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

Phase II Project Report

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Final Survey Data Report

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September 2002

Acknowledgements

This research was conducted for the Joint Fire Science Program, U.S. Department of Agriculture, U.S. Department of Interior, and USDA Forest Service, North Central Research Station.

The investigators gratefully acknowledge the following individuals for their participation and assistance.

Florida	California		Michigan
Bruce Hill Florida Division of Forestry,	**Kent Julin** Marin County Fire Dept.	**Thomas James** Stanislaus National Forest	**Bert L. Starr** Huron-Manistee National Forest
Bill Bossuot St Johns River Water Management Dist.	**Keith Parker** Marin County Fire Dept.	**Ed Duncan** Yosemite National Park	**Don Johnson** Michigan Dept. of Natural Resources
Paul Catlett Camp Blanding	**Tim Walsh** Marin County Fire Dept.	**William Shultz** California Division of Forestry	**Susan Thiel** Michigan Dept. of Natural Resources
William Peters Goldhead Branch State Park	**Forrest Craig** Navato Fire Protection Dist.	**Gary Cones** Stanislaus National Forest	**Jay Pennell** Michigan Dept. of Natural Resources
Jim Garrison FL Fish and Wildlife Commission	**Michael Meszaros** Inverness Fire Dept.	**Blaine Shultz** Mariposa County Fire Dept.	**Robert Ojala** Michigan State University Extention
Martha Monroe University of Florida	**Dave Boyd** California State Parks	**Bob Irwin** Stanislaus National Forest	**Russell Kidd** Michigan State University Extention
	Michael Swezy Marin Municipal Water Dist.	**Carolyn Higgens** Stanislaus National Forest	**Tracy Tophoven** Huron-Manistee National Forest (formerly)
	Greg Moore Mill Valley Fire Dept.	**Valdo Calvert** Huron-Manistee National Forest	**Dave Riegle** Huron-Manistee National Forest

We would also like to thank the many anonymous participants who took the time to share their thoughts with us via focus group discussions and questionnaires.

Executive Summary

Fuel reduction has the best chance of success if managers understand the factors that influence public acceptance of fuel management sufficiently to provide effective responses to the questions, objections, and concerns of wildland-urban interface (WUI) homeowners.

Objectives

This study's overall objective is to provide land managers with a standardized decision support tool that enables them to assess public acceptance and understanding of fuel treatments in areas where they are needed. The three fuel treatment approaches considered were prescribed burning, mechanical treatment, and defensible space ordinances. Specific objectives include:

- Identify the issues related to fuel management that are salient to residents of fire-prone wildland-urban interface areas.
- Develop and test a model of the causal factors and processes by which individuals evaluate the acceptability of a fuel management policy or plan.
- Develop a standardized survey method for use by land managers to increase public participation in decision making, monitor public acceptance of fuel management approaches, and develop effective communication and outreach strategies.

Methods

The study's data collection occurred in two phases. In the first phase, focus group findings were used to develop a standardized survey questionnaire employed in the second phase to assess WUI homeowners' attitudes toward the three fuel treatment approaches. Findings presented in this report are based on survey responses from 2,154 WUI homeowners in California, Florida, and Michigan. Model testing and other multivariate analyses of the survey data will be published in forthcoming conference proceedings and journal articles. These products can also be viewed at www.fire-saft.net .

Summary of survey results

Attitude toward, and approval of, fuel management approaches are highly correlated, but vary widely by site. California respondents' attitudes toward mechanical treatment and defensible space ordinance are significantly more positive than corresponding attitudes of Florida and Michigan respondents. The average attitude toward prescribed burning was most positive for Florida homeowners. Michigan respondents returned the most negative average attitude score for all three fuel treatments.

The study measured several variables which theory and empirical evidence suggest are related to the formation of attitudes: experience, beliefs, personal importance, agency trust, and value orientation.

Experience. Of the three sites, California respondents are the most informed about fire, are more involved in protecting their own homes, more likely to participate in community fire protection activities and are more familiar with mechanical treatment. Florida respondents are the most familiar with wildland fire, generally, and are more familiar with prescribed burning. Michigan respondents are more likely to have suffered damages to property and are more likely to have been evacuated due to wildland fire. They are also the least likely to have experienced discomfort from wildland fire smoke.

Beliefs. California and Florida respondents are similar in the strength of many beliefs about fuel management strategy outcomes. Both believe that there is more than an average likelihood that prescribed burning results in less smoke over the long-term, and that it improves the conditions for wildlife. They also believe that both prescribed burning and mechanical treatment reduces the cost of firefighting. Also common to these two sites is respondents' beliefs that mechanical treatment restores wildlands to a more natural condition and that it improves conditions for wildlife. California respondents believe most strongly that mechanical treatment extracts usable wood products and that defensible space ordinances reduce firefighting costs. Florida and Michigan respondents both believe with equal strength that defensible space ordinances have negative impacts on scenery. Michigan respondents believe most strongly that prescribed burning could allow fires to get out of control and has negative scenery impacts. They also believe that negative scenery impacts result from mechanical treatment.

Personal importance. Of the three fuel management approaches, defensible space ordinances and mechanical treatment are most and equally important to California respondents. Prescribed burning is most important to respondents from the Florida site, and mechanical treatment is most important to Michigan respondents. California respondents are the most concerned that a wildfire could change the quality of their lives; Florida and Michigan respondents are less and equally concerned.

Agency trust. California respondents express relatively high levels of trust in government agencies for protecting property from wildand fire and in using mechanical treatment. Florida respondents express high trust levels for public land management, generally, and for agencies' use of prescribed burning. Michigan respondents express low levels of trust for all agency objectives.

Value orientation. Along a spectrum of forest value orientation from biocentric to anthropocentric, California respondents are the most anthropocentric and Florida and Michigan respondents are, equally, the most biocentric.

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Introduction

A combination of fire suppression, urban sprawl, and migration to rural areas has created an extensive wildland-urban interface (WUI) where wildfire poses a serious threat to people, property, and resources (GAO, 1999). Achieving fuel reduction in such ecosystems is considered critical to reducing the likelihood of future catastrophic fires (USDA, 2000), and has spawned several nationally prioritized initiatives to expand fuel treatment implementation and research. Fuel reduction relies on prescribed fire and prescribed natural fire and/or mechanical treatments (e.g., fuel load reduction via chainsaws and brush mowers). Enactment and enforcement of defensible space ordinances targets vegetation fuels in the vicinity of residential and other developed areas.

Fuel reduction has the best chance of success if managers understand the factors that influence public acceptance of fuel management sufficiently to provide effective responses to the questions, objections, and concerns of WUI residents. Prescribed fire has generated controversy because of the vast distances over which the resulting smoke disperses (i.e., over living, work and travel areas) and the potentially disastrous impacts of prescribed fires that escape. Mechanical treatment has led some to be concerned that fuels reduction would be used as a pretext for justifying harvest of mature trees. And defensible space initiatives may run counter to WUI homeowners' individual landscaping objectives.

As agencies plan fire management activities, especially those like fuel management it would be helpful to know as much as possible about how well people understand agency objectives and the strategies designed to achieve them. Knowledge of the relationships between acceptance of fuel management strategies and a population's beliefs, attitudes and opinions about particular strategies as well as geographic and demographic characteristics would allow strategic targeting of population subgroups for collaboration and outreach efforts.

Background

Across the United States, particularly in rapidly growing wildland urban interface (WUI) areas of the West, the coexistence of people and the ecosystems in which they live is under increasing stress. One stressor in the wildland urban interface areas is the threat of wildland fire (Cohen 2000; Davis 1990). Wildland fires can be ignited by humans, for example, through acts of arson, escaped campfires, discarded cigarettes, or backyard burning of garbage. Wildland fire can also result from lightning strikes. Today more people live and recreate in areas prone to wildfires, thus fire protection is in greater demand. Enormous expenditures, mostly federal, but also state and local, are devoted to fire protection with taxpayers at-large bearing these costs.

Survey research conducted at national, state, or regional scales has assessed public opinion about fire and fuels management. Following the 1988 Yellowstone fires, Manfredo, Fishbein, Haas, and Watson (1990) found that survey respondents from Wyoming and Montana expressed more positive overall support for a controlled burn policy than that expressed by a nationwide sample. Schindler and Reed (1996) found more support for mechanical thinning than for prescribed burning with residents of northeast Oregon's Blue Mountains. Winter (2002) recently found that California residents support letting some fires burn, but were more supportive (by a factor of two) of protecting residences than extinguishing all fires regardless of cost. Loomis, Bair and Gonzalez-Caban (2001) found residents of central Florida supportive of prescribed burning, with a greater proportion of residents holding more positive attitudes after receiving public education materials on prescribed burning than those not receiving information.

Fewer studies have targeted residents living in or adjacent to wildland areas where significant financial resources are spent on fire protection and risk reduction. In a study of home owners in Crawford County Michigan, Winter and Fried (2000) found support for mechanical fuel reduction on public lands and weak support for defensible space practices and prescribed burning. Also reported in their study was the notion that land agencies and home owners should share responsibility for fire risk reduction because fuel reduction efforts do not, by themselves, guarantee that a wildfire will leave private property and homes undamaged. It is in these WUI areas where home construction continues, that fire and resource managers face the greatest challenges. The opinions of WUI home owners, those who rely heavily on local natural resources for recreation and their livelihoods, and face the possibility of losing their lives, homes and

belongings in a wildfire, influence the political environment confronting managers charged with achieving a balance between allowing natural processes to occur and protecting homes and lives.

Study Goals and 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.
2. Test individual questions and scales (sets of questions) to develop a set of reliable and valid measures of intentions to support (approval), attitudes, beliefs, personal importance, trust, value orientation, 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.
4. Design a computer aided method for assessing and mapping the spatial distribution of causal factors (e.g., knowledge, attitudes, past experience) that influence fire management policy acceptance.

Management Applications of the Study

A major product of this research will be standardized measures of acceptance and understanding of various fuel treatments-- measures suitable for incorporation into quantitative surveys in any part of the U.S. Such nationally standardized measures have two compelling advantages: 1) they would make it easy and inexpensive for public land managers to design site- and issue-specific public surveys that measure acceptance of fuel management proposals, and 2) they would allow agencies to monitor, compare and track progress in outreach activities across management units and over time, at a minimum cost.

Study Variables And Theoretical Concepts

This report presents a summary of regional survey data within a framework that accounts for theoretical and empirically observed factors associated with the social acceptability of natural resource management policies. The framework was developed from the human dimensions of natural resources literature and social psychological models of human behavior.

To assess and understand attitudes held by home owners in WUI areas, we utilized the Theory of Reasoned Action (Ajzen and Fishbein 1980) as a framework for measuring beliefs about, attitudes toward and intentions to support fuel management approaches in WUI areas (Figure 1). The most important determinant of a person's behavior is behavioral intent. The individual's intention to perform a behavior, such as the decision to support a fuel management policy, depends on attitude toward performing the behavior (an evaluation of whether the behavior is favorable or unfavorable), the strength of his belief that performing the behavior will result in certain outcomes, and the evaluation of those outcomes (Bright et al. 1993). In our study, behavioral intent was conceived as the intention of individuals to support a particular fuel management approach, collectively this is a measure of social acceptability.

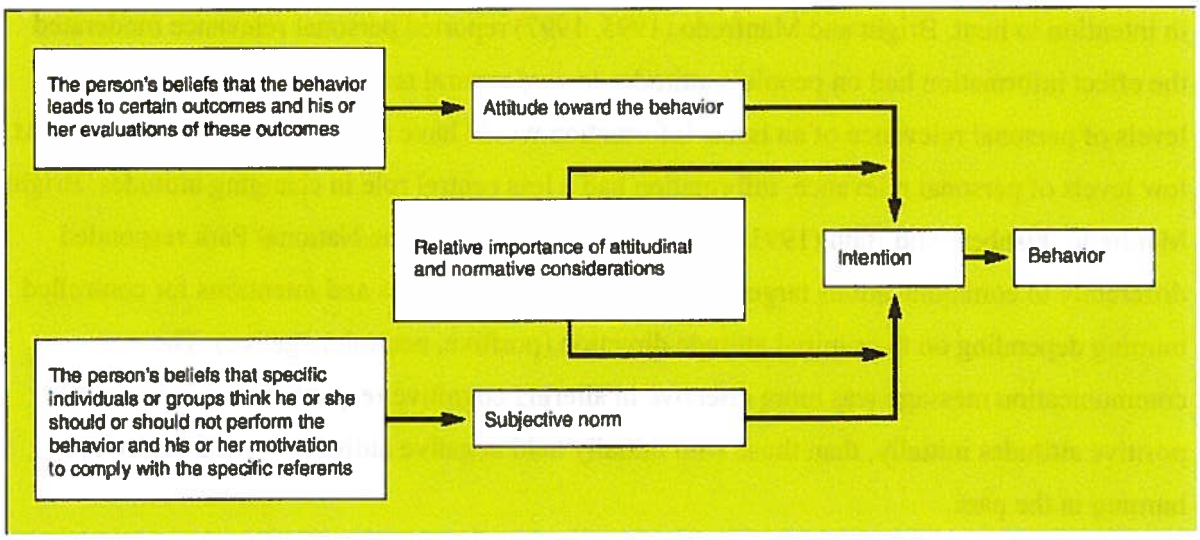

Figure 1 Theory of Reasoned Action. Source: Ajzen and Fishbein (1980)

Social acceptability of forest management practices results from individual judgments that "compare the perceived reality with its known alternatives" and "decide whether the 'real' condition is superior, or sufficiently similar, to the most favorable alternative condition" (Brunson and Kruger 1996). These individual judgments are influenced by attitudes and are generally not observable. The absence of social acceptability is expressed by individuals who initiate behaviors that attempt to shift existing conditions toward a preferred alternative (Brunson and Kruger 1996). The Forest Service's transition toward "ecosystem management" and statements by the agency's leaders (e.g., Robertson 1991) imply that management practices on federal forests should be ecologically sustainable, economically feasible and socially acceptable (Brunson and Kruger 1996). "If public acceptability is to be an explicit objective of national forest management, the Forest Service will require methods to measure acceptability of current practices, predict acceptability of proposed practices, and understand the reasons for failures to achieve acceptability" (Brunson and Kruger 1996, p8).

Others have used and extended the Theory of Reasoned Action by considering ancillary factors which influence the primary components of the reasoned action model. In a study of hunters, Rossi and Armstrong (1999) found past experience with hunting to explain significant variation in intention to hunt. Bright and Manfredo (1995, 1997) reported personal relevance moderated the effect information had on people's attitudes toward natural resource management. At high levels of personal relevance of an issue, information would have a greater effect on attitudes. At low levels of personal relevance, information had a less central role in changing attitudes. Bright, Manfredo, Fishbein and Bath (1993) found visitors to Yellowstone National Park responded differently to communications targeted to change beliefs, attitudes and intentions for controlled burning depending on their initial attitude direction (positive, neutral, negative). The communication message was more effective in altering cognitive responses with visitors with positive attitudes initially, than those who initially held negative attitudes toward controlled burning in the park.

During focus group interviews with wildland urban interface home owners in California, Florida and Michigan, trust in forest management agencies emerged as an important factor in the decision to support or oppose fuel management approaches (Winter, Vogt and Fried 2002). These observations conformed primarily to the "competence" dimension of social trust wherein "trust is gained only when the individual or institution in a social relationship is judged to be

reasonably competent in its actions over time" (Kasperson, Golding and Tuler 1992). In their study of support for the siting of a nuclear waste repository among Nevada residents, Flynn, Burns, Mertz, and Slovic (1992) found that the level of trust in those responsible for repository management directly influenced risk perceptions, which, in turn, directly affect attitude toward the repository.

In this study, we assessed intentions to support, and attitudes toward, three fuel management approaches in WUI areas in California, Florida and Michigan (Figure 2). We also measured variables that have been shown to affect attitudes toward natural resource policy: 1) past experience with the fuel management approach, 2) beliefs about fuel management approach outcomes, 3) personal importance of the fuel management approach, 4) trust in land managers' capacity to carry out forest and fuel management effectively and safely, and 5) forest value orientation.

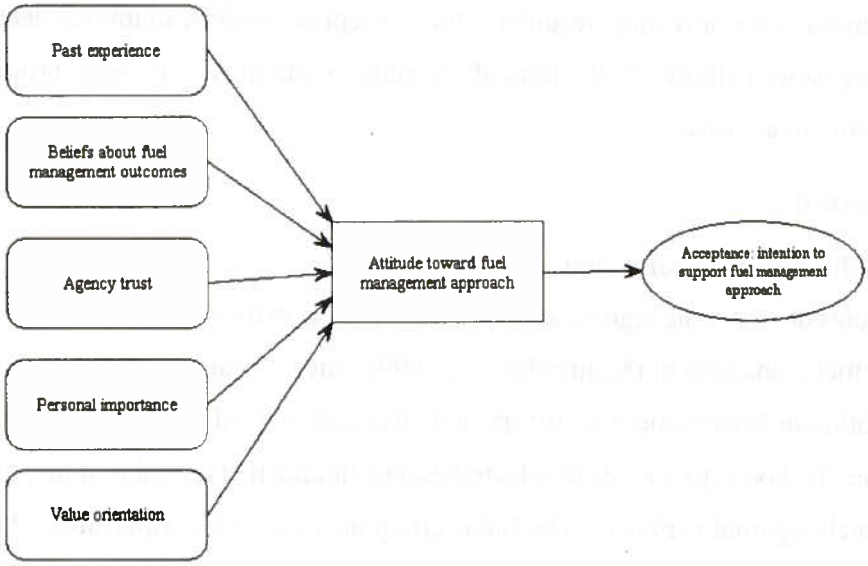

Figure 2 Conceptual model of WUI resident acceptance of fuel management approaches based on extended Theory of Reasoned Action

In this report we compare these measures across project sites. The intention of this analysis was to describe the differences and similarities in these measures among populations in diverse WUI areas. Forthcoming analysis of these data will test several multivariate models of WUI homeowners' intentions to support specific fuel management approaches. All products of this research project are available at www.fire-saft.net.

Methods

Study design

This study was implemented in two phases:

1) Phase I - development of a conceptual model and measurement scales applicable nationwide, based on the literature and the results of focus group interviews with WUI homeowners at four diverse project sites,
2) Phase II - testing of the conceptual model, demonstration of implementation of measurement scales in a quantitative survey concerning a site-specific proposal, and determination of social characteristics (e.g., demographics, spatial characteristics, general beliefs about humans' roles in ecosystem management) that are related to understanding and acceptance.

This report presents the univariate results for the conceptual model variables at each project site. A forthcoming paper will present the tests of the multivariate models for each project site and each fuel treatment approach.

Data collection

Phase I: Qualitative data collection

Previous studies demonstrate significant regional variation in the public's attitudes towards wildfire and fuel management (Manfredo et al. 1990). Sites for this study were selected to provide variation in fire regime, fire history, land use and ownership patterns, and socioeconomic profile (Figure 3). Focus groups were selected as a technique that would best help us reveal and understand such regional variances. The focus group interview transcripts allowed researchers to analyze WUI residents' discussions about fuel management and wildland fire, generally, for factors associated with acceptance of particular wildland fire and fuel management strategies. Results of these analyses formed the basis of the conceptual model depicted in Figure 2 and guided the development of the survey questionnaire in Phase II of the study.

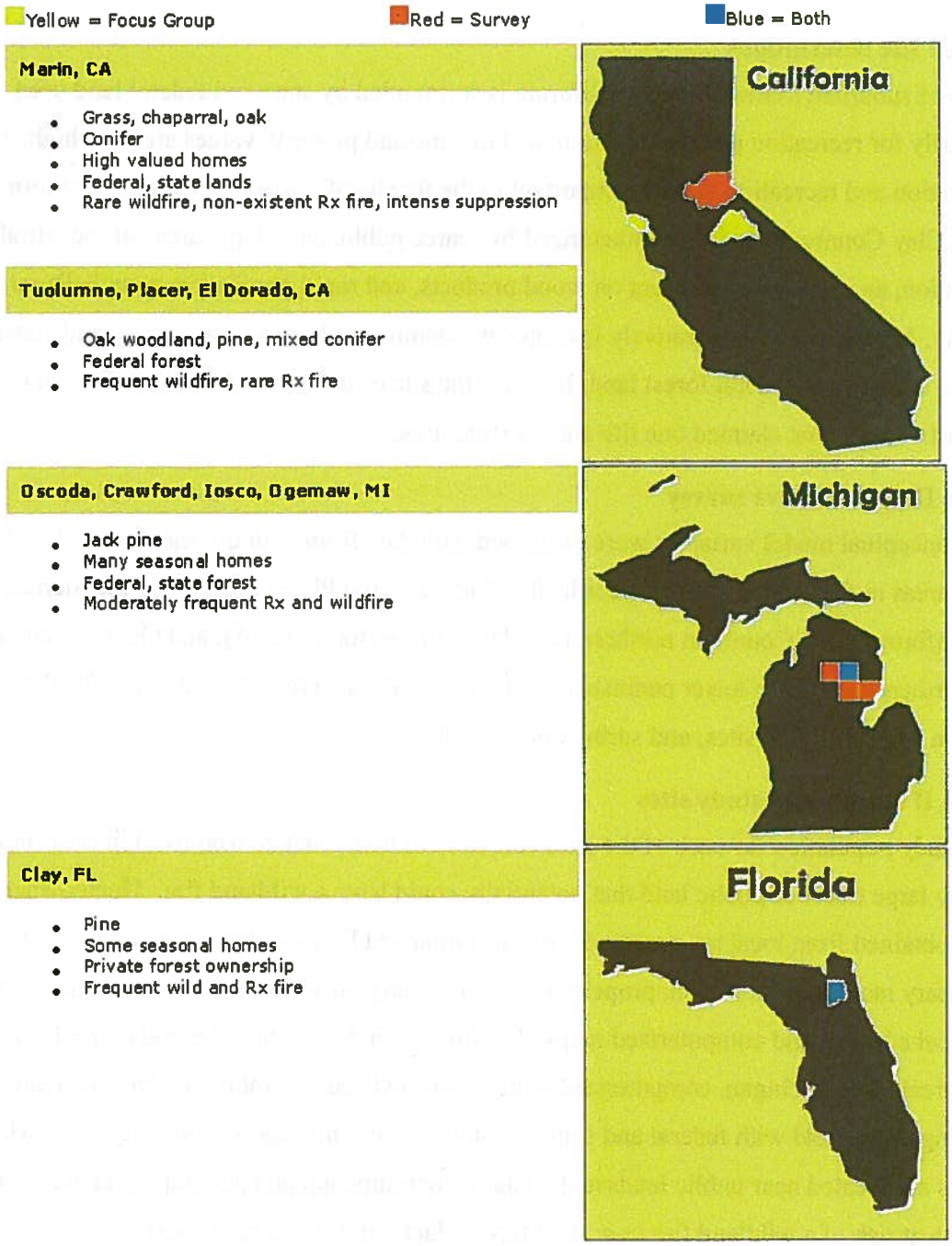

Figure 3 Project sites

Phase I site descriptions

Much of suburban Marin County, California is surrounded by state and federal land used primarily for recreation and preservation, and income and property values are very high. Timber production and recreation are both important in the forests of Tuolumne County, California. Rural Clay County, Florida is characterized by scarce public land, large areas of industrial pine plantation, an economy dependent on wood products, and rapid population growth. Rural Oscoda County, Michigan, is comparatively low-income, dominated by seasonal homes, and consists mostly of state and federal forest land. It is also the site of the 1980 Mack Lake fire, an escaped prescribed burn that claimed one life and 44 structures.

Phase II: quantitative survey

The conceptual model variables were examined with data from mail questionnaires distributed in three areas in the United States. Specifically, Eldorado and Placer counties in the Sierra region of California; Clay County in northern Florida; and Crawford, Oscoda, and Ogemaw counties in the northern part of the lower peninsula of Michigan. Data were collected in fall 2001 for Florida and California sites; and spring 2002 for Michigan sites.

Phase II sample and study sites

The study population for each of the sites consisted of homeowners who lived in areas next to or nearby large tracts of public land that potentially could have a wildland fire. Homeowner lists were obtained from local tax assessors. In California and Florida, homeowner lists contained the necessary mailing information, property code confirming the existence of a residential structure, physical address, and computerized maps that showed landscape features and house location on the parcel. For Michigan, computerized mailing lists existed but not maps. In Michigan, meetings were held with federal and state foresters and fire managers to identify areas where homes are located near public lands and contain environmental and geographic factors which put an area at risk of a wildland fire (e.g., fuel types - Jack Pine, few fire breaks).

After a geographic area was identified, then the sampling of households was performed. In California, residential home areas were found to be in clusters (i.e., neighborhoods, subdivisions). In Florida, residential home areas were distributed throughout the county. A statistical sampling approach was used that placed all residential homes in clusters, then sampled

in a cluster. In Michigan, the geographic area provided a sample size close to our original budgeted sample size, therefore every residential home was selected. The unit of analysis for the study was a household.

The three study sites were selected based on unique ecological and land management characteristics. The California site focused on Placer and El Dorado counties. This area contains oak woodland, pine and mixed conifer forests. The forest is federally managed. There are frequent wildfires and rare prescribed burns. Defensible space ordinances are enforced by the California Department of Forestry. The Florida site focused on Clay County. This area contains primarily privately owned pine forest. There are frequent wildland fires and prescribed burns have a long history of use here. The Michigan site focused on Oscoda, Crawford, and Ogemaw counties. This area contains primarily jack pine forests. Federal and state forests exist. There are moderately frequent wildland fires and prescribed burns.

Phase II data collection

Data were collected in the Fall 2001 (California and Florida) and Spring, 2002 (Michigan). Homeowner lists were obtained from county tax assessors at each study site. For California and Florida, GIS data for parcels and natural features were available to assist in selecting the samples. For Michigan, more spatially coarse techniques were used to identify areas where homeowners face the risk of wildfires. In all three states, extensive discussions were held with federal and/or state agency foresters and fire managers to refine our area selection. Thus, our sample represents specific areas of each county where homeowners and potentially flammable vegetation fuels were present. Only properties for which tax assessor records indicated the presence of a structure with a value of at least $25,000 were treated as part of the population of interest (to eliminate vacant lots). In all areas, single-family homes and mobile homes were considered to belong to the population of interest. In California and Florida, a sample was created using geographical cluster sampling with random offsets to ensure adequate sample sizes for each geographical separation class. This method was employed to facilitate a related geostatistical study of spatial continuity in fuel management acceptance. In Michigan, the budgeted sample size matched the identified population so that all homeowners in the population of interest were surveyed.

A modified Dillman (1978) mail procedure was used whereby each household in the sample received an initial mailing comprised of a personalized letter, business reply envelope, and a numbered questionnaire. The personalized letter and mailing envelope for the California and Florida study sites were performed by Washington State University's Social and Economic Research Science Center and utilized their letterhead. The personalized letter and mailing envelope for the Michigan study site was performed by Michigan State University and utilized their letterhead. One week after the initial mailing a reminder or thank you postcard was sent to the entire sample. Three weeks into the process, respondents, bad addresses and refusers were excluded from the original database and nonrespondents were mailed another personalized letter, business reply envelope and a questionnaire.

Questionnaire format and scale measurement

The questionnaire was identical for each study area except for any location specific references. The questionnaire was eight pages and printed in a booklet format. The booklet included a cover sheet with title of the project, a local map showing the area under study, a description of the study, and a contact name of the principal investigator; a page of definitions of terms used (i.e., prescribed burning, mechanical fuel reduction, defensible space ordinance); and six pages of questions (an example is included as **Appendix A**).

Intention to approve the use of fuel management approaches. Following the Theory of Reasoned Action and recognizing that an actual future behavior could not be measured in our study (e.g., voting in a local election for a defensible space ordinance, evaluating the level of defensible space around a home), intentions were measured. Intention was operationalized as the level of approval toward each of the fuel management approaches. A seven-point scale was used where "1" equaled strongly disapprove, "4" equaled neither approve or disapprove, and "7" equaled strongly approve. The raw score was used to represent the dependent variable in the Theory of Reasoned Action (TRA) model and the Expanded TRA model. An alternative measure of intention to approve fuel management approaches used a referendum format question in which respondents were asked, "If you were given the opportunity to vote for or against allowing [insert fuel management approach] on public land in [insert name of County], how would you vote?"

Attitude toward fuel management approaches. Attitude was operationalized similar to intent whereby respondents were asked to rate each fuel management approach on a seven-point scale where "1" equaled extremely negative, "4" equaled neutral, and "7" equaled extremely positive.

Belief strength of fuel management approaches. Belief was operationalized based on findings from focus groups performed in two of the three study sites (see Winter et al., 2002). Seven belief outcomes were considered in this study, however not all outcomes pertained to each of the fuel management approaches. All belief outcomes were measured on a fully labeled seven-point scale where "1" equaled zero likelihood (of occurring), "2" not at all likely, "3" slightly likely, "4" somewhat likely, "5" very likely, "6" extremely likely, and "7" certain. The seven belief items included (with the corresponding fuel management approach in parenthesis as follows: prescribed burning -pb, mechanical fuel reduction - mfr, and defensible space ordinance - dso): impacts scenery (pb, mfr, dso), extracts usable wood products (mfr, dso), creates more smoke in the short-term but less smoke over time (pb), could allow fires to get out of control (pb), restores wildlands to a more natural condition (pb, mfr), saves money by reducing the cost of fighting a wildfire (pb, mfr, dso), and improves conditions for wildlife (pb, mfr, dso). Belief evaluation (using a seven-point bad to good scale) was also measured for each belief outcome.

Value orientation. The value orientation scale was adopted from Steel, List and Shindler (1994). The question read "How would you answer the following statements about things that you value?" The scale was comprised of eight items selected to represent biocentric and anthropocentric dimensions of value orientation toward forests. Five items represent an anthropocentric view and three represent a biocentric view. The seven response categories ranged from "strongly disagree" to "strongly agree." After recoding items so that higher numbers reflected a biocentric orientation and lower numbers represented an anthropocentric orientation, the responses were summed to form an indicator of forest values ranging from 8 to 56. The reliability coefficient (Cronbach's alpha) for the Forest Values Scale ranged from 0.75 in the Florida and Michigan samples to 0.83 in the California sample. This suggests that respondents were consistent in their patterns of response for the additive scale and that the scale items were highly intercorrelated.

Agency trust for managing wildlands. The trust scale was adapted from (Flynn et al, 1992). The question read "How would you rate the government agencies that manage wildlands in (insert geographic area)?" The scale was comprised of seven items. Three items represented the

management of public lands, forest issues, and protecting private property from wildland fires. Specifically the items read: the government does a good job in managing public land, the government does a good job communicating with the public about forest issues, and the government does a good job of protecting private property from wildland fires (Cronbach's alpha=0.78).[1] Two items represented the management of prescribed burning, these included: I trust the government to make proper decisions about the use of prescribed burning, and the government does a good job of notifying the public about upcoming prescribed burns (Cronbach's alpha=0.72). Trust of mechanical fuel reduction was a single item which read "I trust the government to make the proper decisions about the use of mechanical fuel reduction." Trust of defensible space ordinance was also a single item which read "I trust the government to make the best decision about enacting and enforcing defensible space ordinances." All trust items used a seven-point scale labeled "1" equaled strongly disagree, "4" equaled neutral, and "7" equaled strongly agree.

Past experiences. In a series of check all that apply scales, respondents were asked about experiences during any time in their lifetime. These experiences were a priori categorized into general wildland fire experiences, prescribed burn experience, mechanical fuel reduction experience, and defensible space experiences. Responses were coded "0" for no experience and "1" for experience. General wildland fire experiences included: been injured or suffered property damage from a wildland fire; felt feat or anxiety as a result of a wildland fire; experienced a road closure due to wildland fire; friends, family or neighbors suffered property damage due to wildland fire; experienced discomfort from smoke caused by wildland fires; and evacuated my home or office due to wildland fire. Prescribed burning experience was a single item of "a prescribed burn has occurred near my home." Mechanical fuel reduction experience was a single item of "a mechanical treatment to reduce fuels has occurred near my home." Defensible space experience was comprised of four items, including: been required to remove flammable vegetation on my property, asked local fire department about how to reduce my risk of property damage, read information on protection homes from wildland fires, and removed flammable vegetation on my property to protect my home from fire."

[1] Cronbach's alpha statistics were computed for a combined sample of all three sites.

Personal importance. Personal importance was measured at two levels - in general and for each fuel management approach. The general measure used a single item seven-point scale. The question read "how concerned are you that a wildfire could change your quality of life?" The end points of the scale were labeled "not at all concerned"(1) to "extremely concerned" (7). The measure for each fuel management approach used a seven-point scale that was end point labeled with "not at all important"(1) to "extremely important"(7). The question read "Governments have programs or ways of improving communities and quality of life. Not all of these programs have the same importance to citizens. How important are these programs to you personally as they are practiced in your forest area (inserted geographic area)?"

Data analysis

This report compares the survey responses to conceptual model variables between study sites. Tests for differences between means were conducted using one-way analysis of variance. Superscripts are used to denote means that were found to be significantly different from one or more individual sites based on the least significant difference (LSD) post hoc test for differences between means.

Results

Response Rates

For the California sample, 1,200 questionnaires were sent in the initial mailing, 90 questionnaires were undeliverable, so the effective sample size was 1,110 homeowners (Table 1). After three mailings, 9 refusals were received and 544 questionnaires were returned and completed for an overall response rate of 49 percent. For the Florida sample, 1,197 questionnaires were sent in the initial mailing; 54 questionnaire were undeliverable, so the effective sample size was 1,143 homeowners. After three mailings, 5 refusals were communicated and 357 questionnaires were returned and completed for an overall response rate of 31 percent. For the Michigan sample, 2,453 questionnaires were sent on the initial mailing; 101 were undeliverable for an effective sample size of 2,352 homeowners. After three mailings, 8 refusals were communicated and 1,253 questionnaires were returned and completed for an overall response rate of 53 percent. The number of usable surveys was affected by missing data on selected items. For univariate statistics the number of eliminated cases was fewer than eliminated cases for multivariate statistics. In California, approximately 490 (90% of those returned and mostly completed) usable surveys were used in multivariate analysis of intention to approve; approximately 325 (91%) in Florida, and approximately 1,100 (88%) in Michigan.

Table 1 Response rate statistics

Study sites	Original sample size	Bad addresses	Effective sample size	Respondents	Response rate
	Frequency	Frequency	Frequency	Frequency	Percent
California	1,200	90	1,110	544	49
Florida	1,197	54	1,143	357	31
Michigan	2,453	101	2,352	1,253	53
Total	4,850	245	4,605	2,154	47

Univariate statistics by site

Demographics

The California and Michigan samples were similar in demographics (Table 2). For both samples, approximately seven out of ten respondents were male, one-third of the respondents had college degrees, three out of ten respondents earned $80,000 or more for an annual household income, and three out of ten households had someone with a respiratory ailment. Michigan homeowners had a longer home tenure than California homeowners and Michigan homeowners were much more likely to be seasonal residents. Florida respondents were more likely to be female, more likely to have only a high school education, and a smaller portion of Florida homeowners earned an annual household income of $80,000 or more (in comparison to California and Michigan respondents). A greater portion (35%) of Florida households had someone with a respiratory ailment and Florida homeowners were most likely to be permanent residents (97%).

Table 2 Demographic description of samples

	California N=544	Florida N=357	Michigan N=1,244
Gender			
Male	70%	60%	71%
Female	30	40	29
Education			
High school	26	45	35
Some college	38	39	33
College graduate	36	16	32
Income			
Less than $40,000	23	33	34
$40,000 – 79,999	45	49	37
$80,000 and higher	32	18	29
Respiratory ailment in household			
Yes	30	35	28
No	70	65	72
Residence length			
1 – 10 years	40	33	32
Over 10 years	60	67	68
Tenure			
Permanent resident	89	97	60
Seasonal resident	7	1	38
Other	3	3	2

Experiences and actions

California respondents say more frequently than those from Florida or Michigan that they had been required to remove flammable vegetation and that they had actually removed vegetation from their property, and they participate more frequently in community fire programs to protect their homes from fire (Table 3). Californians in this study also are more likely to report that a mechanical fuel reduction treatment has occurred near their homes. All three of these results are probably due to the existence and enforcement of defensible space ordinances in California and various community fuel reduction programs employing mechanical treatment that have resulted from these rules. California respondents also appear to be better informed about wildland fire. They ask for and read information about protecting their homes from wildland fire and attend interpretive programs and public meetings about fire more often than their Florida and Michigan counterparts. California respondents are also more likely to have worked with wildland fire as part of their jobs or as volunteers.

Florida respondents witnessed wildland fires and prescribed fires more frequently than California or Florida respondents. They are also more likely to have experienced their neighbors being careless with fire, and are more likely to have experienced a fire-related road closure.

Michigan respondents are characterized by the relatively high frequency with which they or their acquaintances have been injured or suffered property damage due to wildland fires. Of respondents from the three sites, they are also the most likely to have had to evacuate their homes due to wildland fire. Interestingly, they are the least likely to have experienced discomfort from smoke due to fires. This may be due to a combination of (1) the high rate of seasonal homeowners in our Michigan sample, most of whom would not be visiting the area during the spring fire season, and (2) the relatively short duration of the wildland fires in Michigan's Northern Lower Peninsula compared to recent long-duration fires in northeast Florida and the Sierras in California.

Respondents from all three sites are equally likely to have felt fear or anxiety as a result of wildland fires; to have called the authorities about neighbors being careless with fire. They are also equally likely (and very likely) to have observed the effects of fires on wildlands.

Table 3 Wildland fire experiences and actions

	California	Florida	Michigan
Wildland fire experiences			
Personally witnessed a wildland fire	55% [1]	66% [2,3]	51% [1]
A prescribed burn has occurred near my home	25 [1]	31 [2,3]	21 [1]
Experienced a road closure due to wildland fire	37 [1]	59 [2,3]	33 [1]
Been injured or suffered property damage from a wildland fire	4 [2]	5 [2]	9 [1,3]
Felt fear or anxiety as a result of a wildland fire	41 [2]	38	35 [3]
Friends, family or neighbors suffered property damage due to wildland fire	14 [2]	14 [2]	31 [1,3]
Been required to remove flammable vegetation on my property	32 [1,2]	2 [3]	2 [3]
A mechanical treatment to reduce fuels has occurred near my home	21 [1,2]	5 [3]	9 [3]
Experienced discomfort from smoke caused by wildland fires	68 [1,2]	61 [2,3]	17 [1,3]
Other fire experience	11	10	13
Wildland fire actions			
Observed the effects of fires on wildlands	76 [2]	71	71 [3]
Evacuated my home or office due to wildland fire	5 [2]	7 [2]	14 [1,3]
Worked with wildland fires as a part of my job or as a volunteer	13 [2]	9	9 [3]
Asked local fire department about how to reduce my risk of property damage	22 [1,2]	6 [3]	5 [3]
Read information on protecting homes from wildland fires	72 [1,2]	44 [3]	42 [3]
Attended a park or forest interpretive program about fire	20 [1,2]	5 [3]	8 [3]
Attended a public meeting about fire	20 [1,2]	4 [3]	7 [3]
Removed flammable vegetation on my property to protect home from fire	91 [1,2]	44 [3]	42 [3]
Observed neighbors being careless with fire	29 [1,2]	47 [2,3]	38 [1,3]
Worked with local fire department on neighborhood and community fire protection	13 [1,2]	7 [3]	8 [3]
Called authorities about neighbor's hazardous activity	10	14	12
Other fire actions	5	3	4

[1] Statistically different than Florida
[2] Statistically different than Michigan
[3] Statistically different than California

Attitude toward fuel management approach

Attitude toward fuel management approaches varied widely by site (Table 4). California respondents' attitudes toward mechanical treatment (5.75) and defensible space ordinance (5.78) are significantly more positive than corresponding attitudes of Florida (5.33, 4.26) and Michigan respondents (4.90, 4.15). The average attitude toward prescribed burning was most positive for Florida homeowners (5.72). Michigan respondents returned the most negative average attitude score for all three fuel treatments (ranging from 4.02 for prescribed burning to 4.90 for mechanical treatment).

Table 4 Attitude toward fuel management approaches

	California		Florida		Michigan	
Fuel management approach	Mean	SD	Mean	SD	Mean	SD
Prescribed burning	5.11 [1,2]	1.71	5.72 [2,3]	1.37	4.02 [1,3]	1.88
Mechanical treatment	5.75 [1,2]	1.34	5.33 [2,3]	1.48	4.90 [1,3]	1.62
Defensible space ordinance	5.78 [1,2]	1.61	4.26 [3]	1.91	4.15 [3]	1.98

[1] Statistically different than Florida
[2] Statistically different than Michigan
[3] Statistically different than California

Attitude scale ranged from 1=extremely negative, to 7=extremely positive

Fuel management approach acceptance

Approval

Consistent with the Theory of Reasoned Action and the proposed conceptual model of fuel treatment acceptance, the pattern of fuel treatment approval is quite similar to the pattern of fuel treatment attitude across sites (Table 5). California respondents are most approving of mechanical treatment (5.43) and defensible space ordinance (5.57), while Florida is most approving of prescribed burning (5.57). Michigan respondents returned the lowest average approval for all three fuel treatments.

Table 5 Approval levels of fuel management approaches

	California		Florida		Michigan	
Fuel management approach	Mean	SD	Mean	SD	Mean	SD
Prescribed burning	4.70 [1,2]	1.77	5.57 [2,3]	1.34	3.65 [1,3]	1.83
Mechanical treatment	5.43 [1,2]	1.43	5.13 [2,3]	1.50	4.56 [1,3]	1.63
Defensible space ordinance	5.57 [1,2]	1.59	3.97 [3]	1.91	3.82 [3]	1.97

[1] Statistically different than Florida
[2] Statistically different than Michigan
[3] Statistically different than California

Approval scale ranged from 1=strongly disapprove, to 7=strongly approve

Voting

Measured as a referendum (vote *for* or *against*), mechanical treatment enjoys the broadest support across sites, ranging from 71% in Michigan to 88% in California (Table 6). Large majorities support prescribed burning in Florida (87%) and California (71%), but in Michigan, less than half (47%) support this practice. Defensible space ordinance received majority support only in California (75%), the only site where it is currently ordained and enforced. Measured this way, approval of defensible space ordinance received the weakest support of all three approaches at sites where it is not ordained: 42% in Florida and 43% in Michigan.

Table 6 Percent voting *for* fuel management approach

Fuel management approach	California	Florida	Michigan
Prescribed burning	71% [1,2]	87% [2,3]	47% [1,3]
Mechanical treatment	88 [1,2]	79 [2,3]	71 [1,3]
Defensible space ordinance	75 [1,2]	42 [3]	43 [3]

[1] Statistically different than Florida
[2] Statistically different than Michigan
[3] Statistically different than California

Belief evaluation

For the combined sample, belief evaluation scores for possible fuel treatment outcomes (on a bad/good scale, range 1-7) ranged from a low of 2.01 for "could allow uncontrollable fires" to a high of 6.06 for "improves wildlife conditions" (Table 7). The two extremities are constant across all three sites, as is the second lowest scoring outcome: "impacts scenery."

Table 7 Belief evaluation – fuel management approach outcomes

	California		Florida		Michigan	
Fuel management approach outcome	Mean	SD	Mean	SD	Mean	SD
Impacts scenery	3.73 [2]	1.47 [2]	3.75 [2]	1.42	3.21 [1,3]	1.49
Extracts wood products	5.27 [1,2]	1.56	4.54 [3]	1.64	4.55 [3]	1.71
Creates more smoke now, less long-term	4.85 [2]	1.36	4.93 [2]	1.36	4.14 [1,3]	1.34
Could allow uncontrollable fires	2.07 [1]	1.48	2.28 [2,3]	1.45	2.01 [1]	1.39
Restores wildlands to more natural condition	5.61 [2]	1.22	5.78 [2]	1.18	5.41 [1,3]	1.41
Reduces cost of firefighting	5.83 [2]	1.31	5.90 [2]	1.23	5.11 [1,3]	1.51
Improves wildlife conditions	6.04 [2]	1.15	6.06 [2]	1.29	5.77 [1,3]	1.44

[1] Statistically different than Florida
[2] Statistically different than Michigan
[3] Statistically different than California

Belief evaluation scale ranged from 1=extremely bad, to 7=extremely good

Fuel treatment outcome belief strength

Results for all fuel treatment outcome belief strength variables indicate that Michigan respondents generally believe that negative outcomes are more likely and positive outcomes are less likely, whereas, California and Florida respondents, by comparison, are equally more optimistic (Table 8). However, in the case of defensible space ordinance, Florida respondents share Michigan respondent views on the likelihood of positive and negative outcomes.

Prescribed burning

Compared to Michigan respondents, California and Florida respondents believe it is more likely that prescribed burning will create less smoke in the long-term, reduce the cost of future firefighting, and improve wildlife conditions; and they believe it is less likely that prescribed burning will cause scenery impacts and uncontrollable fires. Florida respondents believe most strongly, and Michigan respondents least strongly, that prescribed burning will restore wildlands to a more natural condition.

Mechanical treatment

California and Florida respondents believe most strongly in three of four positive outcomes of mechanical treatment: reduced cost of firefighting, restores wildlands, and improves wildlife conditions. California respondents believe most strongly, and Florida respondents least strongly, that mechanical treatment will result in the extraction of usable wood products. Michigan respondents believe most strongly that mechanical treatment will have negative scenery impacts.

Defensible space ordinance

For defensible space as a fuel treatment, California respondents generally believe most strongly that positive outcomes will result, and Florida and Michigan respondents are similar in their belief that a negative outcome is more likely and that the positive outcomes are less likely. For the positive outcome, extracts usable wood products, there is no difference in the belief strength across sites, and the likelihood scores are very low.

Table 8 Belief strength – fuel management approach outcomes

	California		Florida		Michigan	
Fuel management approach	Mean	SD	Mean	SD	Mean	SD
Prescribed burning						
Impacts scenery	4.61 [2]	1.32	4.47 [2]	1.46	5.10 [1,3]	1.55
Creates more smoke now, less long-term	5.04 [2]	1.28	5.09 [2]	1.26	4.48 [1,3]	1.45
Reduces cost of firefighting	5.31 [2]	1.44	5.47 [2]	1.33	4.38 [1,3]	1.61
Restores wildlands to more natural condition	4.77 [1,2]	1.58	5.09 [2,3]	1.46	4.26 [1,3]	1.77
Improves wildlife conditions	4.80 [2]	1.60	5.05 [2]	1.62	4.52 [1,3]	1.73
Could allow uncontrollable fires	4.47 [1,2]	1.52	3.90 [2,3]	1.55	4.86 [1,3]	1.58
Mechanical treatment						
Impacts scenery	4.33 [2]	1.40	4.40 [2]	1.48	4.68 [1,3]	1.52
Extracts wood products	5.27	1.36	4.74 [2,3]	1.49	5.00 [1,3]	1.52
Reduces cost of firefighting	5.33 [2]	1.37	5.10 [2]	1.41	4.60 [1,3]	1.51
Restores wildlands to more natural condition	4.45 [2]	1.59	4.34 [2]	1.65	3.91 [1,3]	1.66
Improves wildlife conditions	4.60 [2]	1.59	4.49 [2]	1.70	4.19 [1,3]	1.70
Defensible space						
Impacts scenery	4.03 [1,2]	1.70	4.52 [3]	1.85	4.58 [3]	1.81
Extracts wood products	3.72	1.70	3.64	1.67	3.53	1.74
Reduces cost of firefighting	5.19 [1,2]	1.55	4.31 [3]	1.73	4.03 [3]	1.70
Improves wildlife conditions	3.69 [1,2]	1.81	3.35 [2,3]	1.87	3.00 [1,3]	1.74

[1] Statistically different than Florida
[2] Statistically different than Michigan
[3] Statistically different than California

Belief strength scale ranged from 1=zero likelihood, to 7=certain

Personal importance of fuel management approaches

Respondents were asked to rate each fuel management approach by how personally important each approach was to them as practiced in their county. Florida homeowners rated prescribed burning significantly more important than did the respondents from California and Florida (Table 9). In fact, Floridians' prescribed burning rating was the highest importance rating of any fuel management approach at any of the three sites. Defensible space ordinance received the next highest overall importance rating from California respondents who live in an area where defensible space ordinances have been enforced for years. This fuel management approach received the lowest overall importance scores from Michigan and Florida respondents where there are no defensible space ordinances in force. Californians returned the highest importance rating for mechanical treatment.

Respondents were also asked about their general level of concern "that a wildfire could change your quality of life." California respondents are most concerned about wildfires (Table 9). Florida and Michigan respondents are not statistically different on this measure of personal importance.

Table 9 Importance of fuel management approaches and level of concern about wildfire

	California		Florida		Michigan	
Fuel management approach	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Prescribed burning	5.20 [1,2]	1.73	5.83 [2,3]	1.30	4.58 [1,3]	1.91
Mechanical treatment	5.72 [1,2]	1.41	5.38 [2,3]	1.51	4.93 [1,3]	1.67
Defensible space ordinance	5.78 [1,2]	1.57	4.53 [3]	1.99	4.44 [3]	2.02
lfire concern level	5.91 [1,2]	1.46	5.34 [3]	1.69	5.41 [3]	1.78

[1] Statistically different than Florida
[2] Statistically different than Michigan
[3] Statistically different than California

Personal importance scale ranged from 1=nat at all important, to 7=extremely important

Value orientation

Responses to individual Forest Values Scale items and the additive scale suggest that respondents in our study responded similarly to the respondents in Steel, et al (1994). They found in their comparison of national and Oregon publics, that, with one exception, responses to individual scale items tended to be more biocentric than anthropocentric. The same item is also an exception in our study (Table 10). Agreement scores are relatively high for the scale item, "Forest resources can be improved through human management." One notable difference in responses between these two studies is the markedly lower agreement scores for the scale item, "Plants and animals exist primarily for human use." The additive scale (after recoding the first five anthropocentric scale item responses) shows a biocentric orientation very similar in magnitude to that observed by Steel et al. California respondents tended to be less biocentric than respondents from other sites. California scores for seven of the eight items were statistically different than the scores from at least one other site and, in all seven cases, tended to be less biocentric. For the additive scale, Michigan and Florida were not statistically different from each other, but were statistically more biocentric than their California counterparts.

Table 10 Value orientation – agreement with Forest Values Scale items

Fuel management approach outcome	California Mean	California SD	Florida Mean	Florida SD	Michigan Mean	Michigan SD
The primary use of forests should be for products that are useful to humans. *(anthropocentric)*	3.76 [1,2]	1.97	3.45 [3]	1.94	3.34 [3]	1.87
Forest resources can be improved through human management. *(anthropocentric)*	5.67 [2]	1.27	5.66 [2]	1.40	5.30 [1,3]	1.51
Forests should be used primarily for timber and wood products. *(anthropocentric)*	3.33 [2]	1.79	3.16 [2]	1.72	2.90 [1,3]	1.68
We should actively harvest more trees to meet the needs of a much larger human population. *(anthropocentric)*	3.22 [1,2]	1.90	2.94 [2,3]	1.85	2.56 [1,3]	1.62
Plants and animals exist primarily for human use. *(anthropocentric)*	2.61	1.86	2.72	1.84	2.73	1.89
Humans should have more love, respect and admiration for forests. *(biocentric)*	6.03 [1,2]	1.28	6.34 [3]	1.05	6.30 [3]	1.13
Forests have a right to exist for their own sake, regardless of human concerns and uses. *(biocentric)*	4.94 [1,2]	1.96	5.39 [2,3]	1.75	5.15 [1,3]	1.84
Wildlife, plants, and human have equal rights to live and develop. *(biocentric)*	4.86 [1,2]	2.02	5.26 [3]	1.88	5.15 [3]	1.91
Additive scale (range 8-56)	37.15 [1,2]	9.62	39.15 [3]	8.28	39.82 [3]	8.12
Cronbach's Alpha	0.83		0.75		0.75	

[1] Statistically different than Florida
[2] Statistically different than Michigan
[3] Statistically different than California

Value orientation scale ranged from 1=strongly disagree, to 7=strongly agree

Agency trust

Michigan respondents demonstrate markedly low levels of trust in the government managing public land generally, and in the government managing all three fuel reduction approaches. Florida respondents show high trust levels in the government's management of public land and decisions about prescribed burning. California respondents exhibit high trust levels in the government's ability to protect private property from wildfires and its public notification about upcoming prescribed burns. California and Florida respondents had similar views on the government's communications with the public about forest issues, decisions about enacting and enforcing defensible space ordinances, and decisions about the use of mechanical fuel reduction.

Table 11 Agency trust – agreement with statement

Fuel management approach outcome	California		Florida		Michigan	
	Mean	SD	Mean	SD	Mean	SD
I trust the government to make the best decision about enacting and enforcing defensible space ordinances.	3.85 [2]	1.70	3.64 [2]	1.83	2.98 [1,3]	1.70
The government does a good job in managing public land.	3.87 [1,2]	1.48	4.11 [2,3]	1.51	3.54 [1,3]	1.59
The government does a good job communicating with the public about forest issues.	3.60 [2]	1.56	3.65 [2]	1.60	3.03 [1,3]	1.59
The government does a good job of protecting private property from wildland fires.	5.15 [1,2]	1.47	4.89 [2,3]	1.53	3.94 [1,3]	1.65
I trust the government to make the proper decisions about the use of prescribed burning.	4.11 [1,2]	1.77	4.49 [2,3]	1.71	3.28 [1,3]	1.79
The government does a good job of notifying the public about upcoming prescribed burns.	3.97 [1,2]	1.67	3.60 [2,3]	1.73	3.35 [1,3]	1.65
I trust the government to make the proper decisions about the use of mechanical fuel reduction.	4.23 [2]	1.64	4.14 [2]	1.63	3.50 [1,3]	1.73

[1] Statistically different than Florida
[2] Statistically different than Michigan
[3] Statistically different than California

Agency trust scale ranged from 1=strongly disagree, to 7=strongly agree

Respondents were asked a follow-up question to identify the government level of the agency trust referent they were thinking about when answering the trust scale questions. Respondents were allowed multiple responses. Florida respondents were most likely and Michigan respondents least likely to have been referring to local agencies. Michigan respondents were most likely to refer to state agencies, and California respondents referred to state agencies most frequently. California respondents were also most likely to refer to federal agencies. Florida respondents were least likely to refer to federal agencies, perhaps because there is no federal publicly accessible land in the vicinity.

Table 12 Agency trust referent

	California	Florida	Michigan
Local agencies	50% [1,2]	71% [2,3]	39% [1,3]
State agencies	73 [1,2]	62 [2,3]	86 [1,3]
Federal agencies	66 [1,2]	29 [2,3]	54 [1,3]
Don't know	3	4	3

[1] Statistically different than Florida
[2] Statistically different than Michigan
[3] Statistically different than California

Discussion

The striking differences in beliefs, attitudes, experience, trust and value orientation between the WUI populations at these three sites suggests both (1) the complexity of attitude formation, and (2) the usefulness of survey research to inform public land and fire managers of the underlying perceptions of the public most affected by fuel management decisions.

Preliminary results from multivariate analysis indicates that for all three sites, personal importance and agency trust and certain beliefs are strong predictors of attitudes toward each fuel treatment, and attitudes are, in turn, strong predictors of intentions to support the use of fuel treatments (Vogt, Winter and Fried, 2002). Despite the many differences between these three sites in terms of fire history, fire regime, institutions and agencies, and socioeconomic characteristics of residents, this analysis showed that these variables commonly affect attitude formation.

The frequency data show that at all sites and for all three fuel treatments, WUI homeowners are most likely to hold positive versus neutral or negative views (see Appendix B). Still, in Michigan and Florida, where defensible space practices are not enforced as laws, more than a quarter of homeowners (32% in MI and 28% in Florida) have negative attitudes toward this approach (versus only 8% in CA). And more than a third (36%) of the Michigan site homeowners held a negative attitude toward prescribed burning.

During the qualitative data collection (Phase I) of this study, researchers noted the differences between sites during focus group interviews with WUI homeowners and land managers. The findings of this report's analysis confirm many, but not all, of our qualitative and anecdotal observations. In California, especially in the Sierra site, WUI homeowners were highly aware of defensible space practices and of the need to apply all three fuel management approaches depending on site-specific situations (e.g., proximity of developed areas, weather). The quantitative data show that the California site homeowners hold broadly positive attitudes across all fuel treatments. By contrast, Michigan homeowners during Phase I data collection were suspicious of public land managers and expressed negative views toward prescribed burning. The quantitative data confirm the low levels of trust and lukewarm support for prescribed burning at this site. In Florida, our discussions with land managers suggested that prescribed burning has a long tradition that had been interrupted in recent years by a series of major fires

which resulted in excessive smoke that was an irritant, health hazard, and traffic hazard to local residents. These managers presumed, therefore, that prescribed burning may have become unpopular with residents in the region of the state we studied. Surprisingly, prescribed burning among Florida WUI residents received the highest attitude and approval ratings (78% held a positive attitude); only 5% expressed a negative attitude toward prescribed burning in our Florida sample.

Further analyses

Forthcoming manuscripts from this study will present multivariate findings from this data, including tests of social acceptance models for each fuel treatment and at each project site. An additional component of this project is the addition to this database of environmental variables derived spatially from a number of data sources. With these new variables, researchers will explore the relationships between social acceptance of fuel treatments and the spatial arrangement of homeowners on the landscape.

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Appendix A: Questionnaire (w/cover letter)

Washington State University

SOCIAL AND ECONOMIC SCIENCES RESEARCH CENTER **Wilson Hall 133**
PO Box 644014 Pullman, WA 99164-4014 Phone:509/335-1511 FAX: 509/335-0116

[DATE]

[NAME]
[ADDRESS]
[CITY, STATE ZIP]

Dear [NAME]:

We need your help!

Public lands managers and university researchers are interested in your thoughts about wildland fire in [COUNTY NAME] County. This federally funded study asks about your understanding and acceptance of wildland fire management practices. The Social and Economic Sciences Research Center at Washington State University is conducting this survey on behalf of Dr. Keith Gilless at the University of California Berkeley.

Your views are important to the agencies that manage wildlands in [COUNTY NAME] County. Yours is only one of a small number of households, chosen at random, in which people are being asked to give their opinion on these matters. For the results of this survey to truly represent the thinking of the people in this community, it is important that each questionnaire be returned. It is also important that an adult (18 years or older) who lives in your household complete the questionnaire. Any adult who lives in your household may complete the survey.

This survey is voluntary and confidential. Your name will not appear anywhere on the survey and all results will be presented so that no individual can be identified. Information that links your survey responses to your identity will be stored in a locked location separate from the survey data. Returning the questionnaire constitutes your consent to participate in this survey. Completing the survey presents no foreseeable risks and no direct benefits to you; however, the results of this study will help land managers respond more effectively to wildland fire problems.

The survey results will be made available to public land management agencies – such as the U.S. Forest Service and California/Michigan/Florida Department of Forestry – to help them develop a better understanding of citizens' views on wildland fire management in [COUNTY NAME] County. I would be most happy to answer any question you might have. Feel free to contact me at 1-800-833-0867 or KJMiller@wsu.edu. Thank you for your assistance.

Sincerely,

Kent Miller
Project Director

Note: If you have any questions about your rights or treatment as a survey respondent, please contact the University of California at Berkeley at (510) 642-7461.

Fire in Clay County

WHAT DO YOU THINK?

A community-wide survey about fire management in Clay County

This survey is part of a national research project designed to help wildland fire managers understand the public's views on wildland fire management. Funding for this project is from the U.S. Departments of Agriculture and Interior. Please answer all of the questions and add any 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 641801
Pullman, WA 99164-1801

Fire Management in Clay County

Fire in Clay 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 maintain the health of Clay 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 burning and mechanical methods of reducing vegetation fuels on federal, state and private forests in Clay 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.

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 burning:** Also called controlled burning, this practice can involve, 1) allowing 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 no closer than 15 feet apart and that the lower limbs of trees be pruned to a height of 15 feet from the ground or greater.

Wildland: The term "wildland" refers to forests, grasslands, and rangelands in Clay County.

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 burning 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 Clay County and the types of places you have lived.

Q1. Which of the following statements best describes your residential status in Clay County? *(Please ✓one)*

☐ I AM A FULL TIME, YEAR-ROUND HOMEOWNER IN CLAY COUNTY.
☐ I AM A FULL TIME, YEAR-ROUND RENTER IN CLAY COUNTY.
☐ I OWN A VACATION HOME IN CLAY COUNTY. MY PRIMARY PLACE OF RESIDENCE IS IN _____ ZIP CODE
☐ NONE OF THE ABOVE DESCRIBES MY RESIDENTIAL STATUS IN CLAY COUNTY. *Please explain:*

_____

Q2. 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

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

Q3. Which of the following <u>experiences</u> have you had at any time in your life? *(Please ✓all that apply)*

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

Q4. Which of the following <u>actions</u> 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 wildland fires
☐ Attended a park or forest interpretive program about fire
☐ Attended a public meeting about fire
☐ Removed flammable vegetation on my property to protect home from fire
☐ Other fire experience (*please describe*):
☐ Observed neighbors being careless with fire
☐ Called authorities about neighbor's hazardous activity
☐ Observed the effects of fires on wildlands
☐ Worked with local fire department on neighborhood and community fire protection
☐ Evacuated my home or office due to wildland fire
☐ Worked with wildland fires as a part of my job or as a volunteer

Q5. 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	1	2	3	4	5	6	7
B. Mechanical fuel reduction	1	2	3	4	5	6	7
C. Defensible space ordinance	1	2	3	4	5	6	7

Q6. How would you evaluate <u>any fuel management approach</u> that produced the following results? Please circle a response that best fits your evaluation ranging from "1" for extremely bad to "7" 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. Impacts scenery	1	2	3	4	5	6	7
B. Extracts usable wood products	1	2	3	4	5	6	7
C. Creates more smoke in the short-term, but less smoke over time	1	2	3	4	5	6	7
D. Could allow fires to get out of control	1	2	3	4	5	6	7
E. Restores wildlands to a more natural condition	1	2	3	4	5	6	7
F. Saves money by reducing the cost of fighting a wildfire	1	2	3	4	5	6	7
G. Improves conditions for wildlife	1	2	3	4	5	6	7

Q7. Governments have programs or ways of improving communities and quality of life. Not all of these programs have the same importance to citizens. How important are these programs to you personally as they are practiced in Clay County? Please circle a response that best fits your personal level of importance ranging from "1" for not at all important to "7" for extremely important? *(Please circle one number for each statement)*

	Not at all important						Extremely important
A. Prescribed burning	1	2	3	4	5	6	7
B. Mechanical fuel reduction	1	2	3	4	5	6	7
C. Defensible space ordinance	1	2	3	4	5	6	7

Q8. 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 "1" for not at all concerned to "7" for extremely concerned? *(Please circle one number)*

NOT AT ALL CONCERNED						EXTREMELY CONCERNED
1	2	3	4	5	6	7

Q9. How likely do you think it is that <u>prescribed burning</u> will achieve the following outcomes? Please circle a response that best fits your view of likelihood ranging from "1" zero likelihood to "7 for certain? *(Please circle one number for each statement)*

		ZERO LIKELI-HOOD	NOT AT ALL LIKELY	SLIGHTLY LIKELY	SOME-WHAT LIKELY	VERY LIKELY	EXTREMELY LIKELY	CERTAIN
A.	Impacts scenery	1	2	3	4	5	6	7
B.	Creates more smoke in the short-term, but less smoke over time	1	2	3	4	5	6	7
C.	Saves money by reducing the cost of fighting a wildfire	1	2	3	4	5	6	7
D.	Restores wildlands to a more natural condition	1	2	3	4	5	6	7
E.	Improves conditions for wildlife	1	2	3	4	5	6	7
F.	Could allow fires to get out of control	1	2	3	4	5	6	7

Q10. How likely do you think it is that <u>mechanical fuel reduction</u> will achieve the following outcomes? Please circle a response that best fits your view of likelihood ranging from "1" zero likelihood to "7" for certain? *(Please circle one number for each statement)*

		ZERO LIKELI-HOOD	NOT AT ALL LIKELY	SLIGHTLY LIKELY	SOME-WHAT LIKELY	VERY LIKELY	EXTREMELY LIKELY	CERTAIN
A.	Impacts scenery	1	2	3	4	5	6	7
B.	Extracts usable wood products	1	2	3	4	5	6	7
C.	Saves money by reducing the cost of fighting a wildfire	1	2	3	4	5	6	7
D.	Restores wildlands to a more natural condition	1	2	3	4	5	6	7
E.	Improves conditions for wildlife	1	2	3	4	5	6	7

Q11. How likely do you think it is that enacting and enforcing a <u>defensible space ordinance</u> will achieve the following outcomes? Please circle a response that best fits your view of likelihood ranging from "1" zero likelihood to "7" for certain? *(Please circle one number for each statement)*

	ZERO LIKELI-HOOD	NOT AT ALL LIKELY	SLIGHTLY LIKELY	SOME-WHAT LIKELY	VERY LIKELY	EXTREMELY LIKELY	CERTAIN
A. Impacts scenery	1	2	3	4	5	6	7
B. Extracts usable wood products	1	2	3	4	5	6	7
C. Saves money by reducing the cost of fighting a wildfire	1	2	3	4	5	6	7
D. Improves conditions for wildlife	1	2	3	4	5	6	7

Q12. 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

Q13. How would you rate the government agencies that manage wildlands in Clay 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 enacting and enforcing 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 wildland fires.	1	2	3	4	5	6	7
E. I trust the government to make the proper decisions about the use of prescribed burning.	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

Q14. Considering your responses to the statements above (Question 13), which of the following agency levels were you thinking about? *(Please ✓ all that apply)*

☐ LOCAL ☐ STATE ☐ FEDERAL ☐ DON'T KNOW

Q15. 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	1	2	3	4	5	6	7
B. Mechanical fuel reduction	1	2	3	4	5	6	7
C. Defensible space ordinance	1	2	3	4	5	6	7

Q16. If you were given the opportunity to vote for or against allowing prescribed burning on public land in Clay County, how would you vote? *(Please ✓ one)*

☐ FOR PRESCRIBED BURNING ☐ AGAINST PRESCRIBED BURING

Q17. If you were given the opportunity to vote for or against allowing mechanical fuel reduction on public land in Clay County, how would you vote? *(Please ✓ one)*

☐ FOR MECHANICAL FUEL REDUCTION ☐ AGAINST MECHANICAL FUEL REDUCTION

Q18. If you were given the opportunity to vote for or against allowing stronger enforcement of a defensible space ordinance in Clay 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.

Q19. Are you *(please ✓ one)*? ☐ MALE ☐ FEMALE

Q20. How many adults and children live in your household? *(Fill in number)*

_____ ADULTS _____ CHILDREN (UNDER AGE 18)

Q21. How many years have you lived in Clay County? _____ YEARS

Q22. What is your present employment status? *(Please ✓ one)*

☐ EMPLOYED, FULL-TIME ☐ RETIRED ☐ UNEMPLOYED ☐ STUDENT
☐ EMPLOYED, PART-TIME ☐ SELF-EMPLOYED ☐ HOMEMAKER ☐ OTHER_____

Q23. 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)* _____

Q24. Does anyone in your household suffer from respiratory or breathing problems? *(Please ✓ one)*

☐ YES ☐ NO

Q25. What was the highest grade or level of education you have completed? *(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**						

Q26. 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 – $99,999
☐ $20,000 - $39,999 ☐ $60,000 - $79,999 ☐ $100,000 OR MORE

Q27. Would you like to tell us anything else?

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

If you have specific questions about wildland fire management, please call Bruce Hill, Florida Division of Forestry (904) 266-5005.

Appendix B: Survey Tabulations In Questionnaire Format

Demographic and geographic approaches to predicting public acceptance of fuel management at the wildland-urban interface:

A survey of wildland-urban interface residents in California, Florida; and Michigan

Gregory J. Winter[1]
Paul Schissler Associates
Bellingham, Washington

Christine Vogt, Ph.D.
Department of Park, recreation and Tourism Resources
Michigan State University

Jeremy S. Fried, Ph.D.
Forest Inventory and Analysis
USFS, PNW Research Station

J. Keith Gilless, Ph.D.
Department of Environmental Science, Policy, and Management
University of California at Berkeley

Armando Gonzalez-Caban, Ph.D.
David Weise, Ph.D.
USFS, PSW Research Station

Survey Response Tabulations DRAFT June 3, 2002

A total of 4,749 questionnaires were mailed to wildland-urban interface residents. Of these, a total of 2,145 respondents completed and returned questionnaires. This yielded an overall completion rate of 45%. Completion rates for Clay County, FL, El Dorado County, CA, and Placer County, CA, were 32%, 50%, and 46% respectively; completion rates for Crawford, Ogemaw and Oscoda Counties (combined) was 53%.

This research was conducted for the Joint Fire Science Program, U.S. Department of Agriculture, U.S. Department of Interior, and USDA Forest Service, North Central Research Station.

[1] For more information, write gregw@schissler.com

Acknowledgements

This research was conducted for the Joint Fire Science Program, U.S. Department of Agriculture, U.S. Department of Interior, and USDA Forest Service, North Central Research Station.

The investigators gratefully acknowledge the following individuals for their participation and assistance.

Florida	California		Michigan
Bruce Hill Florida Division of Forestry,	**Kent Julin** Marin County Fire Dept.	**Thomas James** Stanislaus National Forest	**Bert L. Starr** Huron-Manistee National Forest
Bill Bossuot St Johns River Water Management Dist.	**Keith Parker** Marin County Fire Dept.	**Ed Duncan** Yosemite National Park	**Don Johnson** Michigan Dept. of Natural Resources
Paul Catlett Camp Blanding	**Tim Walsh** Marin County Fire Dept.	**William Shultz** California Division of Forestry	**Susan Thiel** Michigan Dept. of Natural Resources
William Peters Goldhead Branch State Park	**Forrest Craig** Navato Fire Protection Dist.	**Gary Cones** Stanislaus National Forest	**Jay Pennell** Michigan Dept. of Natural Resources
Jim Garrison FL Fish and Wildlife Commission	**Michael Meszaros** Inverness Fire Dept.	**Blaine Shultz** Mariposa County Fire Dept.	**Robert Ojala** Michigan State University Extention
Martha Monroe University of Florida	**Dave Boyd** California State Parks	**Bob Irwin** Stanislaus National Forest	**Russell Kidd** Michigan State University Extention
	Michael Swezy Marin Municipal Water Dist.	**Carolyn Higgens** Stanislaus National Forest	**Tracy Tophoven** Huron-Manistee National Forest (formerly)
	Greg Moore Mill Valley Fire Dept.	**Valdo Calvert** Huron-Manistee National Forest	**Dave Riegle** Huron-Manistee National Forest

We would also like to thank the many anonymous participants who took the time to share their thoughts with us via focus group discussions and questionnaires.

NOTE: This page was included to introduce survey respondents to the wildland-urban interface fire problem and specific types of fuel management approaches and to define terms used throughout the questionnaire.

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 maintain the health of ____ 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 burning and mechanical methods of reducing vegetation fuels on federal, state and private forests 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.

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 burning:** Also called controlled burning, this practice can involve, 1) allowing 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 no closer than 15 feet apart and that the lower limbs of trees be pruned to a height of 15 feet from the ground or greater.

Wildland: The term "wildland" refers to forests, grasslands, and rangelands in ____ County.

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 burning 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 and the types of places you have lived.

Q1. Which of the following statements best describes your residential status?
(Please ✓ one)

	California N=527	Florida N=354	Michigan N=1,195
I AM A FULL TIME, YEAR-ROUND HOMEOWNER.	89.4%	96.6%	59.1%
I AM A FULL TIME, YEAR-ROUND RENTER.	0.0	0.0	0.6
I OWN A VACATION HOME. MY PRIMARY PLACE OF RESIDENCE IS IN _____ ZIP CODE	7.4	0.6	38.0
NONE OF THE ABOVE DESCRIBES MY RESIDENTIAL STATUS.	3.2	2.8	2.3

Q2. Which of the following best describes the type of area where you have lived most of your life?
(Please ✓ one)

	California N=522	Florida N=348	Michigan N=1,196
A MAJOR CITY OR METROPOLITAN AREA (OVER ONE MILLION PEOPLE) OR ITS SUBURB	12.5%	8.0%	17.5%
A LARGE CITY (100,000 TO ONE MILLION PEOPLE) OR ITS SUBURB	15.1	17.8	10.2
A MEDIUM SIZED CITY (25,000 TO 99,999 PEOPLE) OR ITS SUBURB	17.8	11.5	17.6
A SMALLER CITY (5,000 TO 24,999 PEOPLE) OR ITS SUBURB	12.6	14.7	12.1
A TOWN OR VILLAGE (2,500 TO 4,999 PEOPLE)	13.6	8.9	10.7
IN THE COUNTRY OR A VERY SMALL TOWN (UNDER 2,500 PEOPLE)	16.3	24.7	24.2
A RURAL FARM OR RANCH	4.6	6.0	4.8
NO ONE CHOICE DESCRIBES WHERE I HAVE LIVED BECAUSE I HAVE MOVED OFTEN	7.5	8.3	2.7

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

Q3. Which of the following experiences have you had at any time in your life? *(Please ✓ all that apply)*

	California N=543	Florida N=356	Michigan N=1,244
BEEN INJURED OR SUFFERED PROPERTY DAMAGE FROM A WILDLAND FIRE	3.5%	4.8%	8.7%
A PRESCRIBED BURN HAS OCCURRED NEAR MY HOME	24.7	31.2	20.8
BEEN REQUIRED TO REMOVE FLAMMABLE VEGETATION ON MY PROPERTY	32.2	1.7	1.8
PERSONALLY WITNESSED A WILDLAND FIRE	54.9	66.3	50.9
FELT FEAR OR ANXIETY AS A RESULT OF A WILDLAND FIRE	41.3	38.5	35.2
A MECHANICAL TREATMENT TO REDUCE FUELS HAS OCCURRED NEAR MY HOME	20.6	5.3	8.8
EXPERIENCED A ROAD CLOSURE DUE TO WILDLAND FIRE	37.2	58.7	33.4
FRIENDS, FAMILY OR NEIGHBORS SUFFERED PROPERTY DAMAGE DUE TO WILDLAND FIRE	14.0	14.0	30.6
EXPERIENCED DISCOMFORT FROM SMOKE CAUSED BY WILDLAND FIRES	67.6	60.7	16.9
OTHER FIRE EXPERIENCE	10.9	10.1	12.8

Q4. Which of the following actions have you taken at any time in your life? *(Please ✓ all that apply)*

	California N=543	Florida N=356	Michigan N=1,244
READ INFORMATION ON PROTECTING HOMES FROM WILDLAND FIRES	71.8%	44.1%	42.1%
ATTENDED A PARK OR FOREST INTERPRETIVE PROGRAM ABOUT FIRE	20.3	5.3	8.4
ATTENDED A PUBLIC MEETING ABOUT FIRE	20.4	4.5	6.7
REMOVED FLAMMABLE VEGETATION ON MY PROPERTY TO PROTECT HOME FROM FIRE	90.8	44.1	42.3
OBSERVED NEIGHBORS BEING CARELESS WITH FIRE	28.7	46.6	37.7
CALLED AUTHORITIES ABOUT NEIGHBOR'S HAZARDOUS ACTIVITY	10.1	14.3	12.3
OBSERVED THE EFFECTS OF FIRES ON WILDLANDS	76.4	70.8	70.7
WORKED WITH LOCAL FIRE DEPARTMENT ON NEIGHBORHOOD AND COMMUNITY FIRE PROTECTION	13.4	7.3	5.4
EVACUATED MY HOME OR OFFICE DUE TO WILDLAND FIRE	5.3	6.7	13.7
WORKED WITH WILDLAND FIRES AS A PART OF MY JOB OR AS A VOLUNTEER	12.7	9.0	9.2
OTHER FIRE EXPERIENCE	5.0	2.8	4.0

Q5. 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
	1	2	3	4	5	6	7
A. Prescribed burning							
California N=533	4.1%	5.6	6.2	18.2	18.8	18.8	28.3
Florida N=348	0.9%	1.7	2.6	17.2	14.4	23.6	39.7
Michigan N=1,214	15.4%	8.7	11.6	22.5	16.8	14.5	10.5
B. Mechanical fuel reduction							
California N=524	1.0%	1.1	2.1	17.0	15.3	23.5	40.1
Florida N=345	1.4%	2.0	4.3	27.8	13.9	19.4	31.0
Michigan N=1,188	4.7%	3.9	5.6	29.3	16.1	20.1	20.3
C. Defensible space ordinance							
California N=532	3.8%	2.6	1.7	13.2	10.9	18.2	49.6
Florida N=345	12.8%	8.4	7.0	29.6	13.6	11.3	17.4
Michigan N=1,179	15.7%	8.7	7.4	26.5	13.4	11.3	17.0

Fuel treatment attitude scores based on above responses (response range is 1 – 7)

	Mean attitude score	Standard deviation
Prescribed burning		
California N=533	5.11	1.71
Florida N=348	5.72	1.37
Michigan N=1,214	4.02	1.88
Mechanical fuel reduction		
California N=524	5.75	1.34
Florida N=345	5.33	1.48
Michigan N=1,188	4.90	1.62
Defensible space ordinance		
California N=532	5.78	1.61
Florida N=345	4.26	1.91
Michigan N=1,179	4.15	1.98

Q6. How would you evaluate <u>any fuel management approach</u> that produced the following results? Please circle a response that best fits your evaluation ranging from "1" for extremely bad to "7" 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
	1	2	3	4	5	6	7
A. Impacts scenery							
California N=520	6.3%	11.7	28.1	28.3	13.1	6.7	5.8
Florida N=344	6.4%	8.7	29.7	30.5	13.7	5.8	5.2
Michigan N=1,199	15.3%	15.3	30.4	21.2	10.0	4.8	2.9
B. Extracts usable wood products							
California N=524	2.5%	3.2	8.6	15.3	17.6	26.1	26.7
Florida N=344	5.2%	6.4	12.5	24.7	21.8	14.5	14.8
Michigan N=1,199	7.8%	5.6	11.8	18.3	24.1	19.8	12.5
C. Creates more smoke in the short-term, but less smoke over time							
California N=517	1.5%	3.3	8.9	26.7	26.5	20.7	12.4
Florida N=345	2.6%	2.6	5.2	26.1	28.4	22.6	12.5
Michigan N=1,180	6.2%	5.1	11.4	39.6	25.1	9.1	3.6
D. Could allow fires to get out of control							
California N=525	49.9%	22.7	13.1	6.9	2.7	1.7	3.0
Florida N=344	40.7%	22.7	17.7	11.6	3.5	1.5	2.5
Michigan N=1,210	53.1%	19.1	12.6	9.1	2.4	2.3	1.3
E. Restores wildlands to a more natural condition							
California N=523	0.2%	1.3	3.1	15.3	21.8	29.8	28.5
Florida N=347	0.3%	1.2	1.2	13.8	19.0	30.5	34.0
Michigan N=1,209	3.0%	1.2	3.4	16.1	20.1	32.3	23.8
F. Saves money by reducing the cost of fighting a wildfire							
California N=525	1.9%	0.8	1.7	10.9	16.2	30.3	38.3
Florida N=347	1.2%	1.2	0.9	11.0	13.5	33.7	38.6
Michigan N=1,201	4.4%	2.1	3.3	22.6	22.4	26.1	19.2
G. Improves conditions for wildlife							
California N=527	0.9%	0.6	1.3	7.8	13.1	33.0	43.3
Florida N=349	1.4%	1.7	0.3	10.0	9.5	26.6	50.4
Michigan N=1,211	2.9%	1.7	2.6	8.7	14.9	30.6	38.6

Q7. Governments have programs or ways of improving communities and quality of life. Not all of these programs have the same importance to citizens. How important are these programs to you personally as they are practiced? Please circle a response that best fits <u>your personal level of importance</u> ranging from "1" for not at all important to "7" for extremely important? *(Please circle one number for each statement)*

	NOT AT ALL IMPORTANT 1	2	3	4	5	6	EXTREMELY IMPORTANT 7
A. Prescribed burning							
California N=526	4.6%	4.9	6.3	16.7	15.0	22.4	30.0
Florida N=349	1.1%	0.9	2.6	12.3	16.3	26.4	40.4
Michigan N=1,218	10.9%	5.7	8.6	20.9	18.0	14.9	21.0
B. Mechanical fuel reduction							
California N=522	1.3%	1.9	4.0	12.6	15.1	25.9	39.1
Florida N=348	2.4%	2.0	3.0	21.6	17.0	23.9	29.6
Michigan N=1,204	5.7%	3.7	6.1	23.7	18.9	20.8	21.0
C. Defensible space ordinance							
California N=526	2.1%	3.4	3.6	12.9	10.6	18.3	49.0
Florida N=347	12.1%	7.2	7.2	23.1	12.4	15.6	22.5
Michigan N=1,193	13.7%	8.5	6.7	20.4	13.4	17.2	20.2

Q8. 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 "1" for not at all concerned to "7" for extremely concerned? *(Please circle one number)*

	NOT AT ALL CONCERNED 1	2	3	4	5	6	EXTREMELY CONCERNED 7
California N=535	2.1%	2.6	3.4	6.5	13.8	22.6	49.0
Florida N=351	4.6%	4.0	5.1	12.8	18.8	21.9	32.8
Michigan N=1,231	3.8%	6.6	6.0	10.4	14.3	19.2	39.7

Q9. How likely do you think it is that <u>prescribed burning</u> will achieve the following outcomes? Please circle a response that best fits your view of likelihood ranging from "1" zero likelihood to "7 for certain? *(Please circle one number for each statement)*

	ZERO LIKELI-HOOD 1	NOT AT ALL LIKELY 2	SLIGHTLY LIKELY 3	SOME-WHAT LIKELY 4	VERY LIKELY 5	EXTREMELY LIKELY 6	CERTAIN 7
A. Impacts scenery							
California N=544	1.1%	2.8	17.1	30.7	26.1	11.6	10.7
Florida N=357	2.2%	5.6	18.5	27.7	24.9	8.7	12.3
Michigan N=1,212	2.8%	3.5	8.1	17.7	26.2	118.1	23.7
B. Creates more smoke in the short-term, but less smoke over time							
California N=544	1.8%	1.8	9.4	18.8	33.3	23.0	11.9
Florida N=357	0.8%	1.7	10.1	17.1	36.4	18.5	15.4
Michigan N=1,192	3.7%	6.2	10.5	29.6	26.0	15.5	8.5
C. Saves money by reducing the cost of fighting a wildfire							
California N=544	2.0%	3.1	8.1	12.9	26.7	24.4	22.8
Florida N=357	0.6%	3.4	5.3	12.3	26.6	26.1	25.8
Michigan N=1,210	6.7%	7.4	11.9	23.9	24.5	16.6	8.9
D. Restores wildlands to a more natural condition							
California N=544	3.7%	5.5	13.4	20.0	23.7	19.1	14.5
Florida N=357	1.7%	4.8	8.7	17.6	26.6	21.6	19.0
Michigan N=1,206	8.7%	11.6	11.5	19.2	21.4	17.1	10.4
E. Improves conditions for wildlife							
California N=544	4.0%	5.7	11.8	19.3	24.4	19.5	15.3
Florida N=357	3.6%	6.4	6.7	16.2	24.9	20.2	21.8
Michigan N=1,202	6.8%	8.7	10.1	20.5	21.3	19.1	13.6
F. Could allow fires to get out of control							
California N=544	3.1%	4.6	22.1	26.3	14.7	19.7	9.6
Florida N=357	6.4%	10.1	26.3	26.6	14.8	8.1	7.6
Michigan N=1,203	3.2%	3.7	12.8	23.5	14.9	24.8	17.2

Q10. How likely do you think it is that <u>mechanical fuel reduction</u> will achieve the following outcomes? Please circle a response that best fits your view of likelihood ranging from "1" zero likelihood to "7" for certain? *(Please circle one number for each statement)*

	ZERO LIKELI-HOOD 1	NOT AT ALL LIKELY 2	SLIGHTLY LIKELY 3	SOME-WHAT LIKELY 4	VERY LIKELY 5	EXTREMELY LIKELY 6	CERTAIN 7
A. Impacts scenery							
California N=515	2.1%	6.8	17.1	31.8	24.1	8.5	9.5
Florida N=345	3.5%	5.2	15.7	32.5	20.9	11.3	11.0
Michigan N=1,199	1.8%	5.0	15.2	25.4	23.3	12.4	16.9
B. Extracts usable wood products							
California N=514	1.0%	2.9	5.8	16.3	27.2	25.5	21.2
Florida N=345	3.8%	3.2	10.4	24.9	27.5	15.7	14.5
Michigan N=1,193	2.5%	4.5	8.2	18.8	26.3	20.5	19.1
C. Saves money by reducing the cost of fighting a wildfire							
California N=517	1.7%	2.7	3.9	15.5	26.9	27.3	22.1
Florida N=348	1.4%	3.7	4.6	22.7	29.3	17.5	20.7
Michigan N=1,199	3.7%	6.0	9.9	27.2	24.9	16.8	11.5
D. Restores wildlands to a more natural condition							
California N=516	3.1%	9.5	15.1	23.3	21.9	15.1	12.0
Florida N=348	4.3%	10.3	15.8	25.6	16.7	15.2	12.1
Michigan N=1,201	7.0%	17.5	15.6	23.2	18.5	11.1	7.2
E. Improves conditions for wildlife							
California N=516	3.1%	7.8	13.4	22.1	23.4	15.9	14.3
Florida N=348	4.6%	9.2	14.1	23.4	17.8	15.2	15.5
Michigan N=1,203	6.5%	13.1	14.1	22.3	19.4	14.5	10.2

Q11. How likely do you think it is that enacting and enforcing a <u>defensible space ordinance</u> will achieve the following outcomes? Please circle a response that best fits your view of likelihood ranging from "1" zero likelihood to "7" for certain? *(Please circle one number for each statement)*

	ZERO LIKELI-HOOD	NOT AT ALL LIKELY	SLIGHTLY LIKELY	SOME-WHAT LIKELY	VERY LIKELY	EXTREMELY LIKELY	CERTAIN
	1	2	3	4	5	6	7
A. Impacts scenery							
California N=511	7.8%	14.3	15.1	22.9	19.2	11.7	9.0
Florida N=340	6.5%	9.7	14.7	18.2	16.8	13.8	20.3
Michigan N=1,175	6.0%	9.8	12.4	18.7	19.1	13.5	20.4
B. Extracts usable wood products							
California N=509	8.3%	20.2	20.8	17.1	17.1	8.8	7.7
Florida N=340	11.8%	15.9	19.1	24.1	14.1	9.1	5.9
Michigan N=1,175	13.7%	19.3	18.3	19.3	14.7	7.8	6.8
C. Saves money by reducing the cost of fighting a wildfire							
California N=512	3.1%	3.3	8.2	14.1	22.3	26.0	23.0
Florida N=343	6.7%	10.2	14.9	22.4	17.2	16.6	12.0
Michigan N=1,177	8.3%	12.3	16.8	23.4	18.2	11.8	9.2
D. Improves conditions for wildlife							
California N=512	10.9%	20.5	16.2	23.0	10.5	8.0	10.7
Florida N=342	17.8%	25.1	12.3	19.0	9.4	7.9	8.5
Michigan N=1,174	21.4%	28.7	14.8	15.1	8.9	5.7	5.5

Q12. How would you answer the following statements about things that you value? *(Please circle one number for each statement)*

	STRONGLY DISAGREE			NEUTRAL			STRONGLY AGREE
	1	2	3	4	5	6	7
A. The primary use of forests should be for products that are useful to humans.							
California N=518	16.8%	15.4	12.9	20.5	11.4	10.2	12.7
Florida N=339	20.6%	18.3	13.3	18.0	11.8	8.6	9.4
Michigan N=1,192	22.1%	16.9	14.6	20.7	10.7	6.5	8.4
B. Forest resources can be improved through human management.							
California N=521	0.2%	2.7	3.3	9.2	24.8	28.0	31.9
Florida N=345	1.2%	3.2	2.9	11.3	19.4	26.4	35.7
Michigan N=1,197	2.3%	4.3	5.6	12.1	25.3	25.1	25.2
C. Forests should be used primarily for timber and wood products.							
California N=519	20.4%	16.4	17.9	20.0	12.3	6.2	6.7
Florida N=345	20.9%	20.0	18.3	19.7	10.4	5.5	5.2
Michigan N=1,191	27.4%	19.4	18.2	17.8	9.2	4.3	3.8
D. We should actively harvest more trees to meet the needs of a much larger human population.							
California N=516	25.6%	16.9	15.5	15.1	13.2	6.0	7.8
Florida N=343	31.2%	18.1	13.7	18.1	7.0	5.5	6.4
Michigan N=1,195	34.8%	21.9	17.4	14.1	5.0	3.2	3.5
E. Plants and animals exist primarily for human use.							
California N=516	43.0%	16.7	9.5	13.4	6.8	5.4	5.2
Florida N=345	38.8%	16.5	12.5	14.2	7.8	4.6	5.5
Michigan N=1,189	38.2%	19.5	10.1	12.5	8.2	5.5	6.0
F. Humans should have more love, respect and admiration for forests.							
California N=520	1.0%	0.8	2.3	10.6	12.7	21.2	51.5
Florida N=345	0.3%	0.6	1.2	5.5	10.1	20.0	62.3
Michigan N=1,193	1.2%	0.4	1.0	5.2	9.9	21.3	61.0
G. Forests have a right to exist for their own sake, regardless of human concerns and uses.							
California N=517	8.9%	5.6	7.5	17.8	13.0	14.9	32.3
Florida N=345	4.1%	4.1	7.2	14.2	13.3	18.0	39.1
Michigan N=1,194	6.3%	5.4	6.0	16.1	14.3	18.8	33.1
H. Wildlife, plants, and human have equal rights to live and develop.							
California N=522	10.5%	5.6	9.2	15.9	10.7	18.4	29.7
Florida N=348	6.3%	5.2	7.8	12.1	11.8	19.8	37.1
Michigan N=1,198	7.8%	4.9	5.4	15.4	13.8	17.3	35.3

Q13. How would you rate the government agencies that manage wildlands? 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
	1	2	3	4	5	6	7
A. I trust the government to make the best decision about enacting and enforcing defensible space ordinances.							
California N=518	12.2%	11.2	15.3	25.9	19.5	8.7	7.3
Florida N=348	19.3%	11.2	12.1	25.0	17.0	7.8	7.8
Michigan N=1,202	27.2%	17.8	15.4	21.1	9.8	5.4	3.2
B. The government does a good job in managing public land.							
California N=518	7.5%	11.4	17.8	28.8	21.8	9.7	3.1
Florida N=348	7.2%	8.6	13.2	29.0	25.9	10.9	5.2
Michigan N=1,201	13.7%	14.5	18.3	23.7	19.8	7.3	2.7
C. The government does a good job communicating with the public about forest issues.							
California N=519	10.8%	14.8	22.0	23.1	18.1	7.5	3.7
Florida N=347	11.0%	13.5	21.3	25.9	15.3	7.5	5.5
Michigan N=1,191	21.5%	20.7	19.2	19.1	12.7	4.2	2.1
D. The government does a good job of protecting private property from wildland fires.							
California N=518	2.5%	3.9	5.6	17.4	23.6	28.8	18.3
Florida N=348	3.2%	4.9	8.3	22.1	21.6	25.0	14.9
Michigan N=1,194	11.0%	11.6	10.7	28.5	20.6	12.6	4.9
E. I trust the government to make the proper decisions about the use of prescribed burning.							
California N=520	10.6%	10.8	14.2	18.8	21.0	16.3	8.3
Florida N=348	8.0%	7.2	9.5	20.4	24.4	19.0	11.5
Michigan N=1,197	23.1%	16.0	15.0	18.4	14.7	8.7	4.0
F. The government does a good job of notifying the public about upcoming prescribed burns.							
California N=513	9.2%	12.9	14.2	25.1	19.9	11.9	6.8
Florida N=348	16.1%	13.2	14.7	27.9	13.5	8.3	6.3
Michigan N=1,179	18.7%	15.7	13.7	30.4	10.4	7.7	3.3
G. I trust the government to make the proper decisions about the use of mechanical fuel reduction.							
California N=517	7.4%	9.9	11.6	26.3	23.0	12.6	9.3
Florida N=348	9.2%	8.3	10.6	30.5	21.3	12.4	7.8
Michigan N=1,190	18.8%	12.0	16.2	23.8	15.4	10.0	3.8

Agreement scores based on Q13 above (response range is 1 – 7)

	Mean agreement score	Standard deviation
A. I trust the government to make the best decision about enacting and enforcing defensible space ordinances.		
California N=518	3.85	1.70
Florida N=348	3.64	1.83
Michigan N=1,202	2.98	1.70
B. The government does a good job in managing public land.		
California N=518	3.87	1.48
Florida N=348	4.11	1.51
Michigan N=1,201	3.54	1.59
C. The government does a good job communicating with the public about forest issues.		
California N=519	3.60	1.56
Florida N=347	3.65	1.60
Michigan N=1,191	3.03	1.59
D. The government does a good job of protecting private property from wildland fires.		
California N=518	5.15	1.47
Florida N=348	4.89	1.53
Michigan N=1,194	3.94	1.65
E. I trust the government to make the proper decisions about the use of prescribed burning.		
California N=520	4.11	1.77
Florida N=348	4.49	1.71
Michigan N=1,197	3.28	1.79
F. The government does a good job of notifying the public about upcoming prescribed burns.		
California N=513	3.97	1.67
Florida N=348	3.60	1.73
Michigan N=1,179	3.35	1.65
G. I trust the government to make the proper decisions about the use of mechanical fuel reduction.		
California N=517	4.23	1.64
Florida N=348	4.14	1.63
Michigan N=1,190	3.50	1.73

Q14. Considering your responses to the statements above (Question 13), which of the following agency levels were you thinking about? *(Please ✓ all that apply)*

	LOCAL	STATE	FEDERAL	DON'T KNOW
California N=522	50.4%	72.6	65.9	2.7
Florida N=343	71.4%	62.4	28.9	3.8
Michigan N=1,187	38.8%	85.6	54.1	3.4

Q15. 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
	1	2	3	4	5	6	7
A. Prescribed burning							
California N=519	6.7%	6.9	10.0	17.7	21.0	19.3	18.3
Florida N=347	0.9%	2.3	3.5	12.7	25.4	23.6	31.7
Michigan N=1,194	19.3%	11.3	13.1	20.3	19.8	10.1	6.0
B. Mechanical fuel reduction							
California N=511	1.6%	2.58	4.9	14.9	24.1	22.5	29.5
Florida N=347	2.9%	2.6	5.5	22.8	22.2	21.9	22.2
Michigan N=1,184	6.3%	6.0	9.9	22.8	24.7	18.4	11.8
C. Defensible space ordinance							
California N=520	3.5%	2.3	3.8	14.4	15.0	22.1	38.8
Florida N=344	15.7%	10.5	9.9	25.9	14.0	11.9	12.2
Michigan N=723	19.3%	11.4	10.4	20.6	14.6	13.1	10.7

Fuel treatment approval scores based on above responses (response range is 1 – 7)

	Mean approval score	Standard deviation
Prescribed burning		
California N=533	4.70	1.77
Florida N=348	5.57	1.34
Michigan N=1,194	3.65	1.83
Mechanical fuel reduction		
California N=524	5.43	1.43
Florida N=345	5.13	1.50
Michigan N=1,184	4.56	1.63
Defensible space ordinance		
California N=532	5.57	1.59
Florida N=345	3.97	1.91
Michigan N=1,179	3.82	1.97

Q16. If you were given the opportunity to vote for or against allowing <u>prescribed burning</u> on public land, how would you vote? *(Please ✓ one)*

	FOR PRESCRIBED BURNING	AGAINST PRESCRIBED BURING
California N=506	70.6%	29.4
Florida N=343	87.5%	12.5
Michigan N=1,177	47.0%	53.0

Q17. If you were given the opportunity to vote for or against allowing <u>mechanical fuel reduction</u> on public land, how would you vote? *(Please ✓ one)*

	FOR MECHANICAL FUEL REDUCTION	AGAINST MECHANICAL FUEL REDUCTION
California N=498	87.8%	12.2
Florida N=336	78.9%	21.1
Michigan N=1,167	71.1%	28.9

Q18. If you were given the opportunity to vote for or against allowing <u>stronger enforcement of a defensible space ordinance</u>, how would you vote? *(Please ✓ one)*

	FOR DEFENSIBLE SPACE ORDINANCE	AGAINST DEFENSIBLE SPACE ORDINANCE
California N=512	75.0%	25.0
Florida N=328	41.8%	58.2
Michigan N=1,170	42.6%	57.4

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.

Q19. Are you *(please ✓one)*?

	MALE	FEMALE
California N=532	69.7%	30.3
Florida N=345	60.0%	40.0
Michigan N=1,216	71.1%	28.9

Q20. How many adults and children live in your household? *(Fill in number)*

		California N=515	Florida N=344	Michigan N=1,226
ADULTS	MEAN	2.0	2.1	2.0
	(STD)	(0.6)	(0.7)	(0.6)
CHILDREN	MEAN	1.0	1.3	0.4
	(STD)	(1.1)	(1.1)	(0.9)

Q21. How many years have you lived in ____ County?

	California N=515	Florida N=344	Michigan N=1,170
YEARS LIVED IN COUNTY MEAN	16.0	18.5	24.2
(STD)	(12.4)	(12.6)	(20.0)

Q22. What is your present employment status? *(Please ✓one)*

	California N=537	Florida N=352	Michigan N=1,185
EMPLOYED, FULL-TIME	35.8%	52.6%	35.1%
RETIRED	44.7	21.6	50.7
UNEMPLOYED	0.7	2.3	0.9
STUDENT	0.2	0.3	0.1
EMPLOYED, PART-TIME	4.1	2.3	4.0
SELF-EMPLOYED	9.3	8.8	6.2
HOMEMAKER	1.7	6.3	2.5
OTHER	3.5	6.0	0.5

Q23. What industry best describes where you have held jobs? *(Please ✓ one)*

	California N=530	Florida N=347	Michigan N=1,038
AGRICULTURE	1.3%	1.2%	1.3%
MINING	0.6	0.9	0.5
TOURISM/RECREATION	0.4	0.6	2.3
HEALTH/MEDICAL	7.9	6.6	8.5
OTHER GOVERNMENT	13.4	14.4	8.7
FORESTRY	2.1	1.4	1.2
MANUFACTURING	9.1	6.9	31.4
RETAIL OR COMMERCIAL SERVICES	16.2	17.3	13.6
EDUCATION	8.5	5.2	10.4
OTHER	40.6	45.5	22.2

Q24. Does anyone in your household suffer from respiratory or breathing problems? *(Please ✓ one)*

	California N=515	Florida N=344	Michigan N=1,195
YES	29.9%	35.2%	28.2%
NO	70.1	64.8	71.8

Q25. What was the highest grade or level of education you have completed? *(Circle a number)*

		California N=515	Florida N=344	Michigan N=1,204
HIGHEST GRADE	MEAN	14.8	13.3	14.4
	(STD)	(2.6)	(2.2)	(2.8)

Q26. Which statement best describes your total 2000 annual household income (from all sources and before taxes)? *(Please ✓ one)*

	California N=472	Florida N=316	Michigan N=1,051
LESS THAN $20,000	5.1%	11.4%	10.2%
$20,000 - $39,999	18.0	21.5	23.5
$40,000 - $59,999	23.3	31.6	21.9
$60,000 - $79,999	21.8	17.1	15.1
$80,000 – $99,999	14.8	11.4	10.2
$100,000 OR MORE	16.9	7.0	19.1

Appendix C: Responses to Open-Ended Questions

Table 13 Question 1 other residential status

Residential status	Site						Total	
	California		Florida		Michigan			
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Seasonal	2	12%	1	10%	17	59%	20	36%
Own property	3	18%	1	10%	9	31%	13	23%
Landlord	6	35%	4	40%	0	0%	10	18%
No longer resident	5	29%	2	20%	2	7%	9	16%
Unintelligible	1	6%	1	10%	1	3%	3	5%
Renter	0	0%	1	10%	0	0%	1	2%
Total	17	100%	10	100%	29	100%	56	100%

Table 14 Question 3 other experience

Experience	Site						Total	
	California		Florida		Michigan			
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Have been firefighter	31	53%	8	22%	50	31%	89	35%
Seen fire effects	6	10%	3	8%	42	26%	51	20%
Self fire-related damage	11	19%	15	42%	24	15%	50	20%
Others fire-related damage	1	2%	4	11%	12	8%	17	7%
Evacuated	1	2%	2	6%	9	6%	12	5%
Experienced out-of-control burns	0	0%	0	0%	11	7%	11	4%
Unintelligible	4	7%	3	8%	3	2%	10	4%
Fire-related deaths or injury	3	5%	0	0%	4	3%	7	3%
Fuel reduction on property	0	0%	1	3%	4	3%	5	2%
Rec'd permit to burn	2	3%	0	0%	1	1%	3	1%
Total	59	100%	36	100%	160	100%	255	100%

Table 15 Question 4 other action

Actions	Site						Total	
	California		Florida		Michigan			
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Fought fire	9	30%	4	31%	19	45%	32	38%
Unintelligible	7	23%	4	31%	5	12%	16	19%
Fire-related worker or volunteer	4	13%	0	0%	8	19%	12	14%
Attended class on fire	4	13%	1	8%	4	10%	9	11%
Fire-related damage	3	10%	1	8%	4	10%	8	9%
Performed prescribed burn	2	7%	3	23%	1	2%	6	7%
Fuel reduction on property	1	3%	0	0%	1	2%	2	2%
Total	30	100%	13	100%	42	100%	85	100%

Table 16 Question 22 other employment situation

Employment situation	Site						Total	
	California		Florida		Michigan			
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Multiple categories	17	89%	14	64%	0	0%	31	63%
Unintelligible	1	5%	4	18%	3	38%	8	16%
Disabled	1	5%	3	14%	3	38%	7	14%
Military	0	0%	0	0%	1	13%	1	2%
Laid off	0	0%	1	5%	0	0%	1	2%
Seasonally employed	0	0%	0	0%	1	13%	1	2%
Total	19	100%	22	100%	8	100%	49	100%

Table 17 Question 23 other occupation

Occupation	Site						Total	
	California		Florida		Michigan			
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Multiple categories	80	37%	63	40%	8	3%	151	25%
Construction	30	14%	19	12%	64	28%	113	19%
Transportation	16	7%	11	7%	20	9%	47	8%
Military or other government	12	6%	9	6%	16	7%	37	6%
Financial	8	4%	10	6%	14	6%	32	5%
Utility	10	5%	2	1%	17	7%	29	5%
Unintelligible	7	3%	9	6%	10	4%	26	4%
Communication	9	4%	5	3%	8	3%	22	4%
Repair	2	1%	6	4%	10	4%	18	3%
Sales	4	2%	3	2%	10	4%	17	3%
Legal or consulting	6	3%	2	1%	8	3%	16	3%
Electronics or technical	6	3%	4	3%	5	2%	15	3%
Real estate	6	3%	2	1%	6	3%	14	2%
Food-related	1	0%	5	3%	7	3%	13	2%
Production	7	3%	1	1%	5	2%	13	2%
Engineering	6	3%	1	1%	5	2%	12	2%
Clerical	2	1%	3	2%	5	2%	10	2%
Social services	2	1%	0	0%	8	3%	10	2%
Plant or animal care	0	0%	1	1%	3	1%	4	1%
Recreation	0	0%	1	1%	0	0%	1	0%
	214	100%	157	100%	229	100%	600	100%

Note on final comments analysis: Respondents' final comments were first coded to reflect the main *issue* of their comments (Table 18). Next, for five of the issues, it was necessary to code respondents *positions* on five of the issues, which are shown in **bold** in Table 18.

Table 18 Question 27 final comments: main issues

	Site						Total	
	California		Florida		Michigan			
Issue	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Forest management	35	20%	13	17%	124	33%	172	28%
Prescribed burning	34	19%	15	20%	71	19%	120	19%
Unintelligible	21	12%	6	8%	51	14%	78	13%
Defensible space ordinance	22	13%	15	20%	33	9%	70	11%
Forest fires generally	17	10%	9	12%	10	3%	36	6%
Need for public education re: fuel management	9	5%	2	3%	20	5%	31	5%
Government distrust or dislike	8	5%	5	7%	16	4%	29	5%
Enjoys beauty of area	2	1%	4	5%	14	4%	20	3%
Mechanical fuel reduction	11	6%	0	0%	8	2%	19	3%
Wants more habitat or env. protection	6	3%	1	1%	7	2%	14	2%
Wants more public input on forest mgmt.	4	2%		0%	5	1%	9	1%
Wants more recreational access	0	0%	2	3%	4	1%	6	1%
Lives near forest	1	1%	2	3%	3	1%	6	1%
Disapproves of environmentalists	5	3%	0	0%	0	0%	5	1%
Believes nature should be left alone	0	0%	1	1%	1	0%	2	0%
Disapproves of current fire policy	0	0%	0	0%	2	1%	2	0%
Witnessed fire effects	0	0%	0	0%	2	1%	2	0%
Disapproves, but understands management	0	0%	1	1%	0	0%	1	0%
Total	175	100%	76	100%	371	100%	622	100%

Table 19 Question 27 final comments: positions on prescribed burning

	Site						Total	
	California		Florida		Michigan			
Position	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Prescribed burning is poorly implemented	16	47%	1	7%	38	54%	55	46%
Disapprove of prescribed burning	2	6%	2	14%	21	30%	25	21%
Approve of prescribed burning	6	18%	9	64%	5	7%	20	17%
Weather, other situational specifics are important	10	29%	2	14%	7	10%	19	16%
Total	34	100%	14	100%	71	100%	119	100%

Table 20 Question 27 final comments: positions on defensible space ordinance

Position	Site						Total	
	California		Florida		Michigan			
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Approves of defensible space, not ordinance	9	41%	1	7%	18	55%	28	40%
Disapprove of defensible space ordinance	1	5%	8	53%	9	27%	18	26%
Approve of defensible space ordinance	5	23%	2	13%	3	9%	10	14%
Suggestions for ordinance implementation	4	18%	1	7%	3	9%	8	11%
Concerned about effect on property aesthetics	3	14%	3	20%	0	0%	6	9%
Total	22	100%	15	100%	33	100%	70	100%

Table 21 Question 27 final comments: positions on mechanical fuel reduction (MFR)

Position	Site						Total	
	California		Florida		Michigan			
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Approves of mechanical fuel reduction	8	73%	0	NA	3	38%	11	58%
Approves of MFR, but concerned about implementation	1	9%	0	NA	4	50%	5	26%
MFR is just another term for logging	2	18%	0	NA	1	13%	3	16%
Total	11	100%	0	NA	8	100%	19	100%

Table 22 Question 27 final comments: positions on forest management

Position	Site						Total	
	California		Florida		Michigan			
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Too much protection for endangered species	0	0%	0	0%	30	31%	30	21%
Forest mgmt. Agencies doing a poor job	7	20%	0	0%	18	18%	25	17%
Seeks balance: human and habitat needs	6	17%	1	8%	15	15%	22	15%
Leave forest alone, or limit access	3	9%	7	54%	8	8%	18	12%
Need better regulation of human-caused fires	5	14%	2	15%	5	5%	12	8%
Need stricter penalties for rule breakers	3	9%	0	0%	7	7%	10	7%
Need less or no clearcutting	4	11%	0	0%	5	5%	9	6%
Approves of current policies	3	9%	2	15%	3	3%	8	5%
Should be more logging on public land	3	9%	0	0%	2	2%	5	3%
Should clean up, replant after clearcutting	1	3%	0	0%	4	4%	5	3%
Use forest mgmt. to protect endangered species	0	0%	1	8%	1	1%	2	1%
Total	35	100%	13	100%	98	100%	146	100%

Table 23 Question 27 final comments: positions on forest fire generally

Position	Site						Total	
	California		Florida		Michigan			
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Applauds firefighters' efforts	9	53%	2	22%	2	20%	13	36%
Fire Dept. needs more resources	5	29%	1	11%	3	30%	9	25%
Interested in helping to fight future fires	0	0%	5	56%	2	20%	7	19%
All forest fires should be suppressed	2	12%	1	11%	2	20%	5	14%
Forest fires should be allowed to burn	1	6%	0	0%	0	0%	1	3%
Fires should be controlled when necessary	0	0%	0	0%	1	10%	1	3%
Total	17	100%	9	100%	10	100%	36	100%