

UNDERSTANDING AND MANAGING THE SOCIAL AND ENVIRONMENTAL  
EFFECTS OF EXURBAN MIGRATION: A CASE STUDY OF THE UPPER  
REDWOOD CREEK WATERSHED IN HUMBOLDT COUNTY, CALIFORNIA

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## ABSTRACT

### UNDERSTANDING AND MANAGING THE SOCIAL AND ENVIRONMENTAL EFFECTS OF EXURBAN MIGRATION: A CASE STUDY OF THE UPPER REDWOOD CREEK WATERSHED IN HUMBOLDT COUNTY, CALIFORNIA

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Exurban migration and “back-to-the-land” movements bring lots of new people into rural places. This often creates social conflicts with the established residents as well as generating adverse environmental impacts. The Upper Redwood Creek watershed in northern Humboldt County is experiencing sudden growth. A rapid influx of people to this area due to the burgeoning marijuana industry has produced land management disagreements and social conflicts amongst residents. This has created the need for conflict resolution. This project focuses on efforts to develop a dialog between community members to promote cohesion and initiate a collaborative effort to help address the disagreements. I employed a locally based participatory research approach to community conflicts and land stewardship practices. I analyzed the historic and current utilization and management of private property in the Upper Redwood Creek watershed and identified several options for reducing current conflict levels. The field research illuminated concerns and conflicts the community is experiencing as well as measurable willingness to participate in a dialog concerning the management and upkeep of common, as well as private, property. Using these insights, I organized and conducted a community meeting, which resulted in specific actions including communal bulletin

boards, a phone tree and informal road association. Though these specific concerns proved tractable, other concerns such as water usage and organizing a fire council, proved not amenable to collective action. Though this study is focused on the Upper Redwood Creek watershed in Humboldt County, California, the hope is that this research project will help other rural communities experiencing similar issues and their efforts to develop sustainable land use management practices.

## ACKNOWLEDGMENTS

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## INTRODUCTION

### Mediated Conflict in the Redwood Creek Watershed

In the spring of 2010, a sign appeared along the Upper Redwood Creek Ranch road (Appendix D). A local landowner was modifying and renewing a conditional use and surface mining permit on his existing low intensity quarry. The letter attached to the sign included many statements, some unsubstantiated, which gave reason for the community to act quickly and together. It noted that mining production would increase fifteen fold. Assuming (incorrectly) that there were ‘no other neighbors’ on the road, the letter noted that locked gates would be permitted and placed before and after the quarry, and blasting would occur for the first time, with asbestos contamination a possibility. The letter also declared if no one responded within the ten day time frame, of which three had already passed, there could be no future recourse. Residents of the Upper Redwood Creek watershed had seven days to respond. If no response was made, the communal road would likely be gated and the surface mine expanded, thus allowing the deafening roar of dynamite blasting and the possibility of asbestos dust contaminating the water and air.

I contacted Humboldt County’s Senior Planner and explained my concerns over the letter’s wording and brief timetable in which to reply. She responded that no one from our community had yet contacted her regarding the quarry expansion and stated that

the timeframe was standard procedure. She stated that she needed objective, unemotional letters or phone calls detailing the concerns that the residents had. With only seven days before the commission's approval, the landowners of the Upper Redwood Creek watershed would have to act quickly upon this issue.

Before this incident, the residents of the Upper Redwood Creek watershed had never united for social and environmental concerns. Now they would have to or the consequences of the quarry would negatively affect the safety, health and common property of the community. In this twenty five year-young community, communal planning concerning roads maintenance, fire prevention and community-based enforcement of water conservation were relatively limited. In response to this new threat, I put signs up calling on the community to voice their concerns by writing, and calling the senior planner at Humboldt County's Planning Commission Office as well as attending the public hearing. The response was overwhelming. Letters poured in and phone calls flooded the Planning Commission's office. The conditional use permit hearing for the quarry was postponed until a further review could be completed addressing the concerns of the community (Appendix C). One year later, the surface mining permit was greatly reduced, with no blasting or processing material allowed on site.

The Upper Redwood Creek watershed exemplifies some of the environmental and social concerns resulting from exurban migration into Wildland Urban Interface (WUI) areas. It illustrates the particular challenges of rapid exurban growth related to the lucrative marijuana industry, which stem from a general distrust of government and the

need for maintaining high levels of privacy, secrecy and confidentiality. Further confounding this situation, is the manner in which the watershed was subdivided – into parcels smaller than the minimum legal parcel size. Subsequently, each undersized parcel has been ‘shaded’ on the maps of the Humboldt County Planning Department, which means that those parcels are out of compliance with county planning codes (this dynamic will be explored in detail in chapter 5).

WUI areas across the western United States experience similar or related conflicts involving homesteading and common property management. The social and environmental challenges facing rural communities are numerous. Infrastructure such as roads, culverts and bridges need maintaining. Like a majority of WUI areas, the Upper Redwood Creek watershed is in a wildfire and drought vulnerable area. If these concerns and management challenges are not effectively addressed, common property and infrastructure would quickly deteriorate. A wildfire would have devastating consequences. It is imperative that social relations and discourse between the landowners be initiated in order to establish trust, so they are able to unite and respond for common property maintenance or when emergencies occur.

When the above mentioned quarry opened in the late 1970s only a few people lived on thousands of acres in the Upper Redwood Creek watershed. Now hundreds of people reside in the watershed; many of them participate in the illicit and profitable marijuana industry. According to the Census, the residents of the watershed are eighty percent white, ten percent indian and ten percent Hispanic. Sixty percent of the parcels are owned by men, thirty percent are jointly owned by men and women and ten percent

by women. Ninety percent of the population are between 30-65 years of age. Until the 1990s there was no opposition to the quarry owing to the small number of landowners. Social and environmental conflicts were inevitable with the increased population of the watershed in combination with the quarry's proposed fifteen-fold increase in material extraction.



Figure 1: Redwood Creek Quarry. Photo courtesy of Stefan Shumaker

This project explores these environmental and social issues by asking several key research questions. How can communities where the majority of the population seeks a high level of privacy come together in a non-governmental fashion to find answers to communal and environmental concerns? Which mediation processes would be successful for accomplishing these goals and reducing conflict levels? Are there non-confrontational land management regimes that may be followed to address common property maintenance and still allow for the sense of autonomy the landowners' desire?

In the Upper Redwood Creek Watershed unauthorized subdivisions and illicit marijuana production compound the social and environmental challenges associated with

exurban migration. Landowners are discouraged and disenfranchised due to their parcels being labeled 'shaded,' or illegally subdivided by the county planning office. Inflexible timeframes, strict dates for applications and permits, and a lack of clear direction for how to get their property "unshaded" compound landowner distrust of government regulations, policy, and agencies and further complicate county government efforts to manage the specific social and environmental problems of exurban migration. In this context community-based efforts may be a more promising way to address these problems and help establish a resilient approach to watershed management.

Community organized road associations and fire councils demonstrate how members of a community can unite on common fronts, but the majority of these models continue to rely on outside sources and government participation to achieve fruition. In addition to some landowner's inherent distrust of these entities, these models often fail to take into account landowner perspectives and ways that they identify with their ecosystem. As these combined community/government collaboration approaches are not always effective, further research is warranted on purely community-based approaches for understanding and managing the social and environmental conflicts of exurban migration.

The concerns of residents of the Upper Redwood Creek watershed are common to other areas experiencing rapid exurban migration, especially where residents distrust the government. This case study provides such residents a suggested bottom up approach to mitigate conflicts in watersheds experiencing exurban migration. Over the course of my research I uncovered a topic that I believe warrants further study: informal mitigation

techniques for managing social and environmental concerns pertaining to watershed management in areas experiencing the underlying effects of the marijuana culture.

## CHAPTER ONE: REVIEW OF THE LITERATURE

### Exurban Migration

For the last several decades exurban migration in the western United States has accelerated and consequently rural locations have experienced a surge in population growth and accompanying social and environmental challenges (Clark et al. 2009). Rural locations offer people a change from urban life where they may build a self-sufficient lifestyle and live off the land's natural resources and amenities. Auguste C. Sectorsky first coined the term "exurbanites" in his 1955 book, *The Exurbanites*. Though originally referring to bedroom communities driving distance from work, exurban migration is currently defined as the movement of populations from predominantly urban to rural locations, away from established infrastructure (Clark et al. 2009). At the end of World War II, and more notably in the 1960s and 1970s, exurban migration increased considerably in the United States (Short 2009, Hansen et al. 2005).

Exurban migration rates in the western United States are between three and four times those in the rest of the nation (Gude et al. 2004, Hansen et al. 2002, Hansen et al. 2005). Exurban migration and development can be broken down into two categories; urban fringe development (UFD) and rural residential development (RRD). Urban fringe development is growth at the fringes of existing city infrastructure. UFD areas are bedroom communities for people who work in the city. Often times, these communities become incorporated with the neighboring city's infrastructure (Hansen et al. 2005).

RRD communities in contrast, are built along the edge of natural amenities. These include national forests, ecological reserves, state and national parks, Bureau of Land Management (BLM) holdings and large private ranches (Hansen et al. 2005, Gude et al. 2004). Rural residential areas in many instances are recent subdivisions of large tracts of private property. An example of RRD is the subdivided, 3000 acre Double D ranch in Northern California's Humboldt County. The DD ranch borders the 6,000 acre Russ Ranch and the Six Rivers National Forest.

The settlers who moved into rural areas have many reasons for doing so. Many seek to escape main-stream conformity of living and be closer to outdoor activities such as skiing, hiking and hunting (Hansen et al. 2002, Travis 2007). These people are referred to as amenity migrants. Amenity migration occurs when people relocate to rural areas for their natural resources' recreation and scenic values instead of for employment (Moss 2006, Liegel 2011). Others find livelihoods and supplemental income through natural resource-based activities such as logging, mining, farming, ranching and more recently, the lucrative marijuana industry (Draft Assessment Russ 1998, Best 1984). The almost universally lower cost of rural land is another deciding factor for these settlers.

Road construction, homesteading and agricultural land use have created fragmented watersheds and negative environmental impacts in many WUI areas. Fragmentation has generated enormous ecological strains on these watersheds with increased communal land use and conversion, resource extraction, and fire-fighting challenges (Travis 2007, Liegel 2011, Short 2010). Though there is a large body of work surrounding fragmentation and the ecological and physical components of these

interactions, much less research effort has been given to community-based approaches for mitigating these concerns (Brick et al. 2001, Kemmis 2001, Gude et al 2004, Moss 2006, Clark et al. 2009, Short 2009).

### Social Conflict and Environmental Degradation; Forest Fires, Water Usage and Sedimentation

With the movement of populations to amenity-rich and secluded WUI lands, social conflicts and environmental degradation occur. Areas that were once large tracts of land are subdivided and fragmented. This fragmentation generates social and ecological strains on the resources and populations of these watersheds (Walker and Fortmann 2003, Travis 2007, Liegel 2011, Short 2010). Impacts include fighting forest fires on newly divided private property, increased demand for water of the residents and marijuana grows as well as the sedimentation of waterways due to homestead construction, converge at unsustainable levels. These problems associated with private property fragmentation challenge the resources of state and local governments (Weber 2003, Kemmis 2001, Brick et al. 2001, Shutkin 2001, Richardson 2000, Hansen et al. 2005, Hansen et al. 2002).

### Forest Fires and Fire Safe Plans

The rates of forest fires in the United States have risen dramatically since the turn of the century and wildfires occur with devastating regularity in WUI areas (Whitman et al. 2013). In response to this increase, the United States initiated the National Fire Plan in 2000 (National Fire Plan 2014). The National Fire Plan's creation was a response to the failure of the dominant governmental model of fire suppression. Past models overlooked local communities' knowledge and resources to deal with fire vulnerable areas. The National Fire Plan proposed a collaborative, community-based approach to wildfire management and prevention (National Fire Plan 2014, Fuller 2011). In response to the National Fire Plan, the Western Governors Association developed a framework and timetable in support of community developed Community Wildfire Protection Plans (CWPP) (Fuller 2011).

The National Fire Plan and the Western Governors Association approaches were premised on community-based, collaborative approaches to wildfire management and prevention goals (Firewise USA 2014). In response to the NFP and WGA campaigns, collaborative, community-based fire management efforts have multiplied across the West (California Fire Safe Councils 2014, Fire Safe Communities 2014). Firewise Communities are found all over the US and especially in the western United States from Colorado and New Mexico to Washington and California, where wildfires cause the greatest monetary and environmental loss. Fire Safe Councils emerged in response to community members' fear of wildfire and the capability to use their integral knowledge of the terrain, roads and most recent fires to work to identify and reduce fuels for

defensible space around homes, along access roads and strategic ridge lines (Unmack 2011, Fuller 2011, Brick et al. 2001, Everett and Fuller 2012). The Firewise Communities movement is incorporated and federally supported; it began with the National Fire Plan. Firewise Communities have certain requirements that must be fulfilled, such as dedicated leadership and community service. Fire Safe Councils are strictly California-based; they appear to be a more flexible model for community collaboration due to the ability to include a range of community types and capacities and varying levels of structural integration (Firewise 2014, Fuller 2011, Everett and Fuller 2012). A Fire Safe Council community dictates its own timetables, work arrangements, resources and whose model would be valuable to incorporate into other community watersheds (Fuller 2012, California's Fire Safe Councils 2014). Another critical issue in rural areas of the West is access to water.

#### Community-Based Enforcement of Water Conservation, Laws and Prior Appropriation

In the arid western United States, water has always been a scarce resource. Years of drought are often followed by years of below average rainfall. From 2004-2015 California has been in a drought. Precipitation in 2014 was the lowest in 150 years of monitoring, and for the first time, rationing was enforced on communities in the driest months of summer. The scarcity of water often dictates the location of communities and their settlement patterns. WUI communities in the water stressed arid West have consistently been built by, or near, water for agriculture, homesteading, and natural amenities such as fishing, hunting and water sports (Gude et al. 2005). Exurban growth, associated marijuana grows and the increased water demands have further contributed to

its scarcity. No laws yet dictate the density of settlement and resource use in accordance with the amount of available water in WUI communities.

Western water law disconnects water from land and is based on the prior appropriation doctrine (Liegel 2011). Prior appropriation is established on water not the land it came from, and allows its transportation to areas deemed beneficial (Liegel 2011). In California, water is pumped and transported from the North of the state to the arid South and the San Joaquin Valley, where a majority of all the United States produce is grown (Grantham and Viers 2014). Prior appropriation does not take into account the effects on the watersheds and ecosystems from which the water is pumped. This has created huge tensions, as the amount of water “appropriated,” or taken from Northern California watersheds exceeds by five times the level considered sustainable (Grantham and Viers 2014).

This disconnect between western water law, water usage and WUI development has created local governmental regulation and enforcement problems. Unlike other natural resources such as timber, minerals and wildlife, rights to water are utilized with no enforceable action by outside agencies (Arnold 2005, Euzen 2011). The idea of ‘wet growth’ emerged as one answer to this complex question. Wet growth incorporates the availability of water when planning the density and location of development (Arnold 2005, Liegel 2011). In WUI areas, a ‘wet growth’ framework would dictate the amount of development based on the quality and adequacy of a water supply (Hanak and Browne 2006). Instead, rather than limiting growth in water stressed areas from the beginning, local governments’ response to acute water shortages has been reactive, with top-down

policies such as enforced water rationing. A proactive ‘wet growth’ framework would help minimize this concern in WUI areas by limiting the extent of allowable settlement to that which local water supplies could support (Hanak, Browne 2006, Arnold 2005, Tarlock 2005).

### Sedimentation

An area of critical concern for federal, state and county governments is enforcing water quality under the Clean Water Act and, in particular, avoiding sedimentation of rivers and streams experiencing exurban population influxes (Short 2010, Short 2009, Unmack 2011). In Northern California, high levels of turbidity and sedimentation are of particular concern because of their effects on habitat of endangered salmonids (Short, 2010). Increased levels of sedimentation fill in deep pools that aquatic life need to stay cool, ward off disease and provide habitat for juvenile fish.

There is extensive research on the correlation between riparian or river sedimentation and landowners’ use and management practices (Short 2010, Weber 2003, Short 2009, Unmack 2011, Liegel 2011). Road construction used for homesteading and logging causes over half of the anthropogenic sedimentation and is a common thread linking landowners (Short 2010). Yet, the fragmenting of these WUI areas combined with inefficient governmental policy and lack of community participation often pushes sedimentation levels well beyond sustainable limits (Short 2010, Short 2009, Unmack 2011, Hansen et al. 2002).

In 2010 Anne Short conducted extensive research in the Northern California Coastal region and classified the landowner’s lifestyles that can be associated with

sedimentation. These classifications causally prioritize anthropogenic sedimentation as coming from: logging, homesteading, working properties, second vacation homes and other. Road sediment load contribution to surface waters surpassed sedimentation caused by logging, the second largest contributor (Short 2010, 21). Of course, where logging occurs, logging necessitates road construction, making logging a double contributor.

Section 404 of the US Clean Water Act is the top-down governmental approach used to control sedimentation due to anthropogenic causes. Section 404 employs numerous regulatory tools to reduce waterway pollution, however, it has been criticized for numerous failings, including the inability to curb sedimentation-generating practices and alienating community support (Unmack 2011, US EPA 2014). Permitting under Section 404 is challenging for landowners. The Army Corps of Engineers must approve permits for any work that is to be carried out along streams or wetlands or affecting them, and strict timetables must be adhered to. Though the public may voice opinion in open hearings, the administrators still hold absolute authority over any outcome (Clean Water Act Section 404). This top-down policy produces distrust, alienation, and disenfranchisement and has created the need for community-based collaboration in watershed management.

The failure of Section 404's command and control policies demonstrates the need for collaborative community-based approaches in watershed management. Collaborative community-based approaches have shown great promise for reducing the environmental effects of anthropogenic sedimentation and agricultural runoff (Richardson 2000). These community-based approaches are also effective in initiating the stakeholders in a dialog

(Short 2010, Richardson 2000, Liegel 2011, Short 2009). The Yeager Environmental Stewards (YES), located on the Van Duzen River in Humboldt County CA., is an example of a successful collaborative community approach. The YES community was successful in utilizing Best Management Practices and addressing sedimentation and runoff concerns before a regulatory governmental response was initiated (Unmack 2011, Short 2009, Short 2010). Communities that cooperate together for the betterment of an ecosystem are encouraged to practice Best Management Practices, or BMP's. Best Management Practices were developed by the US EPA and are used to reduce the amount of point source pollution, such as the sources of sedimentation and agricultural runoff (Short 2010, Unmack 2011, US EPA 2004). Arguably, the failure in instituting BMP's in distressed watersheds has been due to governmental command and control policies imposed upon unwitting populations, making voluntary adherence impractical and unfeasible (Short 2010, Unmack 2011).

Collaborative approaches and 'wet growth' frameworks rely on local governance rather than the traditional top down command and control policy (Richardson 2005). Wet growth policies bring water usage to the forefront of land-use planning and development (Liegel 2011, Arnold 2005). Collaborative approaches integrate stakeholders' positions on watershed management and their world views and personal beliefs (Shore 2009, Shore 2010, Liegel 2011, Unmack 2010). Together, they help mitigate the social and environmental conflicts emanating from exurban migration.

Social conflicts resulting from exurban migration affect a community's capacity to develop a successful collaborative mitigation effort. Community capacity is comprised

of a community's shared values, norms, visions, and resources and the willingness of the community to address shared challenges at the institutional, community and household level (Topel 2010, Wachowski 2008). When any issue negatively affects a community at one of these levels of scale, its community capacity is diminished (Wachowski 2008). A community's capacity to adapt to challenges or change and persist is a measure of its resilience (Walker and Salt 2006). Rapid population influx into WUI areas can create gentrification with increased property values and wealthier residents who are not dependent on the land for their living (Walker and Fortmann 2003). Gentrification may alter local capacity of a community and the production values of the landscape, so that resource extraction activities begin to compete with 'aesthetic' values of properties (Topel 2010, Walker and Fortmann 2003). Landowners who utilized resource extraction for sustenance now have to compete politically and socially with neighbors wanting unspoiled views and landscapes.

In such circumstances, developing local capacity for conflict management and mediation skills to help manage the social and environmental effects of exurban migration are preferable to costly zero-sum lawsuits or top down command and control governmental involvement (Short 2010). Determining and developing local community capacity necessitates an understanding of the residents' ecosystem management practices, world views and personal beliefs (Topel 2010). With this understanding, a plan can be envisioned that increases community capacity in a distressed area.

## Traditional and Non-Governmental Approaches for Controlling Environmental Concerns: Sensemaking, Tractability and Community Mediation

In the western United States command and control approaches used in natural resources policy, such as Section 404 of the Clean Water Act, have shown some success in mitigating environmental impacts but few encouraging results addressing the challenges of social conflict arising over natural resource management. There are several reasons policies such as Section 404 have discouraging results. Approval for applications, permits, public hearings and other work must be directed through a chain of command that holds total authority and adheres to strict timetables (National Fire Plan 2014, Short 2010, Short 2009, Brick et al. 2001, Unmack 2011, Fuller 2012). Centralized governance models often negate the property owners' local knowledge, personal beliefs and the effectiveness of self-regulated, community driven, watershed management (Brick et al. 2001, Weber 2003, Kemmis 2001). The limited successes of centralized approaches reveal the need for more effective community-driven, local knowledge based models of watershed management. Such models can help to determine appropriate tractable mediation techniques that address environmental concerns and a community's willingness to participate (Weber 2003, Kemmis 2001, Short 2010, Short 2009, Unmack 2011).

### Governmental Policy Making vs. Community Collaboration

Inflexible command and control policies and frameworks often do not generate viable solutions to mitigate the concerns of exurban migration and they often fail to take

into account landowners' knowledge of ecosystem stewardship practices (Berkes et al. 2009). The weakness of local governmental policy and regulatory enforcement in WUI areas with sudden population increase has in some cases fragmented communities and negatively impacted watersheds. Often these communities have low capacity for collaboration, which has hindered their ability to find and apply mediation techniques for social and environmental conflicts (Weber 2003, Short 2010, Kemmis 2001, Brick et al. 2001, Short 2009, Liegel 2011). In some places, unpermitted road building, homesteading, private logging, sedimentation, water usage and an increase in forest fire protection have greatly increased as governmental ability to respond has decreased (Short 2010). These problems necessitate exploration of non-governmental forms of community collaboration in watershed management.

Studies have addressed non-governmental, bottom up, community-based collaboration for watershed management (Short 2009, Gude et al. 2004, Short 2010). These studies frequently focus on the livelihood characteristics and strategies of diverse community segments, and they explore landowners' varied watershed management practices as well as their relationships with governmental authority (Gosnell et al. 2007, Short 2010, Weber 2003). However, one significant gap in this literature concerns how rural communities respond when a substantial proportion of the influx of exurban migrants engage in an illegal activity, such as growing marijuana (*Cannabis sativa*). This project demonstrates the importance of place-based, community approaches for revealing solutions to environmental and social concerns under these circumstances (Short 2010, Brick et al. 2001). The ideologies of rugged individualism and livelihood strategies

based on illicit activities together create aversion to government. Thus, voluntary self-regulation and non-governmental forms of collaborative community building with a bottom up approach may be used to bridge the gap between divergent ideologies and land stewardship practices (Kemmis 2001, Shutkin 2001, Brick et al. 2001, Richardson 2000, Short 2010, Short 2009, Unmack 2011, Fuller 2011, Everett 2002). Collaborative conservation contributes positively to the resilience of ecosystems and communities. Understanding stakeholders' frames, identities and how they make sense of the world will help in providing the tools needed in constructing collaborative, non-governmental mediation processes which address water usage, fire hazard and watershed protection on communal property (Gray 2003).

#### Sensemaking and Tractability

Sensemaking, grounded in identity construction, influences how individuals make sense of themselves and of the world around them. People organize information they are inundated with into a cohesive, constructed identity which allows them to function in a socially acceptable manner (Lewicki et al. 2003). People are not defined as fixed beings but rather by their current sense of location and their shifting networks of relationships, which may be analyzed and altered. An individual's frames of reference are constantly changing and altering with new experiences; "Frames act as lenses through which disputants interpret conflict dynamics, and these interpretations construct the conflict as more or less tractable" (Lewicki et. al 2003, 413).

When a person or group reflects upon themselves, an understanding of their beliefs may emerge, which can help transform a conflict intractable to mediation into a

tractable one. The definition of tractable is: 1) easily managed or controlled; governable; 2) easily handled or worked; malleable. Intractability is defined as; 1) difficult to manage or govern; stubborn; 2) difficult to mold or manipulate; 3) difficult to alleviate, remedy or cure (Webster's 2015). A tractable mediation conflict is one with a chance of working with the highest level of satisfaction among stakeholders (Lewicki et al. 2003). A conflict intractable to mediation cannot get established and has a slight chance for success. An investigator's understanding of the stakeholders' frames and being reflective about how groups make sense of the world may turn an intractable conflict tractable (Lewicki et. al. 2003, Unmack 2011). Threats to core aspects of one's identity contribute to the overall intractability of a conflict (Lewicki et. al. 2003). Being considerate of the landowner's frames and identities mitigates such 'threats' and can potentially determine the tractability of a conflict. Incorporating the sensemaking attributes of the watershed's residents may determine a proper, precise and thoughtful mediation process.

Exurban migration and the correlating human impacts on these watersheds often produce land management disagreements and social conflicts amongst residents. These conflicts over shared common resources create a need for mediation toward landowner unity. Though the phenomenon of exurban migration is over thirty years old, there is little research or writing on how communities may unite for common watershed issues using voluntary, non-governmental, bottom-up methods. Today, in parts of the United States, the potential for cultivating lucrative cannabis crops is driving a new rush in exurban migration that serves to intensify many previously identified challenges to rural community resilience. This project addresses this gap through qualitative, semi and

unstructured interviews, letters and a community meeting. These were employed with a participatory research approach to community conflicts and land stewardship practices.

## CHAPTER TWO: METHODS, PARTICIPATORY APPROACHES FOR IDENTIFYING TENSIONS

### Methodological Approach

This project explored non-governmental, community-based approaches for mitigating the environmental concerns of exurban migration in the Upper Redwood Creek watershed. Quantitative and qualitative research methods were integrated, utilizing an interpretive epistemology with a focus on standpoint theory. Interpretive epistemology is knowledge produced through human actions and activities (Sandberg 2005). Standpoint theory further defines this as an individual lived experience. My knowledge of interpretive epistemology and standpoint theory helped me assess the feasibility of a mediated outcome. The fact that I have lived in the watershed for over twenty years and my visible efforts to maintain the watershed's communal roads gave me credibility among watershed residents as well as their trust. This enabled me to initiate and conduct interviews as well as coordinate a community meeting.

My methodology incorporated narrative research and grounded theory. Narrative research employs interviews, conversations, letters, photos, journals as well as family stories to help understand how people create meaning in their lives (Webster 2015). Narrative research gave me a deeper understanding of the lives and backgrounds of the participants in my research area, while a review of secondary literature including historical and governmental records complemented this research approach.

### Grounded Theory

Grounded theory is widely used in strengthening and advancing social justice studies and has been essential for this project. Grounded theory is a qualitative research method that develops theory based on a “zig-zag” back and forth movement between inductive and deductive forms of reasoning that link field research and analysis in an iterative process (Charmaz 2005). A project involving grounded theory may start with data collection or an unanswered question. The collected data or key questions then guide the next step of the iterative process (Charmaz 2005). Kathy Charmaz lists four grounded theory categories necessary to create a well-rounded project or thesis: credibility, originality, resonance, and usefulness. Charmaz states that a strong “combination of originality and credibility increases resonance, usefulness and [will improve] the subsequent value of the contribution” (Charmaz 2005, 528).

### Participatory Action Research

The primary method of research for this project was Participatory Action Research. PAR originated in developing countries, which necessitated a more inclusive Action Research method and where command and control policies had demonstrated little success (Novotny 1998). PAR utilizes untapped information from “unrecognized worthy sources like the rebel, the heretical, the indigenous, and the common folk” (Orlando 2001, 28). PAR combines quantitative and qualitative analysis along with a substantial commitment when working with community members on an egalitarian foundation through all stages of the investigative process.

PAR was essential for this project. Working with neighboring landowners and being a homeowner in the Redwood Creek watershed gave me valuable insight in crafting the interview questions and developing a mediation process. My standing as a long term resident of the watershed is a form of social capital. People knew me, trusted me and were willing to speak with me, which allowed me to gather information and interest some in participating in a community dialog. This project proposed community based approaches for mitigating the social and environmental concerns of exurban migration. As a community member immersed in the social and environmental concerns of the Redwood Creek watershed, the PAR framework helped permit me equal participation in the research stages. In addition, PAR made it apparent and emphasized to me the use of non-confrontational, non-governmental, social and environmental mediation techniques. These techniques included interviews, a community dialog and communal property maintenance regimes.

### Research Methods

This project engaged multiple qualitative research methods: casual conversations, participant observation, semi-structured surveys and impromptu interviews. A community meeting proved to be a useful forum for gathering data and drawing out non-confrontational ways to address communal concerns without creating internal conflict. Historical, federal, county and National Park Service records gave an in-depth understanding of the Redwood Creek watershed leading up to the subdivision of the Double D Ranch in the 1980s.

A survey was given to landowners to assess their willingness to engage in a dialog concerning communal resource issues and challenges. Semi-structured interviews were conducted in a relaxed, non-confrontational atmosphere. I sought to maintain interviewees' trust and to maximize their comfort level. Key points for community mediation became apparent after coding the interviews. Though some landowners were unwilling to be interviewed, those who participated agreed that road maintenance, firefighting, and water usage were concerns. Most also expressed willingness to participate in an information-gathering meeting.

Two additional qualitative methods, also chosen for the comfort level produced and the truthful answers obtained, were participant observation and casual conversations. Observing landowners while maintaining the road, and when willing, conducting impromptu interviews and casual conversations, allowed me to ask interview questions in an informal, casual manner. The rapport established in these situations, as well as the answers to my interview questions, reinforced my sense of the issues the community wanted to discuss and individuals' willingness to participate in a community meeting.

The community meeting was held Sunday, July 25 2011, from 12-2, at Gonzalez's Mexican Restaurant in Willow Creek, California. There were twelve in attendance from numerous parts of the Upper Redwood Creek watershed. The meeting was a get-to-know-your-neighbor as well as a platform to voice new concerns and ones identified during the interview process. The interviews, community meeting and the results are discussed thoroughly in chapter four.

The results of the community meeting and interviews determined several non-confrontational and non-governmental ways for addressing the social and environmental concerns affecting the watershed. Problems concerning communal road maintenance, lack of communication, water usage, bulletin boards and firefighting were the central concerns. Landowners wanted to develop a road maintenance regime for upkeep and upgrades. They also suggested the use of a phone tree for work and emergencies which would galvanize the community and allow resources to be used locally. Bulletin boards at key locations would make residents' aware for road work to be done, lost animals or other community inquiries. In addition, interest in a fire council also emerged as a popular concern. Chapter three provides the setting of the Upper Redwood Creek watershed. This historical and current context will help to clarify the present social and political mentalities of the landowners and the agencies delegated to govern them.

### CHAPTER THREE: SETTING, SETTLEMENT PATTERNS AND HISTORY OF THE REDWOOD CREEK WATERSHED

The Upper Redwood Creek Watershed in Humboldt County, California and the surrounding community have a dynamic social and environmental history. Governmental policies, European settlement and the disposition and genocide of indigenous tribes from ancestral lands drastically changed historic land use patterns. European land use was based on natural resource extraction which fragmented landscapes and depleted natural resources at unsustainable levels (Anderson 2005, Rhode 2008). This extraction created sedimentation which endangered fish habitat and threatened old growth redwoods. The creation of the Redwood National Parks in the lower portion of the watershed alongside with the Six Rivers National Forest initiated the implementation of governmental policy for its preservation that defined how the homesteaders could utilize their land (*Redwood National and State Parks* 1999). The implementation of county codes in 1973 and rapid population increase in the 1980s with associated marijuana growing operations created social and environmental tensions between the Redwood Creek community on the one hand and county, state, and federal government on the other. Understanding the historic events and policies that shaped the Redwood Creek watershed helps give a clearer picture of the research area and the community's concerns. This chapter summarizes the dynamic history and policies which defined the watershed and whose repercussions reverberate today.

## Historical Context of Humboldt County and Upper Redwood Creek

Located in the coastal range of Northern California, the Redwood Creek watershed is 61.8 miles long and drains a 280 square mile basin. The elevation of the watershed ranges from sea level to 4,500 ft. Redwood Creek converges with the Pacific Ocean in Orick, California (Appendix F). The Redwood Creek watershed is divided into three areas: the upper, middle and lower. The variation in plant ecology, logging history and climatic variations differentiate the areas (McMurtry 1972). Prior to European settlement, over 80 percent of plant-life within the watershed consisted of coniferous forests, with 10 percent oak wood lands and 10 percent prairies (Best 1984). Timber extraction is the most viable economic resource. The economically dominant timber resources in the upper portion of Redwood Creek watershed with the greatest economic value were (and continue to be); Douglas fir, Oregon white oak and tan oak, whose tannins from the bark are utilized for leather manufacturing. Local inhabitants, historically and presently use the wood for homestead construction, fences, and firewood (Raphael and House 2007).

In Humboldt County, European settlement and the subsequent governmental policies enacted were used as justification to eradicate local indigenous populations, including the Whilcut Tribe, whose ancestral territory existed in what became the Upper Redwood Creek watershed (Jacinto 1999). Humboldt County is the farthest point west on the contiguous United States and one of the final settlement places of Euro-Americans

in the Pacific Northwest. When the Gold Rush washed over California in 1848, Humboldt County's indigenous populations numbered in the tens of thousands, each with a unique culture and language (Sprawl 1961, Rhode 2008). White settlers numbered only a couple of hundred (Raphael and House 2007). The Gold Rush's arrival exponentially increased dispossession and white encroachment on Humboldt's indigenous tribes.

The Wiyot, Mattole, Sinkyone, Nongatl, Whilkut, Chilula, Hupa, Chimariko, Wailaki, Lassic, Yurok, and Karuk utilized agricultural practices and private property regimes that in many ways rivaled and surpassed the Europeans in terms of ecological sustainability and conservation (Anderson 2005, Sprawl 1961). For millennia, the Indigenous Tribes of Humboldt County and Redwood Creek watershed cultivated and utilized native plants, to the extent that the plants continuous existence relied on these sustained interactions (Anderson 2005, Rhode 2008). Controlled burning, later suppressed by the Europeans, provided open areas in the Redwood Creek watershed for game animals and the renewal of important plant crops (Anderson 2005). These burnings also created park like landscapes the Europeans believed were natural and which made their settlement easier.

In a few years white population increased substantially and legislation set in motion the subjugation of Indigenous people and the theft of their lands. In 1851, California passed legislation authorizing payments to Voluntary (vigilante) companies for suppressing and murdering Indians (Rhode 2008). Humboldt County immediately formed vigilante committees with the titles of; Eel River Minute Men, Hydesville Dragoons, Eel River Rangers and others. The United States Government reimbursed

California's vigilante committees over \$1,000,000 for expenditures through 1859 (Norton and Hunnicutt 1998). From August 1860 until May 1864 Humboldt County's courts ordered 115 Indigenous people into slavery under an act euphemistically titled 'Act for the Government and Protection of Indians.' Ratified April 22, 1850 it sanctioned legalized slavery under the guise of indentured servitude to 'hasten Americanization' (Norton 1997, 44, 61-63). Orphaned Indigenous children were given to white families as servants for Americanization until they reached their court ordered release age, which could be as old as 27. In most cases the parents of the orphaned children were murdered by whites (Turner 1958, *War of the Rebellion* 1897).

By 1865 Indigenous populations and land were decimated. The Whilcut Tribe of the Upper Redwood Creek watershed was dispossessed and assimilated into the Hupa, Karuk and Yurok Tribes. Large ranches and timber companies soon emerged on the Whilcut Tribes' territory (Bledsoe 1881, Bledsoe 1885, Rhode 2008). Soon after, the perceived inexhaustible land grab of Western United States and the resources they contained ended. European settlement and land use regimens now controlled the stewardship of the Redwood Creek watershed, which is discussed in the next section.

### Governmental Policy of Disposition, Land Use and Settlement Patterns

This section explores historic land use patterns and resource extraction of the Redwood Creek basin until the creation of the Redwoods National Park and Six Rivers National Forests 1860s-1980s. With the parks inception the governmental role and

policies changed from one of dispossession and modest intervention of white settlers to bureaucratic regulation. These altered roles and policies dictated how the land owners of the Upper Redwood Creek watershed utilized their properties. A brief overview of the geological and natural resources of the Redwood Creek watershed helps define the study area.

From the 1860s through 1890s, the ownership regime in the Redwood Creek watershed changed from completely Federal to private landholders through several important governmental acts including: the Preemption Act of 1841, the Swamp and Overflowed Lands Act of 1855, the Homestead Act of 1862 and the Timber and Stone Act of 1878 (McMurtry 1972). These acts enabled private parties to purchase or take control over immense tracts of publicly owned Federal land in Humboldt County and the Redwood Creek watershed.

Because these acts were made to develop and utilize natural resources rather than protect the environment, their consequences resound in current ownership regimes and land stewardship practices. The Preemption and Homestead Acts allowed any naturalized citizen, male or widowed female over the age of twenty-one the ability to qualify for 160 acres. The Swamp and Overflowed Lands Act made available bottom-land considered good only for drainage. The Timber and Stone Act made available timber production and mineral extraction land cheaply to speculators (McMurtry 1972). These Acts laid the foundation and made the land extremely vulnerable to environmental abuses.

Existing loopholes allowed buyers to circumvent these Acts, enabling timber companies and ranchers in the Redwood Creek watershed to acquire more land than

allowed by Federal law. Some people acquired land then sold it to the highest bidder. Families members would apply individually, then put their holdings together. Others simply bribed officials. This historical era of graft and corruption is known as ‘The Great American Barbeque’ (Summers 1993).

Prior to 1948: 2.4% of the upper, 7.2% of the middle and 3.4% of the lower Redwood Creek Watershed had been logged (Best 1984). Beginning in 1949 harvesting and logging intensity increased dramatically. Over the course of thirty years, the upper portion of the Redwood Creek went from 2.4% to 57.2% logged with the majority of the change occurring from 1949-1964 (Best 1984). To date, over 90% of the Upper Redwood Creek watershed has been logged. The majority of this timber-bearing land is held by a few private groups, including the Russ Ranch Estate and the Green Diamond Resource Company, by far the largest with over twelve square miles of holdings.

Until the 1950s, land ownership and use consisted of logging companies extracting timber, and a few large ranches with an intermixing of cattle and sheep livestock. The global market demand for timber fluctuated from 1880 until World War I. Following the war, timber production slowly increased through the 1920s. The timber economy slowed down with the Great Depression, then increased exponentially through World War II and the booming post years.

Timber harvesting slowed to a stop in the lower watershed with the creation and expansion of Redwoods National Park in 1968 and 1978 (Best 1984, Pritchard 1998). In the Upper Redwood Creek watershed, re-logging accounted for the majority of timber harvested after which subdivision occurred. Subdividing large parcels caused

fragmentation and added to existing environmental concerns. The logging and subdivision of the upper portion of the watershed created concerns by the newly formed parks administrators whom influenced governmental control policies. These policies run concurrently with traditional timber harvesting legislation and will be discussed in the next section.

Unregulated logging practices, road construction and homesteading created sedimentation which filled in the pools of Redwood Creek. In the 1980's the 3000 acre DD Ranch in the Upper Redwood Creek watershed was purchased and divided into 40 acre parcels, half the legal minimum and classifying them 'shaded.' These unregulated practices helped eliminate salmon habitat and eroded the creek's banks, endangering the recently formed parks' old growth redwoods trees. This subdivision, along with the settlement of the homesteaders compounded sedimentation and road construction issues with fire protection and water scarcity concerns. With these concerns as well as the known exploited history of the watershed, corresponding governmental legislation was enacted which aimed to alleviate these pressures.

#### Altering Governmental Roles and Settlement Patterns; Expanding Regulation Federally Mandated Policies and the General Plan

The shift from public lands disposition to reservation and management occurred only after the majority of public lands was in private hands. Management regimes

evolved concerning both public reservations and private property. In 1945, California became the first state to regulate the timber industry with the Forest Practices Act (Best 1984). This act acutely demonstrated to landowners the state's power to regulate how they use and manage their private property. The creation of Redwood National Park in 1968 and Humboldt County General Codes in 1973 further regulated land use practices. Road building and tractor logging practices were the greatest contributors of sedimentation and erosion (Short 2010, *Redwood National and State Parks* 1999). The unregulated, environmental practices of the landowners in the Upper Redwood Creek watershed were scrutinized over the loss of fish habitat and old growth trees in these parks (Herb Russ Draft Assessment 1998, *Redwood National and State Parks* 1999). Exurban migration, fire protection, water use and subdivision compounded these concerns.

Until the subdivision of rural ranch properties, regulatory emphasis attempted to keep the timber industry's sedimentation output in equilibrium with the amount discharged downstream. The National Park Service conducted an analysis of the upper portion of the Redwood Creek watershed. Concerns about old growth redwood trees along the creek were raised. In 1978, Public Law 95-250 directed Redwood National Park administrators to develop a program addressing the rehabilitation of the upper portion of the watershed. This law expanded Redwood Park by 38,000 acres and initiated cooperative management and restoration with private land owners. The estate of Herb Russ became the first cooperative sedimentation control project between the community and government in the Redwood Creek watershed. As of 1992, the Park Service detailed

over 1,000 miles of logging roads, four times that of park lands, of which only half were maintained (Herb Russ Draft Assessment 1998). In 1995, under a memorandum of understanding (MOU), Herb Russ worked cooperatively with the parks restoring 6700 acres of logged timber land which eliminated 130,000 yards sediment (Russ Assessment 1998, 7).

While the National Parks systems regulatory controls were exercised on the property owner's entitlements in the Upper Redwood Creek watershed, in 1973 the creation of Humboldt County's General Plan affected their lives in a more intrusive, governmental manner. California's timber and housing industries boomed following the Second World War. Mass produced housing and a pro-development perception of property led to abuse and environmental problems such as smog, unregulated resource extraction and unmitigated growth. County General Codes attempted to address developmental concerns and continue to allow for environmentally sound, sustainable growth (Rhea 1973).

Federal and state courts place county general plans as the top regulating power over private property utilization, with zoning and land use laws as enforcement tools (Longtin 1999). Zoning is mentioned in land law texts as a police 'power' and used as a governmental control device regulating private property. Zoning gives governmental agencies power to enforce command and control policies, and when necessary the ability to use force in safeguarding land use and community welfare.

In the 1970s and 80s, large ranches in the Upper Redwood Creek watershed re-logged their properties and subdivided them into eighty acre ranchettes – the smallest

allowable parcel size. Increased governmental regulation of timber harvesting, land values and exurban migration in conjunction with the marijuana industry created property fragmentation. The 3000 acre Double D property was subdivided into forty-acre parcels in the 1980s and is an example of this fragmentation and governmental failure to enforce the zoning laws. Bureaucratic response was to make every undersized parcel sold labeled 'shaded.' This labeling made it impossible to apply for any kind of permits, insurance or financing. The subdivision, exurban migration and insufficient governmental regulation had acute social and environmental consequences for the management of the Upper Redwood Creeks ecosystem. Administrators now initiated governmental policies to mitigate the environmental and social concerns of multiple property owners instead of one. In addition, with their properties 'shaded' and a majority involved in the marijuana industry, many owners became very apprehensive over governmental agencies.

The fragmentation and subdivision of large ranches in the Upper Redwood Creek watershed combined with exurban migration, increased water usage, wildfire protection and sedimentation of riparian areas created several environmental concerns that Humboldt County attempted to mitigate. Homesteading and the roads created for them exacerbated the already fragile Redwood Creek's sedimentation load, upsetting the equilibrium and making the amount created upstream surpassing the amount being discharged downstream. These homesteads, in association with marijuana grows, utilize much more water than non-fragmented landscapes and have put extra stresses on Redwood Creeks' already low, drought stricken water table. In addition, this fragmentation of the watershed and increasing human population, from several in the

1980s to over 75 in 2015, have put enormous burdens on already taxed and underfunded wildfire protection entities.

Social concerns correspondingly materialized with the fragmentation and homesteading of the Redwood Creek watershed. Large communal areas, such as the common road, need upkeep and maintenance and with an enlarged population disrepair increased exponentially with no landowners attempting to mitigate. The acuteness of the drought and marijuana farms exacerbated shared water sources, creating conflicts between neighbors. In addition landowners did not know their neighbors, and the lack of channels to establish a dialog greatly hinder organizing community action addressing these concerns.

## CHAPTER FOUR: OUTCOMES OF INTERVIEWS AND COMMUNITY DIALOG

Can communities come together to find answers regarding the communal and environmental concerns previously addressed? Which mediation process would be successful in accomplishing these goals and reduce conflict levels? Are there non-confrontational land management regimes that may be followed to address common property maintenance and still allow for a sense of autonomy the landowners desire? This chapter addresses these topics and is divided into two parts. The first section explores these questions and discusses the outcomes of the community interviews and dialog. The second section explores what has occurred since and the progress made following the community meeting.

### Section One

This project was conceived a year prior to the interviews when the landowner of a residential quarry threatened the livelihoods and common property of residents in the Upper Redwood Creek watershed. Local landowner 'Bob' owns a surface mining quarry that was used in the construction of the areas logging roads. After twenty years of non-use, he logged the property and applied for a zoning change. This zoning change would allow for a fifteen fold increase of mine's production, for a period of fifteen years. The application stated the property owner was not liable for road or health issues (due to dust and possible asbestos contamination) and that the residents had ten days to respond with a

formal complaint (Appendix D). His complete indifference of the residents triggered a community response.

As stated earlier, I immediately contacted Humboldt County's Senior Planner and explained to her my concerns over the wording and proposal of the quarry's letter. She informed me that Bob stated no one lived on the road past his quarry and that the area's common road was three miles east of its actual location. He wanted approval to put up gates before and after the quarry. These gates would lock out the property owners, with litigation the only recourse. I share property lines as well as the common road with Bob. The Senior Planner was surprised to learn of his deception regarding the main road's location. My deed verified there was a right-of-way of passage for all the residents. His deception made her visibly aggravated. She photocopied my deed for evidence of the resident's communal right-of-way and then gave me advice regarding how to format a formal complaint- without feeling, short and to the point. This experience and her advice initiated this project's inception and creation.

#### Willingness to Address Communal and Environmental Concerns

The community reaction to the quarry's expansion was their first unifying experience of the Upper Redwood Creek watershed. The response demonstrated willingness to address communal concerns. With the Senior Planners instructions, a letter was posted which explained the quarry expansion proposal and listed my name and contact information (Appendix C). The letter told concerned landowners to contact Humboldt County's Senior Planner's office or me, preferably in writing, so as to be displayed at the hearings. The response was overwhelming. Residents stated they read

the quarry expansion permit, but didn't know what or how to respond. Many times their voices revealed anger. One resident who knew the quarry owner stated angrily, "He [Bob] has an inflated sense of himself!"

Due to the overwhelming response the HC Senior Planner canceled the quarry agenda section of the Planning Commission meeting to gather information for further review. The Senior Planner used me as a sounding board. She kept in frequent contact with me, updating me and the residents every few months. As a result of the community's outpouring of concern, a scaled back version of the permit was considered. In the new version, the residents would have road access through the quarry land and continued testing of the soil for contamination would occur. In addition, no blasting would be permitted.

The significance of this community action was twofold. The quarry owner was held responsible for his actions. It also demonstrated the willingness of the landowners in the Upper Redwood Creek watershed to unite in addressing communal and environmental concerns. With this revelation, an interview process was conceived that allowed the community a pro-active platform to voice their concerns on common property and environmental issues. An appropriate community mediation method and non-confrontational topics were revealed through these interviews.

### Interview Process

The interview process began with my contacting key property owners who played central roles in maintaining the watershed's roads. They were asked to participate in an interview to determine community willingness for a cooperative way of addressing

communal concerns, such as road maintenance. The first revelation from the interviews was that what made this project tractable was my social capital. I have resided in the watershed for twenty years and am one of the longest term residents in the upper watershed. People were willing to talk to me because I was known as the ‘old man on the hill.’ This trust was essential in lessening apprehension, most notably with marijuana farmers which helped initiate a snowball process of contacting interviewees. The interviews confirmed that the landowners wanted a pro-active approach for maintaining common property. The vast majority of respondents revealed that they only knew neighbors in close proximity to them, and even those not very well. This disclosure clarified an overriding desire for a community dialog.

After the interview the first course of action was to determine the tractability of the conflicts in the watershed for mediation. Open-ended interviews and informal conversations that were semi-structured and qualitative were employed, in part due to resident’s apprehension and desire to remain anonymous (Appendix E). Through interviews with watershed residents the researcher determined that a non-governmental, non-threatening, non-controversial mediation technique might be an effective way for community members to manage stresses regarding watershed concerns. The responses to the researchers’ inquiries about such an approach were overwhelmingly positive, although one interviewee was highly skeptical and doubted that any landowners would be willing to attend a mediation process. With these initial queries, interview questions were fashioned to illuminate communal concerns over common property management. The Institutional Review Board approved my questions- this initiated the interview

process, which was fluid and altered as necessary. Having fully disclosed my intentions to mediate this conflict with the participants, I made every attempt to ensure the interview process' equality and transparency. The interviewed participants consented orally and were made aware of the benefits and minor risks involved in this process. Impromptu conversations during road work, or when a chance meeting occurred, supplemented the semi-structured interviews.

The respondents were visibly more relaxed for impromptu conversations and the information given felt more truthful and less coerced than during the semi-structured interviews. Over twenty interviews and impromptu conversations were conducted. Through these interactions I identified three non-controversial topics the residents wanted to address. The first of these was the installation of bulletin boards for the voicing of community concerns and inquiries. Another reoccurring discussion was the need for a phone tree with residents' numbers for work and emergencies, such as fires or first responders. Lastly, respondents said it was important to have a road association that addresses common property maintenance as well as lessening the sedimentation load inundating Redwood Creek. These interviews and conversations made it clear that landowners had common needs and shared a willingness to participate in a community dialog.

### Community Dialog

The non-confrontational, non-governmental characteristic of a community dialog made this process more appropriate than others. Round table discussions, charrettes, negotiations, world café's and visioning, contained aspects which distract from the

simplicity and non-threatening atmosphere of a community dialog. I felt a world café, charrette or round table discussion format overly structured, with participants' physical involvement in writing responses, posting sticky notes, and rotating through planned stations a requirement. In addition, I felt a visioning process required a large community participation and primarily works well with established, cohesive communities and watersheds. Negotiations are used with confrontational participants and when no other mitigation techniques succeeded.

One month before the July 25<sup>th</sup>, 2010 meeting, flyers were placed at six road entrances notifying landowners of the meeting time and location (Appendix A). The letter explained I was the key investigator and gave the meeting's agenda along with discussion topics. I also gave contact information for people not able to attend or who might have additional questions. To maximize participation key individuals were contacted by e-mail and through phone calls and were asked to contact anyone they knew who was out of the area or hadn't heard of the meeting. The community dialog would discuss common issues and land management concerns. Significantly, the dialog would be an ice breaking session where neighbors could meet each other. Simple guidelines were established to maintain respect: there would be no finger pointing or controversial topics discussed.

The meeting's optimal location needed to be close to the watershed and non-threatening. Gonzales Mexican Restaurant in Willow Creek was decided upon for its relative close proximity to the watershed, banquet room, catering facility and the agreeable, accommodating responsiveness of owner Pedro Gonzales. Participants had

food provided for them. The restaurant's banquet room was reserved from 11:00 to 3:00 in the afternoon, and the meeting held from 12:00-2:00 with an hour before and after for set up and take down (Appendix B). In the foyer, a table was outfitted to accommodate name tags, the meeting agenda, and a sheet with the three discussion topics and place to share contact information.

The participants arrived at 12:00 and proceeded to sign in. The first half hour was set aside for food and introductions. At 12:30, I welcomed and thanked participants for attending the first Upper Redwood Creek community dialog. I explained the reason for the meeting, to get to know your neighbor and discuss the three non-controversial topics addressed in the community letter: a phone tree for work and emergencies, fire council, and road maintenance.

I facilitated the meeting. Environment and Community M.A. in Social Science program graduate student Breanne Sorrels took meeting minutes. Twelve watershed residents representing seventy land parcels participated in the dialog. The significance of the community meetings aspect of 'getting to know your neighbor' was validated as only two participants disclosed having been acquainted. The atmosphere was relaxed and the participants freely socialized before and after the meeting. Initially the conversations centered on resident's location in the watershed and of mutual acquaintances. Fifteen minutes into the meeting the dialogs shifted to ensuing plans of action for the watershed.

Only resident from my area attended the meeting, which initially was disheartening and upon further reflection I wanted to investigate this lack of interest. When I inquired landowners from my areas as to their absence at the meeting, a few

accounts were given. One was that they wanted to participate with the community meeting and what was discussed, but their schedules hindered them. Another resident not in attendance stated they were not concerned about physically being at the meeting because they knew I would give them the details. In addition, many in my area who said they would attend, did not.

I have reflections as to the absence of watershed residents at the community meeting. My pro-active stances addressing the quarry's expansion, and requests for interviews, conversations and attendance of the meeting, may have given residents an urgency over the watershed's concerns they felt not warranted. And even though interested and involved, I believe this oversaturation may have helped them tune out. Other residents may not be as interested in the watershed's concerns, even though contradicting themselves and stating otherwise.

The meeting proved a good representation of the watershed's residents in that they all were from different zones of the Upper Redwood Creek watershed. Almost half in attendance were female and two were from the Yurok Tribe. With this distribution of residents throughout the watershed, the results of the community meeting could be dispersed evenhandedly. The results of the community dialog are discussed below.

Community Bulletin Board. Whether they attended the meeting or could not, all watershed residents I interacted with approved of the establishment of permanent, community bulletin boards. These bulletin boards would help increase community cohesion and networking several ways. They would also provide a physical space for communication including: equipment to rent/share/barter, work parties, lost animals and

other communal topics. The participants felt the boards would help with community building by keeping resources local. Three potential locations were identified. The actions of the community members demonstrated a willingness to follow through with this topic.

Phone Tree. A phone tree was the next discussion topic. Before there was a phone tree, neighbors had few ways to get in touch with each other. In the past, the researcher has had notes taped to his gate with inquiries, and one time with a misplaced warning stating, 'Naber cops will be here soon.' They never knew they had the wrong gate. The phone tree would help with efficiency during an emergency, facilitating landowners to organize so multiple gates would systematically be opened, instead of many landowners haphazardly converging on one gate while leaving others locked. This would aid in notifying landowners in emergencies to open closed gates promptly for ambulances and firefighting crews. Similar to bulletin boards, the phone tree would give landowners a local resource for work as well as an outlet where a direct line of communication is warranted.

Community Fire Council. Creating a community fire council had overwhelming support. In 2010 a fire on nearby Grouse Mountain brought this issue to the forefront when the logging corporation, Green Diamond, lost control of a burning slash pile. Every year wild-fires occur all around our area and participants noted that one was overdue in our watershed. Many residents wanted to help but felt combating fires was beyond their individual control. To help with this trepidation other residents stated they were willing to fight fires near their own properties as well as other areas of the

watershed. Another resident expressed keeping the common roads and pull outs weed free and clear of obstacles to give better access for fire and emergency crews. Also discussed was mapping water supplies, such as tanks and ponds, to aid helicopter and water tender trucks. The participants wanted to discuss the responses before as well as after emergencies to further aid and streamline the process. Fire councils have varying levels organization and focus on fuel reduction, while also engaging in community planning and outreach (Everett and Fuller 2012). A local community fire council would address the concerns of fuel reduction and water mapping. In addition a community fire council would initiate a dialog associated to the social anxiety that was made apparent in residents' anxious statements that wildfires were 'something out of their control.'

Road Maintenance. The Upper Redwood Creek has extensive common as well as private roads. These roads' upkeep depends on the landowners, who are the only 'Caltrans' (California's road maintenance branch) in the rural area of the watershed, and who have differing maintenance practices. The main communal road is over seven miles long; when arterials, private and common, are added, there are over one hundred miles of roads in the watershed. In the winter months, rain, leaves and branches get caught in culverts, causing them to backup. Water bars need continual maintenance as they get run over and flattened, which creates ruts. If ignored and not fixed quickly, these problems may wash out the road making properties inaccessible. Many residents give little thought to the larger communal road's upkeep as their maintenance concerns typically surrounded the accessibility to their individual properties. An informal road association could address the larger communal roads as well as maintenance of smaller arterials in a timely manner

increasing accessibility for all the residents and helping to mitigate sedimentation concerns.

Meeting participants voiced four points addressing road maintenance and erosion control: 1) landowners can “adopt” the area of road near their properties and work with the nearest neighbors for its maintenance; 2) landowners may group-rent equipment and work together on the whole road for the duration of the rental period; 3) organizing and networking property owners who have equipment and experience, so that when they are working residents are informed and can help; 4) addressing and taking responsibility for road and erosion problems as they occur, fixing washed out water bars and pulling debris which is blocking culverts. The implementation of the phone tree and bulletin boards has allowed the fruition of points two, three and four.

Community-based enforcement of water conservation. Though this topic did not come up in the pre-meeting interviews, several participants raised concerns over appropriate creek use and long-term effects of pulling out water during the dry season. Two of the landowners are Yurok tribal members who are acutely aware of the ongoing drought and the concern over water. They and the researcher have witnessed illegal water pumping from Redwood Creek for marijuana grows as well as stream diversions. Similar actions reduced flows in other areas of Humboldt County and helped create the 2002 fish kill in the Klamath and Trinity Rivers which threatened tribes’ essential food supply. Four solutions for these concerns were identified: 1) encourage the construction of reservoirs (ponds, lakes), and development of surface springs; 2) keep floats on tanks

to prevent the accidental discharge of water; 3) repair leaks on tanks and water lines; 4) stay conscious of your neighbors downstream.

These points are important for community building and neighborly awareness, so why did they not arise during the interview process? One reason may be that many of the interviews occurred during the wet winter months, when water and drought concerns are not on a landowner's priority list. Another possibility is that water may not be thought of as a communal concern, but particular to each landowner. The most probable cause is that the lucrateness and illicitness of the marijuana industry and the large quantities of water the plants utilize make these growers unwilling to discuss this topic.

At the meeting's conclusion, participants voiced the desire to keep the momentum moving forward and to arrange another meeting. All stated they would talk to additional landowners not present. This would develop the initial phone tree, inform those not attending, and aid in scheduling future meetings. Several participants wanted a BBQ to continue the community dialog and expand on the meetings topics. The next section describes the progress that has been made on implementing the ideas discussed during the community dialog.

## Section Two: Communal Pro-Active Results

This section details the pro-active actions of the residents and progress following the community meeting. At the meeting's conclusion there was an atmosphere of greater cohesion. Newly introduced neighbors branched off and were having discussions

amongst themselves. The conversations centered on mutual acquaintances, and expanding contact information. The enthusiasm of the participants, in mannerism and speech, demonstrated a shared desire to improve the watershed and create/strengthen the community. Though around twenty percent of the landowners participated in this process, they appear determined to improve the watershed. In addition, this gave me the realization that the goal of this research was not one of completion, but establishing a foundation where constructive social and environmental growth may occur. In this respect it has been a success.

#### Bulletin Boards

Participants at the meeting listed four ideal locations for the bulletin boards. These were based on traffic and on the inclusion of as many of the residents as possible. Trial and error delayed the establishment of permanent boards. Temporary boards were placed at two locations to engage the community concerning the quarry's proposed expansion. The first bulletin board was at mile marker 22.33 of Highway 299. The second located 3 miles past this board at the quarry's edge. They proved excellent targets. The first day a vehicle drove over them. On the second and third days they were shot down. These actions may have been due to the newness of the boards, mischief, or more probable, a neighbor was still passionate over hindering the quarry's permitting process. The destroyed signs were removed and the posting moved and secured to several prominent trees. They survived the scrutiny. Two other locations have permanent boards and are located on the primary access road one and four miles south of the state highway. The second of these needed an absentee landowner's approval, which

was given after a participant of the meeting who knew the owner gave him a call. Various landowners enthusiastically supplied building materials and labor for the boards. This enthusiasm is a reoccurring community theme.

These boards are an asset and have fulfilled the wishes discussed at the community dialog. Neighbors are now aware and take a pro-active stance when concerns are posted on them. Redwood Valley's Greenpoint School's recruitment poster has been a fixture for over two years. Lost animals are common, and recently a neighbor listed a missing horse. When tires were dumped into Windy Creek, a tributary of Redwood Creek, a sign went up stating 'Do Not Pollute Our Watershed.' An anonymous neighbor cleaned up all seventeen tires, demonstrating the bulletin boards' pro-active influence. The boards are used for posting local items for sale, an unintended use which has further promoted community cohesion.



Figure 2: One of the bulletin boards



Figure 3: A second bulletin board

### Phone Tree

A community phone tree for work, emergencies and other discussions was the second topic. With a phone tree the community may be connected socially for work and where other resources, such as tractor work, may be sourced locally. Many service industries charge a two to three hour minimum driving charge coming to and from the area. Sourcing locally would save residents significant charges in these travel fees. A community phone tree would also benefit the watershed by allowing quick communication between each other for fire crews, ambulances or first responder's access in cases where a rapid response is critical. In addition, the opportunity for bartering equipment and labor services arise when neighbors are able to connect with each other through a phone tree.

The phone tree seemed very tractable during the community meeting, where the participants listed their names, numbers and the resources they offered without hesitation.

Only when creating and compiling the list did concerns arise. Many neighbors were apprehensive and did not want their names and their resources listed. Some did not want their name in a distributed pamphlet given, “to any and all on the watershed.” A neighbor who dug my septic worried about getting in trouble for not being licensed for doing this work. Others worried about law enforcement or outside groups obtaining a list of the watershed residents and distrusted how or why they would use it. They agreed the phone tree was a good idea but a modification had to be made. To make the idea more tractable, the phone tree was changed from written and formal to unwritten and informal. Neighbors now have each other’s numbers, but nothing is written down. Since its inception, I have used the phone tree and traded my labor building a neighbor’s house in trade for heavy equipment use in digging the above stated septic system. On other occasions neighbors called through the phone tree for assistance assembling barn raising and pond construction parties.

Reflecting on the residents’ world views helped me to recognize their apprehension about a written phone tree. One reason I believe they feared for their security is owing to their livelihoods as many are involved in the marijuana industry. Still other residents who had lived in the watershed a long time stated they didn’t feel the need to start giving out information. To address this intractability, I spoke with several neighbors of the non-confrontational services they offered that were being outsourced by our watershed’s residents, e.g. water delivery, portable milling, and heavy equipment work. Realizing the business they were losing alleviated some of their concerns and many added their services to the phone tree. The phone tree has been a valuable

mitigation technique addressing social and environmental concerns and helpful in building community cohesion. Every day residents are in communication. A neighbor 'Dave' called and inquired about organizing spring cleaning and maintenance of the rickety bridge, while another resident had heard that I had a water well drilled and phoned to ask who I would recommend. Its value has been demonstrated in several instances, informing neighbors to allow access for responding fire, ambulance and emergency crews. In this way the informal phone tree gave the residents the autonomy they desired. An informal phone tree has limitations in that more than one call may have to be made in locating a number or resource. The tractability as well as intractability of implementing the informal phone tree is discussed further in chapter five.

#### Fire Council

The creation of a fire safe council is still in its infancy. Wild fires are an acute threat to the Upper Redwood Creek watershed and there have been three in close proximity since my arrival in 1994. Even with these three close calls and anxieties frequently voiced, little action has been taken. At the community dialog and in subsequent conversations, residents stated proper pull outs for water tenders trucks and landing spots for helicopters should be located. Water mapping was also mentioned. Water mapping through GIS (Geographic Information Systems) would display ponds and sources of water for utilization for emergencies. Though many residents publicly stated their approval for using their ponds and water sources for emergencies, many deflected the issue in private. One could speculate they wanted their water sources solely for personal protection, its value too great to make collective.

Implementing a community fire council requires enormous personal and community commitment and the organization of this is beyond the scope of this researcher and project. The majority of the residents are new to the watershed and unfamiliar with concepts of defensible space and fire protection. Other residents are working to make their properties fire safe by cleaning up ladder fuel and having a one hundred foot clearance around their dwellings, but bordering properties are often overgrown. Ladder fuel is any combustible material, branches, shrubbery and dead trees that act as a conduit allowing fire to climb or 'ladder' up to the tree crowns. When this occurs the fire becomes catastrophic, killing the trees instead of smoldering around the bases and continuing on. Currently the social capital and resources needed for the creation of a fire council do not exist in the Upper Redwood Creek watershed. When the watershed's population and property turnover rates begin to slow and stabilize, a fire council warrants readdressing.

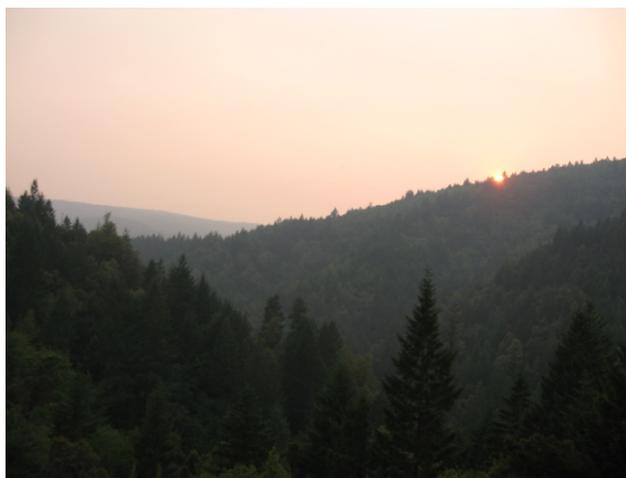


Figure 4: 2010 Grouse Mountain Fire smoke

### Community-Based Enforcement of Water Conservation

Community-based enforcement of water conservation has proven to be an intractable subject. The acuteness of the ongoing drought and pervasiveness of the marijuana culture created strong aversion to discussing water utilization. On several occasions this author witnessed neighbors illegally pulling water directly from Redwood Creek during the driest times. For the first time in September 2013, a neighbor's springs dried up and algae blooms formed in their water sources. One neighbor observed that as soon as the property above his sold, greenhouses were erected and his water dried up. .

Water leaks and tank floats proved a topic that didn't get much attention. Though there is flagrant disregard for water conservation, for example siphoning directly from the creek, most residents are acutely aware of water's value and have taken steps to prevent water loss. A majority of these tanks have floats that prevent water loss by stopping pumping from wells and water sources when full, and those that don't have floats have overflow tanks to catch any escaping water.

The author discovered the building of ponds to be one tractable topic pertaining to creek and water usage. Since the acuteness of the water crises in 2010 several neighbors have built ponds. Most of these have been built with factory constructed liners, which help to retain the water. A pond's liner is extremely heavy and during construction neighbor's unite to help spread it out and maneuver it. Topics are discussed during these gatherings; choosing the pond's placement, where it fills from, water evaporation and how to aerate for freshness. Though some topics seemed amenable, creek and water usage proved an almost intractable subject due to neighbors' apprehension of each other,

an illicit economy based on secrecy, and the distrust of governmental entities. This is reflected upon further in chapter five.

#### Informal Road Association

The fifth topic discussed and the most pertinent one for the residents is organizing a road crew or informal road association. Properly maintained roads and unrestricted access alleviates many governmental and watershed concerns. Proper road maintenance also helps mitigate the sedimentation of Redwood Creek, which is a main environmental concern for federal and county entities. Road usage creates wear and maintenance is essential for trouble-free access to homesteads and for emergencies. For almost three decades a handful of residents have maintained a majority of the communal road. A community road association would address sedimentation and maintenance concerns, build cohesion and divide this communal burden amongst many rather than few.

Individuals spend large amounts of personal time and effort maintaining the common road; this reveals a pride in the Upper Redwood Creek watershed. When tires were dumped and notices put on the bulletin boards, a resident who remained anonymous disposed of them. During maintenance of the rickety bridge, buckets are used to collect the rocks and dirt, thus preventing this material from entering the waterway and helping to address the sedimentation concerns of Redwood Creek. Another example of personal effort spent on common maintenance is a landowner named 'Jan'. She and her son 'Scott' are frequently seen parked and walking the road, picking up garbage and removing debris.

Ranchers 'John' and 'Susan' Smith have helped maintain the common road for almost thirty years. John operates a grader and backhoe on which he carries a tin pail to collect donations. During our interview, John stated that he didn't know if a road association would work. He felt that people wouldn't want to be forced to pay, as is customary for a homeowners association. He thought that it would be nice for someone in our area to run a 'slush fund' containing a couple of hundred dollars to defer his equipment's expenses when the tin pail's collection proves insufficient. He stated this fund would help him and others maintain the road and would eliminate the need for the government finding a reason to, as he states, 'nose around' and find a way to claim the road under eminent domain over sedimentation concerns. If the common road were placed under eminent domain, the watershed would lose its communal roads' autonomy to the local and state governments. John and Susan's input for this project was essential for determining the tractability of a road association for our area. These examples demonstrate a few of the pro-active measures residents have taken in the maintenance of communal roads as well as the willingness to develop a road association in a non-confrontational manner. Developing a road association would also alleviate the pressures on the few who are burdened with the majority of the road's maintenance.



Figure 5: One view of the ranch road



Figure 6: Another view of the ranch road

The phone tree has helped in addressing routine maintenance when key people such as John were absent. This research and phone tree has united several key people on the hill who have come together on two occasions to work on the roads. The first

occurred Thanksgiving November 2010. 'Rick', my neighbor, called and informed me that a landslide occurred just before the quarry, making the road impassable. I called John Smith and he had it cleared by the time I arrived to help. Past road closures sometimes took one to three days to clear, depending on whether landowners with the correct equipment were informed. The second instance was in January 2011, when a resident called and informed me that he and several landowners were organizing to fill potholes and fix water bars in common areas which had washed out. The organization and fruition of communal road work that day were the direct result of the phone tree and the efforts of this project.

This networking is exemplified through my neighbor 'David' and his son, who I would see brushing the common road before I knew who they were. Brushing is physically rigorous and entails yearly removal and disposal of encroaching tree limbs. Now a few calls alert several families to the need or availability of this work, which is accomplished in considerably less time with the added people, resources and motivation. The pro-active task of maintaining common property illustrates a communal sense of pride strengthening the community's bond and has led to the largest community project to date.

In February 2013, the newly formed road association undertook the monumental project of refurbishing the community's 'rickety bridge'. This is the largest common bridge in the Upper Redwood Creek watershed. As the wood used for the bridge's decking and running boards deteriorate it needs replacement. Running boards make use of full length trees, which are cut and placed along the bridge's side edges to ensure

vehicles don't slide off. The gathering of materials and large equipment capable of moving entire trees was needed, as well as experienced tree fallers and equipment operators. The need for the road to be closed for several hours during this process presented an additional logistical challenge. For these reasons the bridge's maintenance has always been an arduous undertaking.

The bridge is carbon neutral excluding the stainless steel lag bolts securing the top runners to the decking platform. The bridge's reconstruction took a large community effort in order to succeed. All the lumber utilized grew and was harvested from the watershed. Fifty-six, 6x6x12s were used to replace the platform. The 2x6x23 top runners were milled by local landowner 'Sam Kinneson'. 'Ann' and 'Dave' Schmidt made and placed notices with contact information on the bulletin boards explaining the bridge's several hours' closure. 'Alex' Peters felled appropriate trees for the sideboards.



Figure 7: Bridge replacement before



Figure 8: And after

The bridge work was an enormous community success. The turnout was so great that many neighbors were waiting in line for a chance to work. John Smith brought his loader which made the work move extremely fast and fluidly. Residents would pull up three or four rotten deck boards and place them on his loader's tines. He then would place those to the side and bring back three or four new replacements. In the meantime people cleaned and prepared for the new boards, which enabled a smooth transition. Other neighbors supplied a generator, hammer drill, and lag bolts for securing the top running boards. The bulletin boards and phone trees communication effectiveness was demonstrated in that only one landowner arrived unaware of the bridge's closure, and who hastily offered to help. The repair and maintenance made the bridge better than it has been for over twenty years. With the rebuild completed only routine maintenance, such as cleaning off rocks and debris is required. The rickety bridge rebuild was the largest community-based gathering which utilized a non-governmental approach and addressed common property maintenance. Chapter five reflects further on the pro-active efforts of the community meetings dialog.

## CHAPTER FIVE: PROGRESS MADE ON TRACTABLE ISSUES

As exurban migration continues in earnest throughout WUI areas in the western United States, so do the social and environmental concerns associated with it. The previous chapters chronicled the Upper Redwood Creek watershed's history as well as social and environmental concerns. Impromptu and semi-structured interviews and a community dialog identified issues of common concern to the watershed's residents, as well as strategies for addressing them. Some of the strategies were subsequently implemented, as discussed in the proceeding chapter. This research identified the value of non-confrontational, non-governmental, collaborative ways addressing social and environmental concerns related to exurban migration.

This project posed several key questions about community-based approaches for addressing these concerns, including: are community-based approaches more effective than traditional command and control models? What conflicts were identified and how did their characteristics affect overall tractability? What lessons were learned through this research? Do the strategies implemented as part of this project have broader applications for other communities facing similar conflicts and tractability issues? Are the research methods and community-based strategies utilized in this project something this investigator would recommend?

This chapter explores these questions and discusses the broader outcomes of this research. The chapter is divided into two sections. The first section analyzes the

fundamental reasons for the failure of top down policy and regulation in the watershed and clarifies why community-based approaches are favored by the residents of the Upper Redwood Creek watershed. The second section discusses the tractability of the community-based approaches employed; why was one more effective than another and what was the basis for this success? An encompassing assessment of these techniques is explored in both sections, as well as how the modification of these processes may make them more inclusive for the residents and researcher.

#### Section One: Command and Control Policies or Community- Collaboration?

The Upper Redwood Creek watershed is immersed in a climate of micro-politics. Illegal subdivision creating ‘shaded’ parcels, exurban migration and unlawful marijuana operations created social and environmental problems which governmental agencies have attempted and failed to mitigate (Walker and Fortmann 2003, Short 2011). The failure of these mitigation techniques and the command-and-control policies they employ created a pervasive distrust of government among watershed residents. The Humboldt County Code Enforcement (CODE), Sheriff’s Office, the Department of Fish and Wildlife, and the Campaign Against Marijuana Propagation (CAMP), are examples of such agencies. They are overwhelmingly viewed by the watershed’s residents as intrusive, hierarchic and reliant upon threats of police action to enforce their policies. Many community members interviewed voiced concern over these institutions. In order to avoid government intervention, some took a pro-active stance, for example, by upgrading

roads, culverts and improving their septic systems. Why do landowners distrust these governmental entities who implement and enforce policies deemed beneficial to society? Why might a community-based approach be preferable?

Overall landowner distrust of these governmental entities was more pervasive than I originally understood. California law requires applying and paying for permits involving most renovations or upgrades to a house or property. Permits are required to replace a building's roof or build an addition to a house, as well as for small improvements such as toilet, window, or electrical outlet replacement. Fixed incomes and the inability to pay for the mandatory permits have led some landowners to circumvent this law. This could make them vulnerable to legal repercussions if they decide to improve their property at a later date. For example, I asked a neighbor about her decision to bypass the permitting process. She retorted, "If I got permits for everything I did [on my property], I would be broke! They [County] just want your money." Others responded that their pro-active improvements on their properties as well as building to proper local codes would help mitigate the penalties applied for not obtaining permits.

The Redwood Creek watershed is zoned AG/TPZ (Agriculture and Timber Production Zone), with an 80 acre minimum parcel size (Humboldt County Assessor Documents 2009). A local developer subdivided the DD ranch into half the legal size into forty-acres.<sup>1</sup> This violation enabled Humboldt County to label each parcel 'shaded,'

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<sup>1</sup> In the late 1980s, the subdivision of the 3000 acre DD Ranch into forty acre parcels was approved by the Humboldt County Board of Supervisors. During the approval process, each parcel was divided into half the previous size allowed and each were given a legal APN (property tax number). In the

deeming any development illegal and permitting unobtainable. These permits are imperative for developing a homestead which includes; building, water well, septic and selective timber harvest plans. Neighbors who have lived for twenty years in residences built to code, are being red-tagged with uncorrectable permit violations. Exponentially increasing monetary levies in combination with enforceable police repercussions add to the burden of these violations. Humboldt County recently put a moratorium on the levy increases, thereby tacitly acknowledging the landowners untenable position. In addition, a moratorium has been placed on these parcels, making any sale or transfer punishable with a criminal misdemeanor offense. Neighbors are now unable to sell and move away from their properties or their inherent problems. With these threats neighbors have become very apprehensive of the policies of Humboldt County's CODE enforcement branch and the threats of the court system.

Every county in California has a CODE enforcement branch and Humboldt County's branch is accompanied by a police SWAT (Special Weapons and Tactics) attachment. Humboldt County has given vague explanations for the need for this enforcement team's attachment. In 2012 CODE officers visited a neighbor's 'shaded' parcel, arriving in bullet proof military body armor and guns drawn, while their kids played in the front yard. The adults were handcuffed for questioning and so shaken that

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meantime, Humboldt County's Timber Wars initiated and Humboldt's Board of Supervisors political platform changed from one of pro-development to one of conservation. Bareilles was denied the forty acre minimum and the eighty minimum reinstated. The developer already having spent millions to subdivide the DD Ranch was ready to lose as much with this ruling. He told me he felt betrayed by the County and literally said "screw you," then went ahead with the original approval process. This is why these parcels became 'shaded' and the accompanying mayhem have reverberated to present times.

some cried. The children just stared, terrified; their faces blank and bodies motionless, as the police ordered them out. CODE officers red-tagged the house and fined my neighbor, solely for building permit violations. When a building or property is red-tagged, a penalty phase begins where a monetary levy is placed until the violations are corrected. A *North Coast Journal* reporter wrote an article which questioned CODE about their procedures. A CODE spokesperson stated that they operate with SWAT team for their safety due to the marijuana grows. My neighbors, with no marijuana grow, were traumatized by this violent governmental police action.

Another problem that residents face because their parcels are 'shaded' is the inability to qualify for fire, flood or earthquake insurance protection. Until Humboldt County's Planning Commission reclassifies these shaded parcels as unshaded, insurance companies cannot provide insurance policies to the landowners. Landowners have no security should any of these disasters occur. The residents' disenfranchisement from the permitting process due to the shaded nature of the parcels turned lawful acts into criminal actions. This has led to a profound distrust of Humboldt County's judicial system and its CODE branch.

The secrecy and prohibited nature of the marijuana industry and the associated governmental response with the formation of CAMP (Campaign Against Marijuana Propagation) in 1984, created additional distrust of command and control entities. I estimate that over sixty percent of the watershed's residents participate in this illicit economy. Though state law considers many of the marijuana operations legitimate, the underlying atmosphere toward governmental regulation and enforcement is one of

trepidation. This apprehension is due in part to the fact that California's 1998 decriminalization laws are still relatively new and some residents have a collective memory of a period when any size operation was liable to be eradicated. CAMP utilizes armed police when taking down pot operations; often, troopers rappel in directly from helicopters. On many occasions when CAMP is operating in a specific area they attempt to eradicate all marijuana grows in the area. In addition to CAMP, July through November, Humboldt County Sheriffs convoys are frequently seen on Upper Redwood Creek's common road travelling to or leaving from a marijuana operation.

The marijuana economy also created environmental concerns with illegal water diversions and improper pesticide usage. The Department of Fish and Wildlife is acutely interested in these issues. With the severity of the drought (now in its fourth year) the Department of Fish and Wildlife has dramatically increased their presence in the watershed. Local Fish and Wildlife officer 'Debbie' patrols our common road due to its proximity to Redwood Creek. She was parked and I inquired about her presence. She stated her presence there was to check for illegal water diversions as well as communicate to residents as an outreach approach for these concerns. She stated that she didn't care to apprehend anyone for poaching one fish, when illegal water diversions were going to kill them all. In addition, she also wasn't worried about eradicating grow operations and that her Department has four concerns. These are: illegal water diversions, pesticides and fertilizers reaching Redwood Creek, improper development of roads and homesteads creating sedimentation, and poaching. In many instances she has intruded into residences to make arrests and levy fines over these issues. Though Debbie

declared that she would rather work with the residents than against them, all landowners I spoke with professed they would rather not see any police at their front door. Her statements and the responses of the residents made apparent the need for non-governmental, community-based mitigation techniques addressing Fish and Wildlife concerns. The residents' apprehension and fear of police action against them makes collaboration attempts with this entity intractable and unfeasible.

This section reveals the reasons for the residents' pervasive distrust of governmental agencies and their enforcement policies in the Upper Redwood Creek watershed. Many residents unknowingly bought 'shaded' parcels, which in many cases resulted in their being labeled as criminals by the County. They are now exposed to legal troubles concerning permit violations and CODE's police actions. Though landowners attempt to improve their properties, fixed incomes, the multitudes of different permits required for household upgrades, and the 'shaded' status of their properties, have alienated them from the governmental process and the county planning and code enforcement entities. The pervasiveness and secrecy of the marijuana industry adds layers to this governmental mistrust. This is compounded by the prevalence of CAMP, and the Humboldt County Sheriff's office, where many pro-active community actions concerning communal management are discounted or considered criminal. Residents in the marijuana industry are apprehensive and this researcher suspects it is why this projects' meeting and interviews had just over a twenty percent participation rate. In addition, the interviews and mediation processes conducted made it apparent the community desires non-governmental, community-based forms of collaborative

mitigation which would help alleviate anxieties and address these concerns. Section two discusses and reflects upon the broader relevance of the mitigation techniques findings.

## Section Two: Strategies for Managing Watershed Issues

This section examines the empirical material presented in this research in light of key themes from the literature review. Exurban migration has created fragmented WUI areas and created social and environmental concerns, which governmental entities employing command and control policies are generally unable to successfully regulate or mitigate. In the Upper Redwood Creek watershed these challenges are compounded by the presence of unpermitted 'shaded parcels' and the pervasive, illicit marijuana industry. There is limited research that addresses alternative bottom up, community-based approaches for watershed management under these conditions (Short 2009, Gude et al. 2007, Short 2010). This research seeks to contribute to this literature by exploring the effectiveness of community-based approaches for watershed management in the context of exurban migration to WUI areas where a large percentage of the population is involved in the marijuana industry. In particular, this research explores the extent to which community building, forest fire management, water usage and sedimentation issues are tractable and amenable to community-based approaches. Furthermore, are these techniques effective as bottom-up approaches that bridge the gap between diverse community lifestyles and non-governmental, community-based watershed management (Kemmis 2001, Shutkin 2001, Brick et al. 2001, Richardson 2000, Short 2010, Short

2009, Unmack 2011, Fuller 2011, Everett 2002). Lastly, what are the limits of mediation and community-based approaches, and how may these be addressed? Are these techniques something I would recommend?

### Bulletin Boards

The bulletin boards proved to be an effective community building process. They are an unassuming method that builds community cohesion in a non-governmental and non-confrontational manner. Due to vandalism, the only modification made to the original bulletin boards location was the permanent movement to nearby trees, 50 yards off Hwy 299. These bulletin boards provide anonymity for the landowners, as only those who want to advertise on or use the boards would be known. These bulletin boards also allow for a dialog addressing social and environmental concerns by providing a simple and easy venue to be utilized when concerns arise. This proactive approach also proves valuable to notify watershed residents when forming work crews for common property maintenance, such as common roadwork. Now notices go out easily and awareness of issues has substantially increased. In addition to the phone tree, work crews and community participation has more than doubled. Bulletin boards are a simple method to initiate a community dialog. They also proved a non-confrontational way to build community cohesion while keeping the anonymity and autonomy landowners desire.

### Phone Tree

The community phone tree had less success than initially anticipated. Though many of the residents are involved and interested in hiring out for work and for

emergencies, many hesitated or declined to be listed. After I reflected, the idea of an unprinted phone tree was decided upon and this found greater community acceptance.

What accounts for this resistance to a printed phone tree? I have considered several answers to this question. One is the lack of anonymity residents may have associated with being placed on a physical phone tree list. Portrayals in the media of the marijuana industry's pesticide and water usage as well as unmitigated and illegal land development have created a distrust of residents to divulge information about themselves. A written phone tree could potentially be used by governmental agencies as a one-stop-shop for identifying and prosecuting marijuana grows. Also many of the homesteaders moving into the Redwood Creek watershed did so for the independence of this lifestyle, and were apprehensive giving out personal information. In addition, excessive landowner turnover rate and the fact that twenty-five percent of the parcels are still vacant make a written phone tree seem untimely.

When the illicitness of the marijuana industry diminishes, a second attempt may bring about an improved response for a hard copy of a phone tree. In addition, if key neighbors band together for this effort, their combined credibility may make the results more successful. The written phone tree will also become more feasible if the watershed's population and property turnover rate stabilize because this will help establish trust among the watershed's residents. The phone tree was the primary method utilized by this researcher to make the community aware of the research. The watershed's residents now have a non-governmental, community-based tool that addresses social concerns and builds community cohesion.

### Fire Council

Fire concerns are an acute reality in rural locations and fire prevention most often necessitates outside resources that have experience in organizing this complex subject. Established WUI communities have successfully developed fire councils, and with the initial findings a fire council appeared a tractable solution for the Upper Redwood Creek Watershed. The results attested otherwise and upon reflection there are several plausible reasons. One answer to this intractability is the amount of time, money, expertise, ongoing commitment and motivation it takes to organize a fire council. Volunteer burnout is a major factor with these grassroots organizations and has been a common problem in fire council development (Fuller 2012). Many residents want to be involved, but stated they don't have the time to expend on the effort.

Conversations with several landowners revealed that many, in addition to me, did not have the knowledge or experience to introduce a plan of this scale. Many landowners have developed their own defensible boundaries at great personal expense, though their neighbors and surrounding community without these perimeters are still at risk. These defensible spaces included branch and brush removal along their property lines as well as eliminating ladder fuel, which often leads to tree canopy fires. A chain is as strong as its weakest link, and there are many weak links next to their 'fire safe' properties that may well spread to theirs. There are other reasons that may explain why a fire council proved intractable.

Organizing a fire council in Upper Redwood Creek may require the support of state agencies owing to the community's recent development, as well as the inexperience

of the researcher and residents to undertake this task. Michelle Fuller's thesis, *Herdning Cats: Grassroots and Centralized Organizing in the Case of California's Fire Safe Councils* emphasizes the importance of collaboration with command and control entities to initiate this work. A community-based framework that also engages with federal and state agencies and their resources would make the formation of a watershed-based fire safe council more feasible.

The majority of fire safe councils in California are led or created by a fire professional (Fuller 2012). Such leadership is instrumental in enabling councils to succeed. A knowledgeable leader's competence would also garner trust, which is invaluable when recruiting volunteers, who are the vital entities of community fire councils. With a dedicated leader, people would feel motivated and more likely to contribute their time and effort. This would also help solidify landowner interest and help mitigate volunteer burnout.

Collaboration with governmental agencies has given the majority of fire safe councils in California the ability to obtain grants and pool the resources of multiple agencies (Fuller 2012). This has proven a useful tool where resources and experience are limited. Many fire professionals who work with local fire councils already have the experience and governmental resource pools from which to draw. A centralized authority such as the California Fire Safe Council has increased local fire councils' funding, resources and stability. Such an approach could be effective in the Upper Redwood Creek watershed.

### Community-Based Enforcement of Water Conservation

Community-based strategies for managing water use and quality issues proved intractable. This represents the limits of community-centered approaches in the Upper Redwood Creek watershed. Water usage regulation may be an area where command and control policies would prove more effective. I have observed many of the residents' unlawful water practices through the confidentiality and trust I had established. Their distrust of governmental entities and the secretiveness and unlawfulness of their livelihoods further complicate this issue and its resolution.

The drought's acuteness and prevalence of the marijuana industry's enormous water usage makes the discussion of this topic taboo. Wells and water sources are drying up; neighbors blame and fight each other over their diversions. Gasoline powered pumps are heard pulling water directly from Redwood Creek, in the driest most vulnerable time of year for aquatic life. Residents with adequate water exacerbate issues by not voicing concern and turning a blind eye. Some with water tender trucks have taken advantage of the phone tree and bulletin boards and initiated a local water delivery service.

Humboldt County's proposed pond development program has the potential to address water usage concerns and start the process of making 'shaded' parcels legal. Every new WUI parcel in Humboldt County would have to develop a pond to supplement water use during the dry months of September through November. Governmental support through grants, permitting as well as community cooperation, could make this issue more tractable. A properly developed pond captures overflow water during winter months, which is then utilized throughout the summer. Ponds are cost prohibitive for

many, but they would significantly reduce illegal diversions and address communal as well as governmental concerns. Several neighbors have developed ponds that adequately supply all their water needs without diversion or additional stresses on Redwood Creek during summer months. Humboldt County non-profits such as the Sanctuary Forest and Mattole Restoration Council provide subsidies for water tanks, though these tanks are only a sufficient enough supply for a family of four through the dry months of July through October (Mattole Restoration Council 2014). Given this limitation, these tanks, if available for the Redwood Creek watershed, would be inadequate for the majority of the watersheds' residents because of the large amounts of water utilized for marijuana cultivation.

Given these limitations, a command and control regulatory approach will probably be required to address water use and quality concerns in the Upper Redwood Creek watershed. Humboldt County's Board of Supervisors needs to address the legality and zoning of the 'shaded' parcels so that residents may obtain permits for ponds and well construction. This would also enable governmental agencies to provide grants as well as subsidies for water tanks and pond development, which would also alleviate some of the stresses on Redwood Creek.

#### Informal Road Association

The informal road association proved to be a valuable and non-confrontational, non-governmental land management regime that addresses common property management issues. The road association organized the residents with a common interest as well as maintained the autonomy they desired. It is the most successful of this project's

mediation processes. Property access is of primary importance for residents and the area's common, community-maintained roads are the only way to obtain this access. This finding corroborates other research in Northern California, which indicates that many residents (70%) share common roads with other neighbors (Short 2010, 51). The road association's success results from the imperative of obtaining property access, and the desire for autonomy and anonymity, which is maintained when community members, not the state or county, maintain the road.

One limitation the road association faced was the large number of common as well as private roads in the watershed. To make the workload more reasonable, the association decided to focus only on the main, communal roads and leave the maintenance of smaller, gated ones to the care of immediate landowners. This alleviated social and physical pressure on the residents' lives and resources, many of whom already felt pressed with the amount of work on their properties. One concern was that some residents believe that they contribute enough while others contribute nothing. With only an estimated twenty percent participation rate in road maintenance efforts, this is an understandable grievance. However, this relatively low rate of participation in local road association work parties is similar to that reported by Anne Short for Mendocino County, California (Short 2010).

There are several potential explanations for this low participation rate. One absentee landowner stated that when there is a road access problem, in a couple of days it's taken care of, so he has little incentive to regularly contribute to association work parties. In addition, some residents, especially recent arrivals it seems, don't want or care

to be concerned about this communal issue. Increasing postings on the bulletin boards and more communication through the phone tree may increase communal participation in the road association. A road association is highly recommended for all WUI areas with communal roads and property.

Table 1: Characteristics that differentiate between different community-based strategies by their degree of tractability.

STRATEGIES FOR MANAGING WATERSHED ISSUES	MAINTAINS ANONYMITY IN LIGHT OF ILLICIT ECONOMY	RESOURCE NEEDS MATCH AVAILABLE RESOURCES	MUTUALLY BENEFICIAL (WIN-WIN)	HIGH DEPENDENCE ON THE COLLECTIVE GOOD, (ACCESS)	REQUISITE ORGANIZATIONAL SKILLS TOO HIGH, NEEDS GOVERNMENT CAPACITY AND INSITUTIONAL SUPPORT	NEEDS HIGHER LEVEL OF RESOURCES THAN LOCALLY AVAILABLE
Bulletin Boards	X	X	X	X		
Phone Tree		X	X	X		
Fire Council			X	X	X	X
Community Based Enforcement of Water Conservation					X	X
Informal Road Association	X	X	X	X		

REASONS FOR TRACTABILITY

REASONS FOR LACK OF TRACTABILITY

This table identifies the characteristics that differentiate between strategies that are or are not amenable to local community-based, collective action. The left column

lists the various strategies identified during the interview process and community meeting. Some of these were subsequently implemented, as described in prior chapters. Each remaining row indicates the characteristics of the strategies that influenced their tractability or intractability. The table identifies four qualities that characterize strategies that are amenable to community engagement. The two right hand columns identify issue qualities non amenable to a community-based approach.

Bulletin boards. Bulletin boards are a non-threatening way to build community. They facilitate community work crews and volunteerism. Bulletin boards also maintain the resident's anonymity and enable barter for mutual benefit. The resources needed for the construction and maintenance of boards ARE minimal and matches what is obtainable through the landowners. Bulletin boards facilitate communication between landowners in fragmented WUI areas. Bulletin boards are mutually beneficial to residents; they represent a collaborative, non-governmental approach that helps foster community cohesion.

Phone tree. A written phone tree violated watershed residents desire for anonymity. Residents resisted the written phone tree as it would render landowners visible to the state. Variability amongst residents length of habitation in the watershed and the short duration of some residents, as well as lack of mutual trust also reduced this strategy's tractability. The unwritten phone tree maintained anonymity and seemed more acceptable given the lack of trust. An unwritten phone tree also helped build community cohesion allowing for a non-governmental approach addressing resource pooling and communication concerns. The phone tree's resource needs match the available resources

and proved mutually beneficial for residents. In addition, the high dependence on the collective good the phone tree helps provide makes this strategy tractable.

Fire councils. Fire councils require high levels of resources such as time, money, organizational capacity and knowledge. Fire councils also require collaboration with state agencies and dedicated, experienced leadership. Although the collective benefits of fire councils are significant, in the Upper Redwood Creek watershed the characteristics of governmental agencies and policies combined with the secrecy and illegality of the marijuana industry and the property's 'shaded' status impede its formation. Developing a fire council also requires effective use of governmental resources and expertise. Though the high dependence on the collective good justifies a fire council's formation, the underlying characteristics make this strategy intractable.

Community-based enforcement of water conservation. This issue involves a win-lose situation in which some residents will need to curtail their water use or develop alternative water sources to reduce negative environmental impacts. With the high level of distrust between governmental enforcement agencies and many watershed residents, residents are reluctant to report water use offences to authorities. However community-based enforcement of water conservation is also unlikely to be effective as residents do not have the ability to regulate their collective water use. This is an issue that necessitates a command and control approach. The illegal subdivision and 'shaded' label of the properties, in addition to the secrecy, illegality, and exorbitant amount of water utilized through the marijuana industry further make the topic intractable to community –

based approaches. With these concerns and the need for regulation, command and control governmental agencies are necessary to address this topic.

Informal road association. An informal road association was the most feasible and amenable strategy for the watershed's residents. Addressing road maintenance and access is a tractable issue for community-based associations. Residents have a high level of dependence on the public goods road the association provides (access to properties). Road associations also provide desirable autonomy (from state oversight) and anonymity. Furthermore, residents need only arrive and contribute to the work parties for the association to complete its work. A non-governmental, community-based road association will strengthen as the watershed's population and residents stabilize. With landowners pooling supplies and equipment, the road association's resource requirements are matched by the available community-level capabilities. The road association also provides a community-collaborative approach addressing the greatest concerns of command and control entities. Sedimentation loads due to exurban migration and the fragmentation of Upper Redwood Creek are mitigated without governmental policy enactment. This is mutually beneficial for all, creating a win-win situation.

A paramount concern of the residents is maintaining their anonymity. Bulletin boards and the road association were forms of community-based action that maintained residents' anonymity. Proper resources and funding are a requirement that also governs the tractability of an issue. If resources are not sufficient the tractability of the issue for community-based response is limited. Bulletin boards, the phone tree and road association had high levels of tractability due to the low resource requirements for their

implementation. When a strategy is mutually beneficial for all, creating a win-win situation, this characteristic makes it more tractable. Bulletin boards, phone tree, fire councils and the road association are all mutually beneficial strategies which create tractability. In addition the tractability of a strategy also depends on the high dependence on the collective good the strategy provides. This characteristic is most apparent with bulletin boards, phone tree, and road association.

The feasibility of a community-based strategy is limited when an effective response to an issue requires high organizational capacity, high levels of expertise, and other resources that may not be locally available. This was evident with the development of a watershed fire council and with the enforcement of water conservation rules.

## CONCLUSION

Exurban migration and fragmentation in WUI areas have created social and environmental concerns in watersheds throughout the western United States. In the Upper Redwood Creek watershed these concerns include the sedimentation of Redwood Creek due to road and homestead construction, an exponential increase in water usage related to marijuana farms cultivation and the increased burden on fire prevention resources obligated to protect these homesteads. These homesteads and associated marijuana grows in addition with the 'shaded' nature of the parcels have hindered regulatory environmental enforcement in the watershed. Community-based approaches are appropriate strategies for managing some watershed issues arising from exurban migration. My research initiated several community-based techniques with varying degrees of success. This section summarizes these techniques and the continuing efforts of this project in light of what the literature contains about community-based approaches over these concerns. The hope of this research is that these efforts have broader implications to help other watersheds experiencing exurban migration and the fragmentation of WUI areas.

The recent fragmentation and development of the Upper Redwood Creek watershed created a community in which few neighbors knew or were acquainted with each other. There is literature that addresses fragmentation of watersheds, though very little research has been published on community-based models which address the social concerns associated with it (Brick, Snow, Van De Wetering 2001, Kemmis 2001, Gude et

al 2004, Moss 2006, Clarke et al 2009, Short 2009). One of these concerns is the lack of communication and networking which is essential for a healthy community. The development of a phone tree and bulletin boards proved a valuable and tractable community-based approach addressing these concerns. These techniques could be employed by other communities in watersheds experiencing such communication and networking concerns. Bulletin boards and the phone tree permit community members a quick way to communicate. Significantly, they allow first responders quick, unhindered access during emergencies. The phone tree is frequently employed, most notably when I had to call 911. With one call, all the gates leading to my property were opened before the emergency crews and police arrived. They would be a beneficial tool for all WUI communities in fragmented watersheds where anonymity and autonomy are desired.

Homesteads and improperly designed and maintained road construction create sedimentation concerns that command and control governmental entities have been unable to successfully alleviate (Short 2011). The creation of a community road association in the Upper Redwood Creek watershed keeps this common property maintained and has created a community based, non-governmental, collaborative approach addressing this principal concern of regulatory agencies. The road association built communal pride. It demonstrates the potential of this community-based approach for other watersheds in similar circumstances.

Water and wild-fire concerns are an acute reality in northern California and throughout much of the western United States. However, owing to the underground marijuana industry's continued prevalence in the Upper Redwood Creek watershed, these

concerns remain intractable to community-based approaches. With factors such as the legalization of marijuana and the movement away from its illicitness, water and fire concerns may become more tractable to community-based responses. In other, more established watersheds, community-based responses to such issues have proven effective.

Watersheds in other areas subject to exurban migration will undoubtedly experience different issues. However those issues whose characteristics correspond with the criteria identified through this research as tractable for community-based strategies will likely be amenable to a local, community-based approach.

One of the more important lessons I learned during this process was the enormous amount of time and patience it takes to build relationships and establish trust to address these social and communal concerns. This research demonstrates for other areas experiencing these issues, that a few individuals can unite and transform the detrimental course of events in threatened, WUI watersheds. Research is deficient and needed for community-based management techniques which address the growing concerns of governmental regulatory entities (Short 2010). This project broadens this deficient area of research and demonstrates that there are non-governmental, community-based collaborative approaches that help mitigate many of the environmental and social concerns facing other fragmented watersheds.

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## APPENDICES

## Appendix A: Community Letter

Attn: Redwood Creek Landowners

Sunday, July 25<sup>th</sup>, 12-2, Gonzales Mexican Restaurant in Willow Creek (299/96 junction)

My name is Stefan Shumaker and I am organizing a community meeting for our watershed.

This is a letter inviting all Upper Redwood Creek landowners to participate in a community dialog concerning common issues; fire safety, road maintenance, and a phone tree. These issues affect us all. With the fire season rapidly approaching, having people in our community ready to lend a hand (with chainsaws, water or anything else) would be beneficial to all. With our increased population, the main ranch road has been getting hammered. Jim and Judy have been diligent (and almost single-handedly) in helping maintain it, but having a slush fund for the road, (or a helping hand when worked on), would help take the burden off and help us all. The last discussion point will be a phone tree for our community. Many of us have skills or equipment that could benefit our community without having to outsource. In addition, the added security of neighbors knowing neighbors would help us all. Being more pro-active instead of reactive could only make our community stronger.

This meeting will be non-controversial and the topics above will be the only ones discussed. People will respect each other and speak one at a time.

Due to the limited meeting space, landowners only please.

If you have any questions, comments, or would like more information or cannot attend and would like to be kept updated, please feel free to contact me 707-834-0809 or [Stefanshumaker@gmail.com](mailto:Stefanshumaker@gmail.com).

Thank you and see you on the 25<sup>th</sup>!

Appendix B: Agenda for Redwood Creek Community Meeting 25 July 2010

**12:00-12:30** Food and Introductions

**12:30-2:00** Meeting Topics

- Work/Phone tree
- Fire Crews
- Roads
- Other Comments

**Participants indicated interest in having further conversation on each of the following issues:**

→ Community Bulletin Board

- Community networking and get to know your neighbors
- Work and equipment for share/hire/barter
- Lost dogs
- Work party
- Other uses for bulletin board?

Keeping resources in our own community (work for hire, equipment rentals, etc results in closer community and more safety with less out sourcing)

Potential spots for bulletin boards:

Upper ranch road at Mike's  
299 or by rickety bridge  
other spots?

→ Emergency Phone Tree

Emergency Safety:

Notification of emergency and also to open gates promptly in case of emergency for people to access roads where emergency may be or may be headed, and for safe exit routes.

Fires:

- Make known who is willing to fight fires near your own road, in the fire path towards your own property, and willingness to help out fighting fire on other parts of the hill
- Keeping roads cleared for fire truck access
- Mapping water/ponds for helicopters and trucks
- Keep truck pull-outs cleared (weed eat)

→ Road Maintenance:

Ideas so far:

- People can “adopt” the bit of road near their property and work with nearest neighbors to maintain road
- Renting equipment as a community and working on the whole road section by section during one equipment rental period.
- Organizing and networking property owners who have equipment and others who have experience working equipment, so that those who own equipment aren't the only ones working on road maintenance, etc.
- Address problems when we see them, be willing to take responsibility, example: fix water bars rather than ignoring it and promoting prolonged damage.

→ Creek Usage

Concern raised about appropriate use of creek and long-term effects (pulling out too much water)

- Encourage reservoirs and surface springs
- Keep floats on tanks
- Repair leaks on tanks
- Staying conscious of neighbors below

→ Potential for landowners to connect by CB radios

**Participants discussed that everyone will talk to additional landowners they personally know to expand phone tree and spread the word for our next meeting**

Participants would like to schedule a BBQ in the next few weeks to continue this discussion and hear from more landowners about their ideas, concerns, and develop the emergency phone tree and work share information.

→ Next meeting.

**Willing to host the BBQ? Want to attend?**

Stefan Shumaker agreed to be contact person for the next meeting. Direct your comments, questions, interest in attending (or hosting) BBQ to him at (707) 834-0809 or sms32@humboldt.edu.

Appendix C: Quarry Surface Mining Community Letter

To: Humboldt County Planning Commission  
C/O Humboldt County Senior Planner

From: Stefan Shumaker  
Upper Redwood Creek property owner 316-174-002-000  
707-834-0809  
Sms32@humboldt.edu

RE: Response to renewal and modification for conditional use and surface mining permit application, case nos. CUP-14-91XM and SMR-02-91XM; XXXXXXXX LLC, file no. APN 316-163-02; Upper Redwood Creek area.

Humboldt County Planning Commission,

My name is Stefan Shumaker and I have lived in the Upper Redwood Creek Watershed Area since 1994. My property borders XXXXXXXX Materials LLC. I have several concerns that I feel are appropriate for the Planning Commission to consider. There is an established community that resides in the area. We have been given little recognition or voice in the proposed quarry expansion. We have concerns about the detrimental effects that the rock quarry has had on the living conditions of the residents.

**Safety**-Hooven Truck drivers were told that no one lived past XXXX property on the road. Three truck drivers I spoke stated that the road belonged to XXXX and we were fortunate he lets us through. This is not the case. Every property owner along the Old Chezem Logging road has and un-exclusive easement on their titles allowing through traffic. No one owns the right of way on this road. There have been numerous instances where property owners have been almost run off the road by the drivers who are ignorant of these easement rights. In addition, during the winter months, the paved section of the road has become extremely hazardous, 'a toboggan run,' as one resident stated. It is only time before an accident will occur with no ice removal equipment.

**Timber Harvest Plan**- A less than three acre THP has already been initiated when the quarry first applied for the conditional use permit. Now another three acre cut has been applied for. How many 'under three acre timber harvests' are property owners granted before it becomes an 'over three acre harvest?'

**Asbestos**- Property owners have the right to have the quarry rock sampled for 'naturally occurring asbestos' and if found have a new Environmental Impact Report done that specifies methods for proper containment of the hazardous material. The health of the

community members must have precedence and not be discounted for monetary gains. This is especially important due to the increased truck traffic and associated dust production. Requiring a water truck to alleviate the dust should be mandatory.

**Blasting-** The form sent out stated that blasting hasn't been necessary in the past and is not 'anticipated.' This would be a great disturbance to property owners with livestock, horses, and pets. Past notification practices have been inadequate, if similar practices are utilized regarding blasting, a majority wouldn't be aware of it before blasting occurred. Blasting should be forbidden until these issues are resolved.

## Appendix D: Quarry Letter Humboldt County Planning Commission

### PUBLIC NOTICE HUMBOLDT COUNTY PLANNING COMMISSION NOTICE OF PUBLIC HEARING

On Thursday, November 5, 2009 at 6:00 p.m., or as soon thereafter as the matter can be heard, the Humboldt County Planning Commission will hold a public hearing in the Board of Supervisors' Chamber, Humboldt County Courthouse, Eureka, California, to consider the matter listed below. If you have specific questions regarding the proposed project and the Addendum to the adopted Conditional Negative Declaration contact: ANITA PUNLA, Senior Planner, at (707) 268-3727.

A Renewal and Modification for a Conditional Use Permit & Surface Mining Permit application, Case Nos. CUP-14-91XM & SMR-02-91XM; [REDACTED] applicant; File No. APN 316-163-02; Upper Redwood Creek area. A Renewal and Modification of a Conditional Use Permit, Surface Mining Permit and approval of a Reclamation Plan and Financial Assurances for existing quarry operations. An approximate 65,000 cubic yards of large rip-rap and smaller rocky material will be mined over a 15 year period for use in road construction and maintenance. Tree removal, under a Less than 3 Acre Conversion, will allow for expansion of the quarry to approximately ten (10) acres. The quarry is accessed from the east end of Redwood Creek Bridge on State Highway 299 via Old Chezem Logging Road. Operations include extraction, processing, stockpiling and transporting. Project frequency of operation is expected to be several times a year for periods ranging from a few days to a few weeks; duration and intensity of activities depend on demand. Blasting may occur as part of the operation (under restrictions requiring notification and limiting days and hours of use) but blasting has not occurred in previous years and it is not anticipated to be necessary during the term of this permit. Presently, rock is loosened and ripped with a bulldozer. **The issues to be considered at the hearing include, but are not limited to, health and safety issues, including noise, road safety, traffic, naturally-occurring asbestos, and impacts to environmental resources.** The permit will expire June 21, 2021. NOTE: The Humboldt County Planning Commission intends to adopt an Addendum to the Conditional Negative Declaration of Environmental Impact for this project originally adopted on June 21, 1991.

THE PROJECT SITE IS LOCATED IN HUMBOLDT COUNTY, IN THE UPPER REDWOOD CREEK AREA, ON THE SOUTH SIDE OF STATE HIGHWAY 299 AND OLD CHEZUM ROAD ON THE PROPERTY KNOWN TO BE IN THE SOUTHEAST QUARTER OF SECTION 23 TOWNSHIP 06 NORTH RANGE 03 EAST.

Any person may appear and present testimony in regard to these matters at these hearings. The Planning Commission needs **ONE ORIGINAL AND 14 COPIES** of any materials submitted either prior to or at the meeting. The Planning Commission's decision will become effective if an appeal is not filed within the appropriate filing period. An appeal may be filed by any aggrieved person and must be submitted in writing with the required fees to the Planning Division of the Humboldt County Community Development Services before the end of the appeal period. If appealed, the decision will not become effective until the appeal is resolved. If you challenge the nature of the proposed action in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice, or in written correspondence delivered to the Planning Commission, at, or prior to, the public hearing. **The staff report for this project will be available on our web site <http://www.co.humboldt.ca.us/planning> on the Friday before the Planning Commission meeting.**

General questions regarding the Planning Commission, the permit process, submission of materials, and other information not specific to this project may be obtained from the Planning Division of the Humboldt County Community Development Services, 3015 "H" Street, Eureka, California 95501. Telephone (707) 445-7541.

## Appendix E: Interview Guide

### Working Interview Questions:

1. How long have you lived in the Upper Redwood Creek Watershed?
2. How was it you ended up residing here?
3. What were your impressions of the area upon arriving?  
If you have always lived in area, what are your impressions of the increase in the population base and growth of the area?  
(This question has many different facets that may be explored and will be left open for unstructured responses, letting the interviewee reflect upon what area meant to them).
4. Describe some events or conflicts that have occurred while residing in the area since moving here? Explain the background and why significant. (**probe**)
5. Do you have any concerns pertaining to the rapid growth of our area? If yes, then do you have suggestions to mitigate these concerns?
6. If a community dialog and gathering were coordinated to discuss the things we talked about here, would you have an interest in attending?
7. A. The Humboldt County General Plan is being ratified. This will determine the growth and management of Humboldt County for the next twenty years. The Upper Redwood Creek watershed area will be considered in the proposal. What role should the community have in the General Plan (zoning/fire/road access)?  
B. What do you feel should be appropriate zoning and regulations for the watershed? (**I may need to give overview of how our area is being affected by the general planning process before going into this question**).
8. Did Humboldt County's Code Enforcement Task Force contact you over the last few years? How do you feel about this issue and their actions in our area? (**can pull out if have any questions, explain planning commission meeting what it means to them**)
9. Have you been active in any of these or other planning processes for the area? What were they and how were you affiliated?

10. Do you have any perceptions of what is appropriate zoning and regulations for the watershed?

Appendix F: Map of the Redwood Creek Watershed

