make public forest most accessible to public use but still prevent over use	Use	Access
Marin	5	1	Control of land abuse by mountain bikers	Use	Abuse
Marin	5	3	Recreational development	Use	Recreation
Marin	6	1	Access to forest and control of abuse of and by people	Use	Access
Marin	8	3	Land use issues such as grazing, mountain biking, off road vehicles of any kind	Use	Multiple use
Clay	3	3	How to make forest more accessible fore recreational use	Use	Access
Clay	4	2	The use of public lands for recreation	Use	Recreation
Clay	5	2	Development of public land for recreation	Use	Recreation
Clay	5	3	Using public land fore public education	Use	Education
Clay	7	3	Recreational use and public access	Use	Recreation
Clay	10	1	Retain and expand existing land for public use	Use	Use
Clay	10	2	Restrict development of commercial entities	Use	Other
Clay	10	3	Partnership with industry to use combonation of private and public sector land are	Use	Other
Clay	12	3	Making the forests more of a family place- recreational use	Use	Recreation

Site	Participant ID#	Comment number	Respondent comment	Category	Theme
Clay	13	1	Balancing multiple uses that are mutually exclusive-hunting and general recreation	Use	Multiple use
Clay	13	2	Enforcement issues use-Vs-abuse	Use	Abuse
Clay	14	1	Keep forest lands accessible to public -provide nature trails and carefully monitor vehicle traffic, and restrict vehicles to the roads that are provided	Use	Access
Clay	14	3	Allow hunting in specified areas of the forest. Reserve restricted areas fore use of public land year round	Use	Hunting
Clay	18	2	Greater amounts of public access to forested areas	Use	Access
Marin	7	1	Respectful preservation of wildlife and nature, be it private or public	Wildlife	Wildlife preservation
Oscoda	4	2	Warbler management	Wildlife	Endangered species
Marin	7	2	The need to provide corridors of natural areas for wildlife	Wildlife	Habitat
Oscoda	5	2	Deer kill off, baiting	Wildlife	Hunting practices
Oscoda	11	1	Jake pines/ Kirtland Warble	Wildlife	Endangered species
Clay	11	1	As more areas are developed we loose some of the natural habitats for our wild life animals	Wildlife	Habitat
Marin	4	2	Consideration of wildlife	Wildlife	Wildlife protection
Marin	3	2	Wildlife control	Wildlife	Wildlife control
Marin	5	2	Protection of wildlife	Wildlife	Wildlife protection
Marin	9	1	Maintenance and support of natural wildlife/habitat needs	Wildlife	Habitat
Clay	2	3	Set up more wild life refuge for the wild animals	Wildlife	Habitat
Clay	9	2	Protection of birds of prey in land clearing	Wildlife	Wildlife protection
Clay	18	1	Diversity of species and preservation of habitat	Wildlife	Biodiversity
Oscoda	14	3	Communication/Education-visibility of land managers	Other	Other
Tuolumne	2	2	Losing our timber/lumber industries	Other	Other
Tuolumne	5	2	Definitive long term objectives	Other	Other
Tuolumne	6	3	Private land ownership	Other	Other
Oscoda	10	2	Appreciation of federal funds	Other	Other
Marin	8	2	Anything that will impact riparian communities	Other	Other
Clay	1	2	Flooding	Other	Other
Clay	17	2	Cost to public in terms of \$	Other	Other
Clay	19	1	Let abutters know when forest is being cut and sold off	Other	Other

Appendix D: Agency focus group agenda and interview protocol

Demographic and Geographic Approaches to Predicting Public Acceptance of Fuel Management at the Wildland-Urban Interface

AGENCY CONSULTATION FOCUS GROUP AGENDA AND INTERVIEW PROTOCOL

- 1. Research project overview**
- 2. Regional fire history (catastrophic fires, impacts)**
- 3. Current and future fuel management strategies and objectives in Yosemite area**
 - a. Describe the fuel management strategy in each of your jurisdictions, including specific fuel treatments you have used and those you are currently using. Also, explain why you would use one fuel treatment in favor of others.
 - b. How do you expect your agency's fuel management strategy to change in the future?
- 4. Agency cooperation**
 - a. How do your agencies cooperate to manage fuels in this area?
 - b. Are there other cooperating organizations that are not represented today?
- 5. Agency interaction with public/landowners**
 - a. Relating to fire and fuel management, how would you describe your agency's relationship with the public? For example, what's the level of interaction between your agency and the public? Is the public interested in fire and fuel management? Are there ongoing outreach, education or public participation efforts in this area?
 - b. How do you communicate about fuel management with your publics? Present a package of different kinds and levels of treatments? Using what kinds of descriptive terminology? Do you discuss risk and how it is changed by fuel treatment, as in with and without, (as well as risks of fuel treatment)?
- 6. Public understanding and acceptance of fuel management strategies and objectives**
 - a. How well does the local public understand what your agencies are doing to manage fuels in the area and how well do they understand the specific fuel treatment objectives?

- b. Describe specific instances of interaction with a member of the public during which he or she demonstrated a significant lack of understanding of your agency's fuel management strategy or its objectives?
- c. Describe interactions with the public that demonstrated a good understanding?
- d. In general, describe the level of public acceptance of your agency's fuel treatment approaches and objectives. Does the level of acceptance vary by residential location or other demographic characteristic (certain subgroups)? Has the level of acceptance changed over time? Have there been any efforts to gauge public support or acceptance of your fuel treatment approaches.

Appendix E: Focus group discussion themes by model variable, site and group

Table 5 Focus group discussion themes by site and group

Each section of the table reports the results of frequency analysis for remarks associated a single model variable and themes are sorted in descending order of frequency across sites and individual focus groups.

Model variable	Theme	Percent of remarks with theme within model variable						Total	# of sites per theme	# groups per theme
		Clay	Marin	Oscoda	Tuolumne					
Acceptance	Prescribed burning	38.9	36.3	31.4	32.8	36.1	4	12		
	Mechanical treatment	15.0	25.7	20.0	25.9	21.3	4	12		
	Fuel treatments	11.5	10.6	17.1	32.8	15.7	4	12		
	Communication	1.8	8.0	0.0	1.7	3.8	3	7		
	Forest management	1.8	0.0	11.4	1.7	2.2	3	5		
	Regulation	0.9	0.9	0.0	3.4	1.3	3	5		
	Self-protection	0.0	14.2	17.1	0.0	6.9	2	6		
	Herbicides	27.4	0.0	0.0	1.7	10.0	2	5		
	Fire management	1.8	0.0	0.0	0.0	0.6	1	2		
	Suppression	0.0	1.8	0.0	0.0	0.6	1	2		
	Access	0.0	0.9	0.0	0.0	0.3	1	2		
	Ecosystem restoration	0.9	0.0	0.0	0.0	0.3	1	2		
	Logging	0.0	0.9	0.0	0.0	0.3	1	2		
	Policy	0.0	0.9	0.0	0.0	0.3	1	2		
	Reforestation	0.0	0.0	2.9	0.0	0.3	1	2		
	Site total (percent)		100.0	100.0	100.0	100.0	100.0			
Site total (frequency)		113.0	113.0	35.0	58.0	319.0				
Agency competence	Prescribed burning	55.0	15.0	33.3	16.7	29.9	4	10		
	Communication	0.0	45.0	22.2	38.9	26.9	3	9		
	Agency cooperation	0.0	5.0	22.2	0.0	4.5	2	3		
	Fire management	5.0	5.0	0.0	0.0	3.0	2	3		
	Suppression	0.0	5.0	11.1	0.0	3.0	2	3		
	Training	5.0	0.0	0.0	5.6	3.0	2	3		
	Cooperation	0.0	0.0	0.0	16.7	4.5	1	3		
	Forest management	15.0	0.0	0.0	0.0	4.5	1	2		

Model variable	Theme	Percent of remarks with theme within model variable					Total	# of sites per theme	# groups per theme
		Clay	Marin	Oscoda	Tuolumne	Site			
Agency competence (continued)	Response time	0.0	15.0	0.0	0.0	0.0	4.5	1	2
	Firefighters	10.0	0.0	0.0	0.0	0.0	3.0	1	2
	Response	0.0	0.0	0.0	11.1	0.0	3.0	1	2
	Decisions	0.0	5.0	0.0	0.0	0.0	1.5	1	2
	Enforce	5.0	0.0	0.0	0.0	0.0	1.5	1	2
	Firefighting	0.0	0.0	0.0	5.6	0.0	1.5	1	2
	Fuel treatments	0.0	5.0	0.0	0.0	0.0	1.5	1	2
	Herbicides	0.0	0.0	0.0	5.6	0.0	1.5	1	2
	Management	5.0	0.0	0.0	0.0	0.0	1.5	1	2
	Objectives	0.0	0.0	11.1	0.0	0.0	1.5	1	2
	Site total (percent)		100.0	100.0	100.0	100.0	100.0		
Site total (frequency)		20.0	20.0	9.0	18.0	67.0			

Fire experience	Communication	11.1	43.8	0.0	18.2	22.5	3	10
	Wildfire	24.4	12.5	0.0	31.8	21.6	3	8
	Fire hazard	26.7	3.1	33.3	4.5	14.7	4	6
	Prescribed burning	4.4	12.5	33.3	9.1	8.8	4	8
	Threat	11.1	0.0	0.0	0.0	4.9	1	2
	Evacuation	8.9	0.0	0.0	0.0	3.9	1	4
	Catastrophic fire	4.4	0.0	33.3	0.0	2.9	2	4
	Neighbors	4.4	3.1	0.0	0.0	2.9	2	3
	Agency competence	0.0	6.3	0.0	0.0	2.0	1	2
	Book reading	0.0	0.0	0.0	9.1	2.0	1	2
	Fire fighters	0.0	0.0	0.0	9.1	2.0	1	2
	Post-fire effects	0.0	6.3	0.0	0.0	2.0	1	3
	Self-protection	4.4	0.0	0.0	0.0	2.0	1	2
	Suppression	0.0	3.1	0.0	4.5	2.0	2	3
	Oakland Hills Fire	0.0	3.1	0.0	0.0	1.0	1	2
	Friends	0.0	3.1	0.0	0.0	1.0	1	2
	Fuel treatments	0.0	3.1	0.0	0.0	1.0	1	2
	Ignition	0.0	0.0	0.0	4.5	1.0	1	2
	Response	0.0	0.0	0.0	4.5	1.0	1	2
	Smoke	0.0	0.0	0.0	4.5	1.0	1	2

Model variable	Theme	Percent of remarks with theme within model variable					Total	# of sites per theme	# groups per theme
		Clay	Marin	Oscoda	Tuolumne				
Fire experience (continued)	Site total (percent)	100.0	100.0	100.0	100.0	100.0	100.0		
	Site total (frequency)	45.0	32.0	3.0	22.0	102.0			
Factual knowledge	Fire history	8.2	9.1	13.6	26.2	15.1	4	12	
	Prescribed burning	13.3	10.4	13.6	20.6	15.1	4	12	
	Communication	8.2	23.4	27.3	10.3	14.1	4	11	
	Policy	1.0	7.8	9.1	11.2	6.9	4	10	
	Ecosystem fire-adapted	2.0	5.2	9.1	5.6	4.6	4	10	
	Wildfire	8.2	6.5	4.5	1.9	5.3	4	9	
	Mechanical treatment	9.2	10.4	0.0	4.7	7.2	3	8	
	Fire behavior	4.1	1.3	4.5	0.0	2.0	3	5	
	WU interface	1.0	2.6	0.0	0.9	1.3	3	4	
	Forest management	11.2	0.0	0.0	0.9	3.9	2	5	
	Fire hazard	13.3	3.9	0.0	0.0	5.3	2	4	
	Self-protection	1.0	5.2	0.0	0.0	1.6	2	4	
	Suppression	0.0	1.3	0.0	2.8	1.3	2	4	
	Fuel treatments	1.0	0.0	0.0	1.9	1.0	2	3	
	Herbicides	2.0	0.0	0.0	0.9	1.0	2	3	
	Catastrophic fire	1.0	0.0	0.0	0.9	0.7	2	3	
	Ecosystem	1.0	0.0	0.0	0.9	0.7	2	3	
	Ecosystem restoration	1.0	0.0	0.0	0.9	0.7	2	3	
	Fuel accumulation	0.0	6.5	0.0	0.0	1.6	1	4	
	Private landowner	2.0	0.0	0.0	0.0	0.7	1	3	
	Fire roads	0.0	0.0	13.6	0.0	1.0	1	2	
	Newcomers	3.1	0.0	0.0	0.0	1.0	1	2	
	Salvage	0.0	0.0	0.0	2.8	1.0	1	2	
Acceptance	2.0	0.0	0.0	0.0	0.7	1	2		
Climate change	2.0	0.0	0.0	0.0	0.7	1	2		
Fire management	0.0	2.6	0.0	0.0	0.7	1	2		
Fire-adapted species	0.0	0.0	0.0	1.9	0.7	1	2		
Logging	0.0	2.6	0.0	0.0	0.7	1	2		
Response	0.0	0.0	0.0	1.9	0.7	1	2		
Yard waste	2.0	0.0	0.0	0.0	0.7	1	2		

Model variable	Theme	Percent of remarks with theme within model variable							Total	# of sites per theme	# groups per theme
		Site									
		Clay	Marin	Oscoda	Tuolumne						
Factual knowledge (continued)	Defensible space	0.0	0.0	0.0	0.9				0.3	1	2
	Fire-adapted ecosystem	0.0	1.3	0.0	0.0				0.3	1	2
	Forest cover type	0.0	0.0	4.5	0.0				0.3	1	2
	Forest health	0.0	0.0	0.0	0.9				0.3	1	2
	Fuel break	1.0	0.0	0.0	0.0				0.3	1	2
	Stand structure	1.0	0.0	0.0	0.0				0.3	1	2
	Vigilance	0.0	0.0	0.0	0.9				0.3	1	2
	Site total (percent)	100.0	100.0	100.0	100.0				100.0		
	Site total (frequency)	98.0	77.0	22.0	107.0				304.0		
	<hr/>										
Outcome belief	Prescribed burning	25.9	30.2	20.8	53.3				37.6	4	12
	Wildfire	29.6	17.0	12.5	6.7				15.4	4	11
	Mechanical treatment	1.9	24.5	8.3	20.0				15.4	4	10
	Catastrophic fire	7.4	5.7	4.2	1.1				4.1	4	7
	WU interface	5.6	5.7	4.2	4.4				5.0	4	6
	Fuel accumulation	5.6	3.8	0.0	1.1				2.7	3	6
	Communication	1.9	0.0	4.2	2.2				1.8	3	5
	Fire management	0.0	0.0	12.5	1.1				1.8	2	3
	Suppression	0.0	5.7	0.0	1.1				1.8	2	3
	Forest management	3.7	0.0	0.0	1.1				1.4	2	3
	Fire	9.3	0.0	0.0	0.0				2.3	1	2
	Access	0.0	0.0	12.5	0.0				1.4	1	2
	Agency competence	0.0	0.0	0.0	2.2				0.9	1	2
	Agency cooperation	0.0	0.0	8.3	0.0				0.9	1	2
	Native americans	0.0	1.9	0.0	0.0				0.5	1	2
	Climate change	1.9	0.0	0.0	0.0				0.5	1	2
	Collusion	0.0	0.0	0.0	1.1				0.5	1	2
	Defensible space	0.0	1.9	0.0	0.0				0.5	1	2
	Ecosystem fire-adapted	0.0	0.0	0.0	1.1				0.5	1	2
	Environmental regulation	1.9	0.0	0.0	0.0				0.5	1	2
Escape	0.0	0.0	4.2	0.0				0.5	1	2	
Fire hazard	1.9	0.0	0.0	0.0				0.5	1	2	
Fire roads	0.0	0.0	4.2	0.0				0.5	1	2	

Model variable	Theme	Percent of remarks with theme within model variable						Total	# of sites per theme	# groups per theme
		Clay	Marin	Oscoda	Tuolumne					
Outcome belief (continued)	Firfighting	0.0	0.0	4.2	0.0	0.5	1	2		
	Herbicides	1.9	0.0	0.0	0.0	0.5	1	2		
	Monoculture	1.9	0.0	0.0	0.0	0.5	1	2		
	Objectives	0.0	1.9	0.0	0.0	0.5	1	2		
	Regulation	0.0	0.0	0.0	1.1	0.5	1	2		
	Salvage	0.0	0.0	0.0	1.1	0.5	1	2		
	Self-protection	0.0	1.9	0.0	0.0	0.5	1	2		
	Stand structure	0.0	0.0	0.0	1.1	0.5	1	2		
	Site total (percent)	100.0	100.0	100.0	100.0	100.0		100.0		
	Site total (frequency)	54.0	53.0	24.0	90.0	221.0				

Appendix F: Focus group discussion factors by site and group

Percent of remarks within sites

All factors	SITE				All sites	sites per factor	groups per factor
	Clay	Marin	Oscoda	Tuolumne			
Escape	2.50%	3.50%	1.80%	4.40%	3.40%	4	12
Smoke	1.90%	2.50%	1.20%	3.20%	2.50%	4	12
Cost	2.50%	2.30%	3.60%	2.00%	2.40%	4	12
Agency competence	4.00%	2.30%	0.60%	2.40%	2.60%	4	11
Local fire history	1.70%	1.00%	3.00%	3.20%	2.10%	4	11
Fire protection resources	0.80%	2.30%	1.80%	3.70%	2.40%	4	9
Catastrophic fire	1.90%	1.50%	1.80%	1.70%	1.70%	4	9
Thinning	0.40%	0.80%	0.60%	0.50%	0.60%	4	9
Defensible space	0.60%	3.10%	3.60%	0.20%	1.50%	4	8
Air quality	0.80%	1.70%	0.60%	1.70%	1.40%	4	8
Suppression	0.60%	0.40%	2.40%	2.00%	1.20%	4	8
Home loss	0.60%	0.40%	3.00%	1.50%	1.10%	4	8
Communication	0.80%	3.50%	7.30%	0.20%	2.00%	4	7
Fire hazard	1.90%	2.30%	1.20%	0.50%	1.50%	4	7
Size	1.30%	2.10%	0.60%	0.20%	1.10%	4	7
Planning	0.60%	2.10%	0.60%	0.30%	1.00%	4	7
Regeneration	0.80%	0.20%	1.20%	1.50%	0.90%	4	7
T. V.	1.30%	0.40%	0.60%	0.20%	0.60%	4	7
Weather	0.60%	0.60%	1.20%	0.20%	0.50%	4	7
Soil nutrients	0.40%	0.20%	1.20%	1.40%	0.70%	4	6
Stand structure	0.20%	1.00%	0.60%	0.90%	0.70%	4	6
Public meeting	0.20%	0.60%	1.20%	0.30%	0.50%	4	6
Situation dependent	0.40%	1.00%	0.60%	1.40%	0.90%	4	5
Money interests	0.60%	0.40%	0.60%	0.30%	0.50%	4	5
Property rights	0.20%	0.40%	2.40%	0.30%	0.50%	4	5
Endangered species	0.40%	1.00%	2.40%	0.20%	0.70%	4	4
Prescribed burning	1.50%	1.20%		2.20%	1.50%	3	10
Fuel accumulation	1.30%	1.30%		1.50%	1.30%	3	9
Aesthetic	0.60%	0.60%		2.40%	1.10%	3	9
Fear	1.50%	1.90%		1.20%	1.40%	3	8
Evacuation	1.90%	0.40%		1.00%	1.00%	3	8
Wildlife	3.20%	2.30%		0.30%	1.70%	3	7
Los Alamos	0.20%	1.30%		2.60%	1.30%	3	7
Firebreaks	1.10%		1.20%	2.20%	1.10%	3	7
Newspaper	0.60%	0.80%		0.30%	0.50%	3	7
Objectives		1.70%	2.40%	1.00%	1.10%	3	6
Proximity	0.40%	1.50%		1.70%	1.10%	3	6
Regulation	2.10%	0.60%		1.00%	1.10%	3	6
Damage	1.70%	1.00%		0.20%	0.80%	3	6
Economic development		0.20%	3.00%	0.90%	0.60%	3	6
Wildland-urban interface	0.20%	0.60%		0.90%	0.50%	3	6
Ignition	1.30%	0.40%		0.20%	0.50%	3	6
Livestock	0.20%	2.10%		1.40%	1.10%	3	5

All factors	Percent of remarks within sites					All sites	sites per factor	groups per factor
	SITE							
	Clay	Marin	Oscoda	Tuolumne				
Timing	0.60%	0.40%		2.20%	1.00%	3	5	
Wildfire	0.60%		0.60%	2.20%	1.00%	3	5	
Vegetation amenity	0.80%	1.00%	2.40%		0.70%	3	5	
Timber		0.40%	1.80%	1.00%	0.60%	3	5	
Values at risk	0.20%	1.00%		0.70%	0.60%	3	5	
Prevention	0.40%	0.40%		0.50%	0.40%	3	5	
Agency personnel	0.40%		1.80%	0.20%	0.30%	3	5	
Forest health	0.20%	0.40%		0.50%	0.30%	3	5	
Health	0.60%	0.40%		0.90%	0.60%	3	4	
Neighbors	1.10%		1.20%	0.30%	0.50%	3	4	
Notice	0.40%	1.00%		0.30%	0.50%	3	4	
Humidity	0.40%	0.40%		0.50%	0.40%	3	4	
Roads		0.40%	0.60%	0.70%	0.40%	3	4	
Employment		0.20%	1.80%	0.20%	0.30%	3	4	
Firefighters	0.40%	0.20%		0.30%	0.30%	3	4	
Public participation		0.40%	1.20%	0.30%	0.30%	3	4	
Property loss	0.40%	1.20%	0.60%		0.50%	3	3	
Access	0.20%	0.20%	3.00%		0.40%	3	3	
Ash	0.60%	0.20%		0.50%	0.40%	3	3	
Disease	0.40%	0.40%		0.50%	0.40%	3	3	
Terrain	0.20%	0.20%		0.50%	0.30%	3	3	
Uncontrollable		0.80%	0.60%	0.20%	0.30%	3	3	
Children	0.20%	0.40%		0.20%	0.20%	3	3	
Fire management	0.20%		0.60%	0.20%	0.20%	3	3	
Fire-adapted ecosystem	0.20%	0.20%		0.20%	0.20%	3	3	
Fire-adapted species	0.20%	0.20%		0.20%	0.20%	3	3	
Forest cover type		0.20%	0.60%	0.30%	0.20%	3	3	
Frequency	0.20%	0.20%	0.60%		0.20%	3	3	
Logging		0.20%	1.20%	0.20%	0.20%	3	3	
Money interest	0.40%	0.20%	0.60%		0.20%	3	3	
Newcomers	0.20%	0.40%		0.20%	0.20%	3	3	
Public land	0.40%	0.20%		0.20%	0.20%	3	3	
Radio	0.20%	0.20%		0.20%	0.20%	3	3	
Reforestation		0.20%	0.60%	0.20%	0.20%	3	3	
School	0.20%	0.20%		0.30%	0.20%	3	3	
Yellowstone National Park		1.20%		1.00%	0.70%	2	5	
Mechanical treatment	0.40%			1.00%	0.50%	2	5	
Risk reduction		1.00%		0.70%	0.50%	2	5	
Fire dept.		2.70%		0.50%	1.00%	2	4	
Fuel reduction	2.50%			0.70%	0.90%	2	4	
Erosion		1.00%		0.70%	0.50%	2	4	
Self-protection		0.40%		0.70%	0.30%	2	4	
Mimic nature		0.40%		0.30%	0.20%	2	4	

Percent of remarks within sites

All factors	SITE				All sites	sites per factor	groups per factor
	Clay	Marin	Oscoda	Tuolumne			
Ecosystem restoration	2.30%			0.90%	0.90%	2	3
Private landowner	2.50%			0.20%	0.70%	2	3
Education	0.20%	1.50%			0.50%	2	3
Situation-dependent	0.40%			1.20%	0.50%	2	3
Fire behavior	1.30%	0.20%			0.40%	2	3
Habitat	0.40%		3.00%		0.40%	2	3
Yard waste	1.10%	0.40%			0.40%	2	3
Awareness	0.20%	0.80%			0.30%	2	3
Fire experience	0.80%		1.20%		0.30%	2	3
Groundwater contamination	0.80%			0.20%	0.30%	2	3
Panic		0.80%		0.20%	0.30%	2	3
Safety	0.60%	0.60%			0.30%	2	3
Abuse		0.40%		0.20%	0.20%	2	3
Exotic species	0.40%	0.40%			0.20%	2	3
Fuel treatments	0.60%			0.20%	0.20%	2	3
Funding	0.40%	0.20%			0.20%	2	3
Herbicides	0.40%			0.30%	0.20%	2	3
Land ownership	0.60%	0.20%			0.20%	2	3
Maintenance		0.40%		0.20%	0.20%	2	3
Zoning		0.20%		0.50%	0.20%	2	3
Fuel wood			4.20%	0.20%	0.50%	2	2
Enforcement	0.60%			0.70%	0.40%	2	2
Biodiversity		0.40%		0.50%	0.30%	2	2
Decisions		0.20%		0.70%	0.30%	2	2
Lightning	0.60%			0.30%	0.30%	2	2
Salvage			2.40%	0.20%	0.30%	2	2
Training	0.60%			0.50%	0.30%	2	2
Agency cooperation		0.20%	1.20%		0.20%	2	2
Cooperation	0.40%		0.60%		0.20%	2	2
Disposal	0.40%			0.30%	0.20%	2	2
Duration	0.60%			0.20%	0.20%	2	2
Environmental group		0.40%		0.30%	0.20%	2	2
Fire intensity	0.40%			0.30%	0.20%	2	2
Fire roads		0.40%	0.60%		0.20%	2	2
Friends/family		0.20%		0.30%	0.20%	2	2
Media interest		0.60%		0.20%	0.20%	2	2
Native species	0.20%	0.40%			0.20%	2	2
Neighborhood		0.40%		0.20%	0.20%	2	2
Post-fire effects		0.20%		0.50%	0.20%	2	2
Relative risk		0.40%		0.20%	0.20%	2	2
Risk			0.60%	0.30%	0.20%	2	2
Topography	0.40%			0.20%	0.20%	2	2
Values	0.40%			0.20%	0.20%	2	2

All factors	Percent of remarks within sites					All sites	sites per factor	groups per factor
	SITE							
	Clay	Marin	Oscoda	Tuolumne				
Waste		0.20%	1.20%		0.20%	2	2	
Control	0.20%			0.20%	0.10%	2	2	
Ecosystem fire-adapted	0.20%	0.20%			0.10%	2	2	
Expertise	0.20%	0.20%			0.10%	2	2	
Fire history		0.20%		0.20%	0.10%	2	2	
Floodplain	0.20%		0.60%		0.10%	2	2	
Highways	0.20%			0.20%	0.10%	2	2	
Landscaping	0.20%	0.20%			0.10%	2	2	
Newsletter		0.20%		0.20%	0.10%	2	2	
Politics		0.20%		0.20%	0.10%	2	2	
Pre-Columbian	0.20%			0.20%	0.10%	2	2	
Response time		0.20%		0.20%	0.10%	2	2	
Species			0.60%	0.20%	0.10%	2	2	
Technology	0.20%	0.20%			0.10%	2	2	
Road closure	1.70%				0.50%	1	3	
Fire-safe design		1.20%			0.30%	1	2	
Land development	1.30%				0.30%	1	2	
Trust			3.60%		0.30%	1	2	
Oakland		0.80%			0.20%	1	2	
Palm coast	0.60%				0.20%	1	2	
Response	0.60%				0.20%	1	2	
Signs		0.80%			0.20%	1	2	
Pt. Reyes		0.40%			0.10%	1	2	
Hiking		0.40%			0.10%	1	2	
Outsiders				0.30%	0.10%	1	2	
Privacy		0.40%			0.10%	1	2	
Transportation	0.40%				0.10%	1	2	
Detection				1.90%	0.60%	1	1	
Access				1.40%	0.50%	1	1	
Ecology		1.50%			0.50%	1	1	
Near miss	1.10%				0.30%	1	1	
Vigilance	1.10%				0.30%	1	1	
Chipping				0.50%	0.20%	1	1	
Cultural resources				0.50%	0.20%	1	1	
Experimental				0.50%	0.20%	1	1	
Hazard trees				0.50%	0.20%	1	1	
Nuisance species		0.60%			0.20%	1	1	
Oak death		0.60%			0.20%	1	1	
Responsibility		0.60%			0.20%	1	1	
Tilling	0.60%				0.20%	1	1	
Toxicity	0.80%				0.20%	1	1	
Grayling			0.60%		0.10%	1	1	
Mack lake			0.60%		0.10%	1	1	

All factors	Percent of remarks within sites				All sites	sites per factor	groups per factor
	SITE						
	Clay	Marin	Oscoda	Tuolumne			
Marin County		0.20%			0.10%	1	1
Mesa Verde				0.20%	0.10%	1	1
Mount Tamalpais		0.40%			0.10%	1	1
Napa		0.40%			0.10%	1	1
Native Americans				0.20%	0.10%	1	1
Pacific northwest		0.20%			0.10%	1	1
Roscommon			1.20%		0.10%	1	1
Smokey bear	0.20%				0.10%	1	1
Southern California		0.20%			0.10%	1	1
Yosemite		0.40%			0.10%	1	1
Acceptance	0.20%				0.10%	1	1
Agency activities				0.20%	0.10%	1	1
Agency responsibility	0.20%				0.10%	1	1
Animosity	0.20%				0.10%	1	1
Apathy		0.40%			0.10%	1	1
Arson	0.20%				0.10%	1	1
Aspect				0.20%	0.10%	1	1
Billboards	0.20%				0.10%	1	1
Cancer	0.20%				0.10%	1	1
Captured agency				0.30%	0.10%	1	1
Catastrophic fire				0.30%	0.10%	1	1
Chimney		0.20%			0.10%	1	1
Closed business	0.20%				0.10%	1	1
Collusion				0.20%	0.10%	1	1
Comply	0.40%				0.10%	1	1
Conditions	0.20%				0.10%	1	1
Conservation	0.40%				0.10%	1	1
County agent	0.20%				0.10%	1	1
Crown fire	0.20%				0.10%	1	1
Disking	0.20%				0.10%	1	1
Door-to-door				0.20%	0.10%	1	1
Drought	0.40%				0.10%	1	1
Economic impact			0.60%		0.10%	1	1
Ecosystem		0.20%			0.10%	1	1
Ecosystem recovery		0.40%			0.10%	1	1
Enforce	0.40%				0.10%	1	1
Equipment exhaust				0.20%	0.10%	1	1
Fatalities	0.20%				0.10%	1	1
Feasibility		0.20%			0.10%	1	1
Fertilizer		0.20%			0.10%	1	1
Fire frequency				0.20%	0.10%	1	1
Fireworks			0.60%		0.10%	1	1
Flexible				0.20%	0.10%	1	1

All factors	Percent of remarks within sites					All sites	sites per factor	groups per factor
	SITE							
	Clay	Marin	Oscoda	Tuolumne				
Flood plain				0.20%	0.10%	1	1	
Focus group				0.20%	0.10%	1	1	
Heavy equipment		0.40%			0.10%	1	1	
Home location		0.20%			0.10%	1	1	
Homeowner assoc				0.20%	0.10%	1	1	
Homes lost		0.20%			0.10%	1	1	
Human health bad				0.20%	0.10%	1	1	
Human health good				0.20%	0.10%	1	1	
Human intervention				0.20%	0.10%	1	1	
Hurricane	0.40%				0.10%	1	1	
Indiscriminate	0.40%				0.10%	1	1	
Intensity	0.20%				0.10%	1	1	
Interest group conflict				0.20%	0.10%	1	1	
Interpretive		0.20%			0.10%	1	1	
Intrusiveness		0.20%			0.10%	1	1	
Irreplaceable	0.40%				0.10%	1	1	
Irreplaceable loss			1.20%		0.10%	1	1	
Knowledge	0.20%				0.10%	1	1	
Management		0.20%			0.10%	1	1	
Media	0.20%				0.10%	1	1	
Media bias				0.20%	0.10%	1	1	
Mixed message		0.20%			0.10%	1	1	
Monoculture	0.40%				0.10%	1	1	
National				0.20%	0.10%	1	1	
Overreaction				0.20%	0.10%	1	1	
Park rangers		0.20%			0.10%	1	1	
Past success		0.20%			0.10%	1	1	
People		0.40%			0.10%	1	1	
Persistence				0.20%	0.10%	1	1	
Personal behavior	0.20%				0.10%	1	1	
Personal importance		0.40%			0.10%	1	1	
Petroleum pollution	0.20%				0.10%	1	1	
Petroleum use	0.20%				0.10%	1	1	
Pine trees	0.20%				0.10%	1	1	
Pines	0.40%				0.10%	1	1	
Plow	0.20%				0.10%	1	1	
Poison oak				0.30%	0.10%	1	1	
Policy				0.20%	0.10%	1	1	
Population density				0.20%	0.10%	1	1	
Post-fire	0.20%				0.10%	1	1	
Precision	0.40%				0.10%	1	1	
Private land	0.20%				0.10%	1	1	
Professionals		0.20%			0.10%	1	1	

Appendix G: Individual model variable factors by site

Table 6 Fuel treatment acceptance factors by site

Fuel treatment acceptance factor	Percent of remarks within sites					sites per factor	groups per factor
	SITE				All sites		
	Clay	Marin	Oscoda	Tuolumne			
Agency competence	5.80%	2.80%	1.80%	7.40%	4.50%	4	8
Escape	5.80%	4.50%	3.60%	4.30%	4.70%	4	8
Cost	3.60%	3.40%	3.60%	4.30%	3.70%	4	7
Situation-dependent	3.00%	2.80%	1.80%	15.90%	5.30%	4	7
Planning	0.70%	5.10%	1.80%	1.10%	2.60%	4	6
Catastrophic fire	0.70%	0.60%	1.80%	1.10%	0.90%	4	4
Resources	0.70%	1.10%	1.80%	1.10%	1.10%	4	4
Stand structure	0.70%	0.60%	3.60%	1.10%	1.10%	4	4
Property rights	0.70%	1.10%	3.60%	1.10%	1.30%	4	4
Smoke	1.50%	1.10%		3.20%	1.50%	3	5
Size	0.70%	5.60%	1.80%		2.60%	3	5
Communication	0.70%	7.90%	12.70%		4.70%	3	5
Vegetation amenity	0.70%	0.60%	3.60%		0.90%	3	4
Aesthetic	0.70%	1.10%		2.10%	1.10%	3	4
Livestock	0.70%	3.90%		3.20%	2.40%	3	4
Objectives		4.50%	1.80%	2.10%	2.40%	3	4
Firebreaks	2.20%		3.60%	7.40%	2.60%	3	4
Proximity	0.70%	3.40%		2.10%	1.90%	3	3
Los Alamos		2.80%		2.10%	1.50%	2	4
Fuel accumulation	3.60%	2.20%			1.90%	2	4
Wildlife	5.80%	4.50%			3.40%	2	4
Economic development		0.60%		2.10%	0.60%	2	3
Land ownership	1.50%	0.60%			0.60%	2	3
Damage	2.90%	0.60%			1.10%	2	3
Fear	2.90%	0.60%			1.10%	2	3
Groundwater contamination	2.90%			1.10%	1.10%	2	3
Safety	1.50%	1.70%			1.10%	2	3
Defensible space		3.40%	10.90%		2.60%	2	3
Access	0.70%		1.80%		0.40%	2	2
Control	0.70%			1.10%	0.40%	2	2
Ecosystem fire-adapted	0.70%	0.60%			0.40%	2	2
Fire hazard		0.60%	1.80%		0.40%	2	2
Fire-adapted ecosystem	0.70%	0.60%			0.40%	2	2
Prescribed burning	0.70%	0.60%			0.40%	2	2
Public meeting		0.60%	1.80%		0.40%	2	2
Technology	0.70%	0.60%			0.40%	2	2
Thinning	0.70%		1.80%		0.40%	2	2
Timing		0.60%		1.10%	0.40%	2	2
Weather		0.60%	1.80%		0.40%	2	2
Biodiversity		1.10%		1.10%	0.60%	2	2

Fuel treatment acceptance factor	Percent of remarks within sites				All sites	sites per factor	groups per factor
	SITE						
	Clay	Marin	Oscoda	Tuolumne			
Native species	1.50%	0.60%			0.60%	2	2
Public participation		1.10%	1.80%		0.60%	2	2
Decisions		1.10%		2.10%	0.90%	2	2
Home loss		0.60%	5.50%		0.90%	2	2
Soil nutrients	2.20%	0.60%			0.90%	2	2
Regulation	2.20%	1.70%			1.30%	2	2
Ecosystem restoration	4.40%			1.10%	1.50%	2	2
Risk reduction		1.70%			0.60%	1	3
Wildland-urban interface		1.10%			0.40%	1	2
Erosion		1.10%			0.40%	1	2
Herbicides	1.50%				0.40%	1	2
Outsiders				2.10%	0.40%	1	2
Air quality		1.70%			0.60%	1	2
Fire experience	2.20%				0.60%	1	2
Fire-safe design		2.20%			0.90%	1	2
Fuel reduction	2.90%				0.90%	1	2
Billboards	0.70%				0.20%	1	1
Cancer	0.70%				0.20%	1	1
Children	0.70%				0.20%	1	1
Conditions	0.70%				0.20%	1	1
Disease	0.70%				0.20%	1	1
Duration	0.70%				0.20%	1	1
Ecosystem		0.60%			0.20%	1	1
Endangered species				1.10%	0.20%	1	1
Feasibility		0.60%			0.20%	1	1
Fertilizer		0.60%			0.20%	1	1
Firefighters		0.60%			0.20%	1	1
Frequency	0.70%				0.20%	1	1
Fuel treatments	0.70%				0.20%	1	1
Heavy equipment		0.60%			0.20%	1	1
Highways	0.70%				0.20%	1	1
Interest group conflict				1.10%	0.20%	1	1
Intrusiveness		0.60%			0.20%	1	1
Knowledge	0.70%				0.20%	1	1
Logging				1.10%	0.20%	1	1
Maintenance		0.60%			0.20%	1	1
Management		0.60%			0.20%	1	1
Mimic nature		0.60%			0.20%	1	1
Money interests		0.60%			0.20%	1	1
Overreaction				1.10%	0.20%	1	1
Past success		0.60%			0.20%	1	1
Persistence				1.10%	0.20%	1	1

Table 7 Agency competence factors by site

Agency competence factor	Percent of remarks within sites					sites per factor	groups per factor
	SITE				All sites		
	Clay	Marin	Oscoda	Tuolumne			
Los Alamos	5.30%	4.30%		4.00%	4.30%	3	3
Communication	5.30%		50.00%		2.90%	2	2
Escape	5.30%			4.00%	2.90%	2	2
Neighborhood		8.70%		4.00%	4.30%	2	2
Training	10.50%			4.00%	4.30%	2	2
Weather	5.30%	4.30%			2.90%	2	2
Defensible space		17.40%			5.80%	1	3
Fire experience	10.50%				2.90%	1	2
Marin County		4.30%			1.40%	1	1
Conservation	5.30%				1.40%	1	1
Cost		4.30%			1.40%	1	1
Door-to-door				4.00%	1.40%	1	1
Ecology		8.70%			2.90%	1	1
Endangered species		4.30%			1.40%	1	1
Environmental group		4.30%			1.40%	1	1
Expertise		4.30%			1.40%	1	1
Fire dept.				4.00%	1.40%	1	1
Fire hazard	5.30%				1.40%	1	1
Fire management			50.00%		1.40%	1	1
Firebreaks				4.00%	1.40%	1	1
Firefighters	5.30%				1.40%	1	1
Fuel reduction	10.50%				2.90%	1	1
Funding	5.30%				1.40%	1	1
Home loss				12.00%	4.30%	1	1
Land development	5.30%				1.40%	1	1
Media interest				4.00%	1.40%	1	1
Neighbors	5.30%				1.40%	1	1
Notice				4.00%	1.40%	1	1
Objectives				12.00%	4.30%	1	1
Planning	5.30%				1.40%	1	1
Prevention		4.30%			1.40%	1	1
Private landowner	10.50%				2.90%	1	1
Property loss		13.00%			4.30%	1	1
Proximity				4.00%	1.40%	1	1
Public meeting				4.00%	1.40%	1	1
Public participation		4.30%			1.40%	1	1
Resources				8.00%	2.90%	1	1
Signs		4.30%			1.40%	1	1

Table 8 Fire and fire management knowledge factors by site

Fire and fire management factual knowledge factors	Percent of remarks within sites					sites per factor	groups per factor
	SITE				All sites		
	Clay	Marin	Oscoda	Tuolumne			
Local	6.10%	4.50%	9.70%	10.20%	7.50%	4	11
Cost	3.10%	1.80%	6.50%	3.00%	3.00%	4	8
Tv	3.80%	1.80%	3.20%	0.60%	2.10%	4	7
Communication	0.80%	3.60%	6.50%	0.60%	1.80%	4	5
Weather	0.80%	0.90%	3.20%	0.60%	0.90%	4	4
Prescribed burning	3.10%	4.50%		6.60%	4.60%	3	9
Newspaper	2.30%	2.70%		1.20%	1.80%	3	7
Escape	0.80%	2.70%		7.20%	3.60%	3	6
Ignition	2.30%	1.80%		0.60%	1.40%	3	6
Resources	1.50%	1.80%		4.20%	2.50%	3	6
Suppression	0.80%	0.90%		4.20%	2.10%	3	6
Fire hazard	2.30%	6.40%		0.60%	2.50%	3	4
Humidity	1.50%	1.80%		1.80%	1.60%	3	4
Agency personnel	0.80%		6.50%	0.60%	0.90%	3	3
Radio	0.80%	0.90%		0.60%	0.70%	3	3
Reforestation		0.90%	3.20%	0.60%	0.70%	3	3
Size	2.30%	1.80%		0.60%	1.40%	3	3
Smoke	0.80%	0.90%		0.60%	0.70%	3	3
Agency competence		2.70%		1.20%	1.10%	2	5
Fuel accumulation		0.90%		4.20%	1.80%	2	5
Fire dept.		4.50%		0.60%	1.40%	2	4
Los Alamos		1.80%		3.60%	1.80%	2	3
Education	0.80%	4.50%			1.40%	2	3
Exotic species	1.50%	1.80%			0.90%	2	3
Firebreaks	1.50%			0.60%	0.70%	2	3
Mechanical treatment	1.50%			0.60%	0.70%	2	3
Regulation	4.60%			1.20%	1.80%	2	3
Self-protection		0.90%		1.80%	0.90%	2	3
Timing	0.80%			4.80%	2.10%	2	3
Access		0.90%	9.70%		0.90%	2	2
Agency cooperation		0.90%	6.50%		0.70%	2	2
Air quality	0.80%			0.60%	0.50%	2	2
Defensible space		0.90%		0.60%	0.50%	2	2
Ecosystem restoration	0.80%			0.60%	0.50%	2	2
Endangered species	1.50%		3.20%		0.70%	2	2
Fire history		0.90%		0.60%	0.50%	2	2
Fire roads		1.80%	3.20%		0.70%	2	2
Fuel treatments	1.50%			0.60%	0.70%	2	2
Maintenance		0.90%		0.60%	0.50%	2	2
Money interests	2.30%			0.60%	0.90%	2	2

Fire and fire management factual knowledge factors	Percent of remarks within sites				All sites	sites per factor	groups per factor
	SITE						
	Clay	Marin	Oscoda	Tuolumne			
Notice	1.50%	0.90%			0.70%	2	2
Objectives		0.90%		0.60%	0.50%	2	2
Planning	0.80%			0.60%	0.50%	2	2
Pre-Columbian	0.80%			0.60%	0.50%	2	2
Public land	1.50%			0.60%	0.70%	2	2
Public meeting			3.20%	0.60%	0.50%	2	2
Species			3.20%	0.60%	0.50%	2	2
Terrain	0.80%	0.90%			0.50%	2	2
Thinning		0.90%		0.60%	0.50%	2	2
Topography	1.50%			0.60%	0.70%	2	2
Values	1.50%			0.60%	0.70%	2	2
Values at risk		0.90%		0.60%	0.50%	2	2
Wildfire			3.20%	5.40%	2.30%	2	2
Palm coast	1.50%				0.50%	1	2
Pt. Reyes		1.80%			0.50%	1	2
WU interface				2.40%	0.90%	1	2
Livestock		3.60%			0.90%	1	2
Regeneration				1.20%	0.50%	1	2
Signs		2.70%			0.70%	1	2
Stand structure				1.80%	0.70%	1	2
Vegetation amenity	2.30%				0.70%	1	2
Mount Tamalpais		1.80%			0.50%	1	1
Native Americans				0.60%	0.20%	1	1
Oakland		0.90%			0.20%	1	1
Roscommon			6.50%		0.50%	1	1
Yellowstone National Park		0.90%			0.20%	1	1
Yosemite National Park		0.90%			0.20%	1	1
Aesthetic	0.80%				0.20%	1	1
Agency activities				0.60%	0.20%	1	1
Agency responsibility	0.80%				0.20%	1	1
Arson	0.80%				0.20%	1	1
Awareness		2.70%			0.70%	1	1
Catastrophic fire				1.20%	0.50%	1	1
Comply	1.50%				0.50%	1	1
Damage	0.80%				0.20%	1	1
Disease	0.80%				0.20%	1	1
Disking	0.80%				0.20%	1	1
Disposal	1.50%				0.50%	1	1
Drought	1.50%				0.50%	1	1
Enforcement	2.30%				0.70%	1	1
Experimental				0.60%	0.20%	1	1
Fear	0.80%				0.20%	1	1

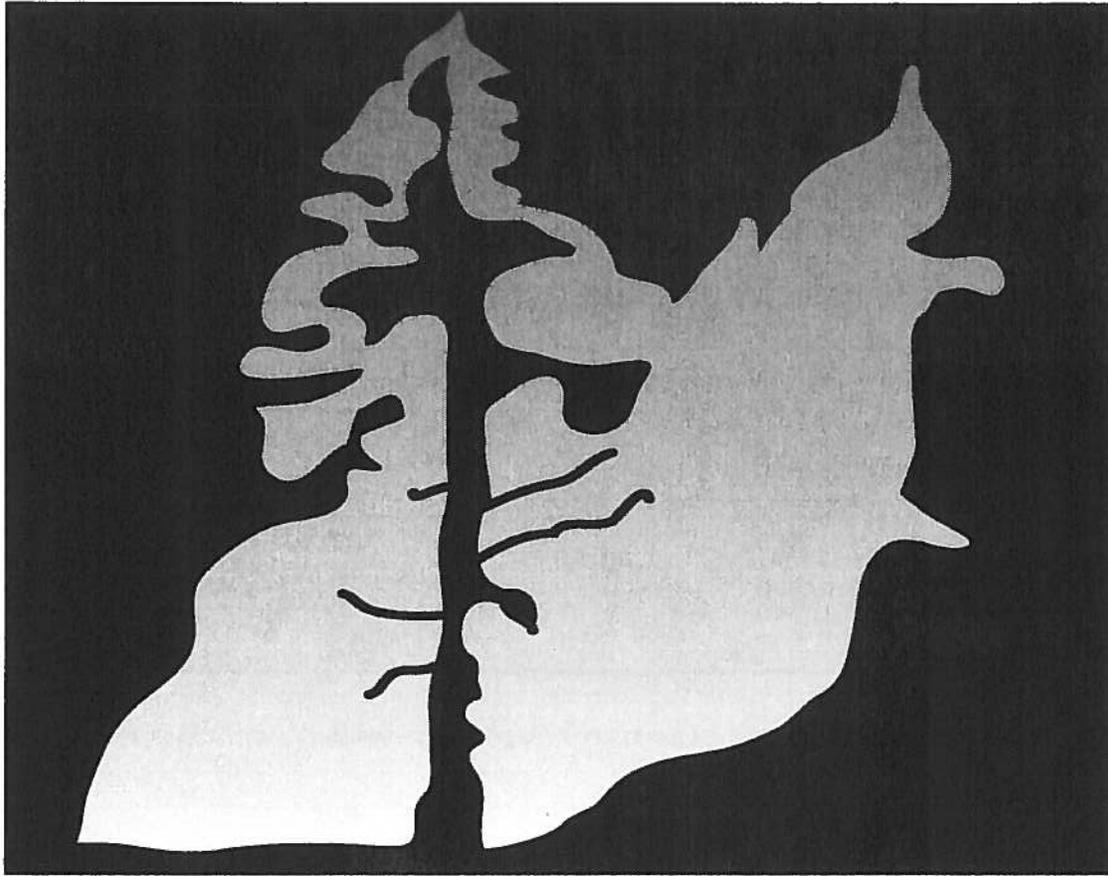
Fire and fire management factual knowledge factors	Percent of remarks within sites					sites per factor	groups per factor
	SITE				All sites		
	Clay	Marin	Oscoda	Tuolumne			
Fire behavior	1.50%				0.50%	1	1
Fire experience			6.50%		0.50%	1	1
Fire frequency				0.60%	0.20%	1	1
Fire intensity	0.80%				0.20%	1	1
Fire-adapted ecosystem				0.60%	0.20%	1	1
Fire-adapted species	0.80%				0.20%	1	1
Fire-safe design		1.80%			0.50%	1	1
Flexible				0.60%	0.20%	1	1
Focus group				0.60%	0.20%	1	1
Forest cover type		0.90%			0.20%	1	1
Forest health	0.80%				0.20%	1	1
Fuel reduction	0.80%				0.20%	1	1
Funding	0.80%				0.20%	1	1
Habitat			6.50%		0.50%	1	1
Hazard trees				1.80%	0.70%	1	1
Homeowner assoc				0.60%	0.20%	1	1
Human intervention				0.60%	0.20%	1	1
Hurricane	1.50%				0.50%	1	1
Land development	0.80%				0.20%	1	1
Land ownership	0.80%				0.20%	1	1
Landscaping	0.80%				0.20%	1	1
Lightning				0.60%	0.20%	1	1
Logging		0.90%			0.20%	1	1
Mixed message		0.90%			0.20%	1	1
Money interest	0.80%				0.20%	1	1
Monoculture	1.50%				0.50%	1	1
Newcomers		1.80%			0.50%	1	1
Newsletter				0.60%	0.20%	1	1
Panic		0.90%			0.20%	1	1
Personal importance		1.80%			0.50%	1	1
Pine trees	0.80%				0.20%	1	1
Pines	1.50%				0.50%	1	1
Plow	0.80%				0.20%	1	1
Policy				0.60%	0.20%	1	1
Post-fire	0.80%				0.20%	1	1
Post-fire effects				1.20%	0.50%	1	1
Private land	0.80%				0.20%	1	1
Private landowner	3.80%				1.10%	1	1
Property loss		0.90%			0.20%	1	1
Proximity		0.90%			0.20%	1	1
Redwoods		0.90%			0.20%	1	1
Relative risk		0.90%			0.20%	1	1

Table 9 Outcome belief factors by site

Outcome belief factors	Percent of remarks within sites					sites per factor	groups per factor
	SITE				All sites		
	Clay	Marin	Oscoda	Tuolumne			
Smoke	4.00%	7.50%	6.70%	8.70%	7.80%	4	9
Escape	8.00%	11.30%	6.70%	7.10%	8.20%	4	8
Air quality	8.00%	1.90%	6.70%	6.30%	5.50%	4	6
Home loss	4.00%	1.90%	13.30%	2.40%	3.20%	4	4
Cost	4.00%	1.90%		4.00%	3.20%	3	4
Los Alamos		1.90%		4.80%	3.20%	2	4
Aesthetic		1.90%		5.60%	3.70%	2	4
Regeneration			6.70%	4.00%	2.70%	2	4
Soil nutrients			13.30%	5.60%	4.10%	2	4
Wildlife	20.00%			0.80%	2.70%	2	4
Abuse		3.80%		0.80%	1.40%	2	3
Economic development			20.00%	0.80%	1.80%	2	3
Erosion		5.70%		2.40%	2.70%	2	3
Fuel reduction	8.00%			1.60%	1.80%	2	3
Timing	8.00%			1.60%	1.80%	2	3
Agency competence		3.80%		0.80%	1.40%	2	2
Disease		3.80%		2.40%	2.30%	2	2
Ecosystem restoration	4.00%			2.40%	1.80%	2	2
Employment			6.70%	0.80%	0.90%	2	2
Fear		1.90%		0.80%	0.90%	2	2
Resources		1.90%		0.80%	0.90%	2	2
Risk reduction		1.90%		0.80%	0.90%	2	2
Suppression		1.90%		1.60%	1.40%	2	2
Timber		3.80%	6.70%		1.40%	2	2
Catastrophic fire				2.40%	1.40%	1	2
Habitat	8.00%				0.90%	1	2
Prevention				1.60%	0.90%	1	2
Values at risk		3.80%			0.90%	1	2
Ash		1.90%			0.50%	1	1
Biodiversity				0.80%	0.50%	1	1
Chipping				1.60%	0.90%	1	1
Crown fire	4.00%				0.50%	1	1
Cultural resources				2.40%	1.40%	1	1
Defensible space		1.90%			0.50%	1	1
Duration				0.80%	0.50%	1	1
Equipment exhaust				0.80%	0.50%	1	1
Fire dept.		1.90%			0.50%	1	1

Fire experience factors	Percent of remarks within sites					sites per factor	groups per factor
	SITE				All sites		
	Clay	Marin	Oscoda	Tuolumne			
Fear	1.80%	9.10%		12.50%	7.00%	3	5
Agency competence	1.80%	2.30%		5.00%	2.80%	3	4
Smoke	1.80%	4.50%		2.50%	2.80%	3	3
Evacuation	5.50%			10.00%	4.90%	2	4
Agency personnel	1.80%		25.00%		1.40%	2	2
Children		2.30%		2.50%	1.40%	2	2
Communication	1.80%	2.30%			1.40%	2	2
Defensible space	3.60%	4.50%			2.80%	2	2
Fire dept.		11.40%		2.50%	4.20%	2	2
Fire hazard	5.50%	2.30%			2.80%	2	2
Friends/family		2.30%		5.00%	2.10%	2	2
Lightning	5.50%			2.50%	2.80%	2	2
Prescribed burning	1.80%			2.50%	1.40%	2	2
Property loss	1.80%	2.30%			1.40%	2	2
Proximity	1.80%	2.30%			1.40%	2	2
Public meeting	1.80%	2.30%			1.40%	2	2
School	1.80%	2.30%			1.40%	2	2
Hiking		4.50%			1.40%	1	2
Notice		4.50%			1.40%	1	2
Yard waste	9.10%				3.50%	1	2
Grayling			25.00%		0.70%	1	1
Oakland		2.30%			0.70%	1	1
Pacific Northwest		2.30%			0.70%	1	1
Southern California		2.30%			0.70%	1	1
T.V.	1.80%				0.70%	1	1
Yellowstone National Park		2.30%			0.70%	1	1
Yosemite National Park		2.30%			0.70%	1	1
Aesthetic				5.00%	1.40%	1	1
Ash				7.50%	2.10%	1	1
Awareness		2.30%			0.70%	1	1
Catastrophic fire				2.50%	0.70%	1	1
Chimney		2.30%			0.70%	1	1
County agent	1.80%				0.70%	1	1
Damage		2.30%			0.70%	1	1
Duration	1.80%				0.70%	1	1
Ecosystem recovery		2.30%			0.70%	1	1
Endangered species	1.80%				0.70%	1	1
Enforce	3.60%				1.40%	1	1
Environmental group				5.00%	1.40%	1	1
Fire behavior	3.60%				1.40%	1	1
Fireworks			25.00%		0.70%	1	1
Fuel treatments	1.80%				0.70%	1	1

Appendix H: Draft survey instrument



Fire in _____ County

WHAT DO YOU THINK?

A community-wide survey about fire management in _____ County

This survey is part of a national research project designed to help forest fire managers understand the public's views on forest fires and forest management. Please answer all of the questions and add any additional comments in the space provided on the last page of the survey.

Please return the survey in the postage paid envelope when you are finished.

Thanks for your help!

The Social and Economic Sciences Research Center
Washington State University
P.O. Box 644014
Pullman, WA 99164-4014

Fire Management in ____ County

Fire in ____ County is an ever-present and natural part of the landscape. Your views on this topic are very important to government fire managers as they decide how to protect homes and preserve ____ County's forests and wildlife in the future. Your participation in this survey is important and greatly appreciated.

Currently, the government agencies responsible for managing public forests have in place a fire management program that both controls wildfires and authorizes the use of both prescribed fire and mechanical methods of reducing forest on federal, state and private forest and rangelands in ____ County. At the same time, homeowners can contribute to controlling wildfires and reducing losses by creating defensible spaces around their homes with "fire-wise" landscaping.

We would like to hear your views on these fire management tools, each of which can result in a reduction of the size and effect of future wildfires. They may be used alone or in combinations to achieve these results.

Before you begin the survey we want to define the following terms:

Fuel management approaches: Methods developed by foresters and fire professionals to reduce the extent and damages of wildfires on federal, state and private land. This survey addresses these three fuel management approaches.

- Prescribed fire:** Also called controlled burning, this practice can involve, 1) letting a naturally caused fire to burn under close and careful watch; or 2) intentionally setting fires in ways that can be controlled to produce desired conditions and protect against undesired results.
- Mechanical fuel reduction:** These methods vary widely. Resource managers can use chainsaws, brush mowers, or other specialized machines to reduce the number of shrubs and small trees where they are so numerous that they increase the risk and size of wildfires.
- Defensible space ordinance:** This approach requires homeowners to create and maintain a fire-safe zone around their homes by removing flammable vegetation within 30 feet of their home. It would also require that yard trees and shrubs be at least 15 feet apart and that the lower limbs of trees be pruned to a height of 15 feet from the ground or greater.

Some fire professionals have suggested that these three approaches to fuel management can be used in combination; for example, creating a defensible space can increase the effectiveness of prescribed fire or mechanical fuel reduction on adjacent lands.

Please keep in mind that we are interested in your opinions and ideas, there are no right or wrong answers to the following questions.

Section 1. These questions ask about your length of residency in ____ County and the types of places you have lived.

1. Which of the following statements best describes your residential status in ____ County? *(please ✓ one)*

- I AM A FULL TIME, YEAR-ROUND RESIDENT OF ____ COUNTY.
 - I OWN A SECOND HOME IN ____ COUNTY. MY PRIMARY PLACE OF RESIDENCE IS IN _____ ZIP CODE
 - NEITHER OF THE ABOVE DESCRIBES MY RESIDENTIAL STATUS IN ____ COUNTY. *Please explain:*
-

2. Which of the following best describes the type of area where you have lived most of your life? *(please ✓ one)*

- A MAJOR CITY OR METROPOLITAN AREA (OVER ONE MILLION PEOPLE) OR ITS SUBURB
- A LARGE CITY (100,000 TO ONE MILLION PEOPLE) OR ITS SUBURB
- A MEDIUM SIZED CITY (25,000 TO 99,999 PEOPLE) OR ITS SUBURB
- A SMALLER CITY (5,000 TO 24,999 PEOPLE) OR ITS SUBURB
- A TOWN OR VILLAGE (2,500 TO 4,999 PEOPLE)
- IN THE COUNTRY OR A VERY SMALL TOWN (UNDER 2,500 PEOPLE)
- A RURAL FARM OR RANCH
- NO ONE CHOICE DESCRIBES WHERE I HAVE LIVED BECAUSE I HAVE MOVED OFTEN

3. Do you visit or recreate in the forests near your home? NO YES,

If YES, how often? (please ✓ one)

- DAILY OR WEEKLY
- COUPLE TIMES A MONTH
- COUPLE TIMES A YEAR

4. Thinking about the residential property that you own in ____ County, how much of your land is covered by buildings, lawn, tall grasses, shrubs, and trees? *(Please estimate the percentage of each cover type below)*

buildings & pavement	_____	%
LAWN	_____	%
TALL GRASSES	_____	%
SHRUBS	_____	%
TREES	_____	%
OTHER COVER	_____	%
Total	100	%

5. Thinking about the property that you own in ____ County, would you say that neighboring properties generally have more, less, or about the same amount of vegetation?

- MORE
- LESS
- ABOUT THE SAME
- DON'T KNOW

Section 2. Next we would like to know about your experiences and thoughts about fire.

6. Which of the following experiences have you had at any time in your life? *(please ✓ all that apply)*

- Been injured or suffered property damage from a forest fire
- A prescribed burn has occurred near my home
- Experienced smoke from forest fire
- Been required to remove flammable vegetation on my property
- Personally witnessed a forest fire
- Other fire experience *(please describe)*:
- A mechanical treatment to control fire has occurred near my home
- Experienced a road closure due to forest fire
- Felt fear or anxiety as a result of a forest fire
- Friends, family or neighbors suffered property damage due to forest fire
- Experienced discomfort from smoke caused by forest fires

7. Which of the following actions have you taken at any time in your life? *(please ✓ all that apply)*

- Asked local fire department about how to reduce my risk of property damage
- Read information on protecting homes from forest fires
- Attended a park or forest interpretive program about fire
- Attended a public meeting about fire
- Other fire experience *(please describe)*:
- Observed neighbors being careless with fire
- Observed the effects of fires on forests
- Worked with local fire department on neighborhood and community fire protection
- Evacuated my home or office due to forest fire
- Worked with forest fires as a part of my job or as a volunteer

8. How important are the following topics to you personally as they are practiced in ____ County? Please circle a response that best fits your personal level of importance ranging from "0" for not at all important to "6" for extremely important? *(please circle one number for each statement)*

	NOT AT ALL IMPORTANT						EXTREMELY IMPORTANT
A. Prescribed burning	0	1	2	3	4	5	6
B. Mechanical fuel reduction	0	1	2	3	4	5	6
C. Defensible space ordinance	0	1	2	3	4	5	6

9. How concerned are you that a wildfire could change your quality of life? Please circle a response that best fits your level of concern ranging from "0" for not at all concerned to "6" for extremely concerned?
(please circle one number)

NOT AT ALL CONCERNED							EXTREMELY CONCERNED
0	1	2	3	4	5	6	

10. How would you rate your general attitude toward each of the three fuel management approaches?
(please circle one number for each statement)

	EXTREMELY NEGATIVE			NEUTRAL			EXTREMELY POSITIVE
A. Prescribed burning	-3	-2	-1	0	1	2	3
B. Mechanical fuel reduction	-3	-2	-1	0	1	2	3
C. Defensible space ordinance	-3	-2	-1	0	1	2	3

11. How would you evaluate any fuel management approach that produced the following results? Please circle a response that best fits your evaluation ranging from "-3" for extremely bad to "3" for extremely good? (please circle one number for each statement)

Any fuel management approach that...	EXTREMELY BAD	VERY BAD	SOMEWHAT BAD	NEITHER GOOD NOR BAD	SOMEWHAT GOOD	VERY GOOD	EXTREMELY GOOD
A. Destroys scenery	-3	-2	-1	0	1	2	3
B. Favors commercial logging	-3	-2	-1	0	1	2	3
C. Creates more smoke in the short-term, but less smoke over time	-3	-2	-1	0	1	2	3
D. Allows fires to get out of control	-3	-2	-1	0	1	2	3
E. Restores the forest to a more natural condition	-3	-2	-1	0	1	2	3
F. Saves money by reducing the cost of firefighting	-3	-2	-1	0	1	2	3
G. Improves conditions for wildlife	-3	-2	-1	0	1	2	3

12. How likely do think each of the fuel management approaches will achieve certain outcomes? Please circle a response that best fits your view of likelihood ranging from "0" zero likelihood to "6" for certain? (please circle one number for each statement)

Fuel management approach results in the following outcomes:	ZERO LIKELIHOOD	NOT AT ALL LIKELY	SLIGHTLY LIKELY	SOMEWHAT LIKELY	VERY LIKELY	EXTREMELY LIKELY	CERTAIN
<u>Allows fires to get out of control</u>							
A. Prescribed burning	0	1	2	3	4	5	6
B. Mechanical fuel reduction	0	1	2	3	4	5	6
C. Defensible space ordinance	0	1	2	3	4	5	6
<u>Destroys scenery</u>							
A. Prescribed burning	0	1	2	3	4	5	6
B. Mechanical fuel reduction	0	1	2	3	4	5	6
C. Defensible space ordinance	0	1	2	3	4	5	6
<u>Creates more smoke in the short-term, but less smoke over time</u>							
A. Prescribed burning	0	1	2	3	4	5	6
B. Mechanical fuel reduction	0	1	2	3	4	5	6
C. Defensible space ordinance	0	1	2	3	4	5	6
<u>Saves money by reducing the cost of firefighting</u>							
A. Prescribed burning	0	1	2	3	4	5	6
B. Mechanical fuel reduction	0	1	2	3	4	5	6
C. Defensible space ordinance	0	1	2	3	4	5	6
<u>Favors commercial logging</u>							
A. Prescribed burning	0	1	2	3	4	5	6
B. Mechanical fuel reduction	0	1	2	3	4	5	6
C. Defensible space ordinance	0	1	2	3	4	5	6
<u>Restores the forest to a more natural condition</u>							
D. Prescribed burning	0	1	2	3	4	5	6
E. Mechanical fuel reduction	0	1	2	3	4	5	6
F. Defensible space ordinance	0	1	2	3	4	5	6
<u>Improves conditions for wildlife</u>							
G. Prescribed burning	0	1	2	3	4	5	6
H. Mechanical fuel reduction	0	1	2	3	4	5	6
I. Defensible space ordinance	0	1	2	3	4	5	6

13. Below are statements about fire prevention and fuel management approaches. Please indicate whether you think each statement is “definitely false”, “probably false”, “probably true”, or “definitely true.” If you have no clear answer, then considering answering “I don’t know.” (please ✓ one box for each statement)

	DEFINITELY FALSE	PROBABLY FALSE	PROBABLY TRUE	DEFINITELY TRUE	I DON'T KNOW
A. Natural areas that are burned periodically provide poor wildlife habitat.	<input type="checkbox"/>				
B. Humans cause most of the wildfires in the U.S.	<input type="checkbox"/>				
C. Prescribed fires kill a majority of the animals in a burned area.	<input type="checkbox"/>				
D. Prescribed burns set by the government cause most fires that destroy homes.	<input type="checkbox"/>				
E. Many plants require occasional fires so that new seeds or seedlings can sprout.	<input type="checkbox"/>				

14. How would you answer the following statements about things that you value? (please circle one number for each statement)

	STRONGLY DISAGREE			NEUTRAL			STRONGLY AGREE	
A. The primary use of forests should be for products that are useful to humans.	1	2	3	4	5	6	7	
B. Forest resources can be improved through human management.	1	2	3	4	5	6	7	
C. Forests should be used primarily for timber and wood products.	1	2	3	4	5	6	7	
D. We should actively harvest more trees to meet the needs of a much larger human population.	1	2	3	4	5	6	7	
E. Plants and animals exist primarily for human use.	1	2	3	4	5	6	7	
F. Humans should have more love, respect and admiration for forests.	1	2	3	4	5	6	7	
G. Forests have a right to exist for their own sake, regardless of human concerns and uses.	1	2	3	4	5	6	7	
H. Wildlife, plants, and human have equal rights to live and develop.	1	2	3	4	5	6	7	

15. How would you rate the government agencies that manage forest land in ____ County? Please circle a response that best fits your level of agreement with each statement, ranging from “1” for strongly disagree to “7” for strongly agree. (please circle one number for each statement)

	STRONGLY DISAGREE			NEUTRAL			STRONGLY AGREE	
A. I trust the government to make the best decision about defensible space ordinances.	1	2	3	4	5	6	7	
B. The government does a good job in managing public land.	1	2	3	4	5	6	7	
C. The government does a good job communicating with the public about forest issues.	1	2	3	4	5	6	7	
D. The government does a good job of protecting private property from forest fires.	1	2	3	4	5	6	7	
E. I trust the government to make the proper decisions about the use of prescribed fire.	1	2	3	4	5	6	7	
F. The government does a good job of notifying the public about upcoming prescribed burns.	1	2	3	4	5	6	7	
G. I trust the government to make the proper decisions about the use of mechanical fuel reduction.	1	2	3	4	5	6	7	

16. Considering your responses to the statements above (Question 15), which of the following agency levels were thinking about? (please ✓ all that apply)

- LOCAL STATE FEDERAL DON'T KNOW

17. How would you rate your level of approval toward the following fuel management approaches? (please circle one number for each statement)

	STRONGLY DISAPPROVE			NEITHER APPROVE NOR DISAPPROVE			STRONGLY APPROVE	
A. Prescribed burning	-3	-2	-1	0	1	2	3	
B. Mechanical fuel reduction	-3	-2	-1	0	1	2	3	
C. Defensible space ordinance	-3	-2	-1	0	1	2	3	

18. If you were given the opportunity to vote for or against allowing prescribed burning on public land in ____ County, how would you vote? (please ✓ one)

- FOR PRESCRIBED BURNING AGAINST PRESCRIBED BURNING

19. If you were given the opportunity to vote for or against allowing mechanical fuel reduction on public land in ____ County, how would you vote? (please ✓ one)

- FOR MECHANICAL FUEL REDUCTION AGAINST MECHANICAL FUEL REDUCTION

20. If you were given the opportunity to vote for or against allowing enactment (enforcement) of a defensible space ordinance in ____ County, how would you vote? *(please ✓ one)*

FOR DEFENSIBLE SPACE ORDINANCE

AGAINST DEFENSIBLE SPACE ORDINANCE

Section 3. This final section asks for information about your household. This information will be kept in the strictest confidence and used for statistical purposes only.

21. Are you *(please ✓ one)*? MALE FEMALE

22. How many adults and children live in your household? *(fill in number)*

_____ ADULTS

_____ CHILDREN

23. How many years have you lived in ____ County? _____ YEARS

24. What is your present employment status? *(please ✓ one)*

EMPLOYED, FULL-TIME

RETIRED

UNEMPLOYED

STUDENT

EMPLOYED, PART-TIME

SELF-EMPLOYED

HOMEMAKER

OTHER _____

25. What industry best describes where you have held jobs? *(please ✓ one)*

AGRICULTURE

FORESTRY

MINING

MANUFACTURING

TOURISM/RECREATION

RETAIL OR COMMERCIAL SERVICES

HEALTH/MEDICAL

EDUCATION

OTHER GOVERNMENT

OTHER *(please specify)* _____

26. Does anyone in your household suffer from respiratory or breathing problems? *(please ✓ one)*

NO

YES

27. What was the highest grade or number of years you completed in school or college? *(please circle a number)*

8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Thru High School					College/Tech. School					Graduate School					

28. Which statement best describes your total 2000 annual household income (from all sources and before taxes)? *(please ✓ one)*

LESS THAN \$20,000

\$40,000 - \$59,999

\$80,000 OR MORE

\$20,000 - \$39,999

\$60,000 - \$79,999

CHOOSE NOT TO ANSWER

Thank you for completing this survey. Please return it in the enclosed stamped envelope.

If there is anything else to add, please share it on the back page of this booklet.

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