Trust and the wildland-urban interface: How residents use sensemaking to understand fuel

treatments

By

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Abstract

The purpose of this study was to understand communicative issues of trust between residents of wildland-urban interfaces and land managers, and how residents make sense of fuel treatments. Residents are often surprised by the large scale of fuel treatment activities, which can lead to opposition. This study explores the problem by using theorizing on sensemaking, which draws attention to the ways people construct a narrative account of situations they don't understand. Using a small WUI community as a case study, this thesis examines the ongoing conflict around the implementation of a fuel treatment project, Forsythe II. Qualitative interviews and focus groups with N=31 residents were used, and cross coded for active sensemaking and trust. This study found that WUI residents construct narratives to make sense of fuel treatments, and those narratives were grounded in ways they enacted their personal identity within the forest and landscape (e.g., through recreation and lifestyle). Residents' sensemaking narratives included *plausible* (but not necessarily *accurate*) comparisons between local and geographically-distant fuel treatments activities in order to justify their position on Forsythe II and evaluate land manager trustworthiness. Residents also made sense through *extracted cues* from the landscape: where residents perceived that the landscape was damaged by a fuel treatment, they were more likely to find the land managers to be untrustworthy. Through enactment of their *personal identity* in symbolically important landscapes, residents contribute to their own narrative sense about fuel treatments. Future recommendations for enabling trust includes empowering residents to volunteer, participate, and become invested in future projects, as well as better utilizing local resources to foster engagement.

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Chapter One: Literature Review and Rationale

Introduction

For most of my teenage and young adult years I lived in a small town in the mountains of Colorado. This type of town is called a wildland-urban interface (WUI) by scholars, or a place where human civilization has encroached on forests or grasslands (Radeloff & Mckeefry 2005). This kind of area has seen annual increases in both area burned and number of structures destroyed by wildfires (Radeloff & Mckeefry 2005). My family was evacuated from the devastating Waldo Canyon fire in 2012. Some family friends lost everything they owned in the Black Forest fire in 2013—the largest wildfire in Colorado state history. Wildfires are a constant threat in the American West. For example, there were four major fires in Colorado in 2013, and as recently as of September 2017, the state of Montana had 21 major wildfires burning. The Thomas Fire in Santa Barbara County burned 281,893 acres during December 2017 and the California Creek Fire burned upwards of 15,000 acres during the same time span (https://inciweb.nwcg.gov/).

The focus of this study is Nederland, Colorado, a small mountain community west of Boulder, that has had to deal with three threatening fires within five years of each other. The most recent wildfire was the Cold Springs fire, which burned over 500 acres and destroyed eight homes (https://inciweb.nwcg.gov/). The question this WUI community faces is: how do we best plan proactively to prevent wildfires from destroying our community?

Although fire in WUI areas is clearly a problem, little is known about homeowners' perceptions of wildfire risk, or their views of large-scale fuel treatment activities meant to protect WUI communities from catastrophic wildfires (Winter & Fried 2000). Fuel treatment

tactics such as cutting down trees and using prescribed burns are essential to alleviate the risk of

wildfires raging out of control (Winter et al. 2002, Goemans & Ballamingie 2013), but fuel

treatments can be problematic when community members oppose them due to aesthetic reasons

(i.e., they do not like how it looks) or disagreements about land management philosophies. There

are many public and private stakeholders to public lands, and many concerns to be addressed,

particularly in WUI areas (Goemans & Ballamingie, 2013; Winter & Fried, 2000). On the one

hand, residents expect land managers of public forests to be "a good neighbor" by managing the

land in ways that account for wildfire dangers (Sturtevant et al. 2009). On the other hand,

residents might not understand or agree with land management strategies, particularly those that

alter the landscape in dramatic ways, by for example, clearcutting large swaths of forest to create

a fire break. Another problem is that residents are often under-informed about fuel treatments—

they tend to receive inadequate information with which to form ideas and judgements around

wildfire fuel treatments (Arvai, Gregory, Ohlson, Blackwell, and Gray, 2006). Due to this

combination of factors, residents often perceive the amount of wildfire risk to be low, while their

mistrust of land managers (e.g., USFS) is high (Arvai et al. 2006).

There are two linked issues at stake when considering wildfire danger in WUI: First,

residents of WUI areas are under-informed about dangers of WUI and how dangers should be

managed. Second, residents lack trust in land management agencies to manage the land properly.

These issues are linked and problematic because, while land management agencies are a logical

source of information about WUI areas, residents might not trust these agencies or land

managers' expertise. As a result of possible deficits in information, it is important to better

understand how WUI residents develop explanations for--or *make sense* of--fuel treatment

activities and wildfire danger in their surrounding WUI area. This study explores these issues by

drawing from theorizing on sensemaking, which explains how people develop explanations

about what is going on in their environments (Weick, 1995). A sensemaking framework can help

us explore how residents characterize wildfire dangers in WUI communities, even when they

lack both trusted information and trust in federal agencies managing the land.

A sensemaking framework can illuminate how residents' narratives characterize

themselves and land managers as stakeholders in what happens on the landscape. While

sensemaking theorizing includes several processes, this study focuses on three of them: First, to

explain how people construct their and others' identities in relation to key issues and each other,

this study examines how sensemaking is *grounded in identity construction* (Weick, 1995).

Second, sensemaking is *focused on and by extracted cues* (Weick, 1995). Cues are perceptions or

environmental indicators, the occurrence of which serves as evidence for one's conclusions. For

example, this aspect of sensemaking draws attention to ways that people might bolster their

accounts of (or *sense* about) land managers and land treatment activities by bringing up

anecdotes to support their claims, such as describing a land treatment that failed to stop a

wildfire as evidence that land treatments do not work. Third, to explain how residents and land

managers deal with factual versus inaccurate information, this study examines how sensemaking

is *based on plausibility rather than accuracy* (1995). That is, people's accounts of how they

understand their WUI environment simply needs to make sense to them, rather than be accurate,

in order for them to see it as valid for sensemaking.

This project involved N = 31 participants, taking part in 4 focus groups, and 11 one-on-

one interviews. All participants were residents of Nederland, Colorado who have lived near to

fuel treatment areas—either completed or slated for treatment. These interviews helped me to

gain insight into how community members make sense of trust, fire mitigation, and the wildland-urban interface as a whole.

Wildfire in the Wildland-Urban Interface

Climate change has created a dangerous environment for those living in rural areas prone to natural disasters. Some research has found a 64 percent increase in wildfire severity in the U.S. between 1970 and 2003, which corresponds to indicators of climate change (Westerling, Hidalgo, Cayan, & Swetnam, 2006). This increase in large wildfires has been the greatest in the Northern Rocky Mountains, and it's happening because of unusually warm spring seasons, longer summers, drier vegetation, reduced winter precipitation, and early spring snowmelt (Westerling et al. 2006)—all consequences of climate change. Goemans and Ballamingie (2013) in their expanded case study on the 2003 Kelowna, British Columbia wildfires, write that large-scale disasters have been occurring more and more frequently. This contributes to a large amount of destruction to lives and property where wild areas and human habitation intermix. Human migration to wildland-urban interfaces (WUIs) has created a place where wildfire poses a serious risk to human lives and resources (Winter et al. 2002). Sturtevant, Miranda, Yang, He, Gustafson, and Scheller (2009) tell us that:

> The cumulative effects of fire and forest management over the last century have exacerbated fire risk in some regions… and threatened fire dependent systems in many others…The issue is further complicated by the recent encroachment of human homes into fire-prone ecosystems that increases fire ignitions…and increases demands on fire suppression agencies to protect lives and property (p. 446).

Historically, fire suppression has been a common tactic for keeping WUI areas safe.

However, researchers and forestry professionals have come to realize that suppression of natural

burning cycles has greatly increased the risk of larger, more dangerous wildfires (Goemans &

Ballamingie 2013). As a result, techniques that use fuel reduction and mitigation methods have

been "considered critical to reducing the likelihood of future catastrophic fires" (Winter et al.

2002, p. 15). Yet, while billions of dollars of government money in the U.S goes towards

suppression tactics, only about $500 million in funding goes towards fuel treatments, such as

hazardous fuel reduction on public lands, and fire mitigation activities by property owners

(Arvai, Gregory, Ohlson, Blackwell, & Gray 2006). This funding disparity happens because fire

suppression activities are reactive, urgent, highly visible to the public, and tend to go

uncontested—active flames make firefighting activities seem necessary. Fuel treatment

activities, on the other hand, are proactive and tend to take place during times when fires are not

active in the area which often makes them seem unnecessary or non-urgent. Removing standing

green trees might raise questions by residents regarding the necessity of thinning the forest in the

absence of active fire.

This creates two key challenges to planning sustainable forest communities that are

central to this study: First, there is a need for residents to access, and have access to, information

about wildfire risks and mitigation approaches. To illustrate, Goemeans and Ballamingie (2013)

conducted interviews that revealed that there is an incredible need for communication and

information exchange between land managers and stakeholders. Second, there is a need better

understand what factors foster and inhibit a trusting relationship between land management

agencies and communities. For instance, in a study done by Winter et al. (2002), which involved

focus groups from four different Wildland-Urban Interfaces across the nation, only half of surveyed respondents trusted the Forest Service to properly carry out fire mitigation.

Understanding how residents make sense of fire mitigation would allow for adaptive management of the forests, which means more trust and understanding from residents and other stakeholders (Goemans & Ballamingie 2013). Not only would better communication and information help residents understand what's going on in their communities and how to better fight wildfires, it would help land managers understand and "re-examine their own assumptions and biases about appropriate disaster mitigation strategies" (Goemans & Ballamingie 2013, p. 68). It is crucial for land managers such as the U.S. Forest Service to better understand the perspectives that members of the public and land managers hold regarding fuel treatments and perceived risk of wildfires. Each party must take into account the perspectives that they bring to their interactions with each other. To better understand these perspectives, the next section applies sensemaking theorizing (Weick, 1995) to explore how residents experience and *make sense* of fire mitigation and the landscape around them.

Sensemaking

Sensemaking is defined as "…the process through which people work to understand issues or events that are novel, ambiguous, confusing, or in some other way violate expectations" (Maitlis & Christianson 2014, p. 57). It is a process of organizing that occurs both inside and outside the bounds of a particular organization, but has organizational and community implications. That is, ongoing controversy around fuel treatment activities takes place among stakeholders outside the bounds of any particular organization, while decisions to block, change, or approve such treatments impact whether and how land management agencies proceed with them. As a result, it is important to understand residents' accounts regarding their perceptions

about the necessity of fuel treatments, the ways that residents inform and confirm their

perspectives, and their characterization of land management agencies as trustworthy or not.

There are two dominant perspectives regarding how sensemaking takes place. First,

Weick (1995) proposes a largely cognitive model, where sensemaking consists of an interpretive

scheme—often expressed in the form of a narrative--that people generate to better understand,

and act in, the world. A second perspective sees sensemaking as an ongoing, inherently

communicative process by which interactants develop an account for what they see (Maitlis &

Christianson, 2014). This study falls within the former view of sensemaking by examining how

residents of WUI communities construct cognitive sense through narrative.

Sensemaking creates accounts of the world that enable action (Maitlis & Christianson,

2014). Sensemaking also happens in a social context, where organization and community

members create and interpret the world around them through interacting with others, producing

accounts that allow them to act all together. Therefore, sensemaking reflects concerns and issues

that are situated within a certain social context; for example, those who live in a given social

community such as a neighborhood, a town, or even a town council, will talk about things that

matter specifically to them and their community. As such, sensemaking heavily influences how

people respond to socially important issues (Maitlis & Sonenshein, 2010).

According to Weick (1995), sensemaking has seven distinguishing characteristics: it is

"grounded in identity construction; retrospective; enactive of sensible environments; social;

ongoing; focused on and by extracted cues; and driven by plausibility rather than accuracy" (p.

17). The next section outlines all seven aspects to give context to the framework, then proceeds

with discussing the three aspects most relevant to this study.

First, sensemaking is grounded in identity construction because processes of communicative interaction create our identities. Defining who we are helps us define who others are, which allows us to make sense of things (Weick 1995). As Weick famously asks: "How can I know who I am until I see what they do?" (Weick 1995 p. 23). In other words, without a sense of your own identity, how will you ever make sense of anything else? Secondly, when we say sensemaking is retrospective, we mean that it looks at the past context to understand the present. Weick (1995) contends that sense can only be made in retrospect, by looking back at actions and events that have already occurred, and then constructing an explanation for those past events in the present. Third, sensemaking is enactive of sensible environments. Weick (1995) tells us that "…in organizational life, people often produce part of the environment they face" (p. 30). Therefore, the environment is not singular and outside of us; instead we create it (Weick 1995). Fourth, sensemaking is social. Weick (1995) maintains that "[s]ensemaking is never solitary because what a person does internally is contingent on others. Even monologues…presume an audience. And the monologue changes as the audience changes" (p. 40). Fifth, sensemaking is ongoing. "To understand sensemaking is to be sensitive to the ways in which people chop moments out of continuous flows and extract cues from those moments" (Weick 1995 p. 43). Everyone is always in the middle of something. Because of this, when interruptions such as a change in the environment occur, emotion also occurs, which moves us to try and make sense of the interruption. Sixth, sensemaking is focused on and by extracted cues. Weick (1995) uses the metaphor of a seed: "[a] seed is a form-producing process that captures much of the vagueness and indeterminacy of sensemaking…the abstract and the concrete inform and construct one another" (Weick 1995, p. 51). For example, Weick explains sensemaking according to a gardening metaphor: A seed has potential in it that is realized through the gardeners. Through the

application of fertilizer, water, sunlight, etc. it can grow; and while it may be known that it'll grow into a tree, no one knows what the tree will look like, what way the branches will go, how many leaves it will have. An acorn points to an oak tree but it isn't one. But through interaction with its environment, it will grow into its own unique tree. So it is with sensemaking. Sensemaking is about cues and impressions together, and metaphorically speaking, creating the tree from the seed. Seventh, and finally, sensemaking is driven by plausibility rather than accuracy. Sensemaking is not about truth, it's about understanding and telling a story. Therefore, when we make sense of something, we don't do it with a mind to the facts or what is "right" or "wrong." We make sense through telling that story. Accuracy is thus not necessary for sensemaking to occur.

In sum, sensemaking is an ongoing communicative process in which stakeholders construct narrative explanations for what they see in their environment and what should be done about it. Sensemaking is also organizational, even when it's not occurring within the bounds of an organization. That is, the interaction process by which sensemaking occurs might result in characterizing an issue in a particular way, and then advancing specific solutions for that issue. For example, stakeholders make sense of WUI landscapes and wildfire, and then bring those perspectives to bear in public meetings and deliberations in ways that can impact what projects land management agencies end up implementing and how.

The next section takes a closer look at three of the seven aspects of sensemaking that form the basis for this study: how sensemaking is grounded in identity construction, how it is focused on and by extracted cues, and how it is driven by plausibility rather than accuracy.

Sensemaking as Grounded in Identity Construction

"Identities are constituted out of the process of interaction" Weick (1995) p. 20

Talking about sensemaking as identity construction is important. Who we identify as shapes our actions and interpretations, which affects what other people think of us, which shapes how they treat us, which helps maintain or dismantle our identities (Weick, Sutcliffe, & Obstfeld 2005). Identities are created through interaction (Weick 1995), both with ourselves and with others. As Weick (1995) says, "…People learn about their identities through projecting them into an environment and observing the consequences" (p. 23). When we make sense of things, we are making sense of ourselves as well. Weick (1995) tells us that "[t]o shift among interactions is to shift among definitions of self… Depending on who I am, my definition of what is 'out there' will also change" (p. 20). This is why sensemaking is grounded in identity. We make sense of things in relation to ourselves, and position ourselves through the interactions that happen between ourselves and other people.

When stakeholders negotiate land management decisions they position themselves in relation to the organizational role they're representing and in relation to other stakeholders and their roles. It is in these interactions between stakeholders and land managers that trust might be gained or diminished as people position themselves, their knowledge relative to the issue, and other things through ongoing interaction and sensemaking. Residents do this through personal identity tied to their sense of space. WUI residents often have a personal connection to the landscape around them because of the reasons they live in the area; for example the trees, the recreation opportunities, the sense of solitude. Spending time within the landscape and doing these recreational activities plays a role in how community members enact and reinforce their sense of identity. Changes to the landscape, therefore, can be threatening to their sense of identity. Understanding this helps us understand sensemaking in regards to the wildland-urban

interface. How people see wildfire danger and the potential risks or benefits of fire mitigation is shaped in how they identify, and position themselves in relation to others, and the landscape. This then directly affects the amount they trust land managers. These points lead to the first research question:

RQ 1: How do fuel treatment activities that changed residents' sense of place and identity influence their trust in land management agencies?

Sensemaking as Focused on and by Extracted Cues

The sensemaking process is difficult to detect, according to Weick (1995), because it is a socially constructed process (rather than a description of an objective reality). In order to respond to this problem, Weick (1995) tells us that research into how people make sense of the insensible, or "…prolonged puzzles that defy sensemaking…such as paradoxes, dilemmas, and inconceivable events" (p. 49) is essential. This happens through watching how people extract cues and use those to make sense. What are extracted cues? They are "…simple, familiar structures that are seeds from which people develop a larger sense of what may be occurring" (Weick 1995, p. 50). These cues depend on context, which are frames for how we see the world. In order to make sense of something, people connect frames and cues to make an account of what's happening (Maitlis & Sonenshein, 2010). Sensemaking is about connecting those frames together to create a tree from the seed. Nigam and Ocasio (2010) speak about extracted cues in their study on environmental sensemaking, saying that

"…extracted cues drawn from a broader context are taken to represent that broader
context… they highlight particular implications, properties, or consequences more
obviously than the attempt to attend to and interpret the environment as a whole… In so

doing, the use of extracted cues is a mechanism by which social actors can develop

simplified, abstract models of a more complicated environment" (p. 827).

We use these cues, or frames, from our environment to make sense of the environment

itself. This process simplifies what is complex and allows us to construct a narrative explanation

about phenomena that might seem too broad or overwhelming to take in all at once. Importantly,

cues are always understood within a context. Weick (1995) tells us that there are two ways

context matters in regards to extracted cues: "First, context affects what is extracted as a cue in

the first place…Second, context also affects how the extracted cue is then interpreted" (p. 51).

For example, previous fuel treatments near Nederland create cues for sensemaking because they

serve as physical reminders from the landscape. Community reaction to these treated areas

(whether positive or negative) creates a context for understanding proposed future treatments

(e.g., we do/do not want more fuel treatments based on what we saw from a previous treatment).

This context can then influence whether or not residents and other stakeholders trust land

managers. The second research question asks:

RQ 2: How do cues from the landscape justify trust or mistrust in land management

agencies?

Sensemaking as Driven by Plausibility rather than Accuracy

Sensemaking allows people to create narratives through which they understand things

that are difficult to understand. These narratives don't need to be accurate in order for them to be

plausible. Sensemaking is a process that people engage in to understand the world around them.

When they do this, they focus on finding explanations and interpretations that seem plausible

rather than focusing on accuracy or "truth." As Weick, Sutcliffe, and Obstfeld (2005) say,

"[s]ensemaking is not about truth and getting it right. Instead, it is about continued redrafting of

an emerging story so that it becomes more comprehensive, incorporates more of the observed

data, and is more resilient in the face of criticism" (p. 415). Therefore, sensemaking seems to

take a more relative approach to truth, allowing people to create their own ideas of what the truth

is and what that means for them. This complicates matters when it comes to WUIs and land

management, because misinformation is often completely plausible even if it is inaccurate. For

example, comparing the California wildfire situation to that in Colorado makes plausible sense

because both places regularly experience extreme wildfire events. However, such a comparison

of geographic areas is inaccurate because the vegetation and fire behavior are different in each

location. Fuel treatments in both places *should* be different, because of the differences in the

landscape. Something that worked in California might not work in Colorado, and vice versa. The

third research question addresses how residents compare land management activities in their area

with those conducted in other area. Moreover, how do these comparisons play a role in how

people see and make sense of the benefits or perceived damage of wildfire or fire mitigation?

The third research question asks:

      RQ 3: How do residents' accounts of fuel treatments demonstrate plausibility?

Chapter Two: Methods

Case Description

The United States Forest Service in charge of Arapahoe Roosevelt National Forest land began a fire mitigation project on the land between Nederland, Colorado and Gross Reservoir called Forsythe I, which was halted in 2014 because of public concerns. Over the next two years, the USFS worked collaboratively with the public to create Forsythe II, a reimagining of the original project with some adjustments made. The project proposes both large clear cuts and smaller patch cuts as well as thinning of timber stands on public land adjacent to some areas of private land. However, this project is still controversial, as some Nederland residents vocally oppose it despite the changes.

Rationale

This qualitative research study involved collecting and analyzing interview data. Interview methods were used to research how Nederland residents made sense of the landscape changes proposed in Forsythe II, and inquire about resident trust in land management agencies, namely the US Forest Service. Using one-on-one interviews helps to reveal rich, detailed data; this allows us to understand the ideas behind the organizational processes as well as WUI residents and sensemaking. Focus group interviews allow residents to interact with each other in a controlled environment, which can create unique insights that may not be found within individual interviews. I chose snowball sampling, defined by Tracy (2013) as when "[r]esearchers begin by identifying several participants who fit the study's criteria and then ask these people to suggest a colleague, a friend, or a family member" (p. 136). I did this in order to

reach residents who cared about what was happening in regards to Forsythe II. However, the

Opposition Group ended up being overrepresented due to the way I sampled. This resulted in a

two-thirds to one-third split between those in opposition to the fuel treatment and those for it.

The context of Nederland as a case study helped with insight into multiple WUI

communities across the Rocky Mountain region; the issues at stake there are mirrored in my own

home community in the mountains near Colorado Springs, Colorado and other communities

across the state.

Data Collection

After receiving institutional review board (IRB) approval, individual and focus

group interviews for a larger project were conducted, involving N=31 residents living in and

around the mountain community of Nederland, Colorado. Eleven individual interviews and four

focus group interviews were collected. Each of the interviewees was over the age of 18. There

were 14 males and 15 females interviewed. I received separate institutional review board

approval in late January to conduct a portion of the fieldwork for the larger project. I observed a

Nederland Town Council meeting to better understand the context of the study, and the nature of

the public controversy surrounding Forsythe II. I then recruited and conducted two individual,

qualitative interview participants in February 2018 with Nederland residents. My interviews

added to, and were analyzed in combination with, the larger individual and focus group dataset

for the study. All interviews lasted between 45 to 90 minutes, were audio recorded and

transcribed.

The interview guide, as shown in appendix B, asked participants to talk about the

following: (a) their background and how they came to be a Nederland resident, (b) their ideas

around wildfire hazards and the risks of living in WUI areas, (c) if they trusted the land

managers, and (d) what they felt land managers' roles should be.

Data Analysis

I used a sensemaking framework in order to code for trust in the interviews. As per Tracy

(2013) I used snowball sampling methods to gain my data, contacting a former professor of mine

who lives in Nederland, which led to recommendations to contact other community members.

Then I began open coding the interviews. Tracy (2013) defines coding as "…the active process

of identifying data as belonging to, or representing, some type of phenomena" (p. 189). She

suggests that open coding means that in the initial cycles of coding, the researcher is attempting

to open up meanings in the data (Tracy, 2013). An example of my manual open coding included

printing out the transcripts and writing down singular words or short phrases to explain the main

idea of sentences and paragraphs within them. I found words and phrases such as "broken trust",

"climate change", "emotion," the "Forsythe I legacy", "place dependence" and "place identity."

This is also called primary-cycle coding, which Tracy (2013) explains as "…initial coding

activities that occur more than just a single "first" time. The data might be read and coded

several times during this primary stage" (p. 189).

Once I finished my primary-cycle coding, I created a codebook of the words and phrases

I had found, and put relevant quotes from each code into an excel spreadsheet with a tab for each

overall theme that came out through the open coding. This is called secondary-level coding,

which Tracy (2013) defines as when "…the researcher critically examines the codes already

identified in primary cycles and begins to organize, synthesize, and categorize them into

interpretive concepts" (p. 194). Here, I specifically coded for Trust (Negative), Trust (Positive),

Place Identity, Place Dependence, Identity Construction (RQ 1), Extracted Cues (RQ 2), and

Plausibility (RQ 3). This helped me organize my findings and I was able to apply the overall themes I found to each of my three research questions. For example, when coding for identity construction (RQ 1), I looked for quotes in which participants mentioned that their sense of self was based on activities they did regularly in the landscape near their home, and which reinforced personal identity. For extracted cues (RQ 2), I picked out quotes that helped map residents' lines of argument in regards to the fuel treatments, and how these lines of argument seemed to relate to their trust (or mistrust) in land managers. Lastly, when coding for plausibility (RQ 3) I looked for quotes that compared Nederland-specific landscapes with other, outside landscapes, such as in California to construct an explanation of local phenomena.

I felt that I was done collecting data when I reached what Tracy (2013) calls theoretical saturation, or when "new pieces [of data] add little, if any, new value to the emergent analysis" (p. 195). The quotes I found seemed to exemplify the data well.

Chapter Three: Findings

Personal Identification with the Landscape

My first research question asked: how do fuel treatment activities that change residents'

sense of place influence their trust in land management agencies? Weick (1995) speaks to the

idea that sensemaking is grounded in identity construction. This means that how we identify

shapes our perception and how we make sense of the world. These identities are shaped through

interactions, such as communication and conversations with other WUI residents and the land

managers themselves. Weick (1995) talks about how "…people simultaneously try to shape and

react to the environments they face. They take the cue for their identity from the conduct of

others, but they make an active effort to influence this conduct to begin with" (p. 23). Similarly,

he says that "[w]hat the situation means is defined by who I become while dealing with it or

what and who I represent" (Weick 1995, p. 24). Fire mitigation and its impacts on the landscape

might have an influence on residents' sense of place and identity. This might play a role in how

residents see land managers and whether or not they trust them.

Understanding why residents live in WUI communities can be helpful when

conceptualizing how they make sense of fuel treatments. Community members in this area were

drawn to Nederland because of the uniqueness and attractiveness of the landscape. Edna, a

resident participating in a focus group illustrated this, saying "People come from all over the

world, really. They come to Colorado. They come to Denver. They drive to Boulder. They come

to Nederland to see the trees." Phil agreed; he says that "I think the upper Magnolia area, it's not

the only one of its kind, but it's a little bit of a more unique front range landscape. It feels much

more like Rocky Mountain than foothills of Rocky Mountain." He follows up by saying this:

> The situation is people come to Colorado not because Denver is a metropolis. They go to
>
> San Francisco or Chicago or New York or London or Paris. They come here because it's
>
> in proximity to the mountains and they wanna play in the mountains. They wanna
>
> mountain bike. They wanna ski. They wanna raft. They wanna fish. They wanna road
>
> bike. They wanna run. Magnolia is a mecca for training. There's a huge Asian team. The
>
> Kenyan team used to train up there. World class athletes run up and down that road, and
>
> it's partially because it's at altitude and it's fairly flat and rolling, but it's also because it's
>
> beautiful.

Nederland residents see the trees and the forest as integral to their identity as wildland-

urban interface inhabitants. The forest is the reason Nederland residents chose to live there, and

the recreational opportunities and uniqueness of the area are aspects of living there that they

want to protect. People's identities are very strongly rooted in the local landscape. Residents'

identification with the area might also mean they are resistant to any activities, like fuel

treatments, that would alter it. Jill tells us that "I would say that I bought my house because we

had Forest Service [i.e., public] land behind it...so we kind of think of that as an extension to our

backyard. So, you do kind of think of it as yours..." She and other residents have created their

identities in relation to the landscape, something exemplified in the following quote:

> Usually if I'm hiking and I see someone I don't know, I will say, "Oh, where do you
>
> live?" because I'm surprised if there's anybody who's not my neighbor hiking in those
>
> trails and that's my trails. That's really important to people up here, is the woods and the
>
> forest and being in them, because people are in them a lot.

Because of this strong identity in the landscape, the land managers who are supposed to take care of it are met with resistance when doing something that is perceived as threatening and unnecessary, such as fuel treatments. Changes to the landscape, such as a previous fuel treatment clearcut on West Magnolia Road (part of Forsythe I), serve as physical examples of what fire mitigations look like. This physical example plays an important role in the community members' narrative sensemaking. Because of that previous clear cut on Magnolia, one of the members of the focus group said this:

> I talk to people, and I say "Hey, do you guys go to West Mag?" They're like "No, it's trashed." People trash it, so it's like a trash zone, because it looks trashy. So, people who live there may trash. They don't respect it. There's no respect.

This is an example of how changes in the landscape affect people's sense of place, which then affects their sense of identity. This change makes all the difference in trust of land managers. Because West Magnolia is seen as trashed by the fire mitigation work done there, people respond accordingly.

Not only does the physical landscape serve as reminders to residents regarding trust and the Forest Service, specific interactions with land managers can also often undermine trust. Phil exemplifies this in his quote:

> That's, I think, when the Forest Service ... They're full of shit, but they say that they wanna collaborate. They don't wanna collaborate, because they don't even know what that means. They just want people to get out of their way so they can go ahead and get down to business.

Interactions with the land managers as well as physical space both work together to create a narrative of mistrust. This seems to happen because of a perceived lack of respect by land managers towards the forest, and therefore the identities tied up in that forest. Phil's experience with the Forest Service, and his frustration at the lack of response towards collaboration, has helped undermine his sense of trust in the land managers as a whole.

There is also a sense in the community that land managers don't understand the forest, or residents' identities, because they're so far removed from the situation. Sophia speaks to this:

> I feel for the land managers because in some ways they're sitting here in Boulder or up in Fort Collins and they're in charge of like thousands of acres, and how do they even know what's in those thousands of acres? ...it seems to me it's not really thought through...

Without the land managers engaging directly with the community, residents seem to feel that Nederland is not being made a priority. This seemingly happens because of a lack of resources on the land management side. Falcon, while overall in favor of the Forsythe II project, understands this idea well. He says this about the Forest Service:

> …I know they're super understaffed. Just the issue of people camping. There was a talk, and a guy is like, "have 5,000 square acres." Not miles obviously. "I'm the only land manager out there to patrol all this. I'm doing my best."

While sympathetic to the land manager's plight, Falcon brings up an interesting point. Residents of WUI communities have unique challenges to face, and with only one manager patrolling the forest nearby, the intricacies of the area can feel lost. Along with this, there's also an idea that because the Forest Service is so far removed, they cannot do proper fire mitigation, period. Jake in his interview speaks to this:

…one of the reasons I've developed some of the opinions I have is having observed the

land managers at work as opposed to what they propose, because they never do what they

propose. They, I'm sure, mean well. And I'm sure sometimes topographical

considerations prevent them from completing projects to the extent they will. I don't

wanna say they speak with forked tongue, it's just they can't ... frequently they come up

against situations [in] which they can't complete projects in the way they say they will.

Residents see and understand that there is a lack of resources, and this concerns them.

They seem to feel that their social and personal identities will become stripped away because of

this lack. In the focus group, a resident talks about how she fears this will happen:

…that's the fear around this project, and not holding accountability for our wildlife, and

social values. That we're going to lose those special things, and I keep trying to get it

through, and it's hard, because there's this bigger picture that they're trying to, or a

agenda.

Whether or not land managers have an agenda, it is perceived by WUI community

members that they do. They seem to feel that this agenda butts up against their community in

ways that undermine the uniqueness of the area. Undermining those things also weakens their

own personal identities, which are tied up in the landscape itself.

The next research question addresses how the physical and visible remnants of previous

land management activities serve as a reminder of mistrust.

Interactions and Extracted Cues

The second research question asked, how do cues from the landscape bracket resident

sensemaking in ways that justify trust, or the lack of it, in land management agencies? Weick

(1995) tells us that "[a]n extracted cue is used to prophesy the nature of the referent from which

it was extracted" (p. 54). In other words, extracted cues are self-fulfilling prophecies. They're

simple structures that influence how we see the whole (Weick 1995) and when we use an

extracted cue we are making sense of the world through the cue itself. People often bracket cues

in order to construct an explanation for what they see, or a justification for the sense they have

made. This changes and manipulates the lenses through which they are viewing that situation or

interaction.

Many Nederland residents lack trust in the Forest Service, and this stems from cues that

have been extracted by residents from interactions with the Forest Service and their management

of the landscape. Specifically, the findings reflect a lack of trust because of: (a) negative and/or

antagonizing interactions, (b) misleading and/or contradictory interactions, and (c) disingenuous

interactions.

A previous fuel treatment project, Forsythe I, resulted in a large clearcut that surprised

and dismayed many residents. Further, several residents felt they engaged in misleading

interactions with Forest Service representatives. The physical memory of Forsythe I and these

negative interactions left a legacy that many people who were interviewed pointed to. One

Nederland resident, Jill, referenced a large clear cut that happened to a nearby patch of forest.

This clearcut surprised residents, not only because of its size, but because of the way it came all

the way to a resident's property line and resulted in fallen trees and slash piles covering the

popular community hiking trail nearby. She says:

> ...what a big concern of people is just they saw what they did a few years ago on
>
> Magnolia, and many people were very upset by that and I was, too. I still look up there
>
> everyday, and I'm just like, "gosh that's so ugly." I can't believe they just cut that all

down… I think the way [the Forest Service] handled that cutting is what is sticking in a lot of people's minds and that caused a lot of upset. The way they did that and also, perhaps, the way they didn't necessarily explain it too well to everybody; why they were doing it, how this was going to benefit, and making people feel like they had a part of it and were engaged in it.

This theme is repeated multiple times, in focus groups as well as individual interviews. There is a communal sense of loss and hurt that occurred when the trees were cut down in such an "ugly" way and with no sense of direction. Sophia says in her interview that

...for Forsythe I...I didn't know all the details of the plan, but the rumor around is that the work was, this is, they said "this is the work we're gonna do" and then it was subcontracted out to groups, and then when you would actually get to the fine level of like boots on the ground...the men doing the cutting...had no plan. They sometimes spoke Spanish only. So people were speaking to them in Spanish asking, "Do you know what you're supposed to be, what are you guys doing?" and sometimes they seemed to...not to know.

This was distressing to Sophia because it felt like the land managers were unconcerned with the perceived harm they were doing to the landscape. She felt as though she had been mislead by the Forest Service, and was upset by how the fuel treatment was approached and handled.

However, to some community members, misleading interactions could be seen as more forgivable. In these residents' minds, the Forest Service doesn't mean to be misleading. Jill echoes this in her interview: "I think also if they had, perhaps, explained it to people, why they

were doing what they were doing, and how this will help... I think [residents would] kind of

accept that a little bit more." To Jill, land managers did not handle the situation well, but there is

room for improvement. Simply explaining what was going to happen would have gone a long

way towards helping residents accept the changes. However, in her experience with the land

managers since, she has been impressed by their willingness to explain. For example, Jill says

that:

> One thing with our cutting behind [my home], which I thought was really nice, is a bunch
>
> of us neighbors, we called the Forest Service just to say we're concerned about this... and
>
> they called everybody back. I don't remember who the hell I was talking to, but it was
>
> very nice, it was a one-on-one conversation. They were very nice, and they explained to
>
> us what they were going to do… Then they also said there was this one woman who lived
>
> back there, she was in a house that was off-grid, and she was right in the forest there…
>
> He said [she] wanted to come out and bless every tree they cut down, and he said that's
>
> going to take too long but maybe we can do a whole forest blessing. I felt that was really
>
> nice, as well, because they did take things into consideration.

This interaction, coupled with the allowed blessing of the forest, helped Jill think of the

mitigation behind her house as a "…desirable change." In her mind, there is hope that future

interactions with land managers will not be misleading.

However, the idea of the Forest Service being antagonistic and disingenuous is echoed in

multiple places, which seems to contradict the idea that the interactions with the Forest Service

are simply 'accidentally' misleading. In the focus group, it was said that "[the Forest Service]

kind of ignored the people part" when it came to meetings regarding Forsythe II. One focus

group member also talked about this antagonistic interaction with a land manager: "When I went

to the Forest Service friend, and I said "I'm concerned about my house, and the cut above my

house, because of erosion and wind." He told me to get life insurance, or move." This resident

was hurt by the lack of empathy the land manager seemed to have towards her residence and the

WUI community as a whole. This is not a singluar incident— for example, Sophia's experience:

> …We met one of the [land managers]..and we said to him, 'What's going on here? Are
>
> they fixing the road so they can get in there and log once they get the dam?' and he said...
>
> 'Do you guys live here?' and we said 'Yeah we live up the road' and he said, 'Oh man. If
>
> I lived here, I'd be fighting this thing like crazy.'

The fact that the land manager himself is mistrustful of the situation makes Sophia and

everyone she tells this story to uneasy. Does the Forest Service really know what it's doing? If

they're not listening to its own land managers, why would they listen to residents?

Other interactions make residents nervous as well. Community members seem to feel like

the land managers have not considered that WUI areas are unique, and have unique social needs

that should be taken into account. One focus group participant exemplifies this in her comment:

> We tried at the time to make the point that this was not a random part of the Arapaho and
>
> Roosevelt National Forests but was part of the wildland urban interface...They said, "Oh
>
> yes, we'll take that into account." They have never taken it into account.

Altogether, these are highly unfavorable interpretations of the Forest Service and their

interactions with the WUI residents of Nederland. Each time a misleading or contradictory

statement is uttered, an interaction is perceived as negative or antagonistic, or the Forest Service

is seen to be disingenuous, it compounds the lack of trust.

However, the findings also indicated ways that certain residents reported on their trust in land management agencies. Although cognizant of the legacy of Forsythe I, these residents focused on positive experiences. Specifically, a man named Will strongly defended the Forest Service. He spoke to how the land managers have responded in a positive and affirming way to residents' requests for change, something that seems to be passed over by other residents:

> So we have what's called a Community Widlfire Protection Plan. And that was done by professionals with an eye toward the safety of our neighborhoods. And the work that needed to be done to allow fire fighters to operate safely to protect the neighborhoods. So, we asked the Forest Service to expand Forsythe II to include this area, the areas right around town here, which originally it didn't. And to their credit, they did. When they pulled back during the Forsythe project. They were working over off in Magnolia, and they pulled back...Where at that time Opposition Group sprang up. And under the threat of litigation, Forest Service had to put a halt on things and step back to do a new assessment. But they, I believe, have responded very responsibly to that, as far as outreach. Taking the input of the Opposition Group and others who were opposed to what they were seeing. They modified the plan. I think it's a better plan for the objections.

This certain, specific cue and interaction that was noticed is helping work towards a rebuilding of trust in land managers. Watching land managers attempt to actively work with residents has helped Will experience higher levels of trust than other community members around him.

Overall, many residents feel their interactions with the land managers have been misleading, disingenuous, or antagonistic. However, many residents are also in support of Forsythe II and have not experienced the antagonism others have reported. There is a pattern in

this data that those in opposition to Forsythe II have been the most vocal about their experiences

and viewpoints, which should be taken into account in the interpretation of these findings. There

is also a sense of hope that maybe things are looking up, and that future interactions will be more

positive.

The next research question addresses how residents use plausibility in sensemaking to

understand fuel treatments, and shows how much trust can be affected through these

comparisons.

Demonstrations of Plausibility

The third research question asked how residents' sensemaking accounts demonstrated

plausibility. Weick (1995) proposed that sensemaking is grounded in plausibility rather than

accuracy, which means that residents' sensemaking about fuel treatments simply needs to make

plausible sense to them. Plausibility is important to consider in deliberations and conflicts in

which scientific accuracy drives decisions, such as is the case with fire mitigation. While facts

are generally not open to interpretation, people can potentially base their sensemaking on a

plausible, but inaccurate, account. This can mean that stakeholders might be drawing on

incorrect information in order to make sense of a situation.

Residents' sensemaking accounts were grounded in plausibility through conflating

"there" with "here;" specifically taking accounts of wildfires and fuel treatments that happened

elsewhere and comparing them to Nederland and the Forsythe II fire mitigation in order to

understand it.

Sophia did this when she conflated the Santa Rosa, California fire and the mitigation

there to Nederland mitigation:

… one of my fears is that a lot of people are totally for [Forsythe II], and I think they

think that that's gonna make it safe, right? And so the town's gonna burn down, we're in a

panic, we see what happen in California, cut the forest down. It just ... Because then you

know what? It won't burn. Except Santa Rosa burned, and there was no forest there,

right?

Comparing the fire in Santa Rosa in 2017 to forest conditions in Nederland Colorado

seems to exacerbate misconceptions about how fire works in a Colorado forest. However, some

conflations between the two cities can be helpful instead of harmful. For example, Jake makes

this comment:

With climate change being a reality, it's only a matter of time that a big fire will come

through here. I know some people think it will be fine, or they live charmed lives. But I

bet there are people in Santa Rosa who thought that too, and now look at what they lost.

There are some people there in Napa, Sonoma who had to find religion really quick—and

it was too late. I think the situation in Santa Rosa could be usefully pointed out to some

of the Opposition Group folks—that something will have to be done. The Government

needs to do more, and they need a bigger budget so they can do it faster, and do more of

it.

Oliver, in his interview, also points to California. He speaks to the fact that over 6,000

acres have burned there, and asks, how well was the land there mitigated? Shouldn't we use the

information gained there to assess if the mitigation standard is actually useful? This quote sums

up his point:

These fires in California have burned somewhere around 6,000 houses. Okay, how many of those houses met the standard that the State of California wrote saying, "Okay, you can't have any fuel within 30 feet of the building. And then here is your remediation effort out to 100 feet. And here's how far apart the trees have to be, and the greater the slope the further apart the trees need to be." How many of them met that standard? I bet the numbers are there.

Oliver's take on this is that mitigation should happen, and not just should happen but should be on a bigger scale than Forsythe II is suggesting.

For both Jake and Oliver, conflations between California and Nederland, Colorado are sources of plausible information that allow them to be for Forsythe II. For Sophia, conflating between the two creates mistrust in the Forest Service and the Forsythe II project. Conflating "there" with "here" helps residents make sense of fuel treatments. Thinking through plausible terms also impacts the amount of trust they have in the land managers. It seems like California and the devastating wildfires there in 2017 are a large part of how residents make sense of Forsythe II and fire mitigation as a whole; how they think about these conflations creates a fertile ground for trust, or the lack of it, to grow.

Chapter Four: Discussion

Lack of trust in land managers while living in a WUI landscape can deeply affect residents. Through sensemaking, we can understand how residents arrive at the conclusions of trust or mistrust. Sensemaking allows for social constructions of reality (Hodgson 2007). Brunson and Kruger (1996) speaks to this topic in the WUI, saying: "[s]ocial 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'" (as quoted in Winter, Vogt & Fried, 2002, p. 15). These individual judgements, or how people actively make sense of the situations around them, highly influence community perceptions of wildfire and land management agencies.

Through sensemaking, we can see that plausible accounts, extracted cues, and identity construction all work together to create or destroy trust in land managers. In my research, I discovered that residents use personal identification with the landscape to justify their trust or mistrust in land management agencies and their fuel treatments. Residents did this through extracting cues from interactions with the land managers and land management activities, as well through as using plausible accounts of fire incidents in geographically distant areas to make sense of wildfire risks in their local area. This study's findings highlighted an important insight that will be expanded upon in this discussion: That is, sensemaking is grounded in identity construction (Weick, 1995), specifically the enactment of one's identity (e.g., through doing recreational activities core to one's lifestyle or sense of self) in a personally meaningful landscape (in this case, a WUI area). Thus, physical enactment of identity within meaningful

landscapes powerfully informs residents' sensemaking about activities that might alter the

landscape (e.g., fuel treatments). Following from this core finding, I will propose practical

recommendations that provide residents with opportunities to become invested in future fire

prevention and fuel mitigation projects, which would allow them to maintain their connection

with the landscape through activities that align with their sense of identity within their

community.

Theoretical Contributions

First, conceptualizing sensemaking as embodied in the landscape helps us understand

how WUI residents connect their personal identity with their local landscape in order to make

sense of changes to the landscape (e.g., through fuel treatments). In their recent review of

sensemaking theory and research, Maitlis and Christianson (2014) proposed that future

sensemaking research should explore how embodiment and sociomateriality influence

sensemaking processes (p. 100). In response to that call, the primary theoretical contribution of

the present study is understanding how sensemaking is grounded in physical space, and in the

enactment of personal identity in and across a landscape. Through their experience with the

landscape, community members came up with shared social and personal identities as Nederland

residents. This local community identity set them apart from residents of Boulder, Denver or

anywhere else in the world. To these participants, the landscape around their community, and

their movement through that landscape while doing recreational activities, constantly reinforced

their identity.

It was also echoed in the findings that people came to Nederland because of these

recreational activities and mountain lifestyle. Residents pointed to the size of the town, where it

is in the mountains, the elevation, the type of forest, the trails, the wind. To community

members, these things make Nederland what it is, and they live there because of it. Identification

in a WUI landscape can be very powerful. Cunliffe and Coupland (2012) argue that:

> …the lived experience of sensemaking is best captured through the notion of "embodied
> narrative sensemaking", by which they mean that people make sense of themselves and
> their lives through felt bodily experiences and through a "sensing" of their surroundings
> in the course of ongoing, everyday interactions. (as quoted in Maitlis & Christianson,
> 2014 p. 100)

Through interactions with the landscape and forest such as hiking and biking on the trails,

walking their dogs, camping, and talking to neighbors that are also utilizing the forest in similar

ways, community members enact sensemaking about who they are. In the findings, residents

communicated that if they can't hike the trails, they don't feel like residents. The previous fire

mitigation project, Forsythe I, had an impact on their personal identities: not only because it

obstructed an informal trail system, but also because it made residents feel like they didn't want

to go hiking there anymore because it "looks trashy." Thus, changes to the landscape as a result

of fuel treatments was such a deeply cutting issue for many residents because it impaired their

ability to enact their personal identity through their regular recreational activities in that local

landscape.

Secondly, physical landscapes provide a physical demonstration of how community

members make sense. The sensemaking-based findings of this study suggest that landscape

spaces play an important role in how WUI community members make sense of their trust (or

lack of trust) in land management agencies. When residents extract cues from the landscape in

order to make sense of fuel treatment activities, they seem to not be simply developing and

objective understanding of the fuel treatments; instead, they are actively constructing a narrative

of what they think they see on the landscape, and considering their constructed sense as fact, which is typically not open to negotiation. Many community members who participated in this study felt that land managers were incapable of being responsible or trusted, as evidenced by their frequent mention of what "went wrong" during the Forsythe I fuel treatment. Residents expressed an emotional and visceral kind of sensemaking, a response to the perceived violation they experienced from ways previous fuel treatments altered the landscape in ways they felt were harmful. This finding is in line with Maitlis and Sonenshein's (2010) ideas on embodied cognition:

> …emotions, which play a key role in sensemaking, involve changes in bodily states; this happens both when we experience an emotion ourselves and when we witness another's emotion. If we take seriously the idea of sensemaking as an emotional process, then we must also understand it as an embodied one...[since] [r]esearch on embodied cognition shows that certain cognitive processes are grounded in the body, it seems likely that the same will be true for at least some sensemaking processes.

This research helps expand and extend understandings of sensemaking as physically and emotionally enacted, which has not been studied extensively in regards to sensemaking theory (see also Maitlis & Christianson, 2014).

Third, residents not only made sense through extracted cues around them, but also through plausible accounts of other fuel treatment successes and failures. In the absence of specific local information, community members construct sense from other places. Extracted cues help create plausible stories, which are then shared through interactions. Hodgson (2007) speaks to this, saying "…[p]eople seek cues from their environment, and interpret and structure information in conversations with others in their social system to construct "plausible" stories

explaining what is happening and why" (p. 234). This not only happens in their own specific

environment, but through understandings of other environments as well. Utilizing stories from

California specifically in this study seemed to create an atmosphere of mistrust in land managers.

Weick (1995) talks about this phenomenon, saying:

> Plausible reasoning involves going beyond the directly observable or at least consensual
>
> information to form ideas or understandings that provide enough certainty...There are
>
> several ways in which this process departs from a logical-deductive process. First, the
>
> reasoning is not necessarily correct, but it fits the facts, albeit imperfectly at times.
>
> Second, the reasoning is based on incomplete information. (p. 56).

A lack of knowledge and "incomplete information" around fuel types leads to plausible

accounts that are not necessarily accurate, which then leads to mistrust. It is interesting to note

that while residents seem to make plausible accounts from the California and Santa Rosa fires,

they also seemingly ignore the Cold Spring fire, which happened right next to Nederland itself.

Those who do mention Cold Springs often do so as a justification for fuel treatments, because

clear cuts helped stop that fire. This is an example of residents choosing to make plausible

accounts in order to justify being against fire mitigation, when accurate information is readily

available, just down the road.

Practical Implications and Recommendations

The first issue I found in my research is that WUI areas require a unique and tailored land

management approach due to the sense of space, and the ways that WUI residents' lifestyles (and

personal identities) are dependent on using the landscape for particular purposes, namely

recreation. Because of this, I would recommend that land management project plans should

include multiple opportunities for residents to engage and volunteer in various capacities, and at

different stages of implementation. For example, they could provide input through early

deliberation processes, help with multi-party monitoring through the implementation stage, and

volunteer to help supplement spaces where land management agencies can fall short due to lack

of resources. Residents could form coalitions that help patrol for illegal campfires, pick up trash,

or do trail maintenance. This would allow residents to become invested in the project and

actively participate, as well as help land managers manage more effectively. There is a seeming

disconnect between citizens and land managers in regards to fuel treatments; allowing

conversations and hands-on participation throughout the entire process would most likely go a

long way towards resolving that. Volunteering would also allow residents to enact their personal

identities on the landscape, which is empowering.

Secondly, I found that land treatments alter the landscape dramatically in ways that

residents do not often expect, which leads to misunderstandings and lack of trust. For example,

the Forsythe I clear cuts in the West Magnolia area were unexpected and felt devastating to many

community members. Several participants said they felt they were kept in the dark about not only

that a fuel treatment would happen, but also *what* it would entail (e.g., clearcuts, use of

contracted workers, limited oversight, etc.). I would recommend that in future projects, land

managers should provide detailed, visual, forward-looking plans for fuel treatment projects. This

would give residents a realistic sense of what's happening, what the landscape will look like

once it's treated, and how it's intended to grow back after the cuts have been made. This could

happen through land managers' utilization of local resources, such as the local library and/or

through public meetings where the community members can come to speak to a land manager in

person. This would humanize the Forest Service and allow the people to have more information

and resources at their disposal. I would also recommend allowing residents to have closure

rituals, such as "blessing the forest" or holding a ceremony before cutting trees, which would

address several residents' symbolic connection to the landscape.

Limitations

Although this study provides valuable insight into sensemaking and trust in WUI

communities, there are some limitations to consider when interpreting results. First, this study

was conducted in one small WUI community, which was within one specific geographic

location. On one hand, studying a single WUI community is valuable for gaining in-depth

insights. On the other hand, some of the issues raised might be idiosyncratic to this particular

community and not transferrable to other WUI communities (e.g., presence of an organized

Opposition Group, persistent resistance to the USFS, etc.). Thus, different WUI communities and

land managers in other locations may face challenges that are dissimilar to Nederland and

Forsythe II, and which were not raised in this study. The interviews also only encompassed a

small number of residents, many of whom represented or allied with the Opposition Group. This

means that both residents for fuel treatments and residents who were ambivalent towards fuel

treatments were greatly underrepresented. Additionally, the age distribution was small, tending

towards residents in their upper thirties to mid-fifties. This left out the younger population of

Nederland almost entirely, a subset that should likely be taken into consideration in future

research. There was also a small amount of community members interviewed who lived in town

proper; most of them lived on the outskirts of town, within the national forest area. Furthermore,

there was no interviews of Forest Service employees or land managers themselves, which left out

an entire half of the equation.

Another limitation to consider is the author's own biases due to experiences growing up in a WUI community and experiencing devastating fire events. While my background helped me understand and sympathize with those being interviewed, they also shaped how I asked questions and interpreted the data. For example, because I experienced first-hand the Waldo Canyon Fire near Colorado Springs in 2012, I have become in favor of fuel treatments and fire mitigation as a whole. While I attempted to not let this come through in my interview schedule, when I actually asked the interview questions I found it to be a little hard to not ask leading questions, or bring their answers back around to my experiences. When analyzing the data, my experiences with living in a WUI community and my support for fire mitigation meant I agreed more with the positive, trusting views of certain interviewees and had a bias towards those who had negative and untrusting attitudes. However, I tried to balance this out in my writing and not show favoritism one way or the other.

Conclusion

This project has worked to understand how residents of wildland-urban interface communities use sensemaking to enable or constrain trust in land managers. Community members in Nederland, Colorado drew from their personal identities, referenced extracted cues, and constructed 'plausible' narratives to make sense of fuel treatments; their constructed sense about fuel treatments and treated landscapes then affected the amount of trust or mistrust they had in land managers themselves. Looking at WUIs and fire mitigation through the lens of sensemaking allows for us to see it enacted, something that previous literature has not fully explored. While this study was non-comprehensive, using Nederland as a case study was useful towards making sense of WUI communities as a whole in the Rocky Mountain region. Future research should be more inclusive of different communities and populations, as well as include

interviews with the land managers themselves, in order to paint a more accurate picture of trust

and sensemaking within the WUI. It might also be helpful to study a community where fuel

treatment activities went well, and residents enjoy a trusting relationship with land management

agencies. Learning how residents make sense of fire mitigation creates space for trust to grow

between community members and land managers themselves, which allows for easier transitions

into mitigation and fuel treatments. With a better understanding of this, WUI communities and

land managers alike can thrive in healthy, safer forested environments.

Appendix A: IRB Approval

Office of Research Integrity
UNIVERSITY OF COLORADO BOULDER

INSTITUTIONAL REVIEW BOARD

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APPROVAL

01-Feb-2018

Dear Alyssa Stanbery,

On 01-Feb-2018 the IRB reviewed the following protocol:

Type of Submission:	Initial Application
Review Category:	Exempt - Category 2
Title:	: Trust and the Wildland-Urban Interface: How residents make sense of fire mitigation
Investigator:	Stanbery, Alyssa
Protocol #:	18-0067
Funding:	None
Documents Approved:	Recruitment Email; Interview Consent Form; Interview Guide; 18-0067 Protocol (1Feb18);
Documents Reviewed:	Protocol; HRP-211: FORM - Initial Application v8;

The IRB approved the protocol on 01-Feb-2018.

Click the link to find the approved documents for this protocol: Summary Page Use copies of these documents to conduct your research.

In conducting this protocol you must follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,
Douglas Grafel
IRB Admin Review Coordinator
Institutional Review Board

Appendix B: Interview Schedule

1. I would like to begin by learning about background demographic information:
        *How long have you been living in the area?
        What is your educational background?
        *What is your profession?

2. How you came to be a resident of Nederland?
        *Why Nederland?
        *Which neighborhood do you live in?
        *What do you love about living in the area?
        *What, if anything, do you dislike?

2. What do the words Wildland-Urban Interface mean to you?
        *Do you feel like you live in a WUI area?
        *In your view, what characterizes a place as a WUI?
        *What, if anything, do you see as unique about living in WUI areas?

3. What are your views about the fire danger in this area?
        *Do you ever think about wildfires?
        *Have you ever been directly affected by a wildfire?
        *How imminent do you think the dangers are?

4. How do you get information on how to safely live in the area?
        *What resources do you feel are available to you?
        *What resources would you like to have?
        *Do you trust some sources more than others? If so. what sources do you trust more, and
        not as highly?
        *Have you felt your trust be violated by any information sources, particularly land
        management agencies since you've lived here.
        *Can you describe an instance in which your trust was either enhanced or undermined
        due to interactions with land management agencies?

4. The US Forest Service describes the Forsythe II fuel treatment project as important for various
reasons like wildlife habitat, and for human safety as a way of reducing fuel that could feed a
large wildfire
        *What is your understanding of the Forsythe II project?
        *Can you think of and describe areas where the project has been implemented well?
        *Can you think of and describe areas where the project has not been implemented as well
        as it could be?
        *In you view, is there a better way that the town of Nederland and surrounding residents
        might protect themselves and their homes from future large wildfires?

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