

COLLABORATIVE ENVIRONMENTAL STEWARDSHIP IN THE VAN DUZEN RIVER
WATERSHED, HUMBOLDT COUNTY, CALIFORNIA

HUMBOLDT STATE UNIVERSITY

By

Jessica M. Unmack

A Thesis Project

Presented to

The Faculty of Humboldt State University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Arts in Social Science:

Environment and Community

May 2011

COLLABORATIVE ENVIRONMENTAL STEWARDSHIP IN THE VAN DUZEN RIVER
WATERSHED, HUMBOLDT COUNTY, CALIFORNIA

By

Jessica M. Unmack

Approved by Master's Thesis Committee:

Dr. Elizabeth Watson, Committee Chair Date

Dr. Yvonne Everett, Committee Member Date

Dr. J. Mark Baker, Committee Member Date

Dr. J. Mark Baker, Graduate Coordinator Date

Jena Burgess, Vice Provost Academic Affairs Date

ABSTRACT

COLLABORATIVE ENVIRONMENTAL STEWARDSHIP IN THE VAN DUZEN RIVER WATERSHED, HUMBOLDT COUNTY, CALIFORNIA

Jessica M. Unmack

This project is a case study of the Mid Van Duzen River watershed focusing on processes of collaboration and stakeholder involvement affecting watershed management and environmental stewardship practices. Through theory drawn from fields of alternative dispute resolution, range management, sociology natural resource planning and management, and public policy, this project provides an in-depth understanding of identity, stewardship, and social capital issues in collaborative approaches to watershed management. The goal of this project is to be able to provide a concise picture of the land stewardship activities and sediment load reduction progress of the Yager/Van Duzen Environmental Stewards (YES), a small non-profit watershed group of local private landowners, highlighting the group's voluntary efforts in addressing regulatory challenges while striving to maintain their ranching culture and economic livelihood. The primary outcome of this project is a case study and multi-page printed publication for YES to be used as an outreach tool demonstrating the social, economic and environmental benefits of voluntary collaborative efforts of both non-governmental stakeholder groups and governmental agencies in addressing environmental and regulatory challenges in watershed management.

ACKNOWLEDGEMENTS

I would like to express my gratitude first and foremost to Dina Moore and the YES landowners and ranchers in the mid-Van Duzen, and the government and non-governmental employees who willingly and enthusiastically participated in and contributed to this research.

I am grateful to my advisor, Betsy Watson, for her sound advice, encouragement and good nature. The freedom she allowed me as my research developed, combined with her constructive feedback, made this process a very positive learning experience. I sincerely thank my committee members Yvonne Everett and Mark Baker for their advice and guidance along the way and my fellow E&C cohorters for their support of all kinds.

This research was partially supported through funding from the Humboldt County Headwaters fund through a grant with the YES organization to develop outreach materials.

Finally, I express heartfelt thanks and love to my husband and children for supporting me throughout this process; I truly could not have completed this without you.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	iv
TABLE OF CONTENTS.....	v
CHAPTER ONE Introduction - <i>A Framework for Collaborative Environmental Stewardship in the Van Duzen</i>	1
CHAPTER TWO Literature Review - <i>Identity, Stewardship and Collaborative Partnerships in Watershed Management</i>	6
Identity.....	7
Stewardship.....	9
Collaborative Partnerships in Watershed Management.....	19
CHAPTER THREE Research Design.....	25
Epistemology and Methodology for Collaborative Case Study and Publication Research.....	27
Methods.....	30
CHAPTER FOUR Case Study - <i>Collaborative Environmental Stewardship in the Van Duzen River Watershed</i>	35
Meet the Van Duzen	35
The Clean Water Act and Total Maximum Daily Loads.....	38
Yager/Van Duzen Environmental Stewards.....	41
CHAPTER FIVE Results - <i>Watershed Collaboration Assessment</i>	47
Six Criteria for Measuring Success in Watershed Collaboration	47
CHAPTER SIX Discussion - <i>Beyond the Van Duzen: Transferability</i>	60
Social, Ecological and Temporal Conditions.....	61
Design Principles.....	64
Lessons Learned in the Van Duzen.....	66
REFERENCES.....	68
APPENDICES.....	75
Appendix A – YES Publication.....	75
Appendix B – Landowner Survey Questions.....	76

CHAPTER ONE

Introduction

A Framework for Collaborative Environmental Stewardship in the Van Duzen

Collaboration is theoretically promoted as a way to reduce conflict among stakeholders, build social capital, allow environmental, social, and economic issues to be addressed in tandem, and produce better decisions (Conley, 2002). In practice, the number of collaborative groups in this country continues to grow and consequently the number of case studies is increasing rapidly. This research explores issues of identity, stewardship and social capital in collaborative approaches to watershed management and adds to the body of existing literature on watershed collaboration in hopes that it will help increase the effectiveness and sustainability of natural resource management and prove valuable to landowners and agencies confronted by similar nonpoint source pollution problems.

Much of the literature available on collaboration in natural resource and watershed management has been written from the perspective of government agencies or non-profit environmental groups; very little has taken other stakeholders' perspectives into account as a primary focus (Melton, 2003). Understanding their perspective is critical to the success of any government-sponsored or landowner driven stewardship program. In order to truly understand the stewardship activities and collaboration in the mid-Van Duzen, this thesis approaches the issue of collaborative conservation largely from the perspective of the multi-generational ranchers within the watershed. The

Yager/Van Duzen Environmental Stewards (YES) is a small non-profit watershed group comprised of ranching landowners encompassing around 78% of the land base in the mid-domain of the Van Duzen River watershed in Northwestern California. The mission statement of YES is as follows: “To ensure the environmental integrity of our watershed, while maintaining our heritage and the economic sustainability of our endeavors.” Many of the members of YES are fifth generation Van Duzen landowners and believe that as stewards of this working landscape they are keeping the trust of past generations while holding it for future generations.

The group currently has grant funds dedicated to producing educational and outreach materials to promote the group’s voluntary efforts in reducing sediment in their portion of the Van Duzen. The goal of this project is to be able to provide a concise picture of the land stewardship activities and sediment load reduction progress of the Yager/Van Duzen Environmental Stewards highlighting the group’s voluntary efforts in addressing regulatory challenges while striving to maintain their ranching culture and economic livelihood. The primary outcome of this project is a case study and multi-page printed publication for YES to be used as an outreach tool demonstrating the social, economic and environmental benefits of voluntary collaborative efforts of both non-governmental stakeholder groups and governmental agencies in addressing environmental and regulatory challenges in watershed management. The purpose of this study is to explore several questions relating to the history of the group, the level of

success they have reached as a formal watershed group, and what aspects of their successes are transferable to other landowner watershed groups.

In Chapter Two I discuss literature relevant to this topic: identity, stewardship, and collaborative partnerships in watershed management. As identity helps motivate behaviors and inform choices, I explore the concept of identity. First, I interrogate how identities are formed than, how they change and realign when confronted with challenges in both social and environmental contexts. Next, I talk about the concept of stewardship and explore several ways in which both private rural landowners and regulatory agencies engage in or practice land stewarding as well as some of the barriers to stewardship. Finally, to help contextualize and illuminate the role of stakeholder identities in decision making related to stewardship of natural resources and the building of social capital as well as what constitutes success in collaborative watershed management, I review literature specifically related to collaborative approaches and partnerships in natural resource and watershed management.

Chapter three focuses on my project's research design I explain my epistemological and methodological approach to researching this topic and my chosen methods. My research design is based on the case study as a research method and employs primarily qualitative methods. A case study approach is used to answer explanatory questions of how and why and 'is preferred in examining contemporary events when the relevant behaviors are not be manipulated' (Yin, 2009; 11), and thus is most useful for this research topic.

Chapter four is my case study, the mid-domain of the Van Duzen River watershed and the Yager/Van Duzen Environmental Stewards watershed group. To give insight and perspective into the natural and anthropogenic resources and processes occurring in the area, I introduce the Van Duzen watershed by describing the physical and human geography of the area. I also introduce the topic of Total Maximum Daily Loads (TMDLs) giving background information about the Clean Water Act. I devote the remainder of this chapter to the Yager/Van Duzen Environmental Stewards - their history, successes to date, and their Headwaters Project, its purpose and intent/benefit.

Chapter five presents an assessment of the findings from a landowner group survey and semi-structured interviews with several of their partnering entities, as well as primary document research and participant observations on six separate criteria proposed by Leach et al (2002) to evaluate collaborative watershed management efforts in Washington and California. Each of the six criteria makes a unique contribution to the overall evaluation, and together the criteria reflect a range of partnership goals—short-term and long-term, substantive and instrumental. Finally, Chapter six is a discussion of the transferability of the model of voluntary collaborative conservation put forth by the Yager/Van Duzen Environmental Stewards watershed group.

Relying on participant observation, semi-structured interviews with key partnering entities, and informal conversations and interactions with YES members, this thesis project documents the evolution of the Yager/Van Duzen Environmental Stewards and their progress to date in reducing sediment load in the Van Duzen watershed while identifying their key successes as well as barriers to success. Ultimately the goal of this

research is to highlight YES' model for voluntary, landowner driven, compliance in the face of regulatory action.

CHAPTER TWO

Literature Review

Identity, Stewardship and Collaborative Partnerships in Watershed Management

Through a review of relevant literature in the areas of range management, natural resource planning, public policy, sociology and alternative dispute resolution this chapter provides a basic understanding of identity, stewardship. The topic of collaborative watershed management is then addressed to help contextualize and illuminate the role of stakeholder identities in decision making related to stewardship of natural resources and to what extent stakeholder identity plays a role in the building of social capital through collaborative processes.

As a preamble to the topic of identity, a brief introduction to the topic of framing is appropriate. Framing refers to the process of constructing and representing our interpretations of the world around us. Framing involves shaping, focusing, and organizing data into meaningful chunks of information and putting things into perspective by relating that data to other information we already 'know' (Gray, 2003). Frames are used to define issues and help shape what actions should be taken and by whom. If a problem regarding chemical pollution is framed from a technical angle some may look to develop an accurate cost-benefit analysis of alternatives before taking any action, while those who frame the same pollution issue as an immediate health risk may push for immediate action to be taken regardless of cost (Elliot, 2003; Gray, 2003).

Frames also help us protect ourselves, justify a stance we take on an issue and mobilize people to take or refrain from action on an issue. Framing helps people manage personal changes as situations develop over time. Through framing we place ourselves in relation to issues or events. Examples of some frames include identity frames, characterization frames, conflict management frames, social control frames, power frames, risk frames, and gain versus loss frames. Frames are not necessarily permanent and can change through reframing activities (Grey, 2003).

Identity

Identity is often referred to by theorists as personality, or the self-concept; both address the same processes or phenomena (Breakwell, 1983; Mischel, 1968). However, it is important to differentiate identity as a psychological phenomenon to explain why an individual acts a certain way, and identity as a theoretical abstraction, or something to be explained. Previously, identity has been studied to explain individual behavior in terms of personality traits that, once established, could be used to predict behavior. Once a person was believed to be a 'type', their behavior could be predicted consistently across situations (Breakwell, 1983). Challengers to this line of thinking assert that behavior is never just a function of personality. Rather it is a function of the interaction between the individual's personality and the situation in which the behavior is exhibited (Argyle, 1981; Mischel, 1968).

Given certain characteristics or demographics, individuals tend to think of themselves as belonging to certain social categories, or groups. Gray (2003) describes

four aspects of individual's lives, other than demographics (race, gender, and ethnicity), that people form significant identities around; their location or place, their role or occupation, institutions with which they associate or are employed, and their personal interests. For example, place-based identities are primarily concerned with who 'I' am in relation to geographic location or community and are often associated with certain speech, dress or behavioral aspects of one's life; group identities are those identities that are formed around an attachment to a particular organization and its mission or values (Frey, 2010). Identity is primarily formed through processes of separation, distinguishing oneself from what one is not, and is constantly being shaped and reshaped by one's social and cultural experiences and associations and by the information we receive about ourselves from others (Gray, 2003; Elliot, 2003).

Group identities exist when people view themselves as collectively distinct from others in some way, and are created and sustained through symbolic interaction among group members, between other groups and their members, and with their external environments (Frey, 2010). Along with a variety of nonverbal symbolic practices that serve the development and changing of group boundaries, group members also interact verbally in ways that create and reinforce group identity; for example, using plural pronouns and metaphors to describe their group or members, and storytelling and narratives about the group that express beliefs, attitudes and values, and engaging in 'group speak'. Through their interactions, people create and manage boundaries that separate and differentiate group members from non-group members, and while some

group boundaries are open and permeable other group boundaries are relatively closed and impermeable (Frey, 2010).

Over a lifetime there are transitions, or changes in context, that can have significant effects on self-definition and identity (Ethier, 2004). During transitions individuals may find it necessary to adapt or alter their identity in some way to those social or environmental changes. These adaptations often involve more than momentary responses to circumstantial pressures and may require deep seated changes in the meaning, importance, or support that an identity has (Tajfel, 1981). The ways in which the individual had previously maintained their identity may no longer be valid or useful in this new situation. Thus, in a new social or environmental context, maintaining an identity must include some process of re-anchoring the identity to new social supports; developing new bases for supporting identity and, in the process, detaching that identity from its supports in the former environment or social framework (Ethier, 1994; Tajfel, 1981).

Stewardship

The term 'stewardship' has a long tradition tracing back to agricultural practices described in the Old Testament, and to some aboriginal societies where the land is conceived of as belonging to ancestors, for example. Alpert (2004) distinguishes the principles of stewardship from the concepts of belonging and of domination in that the first premise of stewardship is the competence and right to act on the thing in one's own charge so as to produce certain results. The concept of belonging implies being equal to or subordinate of a thing and not managing it. The second premise of stewardship is that

the desired outcomes of management are designed to satisfy interests greater than those of the steward alone; whereas domination implies controlling or supervising a thing in one's own interests. Stewardship, then, can be seen as an interdependent relationship between managers, things being managed, and the principle or party in whose interests the managers act (Alpert, 2004).

Stewardship is usually used to describe forms of “responsible” management where sustainability and environmental quality are being promoted. Stewardship also can mean that we have a responsibility to understand and manage our behavior accordingly or a philosophy of care for and long-term commitment to the land and the recognition that one’s actions have countless consequences (Ack et al, 2001). During recent decades, the ethical concept of stewardship has undergone transformed in response to increasing interest in ethical aspects of the relationships between people and nature. Stewardship in this context has sometimes been proposed as a possible means of expressing an “environmental ethic” or “land ethic.” As Aldo Leopold (1949) explains “The land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land.”

Use of the term stewardship in the context of management and use of natural resources has increased during recent year. Terms like “environmental stewardship” and “forest stewardship” have become common and even appear to be starting to displace the term “management” (Worrell, 1999). In natural resource management today, stewardship can be defined as ‘efforts to create, nurture, and enable responsibility in landowners and resource users to manage and protect land and its natural and cultural heritage’ (Brown,

2000; 71). Stewardship, thus, emphasizes the integration of people and nature, recognizes that all landscapes are cultural, and that conservation needs can be addressed on land that cannot be removed from human life and commerce (Brown, 2000).

Stewardship can have a variety of motivations usually classed as either instrumental, if management is viewed as a means to an end, or intrinsic if management is viewed as an end in itself (Gray, 2007). Gray describes these two motivations for environmental stewardship as the 'nature conservation conception' and the 'sustainable development conception'. The nature conservation conception views restoration and preservation of habitats and ecosystems as ends in themselves, without regard to economic and social consequences. In contrast, the sustainable development conception views protection of habitats and ecosystems as a means towards the fulfillment of economic and social objectives laid down by society (Gray, 2007). Stewardship of natural resources can be found among both private individuals and larger entities who agree or volunteer to abide by special practices designed to protect or restore natural species or ecosystems on their own lands, sometimes referred to as best management practices, or BMPs.

Best Management Practices is a term coined by the US EPA and used by some other agencies but not, for example, by the USFS – it refers to the practices recommended and endorsed by EPA and some other agencies based on current understandings. They are structural or management practices that are used to reduce the quantity of pollutants generated and/or delivered from a source (US EPA, 2004). A structural BMP is something that is built or involves changes in landforms or equipment

while a managerial BMP involves a specific way of using or handling infrastructure or resources. Best Management Practices, for example, control the delivery of non-point source (NPS) pollutants to receiving water resources by minimizing pollutants available (source reduction) and retarding the transport and/or delivery of pollutants. This is achieved by either reducing water transported, or by slowing the flow and causing deposition of the pollutant; or by remediating or intercepting the pollutant before or after it is delivered to the water resource through chemical or biological transformation. To be considered a BMP, a practice must have been selected through a conscious planning process designed to inventory resources and needs, determine available alternatives, weigh their benefits, make decisions, and follow up the selection and implementation of practices with monitoring and evaluation to determine if they are having the desired effect (US EPA, 2004). BMPs are the current agreed upon method, but they don't always work and don't necessarily scale out; they also change over time.

Rural Landowners as Stewards Rural land ownership in the United States is a mix of public and private. Public ownership of forestlands in particular, ranges from the predominant federal lands in the West to a lesser degree of local, state, and federal properties elsewhere in the country. The remaining private forestlands are either large industrial or smaller nonindustrial private ownerships or forests, NIPFs (Rickenbach, 2000). A wide variety of national, state, and local governmental and non-governmental agencies and organizations sponsor programs that recruit both private landowners and corporations to volunteer as ecological, environmental, or habitat stewards undertaking BMPs and roles that may be to protect species or habitats (Alpert, 2004). The majority of

these programs in California are publicly funded through sources authorized by federal environmental legislation, California Senate Bills, and voter-approved propositions (e.g., Proposition 50, which created the Integrated Regional Water Management Grant).

Depending on the program stipulations, the funds may be distributed directly to private landowners or indirectly via other government organizations, non-profit groups, or road or homeowners associations that receive the funding (Short, 2010).

Rickenbach (2002) suggests that in general, nonindustrial private forest (NIPF) owners would like to be good stewards of the land and are receptive to the goals and objectives of ecosystem management and implementing BMPs. However, while they are likely willing to adopt techniques consistent with ecosystem management and forest sustainability, incentives beyond the basic desire to 'be a good steward' to participate in larger or more costly stewarding activities and programs may be required. Rickenbach suggests that rural NIPF owners may alter land management activities to protect endangered species on their own, but typically oppose additional regulation to do so. Rickenbach's (2002) findings also suggest the NIPF owners are increasingly interested in cross-boundary stewardship but most feel more information on specific arrangements is necessary.

The way forests and their use is thought about has change. Where once the focus was on individual stands and sustained yield in forests over a specific ownership, we now consider and manage as much as possible for the ecological, economic, and social impacts and outcomes over entire landscapes and for future generations (Aplet et al, 1993; Grumbine 1994). Despite the shift in management philosophy, however, the social

and legal structure of land ownership in the United States is mostly unchanged: an owner's rights and responsibilities generally end at the property line (McEvoy 1998). Yet, to meet important ecological goals, some level of coordination must span individual ownerships. Cross-boundary stewardship, or coordination in management and stewardship of land among neighboring land owners/managers, is documented and occurs on most of the nation's public forests. Many large industrial landowners have embraced some form of forest certification or formed partnerships with public agencies to foster landscape stewardship goals (Birch, 1996). The least vigorous segment of forest ownership in the move toward cross-boundary stewardship coordination and management, however, is the over nine million NIPF owners (Birch, 1996).

A complicating factor in cross-boundary stewardship efforts and coordination for rural landowners is the steady rise in migration of urban and suburban dwellers into rural areas of the United States and the resulting dramatic transformation of the social, economic, and ecological conditions in rural areas (Short, 2010). This migration places development pressure on forested, agricultural, and open space areas and leads to the subdivision of large tracts of land into smaller parcels, a phenomenon called parcelization. Parcelization complicates the governance and management of human environmental problems.

Along the North Coast of California, the prevention and control of nonpoint source (NPS) pollution from rural private lands is a particularly pressing human-environmental challenge that may be aggravated by the growing number and diversity of

rural landowners. Reducing NPS pollution is increasingly dependent on understanding how to promote the adoption of pollution control measures (BMPs) by a growing and diverse group of private landowners (Short, 2010).

Another factor complicating stewardship of privately owned rural lands is governmental regulation and the implementation of BMPs. In her dissertation entitled ‘Governing Change: An Institutional Geography of Rural Land Use, Environmental Management, and Change in the North Coastal Basin of California’, Anne Short examines how regulations, non-regulatory programs, and other factors influence private landowners’ adoption of BMPs across all land uses by examining and comparing the problem landscape, the governance landscape, and the landscape of action across a range of land uses. She finds that although the sediment pollution problem on rivers in the North Coastal California is associated with management practices on all land uses, sediment pollution is unevenly governed. The stringency and enforcement of regulations, influence of non-regulatory programs, and landowners’ knowledge and adoption of BMPs vary by land use. Landowners engaging in traditional rural land uses such as timber production and ranching were generally found to be more knowledgeable about BMPs than other landowners. Other residential landowners and those using their land for marijuana cultivation, for example, received less attention from resource agencies and non-governmental organizations and were less likely to be familiar with BMPs (Short, 2010).

Regulatory Agencies as Stewards Governmental regulatory agencies have potentially significant advantages as stewards. They often control relatively extensive

resources and manage large areas within our country. One-third of the nation's land is publicly owned, and managed by various bureaus of the federal government for the perpetuation of America's natural resources (Zaslowsky, 1994). Our nation's regulatory agencies manage natural resources ranging from parks, wildlife, forests, fisheries, land and 'the environment'. These agencies are stewards inasmuch as they manage these resources on behalf of groups or people outside the agencies through administratively rational management and policymaking. In the beginning of the twentieth century the American Conservation Movement argued that the American endowment of natural resources was in danger of being squandered in a free-for-all, hence more rational scientific management coupled with government ownership was required to better put the resources to efficient extractive uses (Dryzek, 2005).

The main resource management agency born of the American Conservation Movement was the U.S. Forest Service. The mission of the U.S. Forest Service is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations. The national forests cover nearly every mountain range in the country and in the intermountain West. As the 'Land of Many Uses', their multiple-use orientation is the most distinct characteristic of the national forests system (Zaslowsky, 1994). This does not, however, mean that all uses are allowed on all areas of the forest. It means instead, that there is to be balance throughout the entire system and, 'where conflicting interests must be reconciled the question will

always be decided from the standpoint of the greatest good of the greatest number in the long run' (Walsh, 1994).

The mission of the U.S. Fish & Wildlife Service (USFWS) is 'working with others to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people' (US FWS, 2010). The USFWS manages the 150 million-acre National Wildlife Refuge System and also operates 70 National Fish Hatcheries, 65 fishery resource offices and 86 ecological services field stations. However, the vast majority of fish and wildlife habitat is on non-Federal lands and The Partners for Fish and Wildlife, Partners in Flight, Sport Fishing and Boating Partnership Council, and other partnership activities are the main ways the USFWS foster aquatic conservation and assist voluntary habitat conservation and restoration. The objectives of the USFWS are to: 1) assist in the development and application of an environmental stewardship ethic for our society, based on ecological principles, scientific knowledge of fish and wildlife, and a sense of moral responsibility; 2) guide the conservation, development, and management of the Nation's fish and wildlife resources; and 3) administer a national program to provide the public opportunities to understand, appreciate, and wisely use fish and wildlife resources (US FWS, 2010).

Whatever their mission and management practices for meeting the natural resource needs of future generations, be it conservation or multi-use, these governmental agencies, as do all others, operate according to the public justification of administrative rationalism (Dryzek, 2005). Administrative rationalism emphasizes the role of the expert

rather than the citizen or the producer/consumer in social problem solving.

Administrative rationalism stresses relationships of hierarchy rather than equality or competition and prioritizes scientific expertise over other forms of 'expertise' (Dryzek, 2005). Being the most rational form of social organization, bureaucracies have been seen as ideal vehicles for confronting the increasing complexity of social, economic and environmental problems; however, the institutions and practices of administrative rationalism are also laden with problems (Dryzek, 2005; Heinzerling, 2002).

Bureaucracies often employ the market-driven, general-purpose policy approach of cost-benefit analysis in informing choice of policy or project to be undertaken. However, cost-benefit analysis often does not offer the universal remedy it professes to in complex environmental protection cases. Its theoretical flaws, e.g. inaccurate approaches to valuation, trivialization of the future, exacerbation of inequality and being less objective and transparent rather than more so, and practical problems, e.g. the limits of quantification and subsequent omission of the unquantifiable in some cases, as well as the overstating of costs in others, can be insurmountable obstacles (Heinzerling, 2002).

Due to routine and tedious operations it is more and more common to find bureaucracy defended as a necessary, rather than attractive, option. But as routine and tedious as administrative rationalism is, it can sustain itself as long as it delivers benefits; cleaner air and water, fewer toxins circulating in the human and natural environment and more securely protected ecosystems and species diversity. However, the administrative state's performance in these areas is increasingly being called into question, often under

the heading of ‘implementation deficit’ – a universal phenomenon in which there exists a substantial gap between what legislation and high-level executive decisions declare will be achieved and what is actually achieved on the ground in terms of attainment of environmental standards (Dryzek, 2005).

Collaborative Partnerships in Watershed Management

The traditional, administratively rational, centralized policymaking paradigm of natural resource management agencies has been under increasing criticism for at least the last twenty years (Sabatier, 2005). For water resource management this is due in part to increased competition for limited fresh water sources, new requirements under the Clean Water Act, a general dissatisfaction in leaving policymaking decisions to agency experts who often live far away from the resources they are managing, and the increasing skepticism of the ability of legalistic, hierarchical agency processes to come up with long-term strategies to ever more complex water resource problems (Sabatier, 2005).

In contrast, collaborative partnerships are designed to facilitate consensus and cooperation among stakeholders by involving face-to-face information exchange and problem solving among relevant stakeholders. Collaborative partnerships are the pooling of tangible and intangible resources (e.g. information, money, labor, etc.) by two or more stakeholders to solve a set of problems which neither can solve individually (Grey, 2003). For some, collaboration and consensus are remedies to many of the ills of existing regulations which have led to expensive conflicts and left many environmental problems intractable (Elliot, 2003; Sabatier, 2005; Weber, 2003). In general, collaborative

processes strive for inclusive stakeholder representation, treat all participants as roughly equal in authority, use some type of consensus rule to structure decisions, and focus on mutually acceptable solutions (Gray, 2003; Sabatier, 2005).

A collaborative approach to managing natural resources is not intended to be a detailed blueprint, but rather a broad strategy for solving complex sets of interrelated problems through stakeholder engagement processes and partnerships. In particular, collaborative management is seen as an increasingly popular alternative to governmental regulation for solving environmental problems associated with non-point source pollution at the watershed level. There are more than 346 identified watershed partnerships west of the Mississippi River as of 2000; approximately 150 in California alone (Leach, 2002; Lubell, 2004; Kenney, 2000). As another indicator of the popularity of collaborative approaches to resource management, in 2002 nine federal agencies and departments that had endorsed the Clean Water Action Plan calling for new cooperative approaches to water management had also issued guidebooks advocating decentralized, consensus-oriented policymaking (Leach, 2002; Sabatier, 2005).

Collaborative watershed partnerships are informal organizations involving a wide variety of government and non-governmental stakeholders seeking to develop a management plan for a specific watershed and then implementing it through specific restoration projects, changes in land use, water quality regulations, and other ways (Kenney, 2000; Sabatier 2005). Collaborative watershed partnerships are intended to be rather long term, lasting at least 5-10 years, with benefits encompassing the triple bottom

line: social, economic and environmental benefits. While it might be easy to highlight the environmental and economic benefits of collaboration, the importance of building social capital through collaborative processes, however, is often overlooked.

Broadly defined, social capital involves relationships of trust, norms of reciprocity, and networks among individuals that can be drawn upon for individual or collective benefit (Wagner, 2008). Social capital is important because it can provide access to other forms of capital such as financial (grants, funding), human (information, skills, scientific expertise), or natural capital (forage, habitat, water), and because it may improve a group or community's ability to come up with innovative solutions to problems, manage risk, and adapt to change (Adger, 2003). Flora, Flora and Fey (2004) distinguish between two forms of social capital: bonding and bridging. Bonding social capital involves ties among persons (or organizations made up of persons) who are located similarly in the socioeconomic system and who generally know one another well, having ties that can be seen in multiple settings and roles usually based on class, ethnicity, kinship, gender, or similar social characteristic (Flora et al, 2004). Bridging social capital connects diverse groups within communities to each other and to groups outside a community (Flora et al, 2004). Bridging social capital involves ties between individuals or organizations that are generally single purpose, and unlike bonding social capital, it usually does not involve emotional ties. As Flora, Flora and Fey (2004) summarize, "When bridging and bonding social capital are high, entrepreneurial social

infrastructure is enhanced. If bonding and bridging social capital are low, individual solutions to collective problems are sought.” (73)

However, skeptics who fear that collaboration in resource management may have significant limitations and drawbacks that are not fully valued and that are frequently lost in the eagerness to support and apply collaborative approaches to natural resource management (Leach 2002). Common challenges to or critiques of the legitimacy of collaborative watershed management are that inadequate non-governmental stakeholder representation is typical, and that the process gives false legitimacy to local deliberations when larger regional and national interests are at stake (Coglianese, 1999; Kenney, 2000).

The issue of inadequate stakeholder representation is legitimate and achieving adequate governmental and non-governmental representation is not an easy task theoretically or in practice. There is a near impossibility to have the physical representation of every individual involved or affected by the outcomes of collaborative resource management. However, a set of criteria proposed by Sabatier, et al (2004) can serve as a test for evaluating the legitimacy of collaborative institutions, including the issue of stakeholder representation. Sabatier et al (2005) present their set of criteria in two groups, distinguishing between procedural legitimacy (the way decisions are made) and substantive legitimacy (what the decisions propose). Criteria of procedural legitimacy include appropriate stakeholder representation, fair consideration of stakeholders concerns, and genuine stakeholder consent; while criteria of substantive

legitimacy includes improvement in stakeholder's welfare, respecting stakeholder's rights, and the fair distribution of welfare (Sabatier, 2005). The critique that collaborative efforts give false narrow-minded legitimacy or legality to local issues can be countered in the acknowledgment that local collaborative partnerships, which strive for the involvement of all major stakeholders affected and usually operate under some form of consensus rule, often have greater procedural legitimacy than traditional approaches to management that rely on legal authority provided to bureaucracies through legislation from far off (Sabatier, 2005).

Griffin's (1999) research in 'Watershed Councils: An Emerging Form of Public Participation in Natural Resource Management' is one step towards an answer to the question of whether watershed councils are an improvement over traditional methods of public involvement in natural resource management. His research outlines why watershed collaboratives form and discusses their structure and operation. There is considerable variability in terms of watershed collaboratives' goals, their effectiveness, stakeholder composition, their involvement in the "real" decision-making process, types of participation that are allowed, leadership, financing, decision-making procedures, efficiency, and temporal scale. These structural components are presented by Griffin as a framework that can be used by researchers to develop criteria to evaluate watershed collaboratives (Griffin, 1999). Recognizing and understanding the organizational dynamics of individual watershed partnerships can provide important insights for future integrated management and evaluation of collaborative watershed efforts. While a partnership may have ended "unsuccessfully" in implementing activities that have

environmental benefits, by understanding the context and uniqueness of each watershed's institutional system, the partnerships role in building social capital and capacity for future problem-solving can be appreciated (Genskow, 2006).

Genskow et al (2006) argue that those concerned with integrated water resource management should take a more expansive view of the organizational space in which integrated projects and initiatives take place. Careful evaluation of the effectiveness of different collaborative forms of processes is central to understanding what can and cannot be expected of such processes and how they can be integrated with existing institutions. As a result, it is important for resource managers and funding organizations to recognize that standard assessments of "success" and inflexible prescriptive approaches to develop collaboration may serve most effectively as general "guidance" but have limited use for successfully undertaking integrated management efforts in watersheds (Genskow, 2006).

CHAPTER THREE

Research Design

The purpose of this study is to explore several questions relating to the Yager/Van Duzen Environmental Stewards watershed group. Specifically, how did this watershed group form? Have they been successful as a formal watershed group? In what ways have they been successful? What aspects of their success, or their model of collaborative efforts, are transferable to other landowner watershed groups? The answers to those questions are the basis for the text of the case study and YES publication materials. The design of a research project is the plan for how the study will be conducted. The design stage is important in that it involves a series of important decisions about the research idea or question. The researcher must decide what type of information is to be gathered and whether or not to use a single data collection strategy or to combine strategies (Berg, 2009). In the social sciences especially, this stage is also a time to consider some ethical properties of research with human beings such as honesty, openness of intent, respect for subjects, intent of the research, and the willingness of the subjects to voluntarily participate in the research. In this chapter I discuss how I came to be associated with the Yager/Van Duzen Environmental Stewards, which I will refer to often as YES. I also outline my theoretical and practical approach to research.

My introduction to the exploration of collaborative processes in watershed management stemmed from conversations with classmates and my professor in a conflict resolution course at Humboldt State University in the spring of 2010. The professor for

the course strives to have a non-graduate student member of the community enrolled in her course to add a different perspective and a local real-world dimension for issues discussed in class. The semester I was enrolled in the course, Dina Moore, a founding member of YES and primary driving force behind the group becoming a formal watershed group, was attending the class at the professor's request and to gain information and perspective for herself and her watershed group. I found myself drawn to this watershed group throughout the semester as Ms. Moore shared her experiences and thoughts with the class. On the surface I was drawn to the group as all the members are cattle ranchers and one of the reasons I moved to this area was for the grass-fed beef readily available from local producers. As the semester drew on I was further intrigued by the group's voluntary regulatory compliance in reducing the amount of sediment runoff from their working landscapes, and by their work partnering with 'outside' entities to accomplish sediment reduction in their section of the Van Duzen watershed.

Towards the end of the spring semester Ms. Moore asked if I would be interested in some summer employment working with her on a grant project for her watershed group developing outreach and education materials. I began my work with YES in May 2010 as an independent contractor hired by Ms. Moore to assist in fulfilling that grant funded research project through the Humboldt County Headwaters Fund. The position was fortuitous as I was searching for a project to use for the partial completion of my master's degree, and was exciting as I had never been out to the spectacularly beautiful part of the county where these landowners' ranches are located. The experience of working for and with this group of rural ranchers who care deeply for this unique

environment has informed not only the production of the grant deliverables, namely the development of the YES publication (Appendix A), but my own further appreciation of the area and the people who live on, work, and steward that rural landscape as well.

Epistemology and Methodology for Case Study and Publication Research

Epistemological theories serve as tools for making sense of how one understands and defines truths, and how new truths are produced (Goldman, 2002; Hawthorne, 2004; Lakoff, 1980). My epistemological framework for this research is the product of my own life experiences and personal worldviews. I addressed the case study and publication research as a learning process for myself and worked to recognize and meet the needs of my co-participants (Brodsky, 2003). Taking a participatory position in my field research methodology, I invited and encouraged my co-participants to help inform the direction of the research and publication in order to contribute in the creation of knowledge from many directions. The goals of my community-based research design aimed to further facilitate collaborative processes, integrate knowledge, and disseminate findings and knowledge gained.

Methodology is theory and analysis of how research should proceed (Hesse-Biber et. al. 2004). For this research I am taking Yin (2009) and Sterk and Elifson's (2004) approach to case studies. They argue that case studies are not a specific data gathering technique but rather a methodological approach incorporating multiple methods. My overall methodology was designed from grant requirements and participation with the Yager/Van Duzen Environmental Stewards. This approach, coupled with specific and

deliberate methods, framed the case study, subsequent analysis of the research, and the YES publication. Each methodology to research has a specific purpose and corresponding outcomes. Knowing when to use a particular methodology can be dictated by the form of research questions seeking an answer (i.e. why, who, what, how?), whether there is a requirement to control the behaviors of participants, and whether or not it focuses on contemporary events (Yin, 2009). For example, experiments answer questions of how and why, require behavioral control of participants and focus on contemporary events while case studies also answer how and why questions and focus on current events, but do not require the control of others' behaviors

Some critiques of using case studies in studying social settings view the approach with a certain amount of distrust, particularly case studies that are deliberately altered to demonstrate a particular point and thus provide little basis for scientific generalization. For teaching purposes, this could most certainly be the case. However in case study research, investigators work hard to report evidence as fairly and without bias as in other methodological approaches (Yin, 2009). Case studies have also been seen as a less desirable form of research than either experiments or surveys and have a potential for lack of rigor (Berg, 2009). In the past, it was more common for research efforts with case studies to lack rigor, mainly due to lack of understanding procedures and case studies as methodology (Yin, 2009). Nevertheless, as more is written on the subject of case study as a methodology, particularly in social science research, systematic procedures have improved as in other research methods that now have numerous texts to provide investigators with specific procedures to follow (Yin, 2009).

For the content of my case study and the subsequent publication, distinguishing between which knowledge I had about YES as a result of formal research and which knowledge was derived from my experiences within the organization as a temporary employee was difficult at times. I gathered the majority of my information about the organization from their internal records and past grant reports, personal testimonies of board members and the general membership of the organization, in addition to semi-structured interviews with partnering agency and non-profit employees. In this sense I learned the story and the history of the organization and did my best to represent an insider's position. And while I do assert my association with YES in my community and worked in collaboration on this research as a supporter to the organization, I feel as though framing the discussion by speaking about YES as 'they' rather than 'we' is most appropriate, and have written the case study from this point of view.

After first being asked to work on YES' Headwaters grant then considering how I could make this a useful research project, I sought approval from the current YES president and Board of Directors on a collaborative research design for the publication. The general YES membership was also consulted about my research intentions and I moved forward with gathering data specifically for the case study and publication only after I had received permission and enthusiasm from the organization. Key members of YES agreed to review my work and provide feedback before this research was made available to the public in order to ensure that my representation of their organization and their work was accurate. This process aided in my epistemological and methodological framework of collaborative knowledge production.

Through an adaptive research process with each step informing and shaping the next, research activities were completed between late summer 2010 and early spring 2011. The basis of this project thus grows directly from requirements of the YES Headwaters grant deliverables and my own personal experiences and interests as an engaged member of my local community and current graduate student.

Methods

According to Leach et al (2002), the following indicators can be utilized to measure or assess success in watershed partnerships: perceived effects on watershed conditions, perceived effects on human and social capital, level of agreement reached, both restoration and monitoring projects implemented, and education and outreach efforts. This research project is primarily focused on those six criteria as each criterion has a unique contribution to the assessment and in total they reflect a range of partnership goals. To use the results from my interviews and surveys in the most appropriate way for this project I don't quantify my results; rather I use more of a qualitative and ethnographic approach to presenting research results and case study data. Inductive and in-depth evaluation methods (such as participant observation, focus groups and workshops, document analysis, and interviews) are typically used to generate the 'rich' data favored in ethnographic evaluations and have gained credibility over time because they allow for consideration of complex interactions between variables and can be adapted when either external variables or the internal process changes (Conley, 2003).

Watershed collaborations and partnerships often pursue multiple activities over a span of years to address a range of social, economic, and ecological issues. Leach et al (2002) conducted a study on 144 watershed stakeholder partnerships in several western states to evaluate their effectiveness in watershed resource management. To simplify their study to a reasonable amount of data to interpret, rather than an exhaustive list of numerous criteria Leach et al (2002) chose a manageable set of six criteria that, together, are sufficient in measuring or assessing partnership success. Specifically, their research used measures of perceived effects of the partnership on specific environmental problems in the watershed, perceived effects of the partnership on human and social capital, the extent of agreement reached among the stakeholders, the implementation of restoration projects, monitoring projects implemented, and involvement in education and outreach projects. In the following case study and resulting publication presented in this thesis project, I used several qualitative methods from which to gather data to address the six criteria used by Leach et al. Each method chosen reveals a slightly different perspective of the same situation and when combined they reveal a more substantial and full picture of that situation (Berg, 2009).

Primary Document Research and Participatory Observation This study is largely grounded in primary document review and participatory observation. For the sake of time and effort for all those involved in the study, analyzing internal documents and my being immersed and actively engaged in ‘the setting’ were the most efficient ways to gather information on the level of formal agreements reached, restoration activities and monitoring projects undertaken, and the group’s education and outreach

efforts. The bulk of cited information for the case study and YES publication regarding organizational background and prior YES work, comes from document analysis of completed grant funded efforts, internal organizational documents, prior grant proposals, and the EPA's VanDuzen TMDL report.

During my employment with Dina Moore working on the YES Headwaters grant, I attended and participated in several YES Board of Directors meetings, their second ever organizational Strategic Planning, their Annual Membership Meeting, and several social activities with members of the organization. As a representative of YES, I also participated in an Educational Fair at College of the Redwoods demonstrating to middle school children the benefits of ranching and grazing on grasslands in the VanDuzen. These participatory activities provided me with the opportunity to observe the interactions of landowners in the process of being proactive in reducing anthropogenic sediment load in their watershed. This also allowed me to view the organization from more of an insider's perspective, which was crucial for developing the publication and outreach materials. The findings and results were developed as a continuing and fluid process during the course of the research and discussed often with Board members of YES and several of their partnering entities.

YES Landowner Survey and Partner Interviews Complementary to participatory observation and document analysis, surveys with YES landowners and semi-structured interviews were conducted with YES partnering entities. The landowner survey sample was comprised completely of current YES members and surveys were sent to all ten (10)

member households. Themes for survey questions stemmed from the final two criteria of assessing success in watershed groups focused on in the Leach et al article (2002): the perceived effects of collaborative partnership on watershed conditions and on human and social capital. A set of initial draft questions based on Leach's (2002) research were further refined and finalized in consultation with Dina Moore (YES), Paula Golightly (USFWS) and academic advisor, Betsy Watson (HSU). The survey was administered in one mailing which included a brief cover letter and the survey questions, and was mailed out several weeks prior to the group's strategic planning session in January 2011. Recipients were given a phone number and email address so they could contact me with any questions or comments regarding the survey. The final landowner survey instrument is included in Appendix B.

I chose interviews for gathering information from YES partners as I felt like answers from a face-to face interaction were more appropriate than an impersonal approach to gathering the information. I felt I needed to meet with each partner to get their perspective as I had with the landowners through our social and organizational interactions. I chose to use semi-structured interviews, as opposed to standardized or un-standardized, for gathering information from partnering entities to be more or less structured but also to allow flexibility in specific wording and order of questions. All interviews covered the same themes as the landowner survey; specifically, the perceived effects of partnering on social and human capital, and on the environment, and each lasted approximately 45 minutes. Brief notes were taken during the interviews which

were conducted with the following five (5) key staff of several of YES' county and federal agency and non-profit organization partners:

- Chris Hepe, Bureau of Land Management, previously at Environmental Protection Agency-Region 9, Arcata, CA
- Donna Chambers – Executive Director, Resource Conservation District, Eureka, CA
- Lindsay Magnuson – Executive Director, North Coast Regional Land Trust, Arcata, CA
- Dawn Elsbree – Headwaters Fund Grant Coordinator, County of Humboldt, Eureka, CA
- Paula Golightly, Restoration Supervisor, United States Fish and Wildlife Service, Partners in Conservation Program, Arcata, CA

In the following case study, discussions, and resulting publication presented in this thesis, I used several qualitative methods from which to gather data including informal conversations and a mail survey of YES landowners, semi-structured interviews with staff at partnering government resource management agencies and other non-profit natural resource organizations, participant observation, and primary document review. Each method chosen reveals a slightly different perspective of the same situation and through triangulation, a term more commonly used in surveying or navigation, research methods are combined to reveal a more substantial and full picture of that situation (Berg, 2009).

CHAPTER FOUR

Case Study

Collaborative Environmental Stewardship in the Van Duzen River

Watershed, Humboldt County, California

Meet the Van Duzen

The Van Duzen River is located in California's North Coast Range, southeast of the City of Eureka. The Van Duzen River (VDR) drains an area of 429 square miles in Humboldt and Trinity Counties and is 73.5 miles long. Elevations in the watershed range from 5,906 feet at its headwaters at Red Lassic peak to 62 feet at its confluence with the Eel River. The VDR basin can be classified into two main physiographic types: grasslands and grass-oak woodlands underlain by melange, and more competent, forested sandstone slopes (Kelsey, 1980). A highly active tectonic setting combined with high rainfall amounts and stream incision rates into relatively weak bedrock make the VDR one of the most erosive watersheds in the United States (Brown and Ritter, 1971). This combination has produced a high incidence of land sliding adjacent to stream channels, including large slump earthflows and extensive zones of debris sliding (USA EPA, 1999).

The quantity and duration of rainfall during storm events is a major factor influencing geomorphic processes in the Van Duzen River Basin. Between two and six intense rainstorms typically occur each winter giving the VDR between 50-100 inches of precipitation annually occurring almost entirely from October through April (Kelsey, 1980). Summer fog provides cooler temperatures in the lower basin while the middle and

upper basins are drier and warmer during the summer months. High magnitude, infrequent storms cause widespread flooding and modification of channel characteristics in the VDR and multiple layers of roots on old redwood trees growing in floodplains are evidence of silt deposition due to prehistoric flooding. Floods in 1861, 1955 and 1964 are considered the largest floods on record in the Van Duzen (USA EPA, 1999).

Three major vegetation zones appear within the basin, redwood forest, oak woodland/prairie and coniferous forest, and have strongly influenced the type and extent of human activity as well as settlement patterns within the basin. The redwood (*Sequoia sempervirens*) forest type dominates the western third of the basin, particularly at lower elevations influenced by summer fog. Most of the redwood forest is managed for industrial timber production, although a few old growth groves are preserved in Grizzly Creek State Park and Humboldt County Parks. The drier upper slopes and ridges of the redwood zone are characterized by Douglas fir (*Pseudotsuga menziesii*) and Tanoak (*Lithocarpus densiflora*) forests. The mid-domain of the basin is primarily grassland and oak woodland including tan oak, madrone (*Arbutus menziesii*). California black oak (*Quercus kelloggii*) and Oregon white oak (*Quercus garyana*) as well as mixed conifer forest. From the time the first Euro-Americans settled in the area, the grasslands have been managed for and supported both grazing of sheep and beef cattle (Moore, 1999). The upper basin is primarily Klamath mixed conifer forests of Douglas fir, Jeffrey pine (*Pinus jeffreyi*), Ponderosa pine (*Pinus ponderosa*), incense cedar (*Calocedrus decurrens*) and white-fir (*Abies concolor*) and is primarily managed by the U.S. Forest Service.

The Van Duzen River is a major tributary to the Eel River system. The stretch from the confluence with the Eel River to Dinsmore Bridge on State Highway 36 is designated under the Wild and Scenic Rivers program. Swimming has long been a favorite pastime on the Van Duzen River and warm summer days and deep swimming holes draw locals and non-locals to the river. Marbled murrelets occupy redwood groves, as do Northern spotted owl which are found in surrounding mature forest as well. Hiking and camping, although limited by the small size of the parks, is popular in the redwood groves and is available in both State and County parks including Grizzly Creek Redwoods State Park, Cheatham Grove, Swimmers Delight, Pamplin Grove and Humboldt Grove. Outside these protected groves are other areas of ancient redwood in private ownership. Fishing for salmon and trout is another popular activity on the river. Several species of salmon and trout are found in the area's streams including Coho and Chinook salmon, and Steelhead and Coastal Cutthroat trout.

Historically, the VDR basin was occupied by two groups of Native Americans of Athabaskan descent: the Lassik and the Nongatl who lived along the river during the winter when fish were harvested then moved to the highland prairies in the summer to gather seeds and bulbs and to hunt game. In autumn months, these Native groups gathered acorns before returning to their winter settlements along the river (USA EPA, 1999). The first Euro-Americans are believed to have settled in the VDR around 1850, under the Federal Homestead Act. The VDR valley was fertile and good for farming, and highlands contained natural prairies which were well-suited to grazing. Rapid settlement

and cultural differences in the area led to war with the Native Americans in which the latter were largely decimated by 1865. Remaining tribal members were spread between the Round Valley and Hoopa reservations. Many archaeological sites remain in the watershed, but there are no remaining tribal lands. Most of the known sites are located upstream from the redwood parks. It is likely that downstream sites were buried with sediment when the river flooded (USA EPA, 1999). In the Van Duzen River basin today, landownership consists of 31 percent private non-industrial cattle ranching and timber operations, 26 percent private industrial timber, 26 percent private rural residential lands and 17 percent public land (US Forest Service, Bureau of Land Management, State and County Parks) (USA EPA, 1999).

The Clean Water Act and Total Maximum Daily Loads

The Van Duzen River is one of the last undammed rivers in California and one of the most highly erosive watersheds in the United States (Brown and Ritter, 1971). Declared by the state of California as a priority basin for planning and improvement in water quality, the Van Duzen River (VDR) Basin was listed on California's Clean Water Act Section 303(d) list beginning in 1992 as 'water quality limited due to impacts of excessive sedimentation on beneficial uses'. The primary beneficial use of concern in the Van Duzen River, salmon and steelhead habitat, is strongly impacted by large pulses of sediment that tend to aggrade the stream channel and alter habitat conditions (as occurred in 1964 and other high rainfall years). Land use practices, particularly road construction and maintenance along with intensive timber management in sensitive watershed areas,

have accelerated sediment delivery processes and continue to pose a sedimentation risk to recovery of salmon and steelhead habitat (US EPA, 1999).

The Clean Water Act (CWA) is the cornerstone of surface water quality protection in the United States. The Act employs a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff (USA EPA, 1994). These tools are employed to achieve the broader goals of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that they can support the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water (USA EPA, 1994). If monitoring and assessment indicate that for some uses and/or parameters, a waterbody or segment is not meeting Water Quality Standards (WQS), then that water is considered "impaired" and goes on a special list called the "303(d) list," named after the section of the CWA that calls upon states, approved tribes, and territories to create such lists (USA EPA, 1994).

Nonpoint source pollution (NPS) represents the most significant source of surface water pollution overall in the country. According to states' 305(b) and 303(d) reports, more miles of rivers and acres of lakes are impaired by overland runoff from row crop farming, livestock pasturing, and other types of nonpoint sources than by industrial facilities, municipal sewage plants, and point source runoff from municipal storm sewer systems and storm water associated with industrial activity (USA EPA, 1994) . The most recent set of 303(d) reports indicated that more than 40 percent of all impaired waters

were affected solely by nonpoint sources, while only 10 percent of impairments were caused by point source discharges alone. The CWA does not provide a detailed definition of nonpoint sources. Rather, they are defined by exclusion -- anything not considered a "point source" according to the Act and EPA regulations.

In response to the 1992 listing of the Van Duzen Watershed on the 303(d) list, and subsequent lawsuit from a group of local fisherman, the EPA committed to establish a Sediment Total Maximum Daily Load (TMDL) for the VDR in 1999. Total Maximum Daily Loads are a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards (USA EPA, 1994). In December of 1999, the EPA completed the "Van Duzen River TMDL for Sediment" stratifying the basin into three distinct sub-basins; the lower basin, the middle basin (mid-domain), and upper basin. The upper basin is primarily composed of the public forest lands, the mid-domain is comprised of mostly private non-industrial ranch and timber lands, and the lower basin is made primarily smaller parcel, private rural residences and private industrial timber operations (USA EPA, 1999).

The Van Duzen TMDL identified the mid-domain, encompassing approximately 202 square miles, as contributing the largest amount of sediment to the watershed. Based on aerial photograph review and extensive field sampling, Pacific Watershed Associates determined the middle basin had the highest rate of sediment delivery, yet the lowest percentage (16%) of sediment delivery associated with management activities (roads/skid trails and timber harvest) compared to 36% in the lower basin and 20% in the upper

basin. The sediment released from the Van Duzen enters the Eel River 14 miles upstream from the ocean. The Eel River, which drains the Coast Range of northwestern California, has the highest recorded average suspended sediment yield per drainage area of any river of its size or larger unaffected by volcanic eruptions or active glaciers in the conterminous United States (Brown and Ritter, 1971).

During the process of developing the VDR TMDL, a small group of private non-industrial cattle ranching and timber operation landowners in the mid-domain of the watershed stepped forward and allowed the EPA to complete an assessment of the watershed within their private landholdings while assisting in gathering scientifically-based information to further define the sediment problem in their section of the watershed. That assessment surprisingly identified roads, as opposed to cattle grazing or other ranching activities, as the largest, single most controllable source of sediment within the watershed. As the TMDL was produced by the EPA and not a state authority, no regulatory actions were implemented; however, one of the implementation recommendations from the EPA was to encourage collaboration between agencies and landowners to conduct watershed assessments and pool resources for implementing conservation measures.

Yager/Van Duzen Environmental Stewards (YES)

The Yager/Van Duzen Environmental Stewards, YES, formed in 1999 in response to the impending development of the TMDL by the EPA. YES is a small non-profit watershed group comprised of ranching landowners encompassing around 78% of the

land base (approximately 80,000 acres) in the mid-domain of the VDR watershed. The mission statement of YES is as follows: “To ensure the environmental integrity of our watershed, while maintaining our heritage and the economic sustainability of our endeavors.” Many of the members of YES are fifth generation Van Duzen landowners and believe that as stewards of this working landscape they are keeping the trust of past generations while holding it for future generations. The group acknowledges that accepted land practices of even thirty years ago, particularly road building and logging, contributed significantly to the sediment impairment and degradation of the watershed. This generation is diligently trying to correct historical impacts on their land through voluntarily promoting and implementing good stewardship practices in treating road-related sediment delivery sites and other Best Management Practices (BMPs) aimed at improving their land holdings and overall water quality within the watershed.

In 2001, YES members initiated their own ownership-wide inventory and assessment of sediment sources for the ranching and timber roads of the YES membership land base. Conducted by Pacific Watershed Associates (PWA) this assessment was aimed at identifying specific sites of controllable sources of sediment. That inventory identified over 1,000 sediment delivery sites on 420 miles of ranch roads and prioritized recommended treatments (PWA, 2003). The group’s objectives became the education of members, partnering agencies and the public about the evolving issues and land management practices affecting the VDR watershed; to collect and ensure the objective use of science; to protect rural livelihoods through the use of Best Management

Practices; to limit future agency regulation; and to protect and preserve private property rights.

Over the ten years since its inception, YES has developed into a unified community organization and has demonstrated its ability to work with both governmental agencies and other private groups. They began their journey by working cooperatively with the EPA and have since successfully worked with the Regional Water Quality Control Board, California Department of Fish and Game, Department of Forestry, University of California Cooperative Extension, Humboldt County Resource Conservation District, the Natural Resource Conservation Service, Pacific Watershed Associates and SHN Consulting Engineers and Geologists. In addition to a Board of Directors and the traditional offices of President, Vice- President, Secretary and Treasurer, YES also has a volunteer grant administrator, Dina Moore. Ms. Moore is a graduate of the California Ag Leadership Program and a former member of the North Coast Water Quality Board. Dina was the founding president of YES and the moving force behind its inception. She assisted the EPA in facilitating outreach and education in the Van Duzen River watershed during the development of the technical TMDL and has conducted interviews for a historical narrative research study of the ranching community and historical practices within the watershed adding a dimension of knowledge to the TMDL not possible without landowner participation.

As of January 2009, the membership of YES had applied for and received five grants to implement specific road restoration projects. The group has had three grant

agreements with the California Department of Fish and Game and one with the State Water Resources Control Board all totaling over \$3 million, and is currently funded by the NRCS through a cooperative five (5) year agreement. The grant funding YES has received to date has been applied to either decommissioning or upgrading the original assessment sites identified in the PWA *Watershed Assessment* (2003). This funding has served to employ the services of Pacific Watershed Associates, SHN Consulting Engineers and Geologists, Inc., Able Forestry Consultants, Inc., and a number of small independent contractors employed in providing labor and equipment for road upgrades or decommissionings. Funding has also been used locally at a variety of retail suppliers of materials in Humboldt County.

Each YES member/ranch property is required to have a California Rangeland Water Quality Management Plan, or other plan such as one with the Natural Resource Conservation Service, that incorporates best management practices designed to improve water quality. The Best Management Practices (BMPs) that YES has adopted include controlled grazing methods that provide for the overall health of the vegetation, fences that ensure the distribution of livestock and enhancement of vegetative cover, herding of livestock to facilitate their distribution, and assurance of the overall well-being of livestock with annual health programs to maintain the health of the entire ecosystem. BMPs for protection of watercourses include the development of springs for stock water and placement of salt/minerals to help distribute livestock and their BMPs for ranch roads

include the appropriate construction of ranch access roads for level of use, ongoing maintenance and other erosion control measures.

Thus far, they have not had the capacity to monitor the total of all sediment that has been saved through their BMP activities undertaken since inception as a working watershed group. They are at a point in time where that information is necessary for the group to evaluate their progress and to ensure that they are strategically moving forward. From their track record they have been highly successful at getting grants, and completing the work. However, funders need the information (total sediment saved from all management efforts) that is currently lacking in order to continue funding these type of projects, especially in tight fiscal times. The group believes by gathering their grant funded data from multiple sources into one database, they will be able produce an internal repository to be used for strategic planning and future sediment reduction work. Furthermore, they would like to share with government agencies, students and other working groups, a multi-media presentation, updated brochure and published document highlighting their efforts and successes to date as well as the wider benefits of voluntary collaborative efforts in watershed management.

Through the group's current Headwaters Grant funded through the County of Humboldt Headwaters Fund, they are accomplishing those goals. The Headwaters Fund was initiated in 2003 as a public fund for the advancement of economic and community development in Humboldt County. The Headwaters Fund offers loans and grants for infrastructure projects, and economic development grants. The purpose of the Headwaters

Fund is to support the growth of base industry clusters, increase the number of sustainable jobs that pay at or above the median income, enhance the quality of life for residents of Humboldt County through projects that promote healthy communities and protect and enhance the natural environment.

Through YES' Headwaters Fund grant the group will be able to capture the total of all sediment treatments implemented through management activities since their inception as a working watershed group in one database. This effort will help YES evaluate their progress in trying to achieve water quality objectives, ensure that the organization is strategically moving forward in reducing sediment delivery into the Van Duzen River Watershed, and is necessary to assure the sustainability of the infrastructure (roads, etc.) supporting the ranches and their related enterprises such as grazing, timber and recreation. Part of the Headwaters Grant funding is also dedicated to developing outreach materials to provide the public with information about the conservation work that private ranch landowners do on their lands and how these efforts benefit fish, wildlife, the environment and the broader community. This work evaluates the benefits derived by those efforts through research and dissemination of information thereby promoting use of BMPs and voluntary regulatory compliance efforts on a larger scale throughout the greater community of the North Coast. The long-term goal of sediment reduction is to provide a healthy watershed supportive of native salmon populations and future generations of those currently stewarding the landscape.

CHAPTER FIVE

Results

Mid-Van Duzen Watershed Collaboration Assessment

The most visible strength of YES is its membership. YES members manage approximately 80,000 acres in the mid-domain of the VDR and are by necessity hard working, independent and resourceful. The membership is committed to the preservation and stewardship of their land holdings. Yet one of the biggest challenges inherent in YES is also in its membership. YES is a grass roots organization composed of ranchers who are by nature independent and, to a degree, geographically isolated, thus maintaining the integrity and momentum of the group has always been a challenge. However, celebrating the group's successes and their strategic planning process reaffirms their cohesiveness. Assessing the group's successes to date is critical to its future. The validation of accomplishments and hard work completed by their collaborative efforts and implementation of road upgrades serves as a catalyst further their stewardship and outreach efforts and share with other landowners, landowner groups and agencies.

Six Criteria for Measuring Success in Watershed Collaboration Partnerships

The Level of Agreements Reached The most basic level of agreements simply outlines a partnership's goals or principles while in more advanced agreements partners agree to implement specific actions. Some more long-term partnerships are able to write and adopt comprehensive watershed plans that integrate many specific projects (Leach,

2002). The levels of agreements reached in the Mid-Van Duzen and the YES group to date have included mostly agreements that implement specific actions. The group has had grant agreements with the California Department of Fish and Game, the State Water Resources Control Board, all totaling over \$3 million, and is currently funded by NRCS through a cooperative five (5) year agreement to implement specific road restoration projects. Additionally, they have current grant agreements with the County of Humboldt and USFWS to develop and have deliverable outreach materials highlighting the variety of benefits from the group's process of landowner driven, voluntary regulatory compliance.

Restoration Projects Implemented The extent to which the partnership follows through on their commitments is a central measure of success; regardless of whether or not there has been enough time, or fortune, for these efforts to achieve their intended purposes (Leach, 2002). As illustrated in the YES case study chapter of this thesis, restoration projects implemented by this watershed group and their partners have primarily aimed at reducing the amount of discharged sediment through road restoration and decommissioning projects. The group has been able to successfully complete each previous grant project and in addition, they have conducted multiple restoration projects through other private and alternative funds.

As most of the group's grants and individual sediment reduction work has been completed by different agencies with different data and reporting requirements, a wide variety of different data on sediment work have been gathered. The group is in the

process of gathering that data into a digital repository linked to a mapping program that the group can use for prioritizing projects and distributing benefits throughout the lands of the membership. This data base will ultimately be able to determine the amount of money spent per cubic yard of sediment saved through YES collaborative efforts; a useful tool for securing future funding to continue and expand their work.

Monitoring Projects Implemented Another criterion for measuring collaborative success involves the partnership's commitment to collecting adequate data to assess its effect on improving targeted watershed conditions (Leach, 2002). Monitoring and assessment ideally consist of pre and post project data and assessing whether or not the projects are being implemented as planned. Monitoring is also seen as necessary for the process of adaptive management (Ewing, Grayson and Argent, 2000 in Leach, 2002). In the case of the mid-VanDuzen, both pre- and post-photo documentation and topographic surveys were done on all projects with DFG, State Water Board and IRWMP. In addition to being a required protocol for monitoring by all agencies, photo documentation is also a useful tool for education and outreach materials produced by YES. The topographic surveys can be useful for measuring potential future sediment removed from the system. The group also participated with CDFG on stream habitat typing on their lands. Other, more longitudinal, monitoring activities such as stream bed topography have not taken place primarily due to lack of funding and personnel or staff.

Education and Outreach Efforts Education is typically necessary for stakeholders to become better stewards of the land and water and outreach projects can

help build community support for stakeholder partnerships (Leach, 2002). Through their relationships with other organizations and affiliations they have been involved and invited to participate in other outreach efforts. Early on in the group's formation landowners took part in education courses offered by the University of California Cooperative Extension Service on rangeland water quality. Since participating in those courses, the group has hosted UCCE water quality workshops aimed at identifying controllable sources of sediment. The group has also been asked annually for several years to participate in and present at an Educational Fair at College of the Redwoods whose purpose is to educate middle school children about environmental issues in their local area. The YES group's presentation is on the benefits of environmental stewardship in cattle ranching and grazing as evidenced in their own best management practices and the efforts of their watershed group.

The group has also been asked to be involved in a local dialogues project through the North Coast Regional Land Trust organization. The North Coast Dialogues aim to determine the best way to maintain working lands in Humboldt County through multi-stakeholder conversations about the collective vision for the desired future of the region. The group is also becoming more heavily involved and committed to working with the Partners for Conservation program through the USFWS.

For the final two criteria in measuring watershed partnership success I will note the response rate for the landowner surveys was 7 of 10 mailed and will also remind the reader that semi-structured interviews were conducted with five (5) of YES' partner

employees. I began each interview by referencing questions sent to them ahead of time, and asking the participant to share the information they thought to be most pertinent to the topic of collaborative watershed management and YES.

Perceived Effects on Watershed Conditions Most watershed partnerships have access to some information about whether conditions in their watershed are improving or declining. Some criteria of beneficial environmental outcomes include: improved habitat, land protected from development, improved water quality, changed land management practices, preserved biological diversity and conservation of soil and water resources (Conley, 2003). However, as a result of numerous factors few partnerships have collected the baseline and post project monitoring data to attribute those trends to the activities of the partnership or group. Hence, as a surrogate for quantitative data on environmental conditions, stakeholders were questioned regarding their perceptions on the partnerships ecological effects in the watershed.

To gather and understand the landowner group's perceived effects on watershed conditions, I asked several questions in their survey. The first was: "Has the process of partnering within your watershed (the mid-VDR) to reduce sediment load given you a better overall understanding of the physical and biological processes in the watershed? If so, in what ways has this been a benefit and/or detriment? The landowner responses were both thoughtful and enlightening. "The partnership that has been established within the Mid-VDR to reduce sediment load has been a good introduction to the overall understanding of the physical and biological processes in the watershed, the overall

situation is complex by the nature of the beast and it is subject to varying degrees of interpretation depending on whom you converse with.” Another rancher responded this way: “Yes, forty years ago little thought would have been given to the effect of grazing and discharge of sediment into the watershed. I am guilty as charged on that account, although not wantonly abusive, more a bit ignorant. Over the years, education about the environment and what impact I as an individual have on protecting became clear to me that stewardship was not only an important aspect of my responsibility, but a most necessary goal. Joining YES enhanced that goal tenfold and being involved with the group has strengthened that bond between land and man for me.” And finally: “It’s given me a better understanding of the results of good operating practices”

I asked a similar question of several of YES’ partners: “Has working with YES given you a new or different understanding of the physical and biological processes occurring in the VDR watershed?” Their abbreviated answers are as follows: “Through dialogue, I’m more educated on what it takes to be a steward of large landscapes and am learning a shared culture and gaining a deeper understanding of what it takes to be a real steward.” Another partner answered this way: “This is the first cohesive group I’ve worked with who has a longer-term (watershed) perspective. I’m more used to dealing with individual landowners or more single-project oriented people.” And yet another had this perspective: “Because landowners were willing to cooperate in the assessment there was a more accurate on the ground assessment of erosion rates. If not, the EPA would have had to rely on less accurate modeling measures, aerial mapping. Also, historical

narratives and anecdotal information was valuable in recognizing a history of change within the watershed.”

A second question asked of landowners was: “How would you evaluate your partnership’s effects on reducing sediment load in the Mid VanDuzen? (Effective, somewhat effective, somewhat ineffective, totally ineffective?).” The landowners sentiments were: “The partnership’s effects on reducing sediment load in the mid-VDR has been somewhat effective to date, however, there’s still too much siltation during storm events and this can be attributed to poor road construction, residential development and [marijuana] grow operations that may be taking place in the Ashfield and Iaqua buttes.” “Effective as we have made ourselves known to the agencies, they know who we are and that we are benefitting the watershed to improve sediment reduction.” “Somewhat effective, anytime you turn water off a road or over seed an area to help hold the soil you are being effective in controlling sediment discharge into the watershed and zero manmade discharge is virtually impossible.” “The results are very effective and successful as far as the projects we have completed. We have installed and upgraded over 100 culverts and rock fords to date and we have not had fill failure or diversion, only one culvert has plugged - no fill was lost.”

When asked how they would assess the effectiveness of the YES group at reducing road related sediment discharge, their partners answered: “They have been successful at funding and trying to increase their knowledge base about what is involved in their activities and educating themselves about dealing with public funding that comes

with strings attached.” “Effective. It ended effective, but started as a challenge and we were far apart in connecting, personally. The steps were a two-way street – on landowners side there was clear leadership and then some would follow. On the government side, we gained some patience and gave landowners time to be able to collaborate instead of just going ahead without the landowner’s participation.”

I would summarize the group as very successful in their efforts to improve environmental conditions in their portion of the watershed. Their initial process of working with EPA to define the sediment problem was an important step in addressing the sediment issue in the mid-domain of the Van Duzen. Having their original beliefs validated in the TMDL, that both ranch and county roads were the main cause of anthropogenic sediment in their watershed as opposed to ranching and grazing, was a huge success which provided the opportunity for the ranching community to come together and further educate themselves on BMPs and work together to implement cross-boundary stewarding activities. However, as one rancher stated, “We’re only somewhat effective as mother-nature always has the upper hand.” Mother-nature truly does have her hand in the sediment movement in the mid-VanDuzen. The heavier than average rainfall this early spring 2011 has produced numerous new slide areas to evaluate, along with recent road upgrades to reevaluate, in order to reassess their management plans accordingly. At the same time, photo and anecdotal information about salmon returning as far up into the watershed as the North Fork of Yager this last Christmas may not prove that what the ranchers are doing is beneficial, but it gives them hope that what they are

doing is having a positive effect on the land for the next generation. Photos of the event, and the fish, were front page news Christmas Eve 2010 in the Eureka Times-Standard with acknowledgment of YES' efforts from local California Fish and Game.

Perceived Effects on Human and Social Capital The extent to which a partnership has improved its stakeholders' capacity for achieving future accomplishments is another dimension to consider in assessing collaborative success (Leach, 2002). There is agreement that partnerships have the potential to promote greater knowledge, new interpersonal relationships and mutual understandings. Personal networks and relationships are key components of social capital and pertinent knowledge is a key component of human capital and both social and human capital can promote collective action (Leach, 2002). In longitudinal studies, research can measure actual changes in knowledge and networks over time; however, in a cross-sectional study research must rely on the respondent's perceptions on the partnerships effects. According to Conley (2002) some criteria of beneficial socioeconomic outcomes include: built or strengthened relationships, increased trust, participant's gained knowledge or understanding, increased employment, improved capacity for dispute resolution, and changed in existing institutions or creation of new institutions.

To gather the landowners' perceived effects of social and human capital due to collaborative efforts, they were first asked the following question: "Has the process of partnering to reduce sediment load in your watershed given you a better understanding of other stakeholder's perspectives? If so, whose perspectives and in what ways are you

affected?” Again, the ranchers were very forthcoming with their responses and the group gave very valuable information. Here are some of their responses: “For me it is not whose perspective but rather how I have changed my perspective of how I look at the whole watershed.” “The process of partnering has given our family a better understanding of other stakeholder’s perspectives but could be enhanced further by reviewing case examples and by conducting more field visits to specific sites that are both problematic and those with successful resolutions.” “It reaffirms to me that the members of YES are pretty much in sync with each other and that perspective leads down the same path of sediment reduction.”

YES’ partnering entities responded to a similar question regarding whether or not working with the YES group has given them a new understanding of other stakeholders perspectives within the watershed. Several of their responses follow. “I’m starting to get to know their concerns and their growing interest in knocking back conifers...restoring oak woodlands and the diversity that comes with it and understanding that landowners see changes in the landscape as well.” “Absolutely, not being a landowner, I am not in the know about how outside regulations affect landowner actions.”

A second question for landowners about social and human capital benefits of their collaborative process was, “Have the partnerships formed given you new long-term friendships or professional relationships? If so, please describe.” Those who responded said this: “The people who we have worked with have been a great source of information; they seem to always be there for you.” “Yes, the partnerships have opened

our eyes to agency connections and to other landowners that bring different perspectives to the YES organization.” “Yes, we have the door opened to get to know our neighbors better along with agency people that we know we can call on for other things besides watershed issues, we have also gotten to know other watershed groups across the western U.S. because of what we’ve done.” “It is always a good idea to form friendships with your neighbors whether you live in our watershed or an apartment complex.”

Partners of YES agreed that the process of collaborating with YES had given them some new long-term friendships or professional relationships. “Absolutely, both! I’ve been invited into different social activities and internal organizational meetings, homes and barbecue’s, and have built the relationships needed to be able to share technical expertise, maps, etc. Sharing of tools is due to the level of comfort in the relationships built and building trust and communication are necessary for any conservation efforts to be successful.” “Yes. I gained some long-term professional respect for individuals such as Dina Moore.”

Finally, the landowners were asked if there was any value in being a member of YES beyond sediment load reduction and if there were any other benefits or values from being a member of YES. Ranchers responses included: “Yes, the process of learning is great in this group and I value the process a lot more.” “Watershed restoration has been a popular term for the past 15 years and the hands on participation has allowed for a new level of networking and recognition within a regional perspective.” “Yes, this has brought us together to where we can pull together at anytime on just about any issue and at least

talk about what should be done.” “Yes, it has unified us into a formidable conservation group.” “It has been a valuable learning process and we have a very positive public image now.”

The sentiments from YES partners when asked what value there is in landowner-driven groups such as YES' beyond sediment reduction in their watershed were: “A committed land group representing a large land base is excellent – it's necessary for it to be landowner driven.” “Because the environment doesn't end at property lines this process helps enhance the knowledge of consequences /actions of individuals. There is also power in a group – there are actual bodies for implementing activities and actions.” “There is more value in landowner groups in bridging gaps (in implementation of BMPs) than non-landowner non-profits. A community of people with financial stake and sense of place with support base is growing in necessity and we need the ‘middle-man’ non-profits to a lesser extent than prior times. This kind of group gives longevity to benefits.” “It's extremely satisfying to see activity based on initiative of landowners to do good things for the environment and land base. It builds communication and networking and a socially cohesive community. Shared stewardship has efficiencies.” “This type of group gives motivation and can be a model for other groups.”

Jonathan Kusel states that human capital includes the skills, education, experiences and general abilities of residents; pertinent knowledge is a key component of human capital. Social capital includes a community's ability and willingness to work together toward community goals as well as networks of trust that facilitate cooperation

for mutual benefit (Gray, 2001). Personal networks and relationships are key components of social capital. There is agreement that partnerships have the potential to promote greater knowledge, new interpersonal relationships and mutual understandings thus improving the stakeholder's capacity for future problem solving and accomplishments. Due to this process of collaboration in the Van Duzen, ranchers are not working alone to accomplish tasks; they are working as a community to accomplish a goal. They have new income-producing skill sets that can be passed on and learned in families, and they have the ability to draw resources from others. The future for their children looks better because they have modeled how to get along with others, including agencies, and to work together.

As stated earlier, identity is important in deciding what actions individuals and groups take especially when confronted with challenges and changing social contexts. Over a lifetime there are transitions, or changes in context, that can have significant effects on self-definition and identity. As evidenced in the core values of their first and second strategic planning sessions, through the process of collaborating with others for over a decade, the YES members have moved from more of a defensive group to one of a more trusting and openly communicative group. In their first strategic planning session their core values and strategic directions were listed as: the education of members, partnering agencies and the public about the evolving issues and land management practices affecting the VDR; to collect and ensure the objective use of science; to protect rural livelihoods through the use of Best Management Practices; to limit future agency

regulation; to protect and preserve private property rights. In the second planning session, they listed their values and strategic directions as: fairness; credibility; transparency; stewardship of resources/land; sustainable; trust; bringing landowners together; still going strong; strong leadership. These large land owners no longer feel like targets, they no longer feel as though others view grazing as a negative impact on the watershed. This is a big change in their identity; these large land owners now feel more supported as land stewards and the multiple values of large intact working landscapes are beginning to become more recognized.

CHAPTER SIX

DISCUSSION

The Van Duzen and Beyond: Transferability

One of the goals of YES is to be able to use their approach to voluntary regulatory compliance, sediment data repository, and outreach materials as a transferable conservation model for other landowner groups in other watersheds. For this discussion of transferability of collaborative approaches to resource conservation, I draw heavily on research done by Patrick Bixler with the Blackfoot Challenge in the summer of 2010. The Blackfoot Challenge is a non-profit organization committed to coordinating conservation efforts from ridge-top to ridge-top in the Blackfoot Valley watershed, Montana. In his report on the Blackfoot Challenge, Patrick Bixler outlines some social, ecological, and temporal conditions that help make the emergence of robust collaborations possible, followed by some basic design principles for start-up collaboratives. Some conclusions drawn in his report are that the transferability process needs to be diffuse, decentralized, and adaptive. Seen as a highly successful model of collaborative conservation on a larger, more comprehensive scale, YES also has an interest in modeling some of their process to expand their group's role in their own watershed and in garnering future success in collaborative conservation.

Transferability refers to the notion of scaling out or replication of collaborative conservation models at the same scale but at different locations (Bixler, 2010). However, there are no blueprints or hard rules to follow when attempting to transfer processes of

collaboration. There needs to be flexibility within the process of replication and each individual design must be adaptive in its capacity (Bixler, 2010). Every watershed is different. Every community and resource base is different. But success in certain areas has shown collaborative approaches to conservation can work, and now the challenge is how to transfer success to other places.

Social, Ecological and Temporal Conditions

By exploring dimensions of social capital, we can begin to get a clearer picture of what makes collaborative conservation successful and robust (Bixler, 2010).

Collaboration does not come easily, especially with the political and cultural differences surrounding the uses of natural resources experienced in the west. However, there are several key social variables that contribute to successful collaboration.

In agreement with Bixler's research (2010), I heard again and again that it must start with the local people; in order for a collaborative process to be successful it needs to be driven by landowners. It would be difficult to near impossible for a state and/or federal agency employee to begin the discussion of collaboration and have the support and buy-in of the community. It needs to come from the grassroots and not from top-down governmental bureaucracy. However, throughout my research, and in others, it was also widely acknowledged that without agency support and participation real success is difficult to achieve. Most of YES' success stems primarily from initially working with the EPA to allow access to lands for the development of the Van Duzen TMDL. By allowing EPA access to their private lands and having a collection of local watershed

historical narratives produced by the YES group to draw from, more accurate quantitative and qualitative data was gathered in that initial assessment than would have been gathered otherwise. It just so happened that the EPA's findings from the sediment assessment validated landowner's beliefs that cattle have insignificant sediment impact and that roads are the leading sediment problem which was huge for YES social growth as an organization. It was critical for landowner 'buy-in' to working with other organizations in the future. It was the first small success and it scientifically validated a belief held by YES members. It also served to build trust with EPA and PWA as they were viewed by the YES members as openly and fairly reporting the findings. Without the support of the EPA and their involvement of landowners, YES' successes might not have been possible.

However, even processes that are landowner driven would have a difficult time succeeding without the right leadership (Bixler, 2010). Personality, being able to check your ego at the door, and being able to find common ground in a partnership are important leadership characteristics with this kind of process. Other leadership traits that lead to trust include: listening, communicating openly, having respect for others, maintaining confidentiality, maintaining integrity, keeping your word, being reliable, being responsible, giving authority, and rewarding risk. The capacity to communicate openly and directly with integrity was key for both YES members as well as original EPA staff in the initial steps of the collaboration process in the Van Duzen. The ability of both groups to be clear and precise in providing not only factual information but in expressing thoughts, opinions and feelings were part of this process. Being able to keep

their word and being reliable with each other, as well as their members/agency, also aided in those first steps of collaboration. Being responsible to the project and being willing to be accountable when there were potential barriers or breakdowns and being willing to take risks and work through areas of contention helped solidify their partnership. Showing consideration and respect for everyone in their organization and acknowledging each person for his/her value and contributions are part of this leadership trait as well.

Equally as important as the social conditions conducive to robust collaborative conservation efforts are the ecological characteristics of the place (Bixler, 2010). Knowing what the specific problems or issues are and choosing the right projects are both important components of ecological characteristics. In the Van Duzen, fully understanding the sediment issue and how to go about mitigating the amount of sediment loss due to human activities was of utmost importance. In the mid-domain Van Duzen 76% of sediment loss occurs naturally, which leaves human activities as the cause of 14% of the sediment loss. The discovery that the majority of sediment loss on their lands was due to ranching roads made the problem one the YES members could deal with and be effective at working toward. This also led to the further education and engagement of landowners.

Part of understanding ecological characteristics is having both scientific and citizen-based resources to draw from (Bixler, 2010). For the development of the TMDL, the use of the collection of local watershed historical narratives produced by the YES group, in addition to the more scientific data begin gathered on the ground provided more accurate quantitative and qualitative data than would have been gathered otherwise.

However, even with the right social and ecological conditions, ultimately it also has to be the right time (Bixler, 2010). It needs to be the right time for stakeholders to invest their time. People must have the capacity to invest time for collaborations to get off the ground. It can take a lot of time to show up to all the meetings and events; to be part of the process. It can take long hours to sit down, listen, and understand where other people are coming from; their perspectives, their interests.

Additionally, people work at different times and at different time scales. While resource agency employees typically work a regular five-day work week, ranchers operate on a different time scale altogether and often work at times that aren't conducive to meeting and discussing issues with agency staff. It takes effort and time to coordinate this work. There clearly is no magic formula for successful collaboration. It takes the right people, in the right place, and at the right time. In addition to considering the social, ecological and temporal conditions, Bixler (2010) proposes a few design principles from the analysis of his research with the Blackfoot Challenge which can serve help serve as guiding principles for starting collaborations.

Design Principles

The first design principle is that starting small is okay. Starting small with problems that can be easily addressed is a good place to start. For the YES group, addressing the sediment loss from their ranching roads was something that they could all agree upon and work together to mitigate. Success breeds success, and even getting a group of people together to talk about an issue is as good as any place to start.

The next principle takes its name Pareto's Principle, the 80/20 rule (Bixler, 2010). One way to start small is to focus on the issues you can agree on. In this research, the 80/20 rule is about focusing on the 80% of the issues that stakeholders agree on, and less on the 20% they do not. I heard this over and over again in conversations with the YES members and their partners. If everyone can acknowledge that there is lack of agreement on certain issues, the 20% that isn't agreed upon in the beginning can be set aside until communication and trust develop. However, in order to get to the 80% which can be worked on landowners and agencies must see more 'eye to eye' (Bixler, 2010).

Developing these relationships, and seeing other perspectives as valuable, and possibly even in agreement, is often the most difficult but most necessary starting point. For this group of ranchers in the Van Duzen who, as many others like them, would typically shun the opportunity to work side by side with agency employees, there was a willingness to take a chance and at least sit down at the table to discuss the issue of sediment that allowed them to be able to see more 'eye to eye'. Finally, imbedded into these design principles is the idea that collaboration does not equal consensus. Collaborating on projects and working together to accomplish conservation goals does not mean there is consensus among all members of the partnership. It means that those who are involved can look past the differences to find a common goal to work towards together in a positive and productive way.

'Models' for collaborative conservation will not look the same the next watershed over and there are no set-in-stone rules or blueprints for success. A Blackfoot Challenge rancher made this observation, "I'm not so sure that you can take the same model that we

have here and transfer it to somewhere else, but I think you can encourage people to look at the process of collaborative work” (Bixler, 2010; 16). Partnership building and collaboration is vital work. Research with the Yager/Van Duzen Environmental Stewards, the Blackfoot Challenge, and other watershed groups throughout the United States, supports the idea that robust collaborative conservation organizations do have a role to play in transferring knowledge about their own process or model to other places.

Partnerships, however, often prove more difficult than working alone.

Coordination can slow progress and conflicting personalities can hamper or break down the group process, but the end result is a stronger voice for conservation and a more unified group of stakeholders. The experience of the Yager/Van Duzen Environmental Stewards in collaborating to reduce sediment in their section of the Van Duzen watershed entailed much hard work yet has proven very worthwhile. Some of the lessons learned through their collaborating process are that getting together is a beginning, working together is progress, and staying together is success.

REFERENCES

- Ack, Bradley L. et al. 2001. *The Practice of Stewardship: caring for and healing ecosystems and communities*. Journal of Sustainable Forestry 12:117-141.
- Alpert, Peter. 2004. "Stewardship, Concept of" in *Encyclopedia of Biodiversity*. ed Simon Levin. University of Massachusetts, Amherst.
- Adger, W. 2003. *Social Capital, Collective Action, and Adaptation to Climate Change*. Economic Geography. 79:387–404.
- Aplet, G. H., N. Johnson, J. T. Olson, and V. A. Sample. 1993. *Defining Sustainable Forestry*. Island Press, Washington, D.C.
- Argyle, M. 1981. *Social Situations*. Cambridge, Cambridge University Press.
- Berg, Bruce L. 2009. *Qualitative Research Methods for the Social Sciences*. Allyn & Bacon; Boston.
- Birch, T. W. 1996. *Private Forest-land Owners of the United States*. Resource Bulletin NE-134. USDA Forest Service, Northeastern Forest Experiment Station, Radnor, PA.
- Bixler, R. Patrick. 2010. *Navigating Waters Beyond the Blackfoot: The Transferability of the Collaborative Conservation Model*. Research Report. Department of Sociology, Colorado State University.
- Bourdieu, P. 1986. "The Forms of Capital" in Handbook of Theory and Research for The Sociology of Education, ed. J. G. Richardson. New York: Greenwood Press; 241–258.
- Breakwell, Glynnis M. 1983. *Threatened Identities*. John Wiley & Sons, Chichester.
- Brodsky, Anne E. 2003. *With All Our Strength*. New York: Routledge.
- Brown, W.M., III, and J.R. Ritter. 1971. Sediment transport and turbidity in the Eel river basin. U.S. Geological Survey, Water Supply Paper. 1986.

- Brown, Jessica and Brent Mitchell. 2000. *Landscape Stewardship: New Directions in Conservation of Nature and Culture*. The George Wright Forum 17:70-79.
- Clayton, Susan and Susan Opatow ed. 2003. *Identity and the Natural Environment: The Psychological Significance of Nature*. Cambridge, Mass: MIT Press.
- Coglianesi, C. 1999. *The Limits of Consensus*. Environment 41:28-33.
- Conley, Alexander and Margaret A. Moote. 2003. *Evaluating Collaborative Natural Resource Management*. Society and Natural Resources, 16:371–386.
- Dryzek, John S. 2005 *The Politics of The Earth: Environmental Discourses*. 2d ed Oxford University Press.
- Elliot, Michael, Barbara Gray and Roy J. Lewicki. 2003. “Lessons Learned about the Framing and Reframing of Intractable Environmental Conflicts” in *Making Sense of Intractable Environmental Conflicts*. Island Press, Washington.
- Ethier Kathleen A and Kay Deaux. 1994. *Negotiating Social Identity When Contexts Change: Maintaining Identification and Responding to Threat*. Journal of Personality and Social Psychology 67:243-251.
- Frey, Lawrence, and Stephen P. Konieczka. 2010. “Group Identity” in *Encyclopedia of Identity*. ed. Ronald L. Jackson II Sage Publications.
- Genskow, Kenneth D and Stephen M Born. 2006. *Organizational Dynamics of Watershed Partnerships: A Key to Integrated water Resources Management*. Journal of Contemporary Water Research and Education. 135:56-64.
- Glaser, Barney G and Anselm L. Strauss. 1967. *The Discovery of Grounded Theory*. Transaction Publishers: New Brunswick.
- Goldman, Alvin. 2002. A Causal Theory of Knowing. In *Epistemology: contemporary readings*, ed. Michael Huemer, 450-463. London: Routledge.
- Kusel, Jonathan. 2001. “Assessing Well-Being in Forest Dependent Communities” in *Understanding Community-Based Forest Ecosystem Management* ed. Gray and Kusel. Hawthorn Press; Binghamton, New York.

- Gray, Barbara. 2003. "Framing of Environmental Debates" in *Making Sense of Intractable Environmental Conflicts* ed. Lewicki, Gray and Elliot. Island Press; Washington.
- Gray, T. S. and Hatchard, J. 2007. *Environmental Stewardship as a New Form of Fisheries Governance*. *Journal of Marine Science* 64:786–792.
- Griffin, C. B. 1999. *Watershed Councils: An Emerging Form of Public Participation in Natural Resource Management*. *Journal of the American Water Resources Association* 35:505-518.
- Grumbine, R. E. 1994. *What is Ecosystem Management?* *Conservation Biology* 8:27–38.
- Hawthorne, John. 2004. *Knowledge and Lotteries*. Oxford: Oxford University Press.
- Heinzerling, Lisa and Frank Ackerman. 2002. *Pricing the Priceless: Cost-Benefit Analysis of Environmental Protection*. Georgetown Environmental Law and Policy Institute.
- Hesse-Biber, Sharlen, Patricia Leavy, and Michelle Yaiser. 2004. Feminist Approaches to Research as Process: Reconceptualizing Epistemology, Methodology, and Methods. In *Feminist Perspectives on Social Research*, ed. Sharlen Nagy Hesse-Biber and Michelle L. Yaiser, 3-26. New York: Oxford University Press.
- Huemer, Michael. 2002. *Epistemology: contemporary readings*. London: Routledge.
- Kelsey, Harvey M. 1980. *A Sediment budget and an analysis of geomorphic process in the VanDuzen River Basin, north coastal California, 1941-1975*. *Ecological Society of America Bulletin*, Part I; 190-195.
- Kenney, Douglas S. 2000. *Arguing About Consensus: Examining the Case Against Western Watershed Initiatives and Other Collaborative Groups Active in Natural Resources Management*. Natural Resource Law Center, Boulder.
- Lakoff, George. 1980. Truths. In *Methaphors We Live By*. Chicago: University of Chicago Press.
- Leach, William D., Neal Pelkey and Paul Sabatier. 2002. *Stakeholder Partnerships as*

Collaborative Policymaking: Evaluation Criteria applied to Watershed Management in California and Washington. Journal of Policy Analysis and Management 21:645-670.

Leopold, Aldo. 1949. *A Sand County Almanac*. Oxford University Press: Oxford, England.

Lubell Mark. 2004. *Collaborative Watershed Management: A View from the Grassroots*. Policy Studies Journal 32:341-361.

McEvoy, T. J. 1998. *Legal Aspects of Owning and Managing Woodlands*. Island Press, Washington, DC.

Melton, Tamara. 2003. *Cultivating Collaborative Partnerships in Natural Resource Conservation: Lessons Learned From the Big Darby*. Master's thesis. College of Arts and Sciences, Ohio University.

Naples, Nancy A. 2003. *Feminism and Method: Ethnography, Discourse Analysis, and Activist Research*. New York: Routledge.

Oliver, Marie. 2011. *Watershed Councils: It Takes a Community to Restore a Watershed*. PNW Science Findings; 129:2-5.

Palmer, Clare. 2006. "Stewardship: A Case Study in Environmental Ethics" in *Environmental Stewardship: Critical Perspectives Past and Present*. ed R.J. Berry. T&T Clark, New York.

Prosperity! The North Coast Strategy. Specialty Agriculture—Ranching—Industry Cluster Work-Plan The North Coast Strategy 2002-2007. County of Humboldt Economic Development Strategy.

Rickenbach Mark G. 2002. *Cross-Boundary Cooperation in a Watershed Context: The Sentiments of Private Forest Landowners*. Environmental Management 30:584-594.

Sabatier, Focht, Lubell et al. 2005. *Swimming Upstream: Collaborative Approaches to Watershed Management*. MIT press, Cambridge MA.

Sawhill, John. 2000. "Bringing People Back to the Land." *The Nature Conservancy*. pp.2-5.

- Short, Anne Garrity. 2010. *Governing Change: An Institutional Geography of Rural Land Use, Environmental Management, and Change in the North Coastal Basin of California*. Ph.D. dissertation, Department of Energy and Resources, University of California, Berkeley.
- Sterk, Claire E. and Kirk W. Elifson. 2004. Qualitative Methods in Community Based Research. In *Community-Based Health Research*, ed. Daniel S. Blumenthal and Ralph J. DiClemente, 133-151. New York: Springer Publishing Company, Inc.
- Tajfel, H. 1981. *Human Groups and Social Categories*. Cambridge University Press; Cambridge, England.
- US EPA. 1994. *Introduction to the Clean Water Act*. United States Environmental Protection Agency, Watershed Academy Web –Distance Learning Modules on Watershed Management. Retrieved January, 20 2011.
<http://cfpub.epa.gov/watertrain>
- US EPA. 1999. "Van Duzen River and Yager Creek Total Maximum Daily Load for Sediment." United States Environmental Protection Agency, Region IX, San Francisco, CA.
- US EPA. 2004. *The Use of Best Management Practices (BMPs) in Urban Watersheds* EPA/600/R-04/184 United States Environmental Protection Agency, Office of Research and Development; Washington, D.C.
- US FWS. 2010. *About the U.S. Fish and Wildlife Service*. United States Fish and Wildlife Service, Office of External Affairs. Retrieved on January 20, 2011.
http://www.fws.gov/help/about_us.html
- Wagner, Cheryl L. and Maria E. Fernandez-Gimenez. 2008. *Does Community-Based Collaborative Resource Management Increase Social Capital?* Department of Forest, Rangeland, and Watershed Stewardship, Colorado State University. Fort Collins, Colorado.
- Walsh, Barry. 1994. "Gifford Pinchot" in *The Encyclopedia of the Environment*. Boston: Houghton Mifflin Company.
- Weber, Edward P. 2003. *Bringing Society Back In*. Cambridge, Mass.: MIT Press.
- Woolcock, M. and D. Narayan. 2000. *Social capital: Implications for Development Theory, Research, and Policy*. World Bank Reserve Observer 15:225–249.

Yin, Robert, K. 2009. *Case Study Research: Design and Methods*. Sage Publications: Los Angeles.

Worrell, Richard and Michael C. Appleby. 2000. *Stewardship of Natural Resources: Definition, Ethical and Practical Aspects*. *Journal of Agricultural and Environmental Ethics* 12:263-277.

Zaslowsky, Dyan. 1994. *These American Lands*. Island Press, Washington D.C.

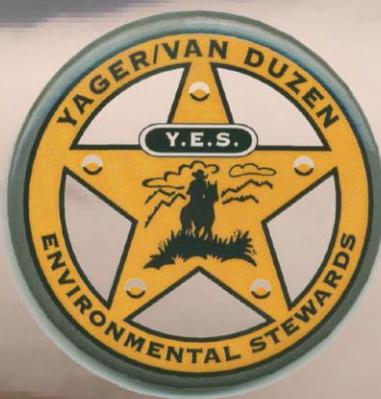
APPENDICES

Appendix A: Landowner Survey Questions

1. What is your occupation?
2. How do you define land stewardship as a (your occupation)?
3. Has the process of partnering within your watershed (the mid-VDR) to reduce sediment load given you a better overall understanding of the *physical and biological processes* in the watershed? If so, in what ways has this been a benefit and/or detriment?
4. How would you evaluate your partnership's *effects on reducing sediment load* in the Mid VanDuzen? (Effective, somewhat effective, somewhat ineffective, totally ineffective?) Please explain why.
5. Has the process of partnering to reduce sediment load in your watershed given you a better *understanding of other stakeholder's perspectives*? If so, whose perspectives and in what ways are you affected?
6. Have the partnerships formed given you new long-term friendships or professional relationships? If so, please describe
7. Is there value in being a member of YES beyond sediment load reduction? Have you gained any other benefits or values from being a member of YES? If so, please explain.

Appendix B: YES' Outreach Publication August 2011 – on following pages.

YAGER VAN DUZEN ENVIRONMENTAL STEWARDS



August 2011

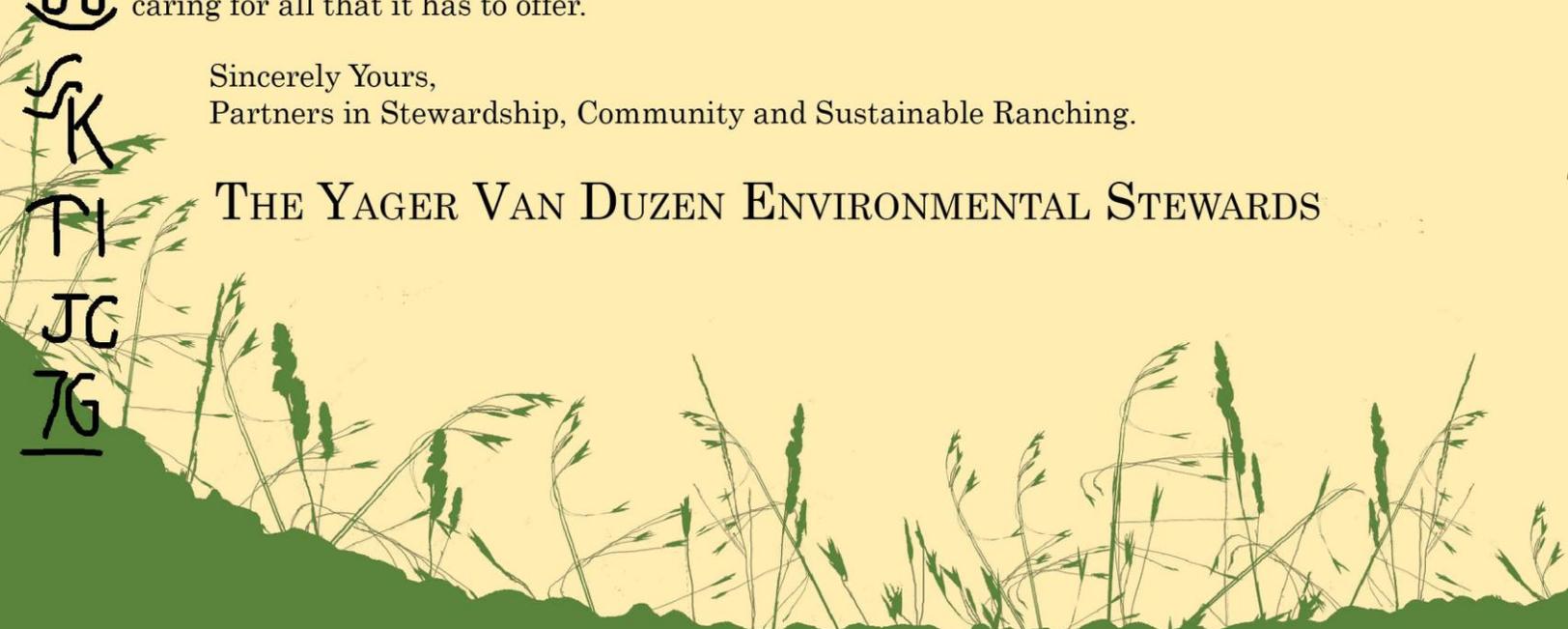
We hope that through this view of YES we have been able to share with you our commitment to, and love of this working landscape within the Van Duzen River Watershed. It has been an incredible journey for all of us associated with YES, from our founding members, many of whom remain active today, to our initial partners and consultants who continue to be an integral part of our success. We liken this kind of effort to a marathon; we are in it for the long haul. Over the span of the last 13 years, we have learned so much about our watershed, our community and ourselves. It really has become a “partnershed.” YES has been through every cycle of group dynamics—beginning with the early days of frenzied meetings and input into the TMDL, moving through the tumultuous times of robust and direct conversations, and on to the critical times of rest and recharge. Throughout it all, we have shared a strong sense of fairness and respect for each other, and a clear knowledge that what we can accomplish as a united voice and effort far outweighs what any of us are capable of as individuals.

As we move forward, and as we mature, both as a group and as individuals, we have broadened our interests by expanding to other groups and efforts of a similar nature. We remain committed to this geographic area and look forward to passing our reins off to the next generation. At the same time, we recognize the critical need for expanded efforts of this voluntary, landowner-driven approach to conservation. Our goal is to share with you our success, and by doing so, inspire you. If you are in another watershed, we hope that you may contemplate taking on this kind of collaborative effort. If you are a policy maker or regulator, we want to share that given an array of tools and incentives, we are making a difference in our ecosystems. If you are a reader who simply appreciates open space and the natural beauty of mother nature, we have tried to share with you our rich culture, and by so doing, have tried to convey that we are your “silent” partner in stewardship of this working landscape which includes caring for all that it has to offer.

Sincerely Yours,
Partners in Stewardship, Community and Sustainable Ranching.

THE YAGER VAN DUZEN ENVIRONMENTAL STEWARDS

U
WB
C
F
S
AH
(EL)
U
X
-M-
O
SK
TI
JC
TG
|



YES

The Yager/Van Duzen Environmental Stewards (YES) is a collaborative of ranching landowners who formed a small nonprofit watershed group in response to a U.S. Environmental Protection Agency (EPA) report, Van Duzen River and Yager Creek Total Maximum Daily Load for Sediment (1999). This report listed the watershed as “sediment impaired.” Occupying 78% of the land base in the mid-domain of the Van Duzen River watershed in Northwestern California, these landowners, many of whom are fifth generation ranchers, are guided by their mission statement: “To ensure the environmental integrity of our watershed, while maintaining our heritage and the economic sustainability of our endeavors.”

Members of YES embrace the concept of community-based conservation. For them, applying this concept means to strike a balance between conservation and their cultural/economic sustainability. They have taken a voluntary, pro-active approach to environmental concerns by educating themselves, and others, about innovative approaches to land stewardship. In addition, they are committed to implementing Best Management Practices (BMPs) designed to minimize the impacts of human activity on water quality. Finally, YES members aim to incorporate holistic approaches of land and resource management that not only enhance the quality of the ecosystem, but also preserve a way of life for ranchers and their families.

In the last twelve years, YES has grown from a grass-roots collaborative dedicated to improving water quality into a mature nonprofit organization that has voluntarily addressed regulatory challenges while striving to maintain the ranching culture and economic livelihood of its members. Its successes in forming unlikely partnerships with government agencies in order to reduce the sediment load in the Van Duzen River has grown into a value-added effort serving both the watershed and the broader rural community. Currently, YES is involved with working landscapes and collaborative partners locally, regionally and nationally.



THE VAN DUZEN WATERSHED

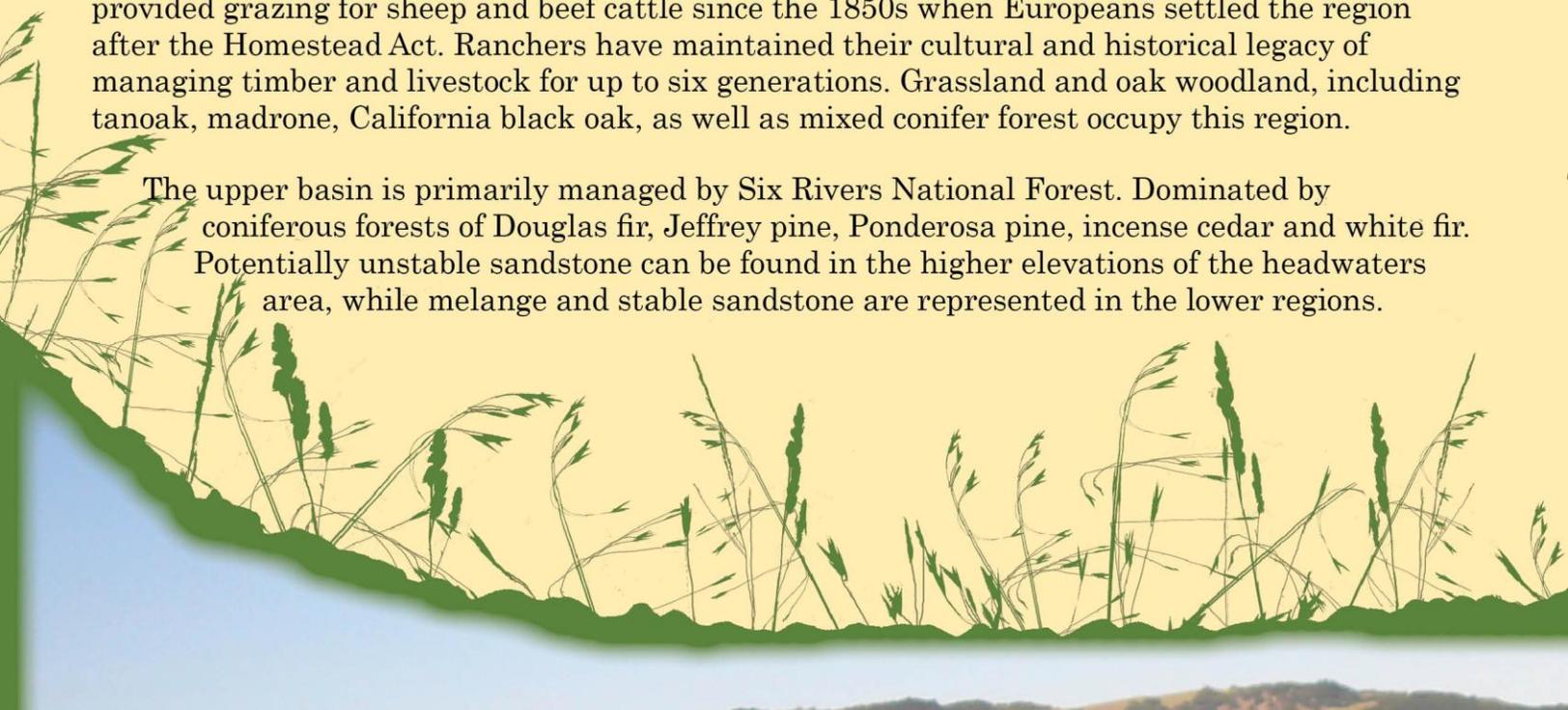
The Van Duzen River basin is one of the most erodible watersheds in the United States. High rates of erosion and sediment transfer are a result of the basin's location in an active tectonic region, combined with its sensitive terrain and high seasonal rainfall (Brown and Ritter 1971). Situated in California's North Coast Range, the Van Duzen River is positioned 50 miles from the "triple junction" of the American, Pacific and Gorda tectonic plates near Cape Mendocino. One of the last free-flowing rivers in California, it stretches 73.5 miles from its headwaters at Red Lassic Peak in Trinity County to its confluence with the Eel River, seventeen miles south of the city of Eureka, California in Humboldt County. Ranging in elevation from 5,096 feet to 62 feet, the basin drains an area of 429 square miles, 366 square miles of which are in Humboldt County; the remaining 63 square miles are located in Trinity County.

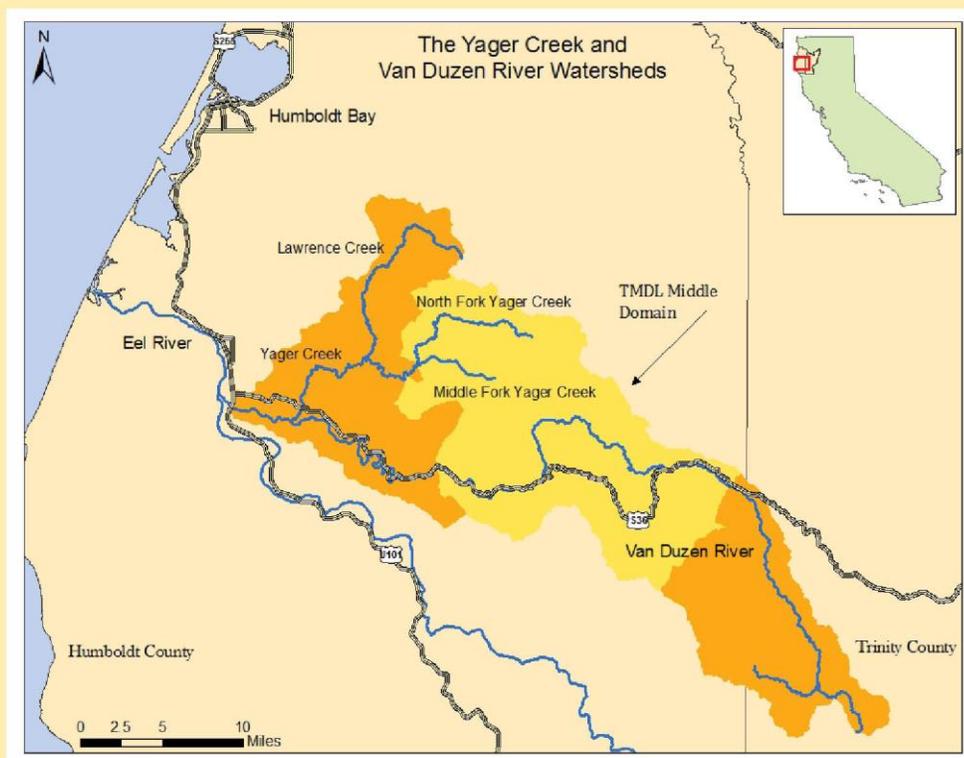
The Van Duzen River provides aquatic habitat for cold water dependent fish including anadromous Chinook and coho salmon as well as steelhead. Chinook and steelhead are federally listed as threatened; coho is federally and state listed. There is a shared investment among landowners, public agencies, and stakeholders in the health of resources and habitats. This important ecosystem provides for many species, including humans.

There are three zones within the Van Duzen River Basin, each characterized by distinct vegetation, varied terrain, land ownership, and land practices. The lower elevations are influenced by summer fog. The redwood forest dominates the lower domain and its land is primarily managed for industrial timber production. Several old growth groves of redwoods are preserved in state and county parks. Douglas fir and tan oak forests occupy the drier upper slopes of the redwood zone. Some farming takes place in the lower flood plains.

The private landowners of YES occupy the mid-domain, of the watershed. Here, prairies have provided grazing for sheep and beef cattle since the 1850s when Europeans settled the region after the Homestead Act. Ranchers have maintained their cultural and historical legacy of managing timber and livestock for up to six generations. Grassland and oak woodland, including tanoak, madrone, California black oak, as well as mixed conifer forest occupy this region.

The upper basin is primarily managed by Six Rivers National Forest. Dominated by coniferous forests of Douglas fir, Jeffrey pine, Ponderosa pine, incense cedar and white fir. Potentially unstable sandstone can be found in the higher elevations of the headwaters area, while melange and stable sandstone are represented in the lower regions.





COMING TOGETHER IS A BEGINNING

“The partnerships we formed have opened our eyes to agency connections and to other landowners that bring different perspectives to the YES organization,”
Mike Mullin, YES member.

The confluence of two events attracted the attention of the ranchers in the mid-domain and resulted in the formation of YES.

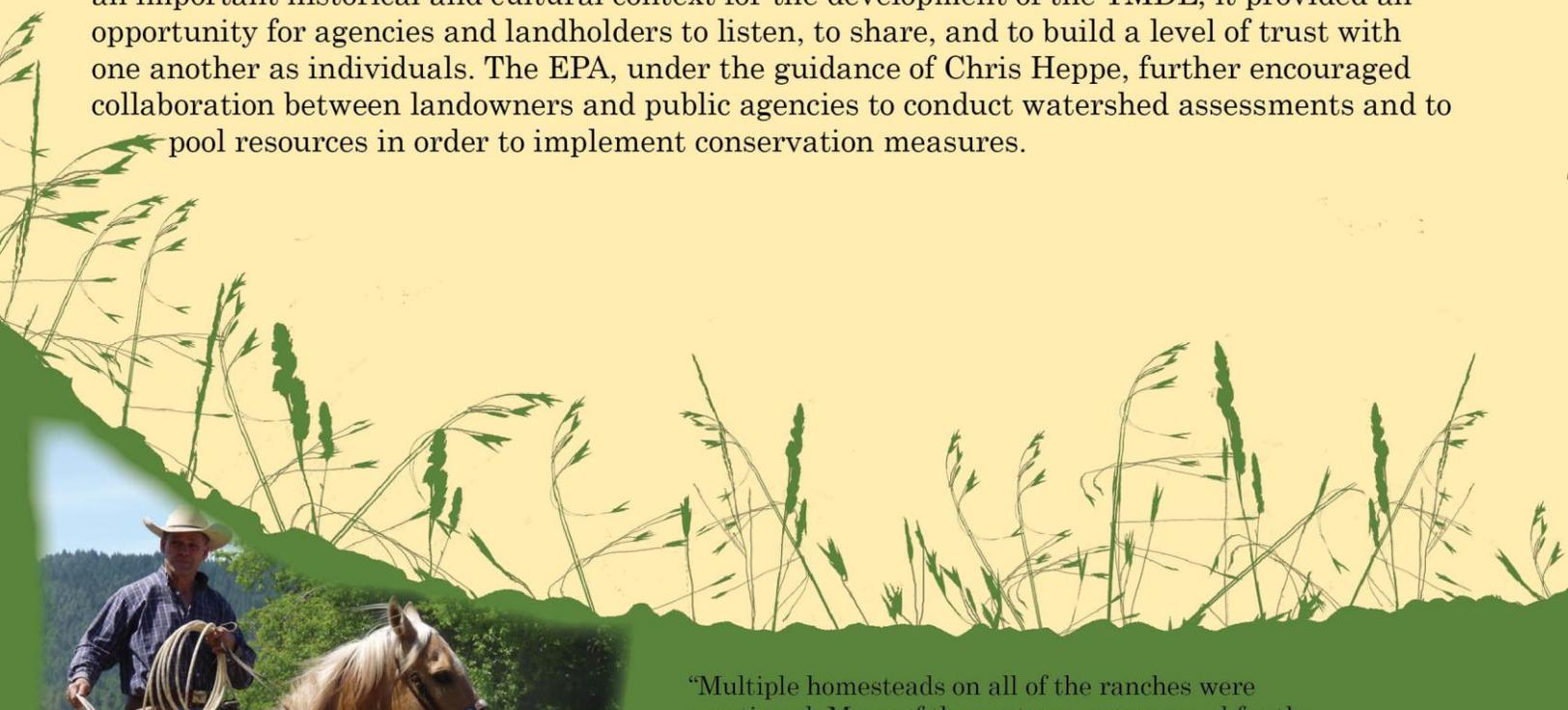
- In 1992, the Van Duzen Watershed was identified as “water quality limited due to sedimentation” and placed on the 303(d) list of the Clean Water Act
- In response to a subsequent law suit settlement from a group of local fisherman (Pacific Coast Federation of Fishermen’s Association et. al. V. Marcus, 1997), EPA committed to establish a sediment total maximum daily load (TMDL) by 1999 for the Van Duzen River in order to improve water quality and ensure the health of the aquatic ecosystem

The Van Duzen TMDL identified the mid-domain, encompassing about 200 square miles, as contributing the largest amount of overall sediment to the watershed. The TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still safely meet water quality control standards (USA EPA, 1994). According to the EPA, high uplift and stream incision rates into relatively weak bedrock units combined to produce a high incidence of landsliding adjacent to stream channels. Land-use activities accelerated sediment delivery and accounted for the remaining sedimentation. The sediment source analysis conducted by Pacific Watershed Associates for EPA, found that the mid-domain yielded the lowest percentage (16%) of sediment delivery associated with management activities (roads/skid trails and timber harvest) compared to 36% in the lower basin and 20% in the upper basin.

The seed for YES germinated during the development of the Van Duzen River TMDL when a group of cattle ranchers/non-industrial timber landowners allowed the EPA to conduct an assessment of the watershed within their private landholdings. An opportunity created by threat of governmental regulation empowered YES; its members proactively engaged in a process that brought unlikely partners together. In spite of their differing beliefs, YES and EPA were able to work collaboratively on the TMDL for the Van Duzen River.

Data collected by Pacific Watershed Associates, with the help of landowners, identified roads, rather than cattle grazing and associated activities, as the largest, single-most controllable source of sediment. This finding was consistent with the understanding of the ranchers, and added to their confidence that they could continue to build on their relationship with public agencies.

As part of the TMDL development, narratives from locals within the watershed were collected and assembled (The Yager/Van Duzen Historical Narratives, Moore 1999). With funding provided by the Humboldt County Resource Conservation District and EPA, this project not only provided an important historical and cultural context for the development of the TMDL, it provided an opportunity for agencies and landholders to listen, to share, and to build a level of trust with one another as individuals. The EPA, under the guidance of Chris Heppe, further encouraged collaboration between landowners and public agencies to conduct watershed assessments and to pool resources in order to implement conservation measures.



“Multiple homesteads on all of the ranches were

WORKING TOGETHER IS PROGRESS

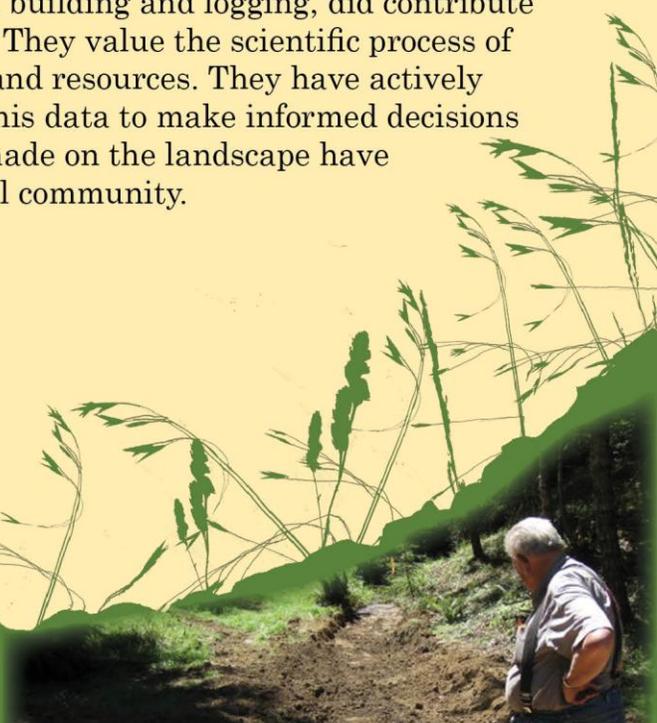
“It’s always a good idea to form friendships with your neighbors whether you live in a watershed or in an apartment complex. As my old boss said to me one day, “Some day you’re going to need them.” Of course, that’s not the main reason,” Mel Shuman, YES member. “It brings us together more as a community with common goals,” Gloria and Graham Cotrell, YES members.

Since its inception, YES has collaborated with various agencies including: the Environmental Protection Agency; U.S. Fish and Wildlife Service Partners for Fish and Wildlife Program; California Department of Fish and Game; Natural Resource Conservation Service; State Water Resources Control Board, as well as the North Coast Regional Water Quality Control Board; University of California Cooperative Extension; the Humboldt County Resource Conservation District; Humboldt County, and employed the firms of Pacific Watershed Associates, and SHN Consulting Engineers and Geologists to assess and mitigate major sediment transport, and to evaluate water quality standards in the mid-domain.

After the EPA established the TMDL for the Van Duzen River, YES obtained funding from The California Department of Fish and Game and the State Water Resources Control Board to conduct an assessment of ranch roads. This assessment, completed by PWA in 2003, led to an inventory of 420 miles of ranch roads within 80,000 acres of land owned by YES members. Approximately 1,000 sediment delivery sites were identified on these ranch roads. Since that time, YES has systematically sought funding to mitigate road-related sediment delivery mechanisms.

YES has participated in a variety of workshops over the years that have served to inform its members, partners, and the general public about land management practices that affect the Van Duzen watershed, and other watersheds with similar attributes. YES members have learned that land practices of the past, particularly those related to road building and logging, did contribute to sediment impairment and degradation of the watershed. They value the scientific process of collecting data that accurately describe their environment and resources. They have actively participated in the data-collecting process, and have used this data to make informed decisions related to their land management. In turn, improvements made on the landscape have contributed to the economic sustainability of a unique, rural community.

“Graham is not one to stick a branding iron on a calf or rope a



As a result of meaningful relationships with its partners, YES has reached audiences from the young to the very old through its public outreach efforts. The group has hosted UCCE water quality workshops aimed at identifying controllable sources of sediment. They have presented annually at the Redwood Environmental Education Fair at College of the Redwoods informing elementary and junior high school students about the work of its watershed group, the benefits of environmental stewardship, and the role cattle ranching and grazing play in the history and economy of their community. In the spring of 2011, YES was invited to present at an Osher Lifelong Learning Institute course taught through Humboldt State University entitled, Humboldt Environmental Forum: Rivers of Humboldt County.

Beyond the local level, YES has presented its model of working together, and its accomplishments nationally at Private Lands Day meetings held in Montana, Colorado, Kansas, and South Dakota. Attended by private landowner groups from the western states, federal agency staff from Washington D.C., and Congressional staff, this opportunity has provided YES with a forum to share its successes with a wider audience.

STAYING TOGETHER IS SUCCESS

“As for me, stewardship involves the moral responsibility for the careful and conservative use of the natural resource under my care and to meter out such renewable resource as to produce an end product with as little detriment to the environment as possible,”

Martin Gift, YES member.

YES is governed by a Board of Directors. Committees carry out goals related to watershed stewardship, education/community outreach, funding/staffing, membership, and restoration efforts. A strategic plan (updated January, 2011) guides the work of YES and identifies the group’s mission, history, core values, vision, challenges, and future directions.

At an individual level, each YES member/ranch property implements resource management practices related to range and livestock management, the protection of riparian areas and watercourses, and ranch roads.

Range and Livestock Management

· Grazing systems allow for controlled harvest of forage to maintain the vigor of the range,



Road before restoration on Barnwell's Chalk Mountain Ranch.



Road after restoration on Barnwell's Chalk Mountain Ranch.

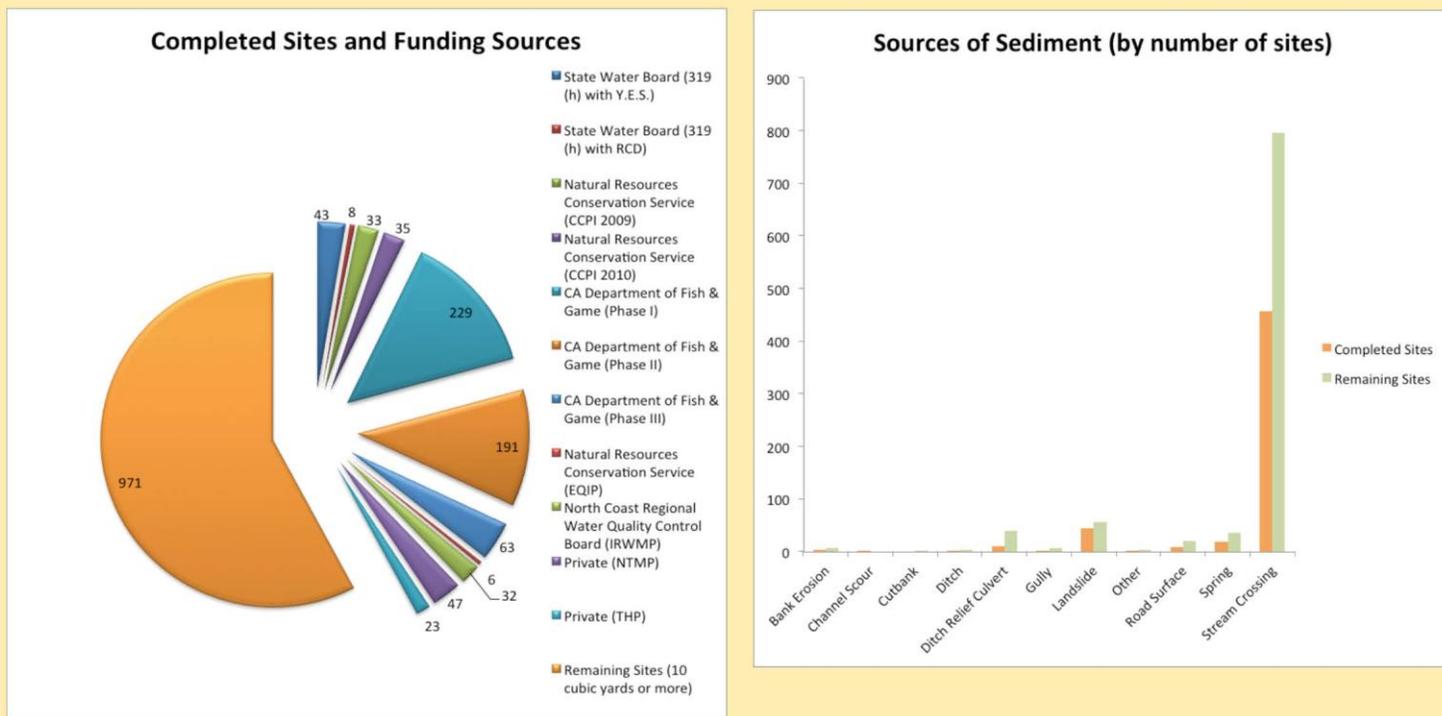
Protection of Riparian Areas and Watercourses

· Development of water systems for livestock include

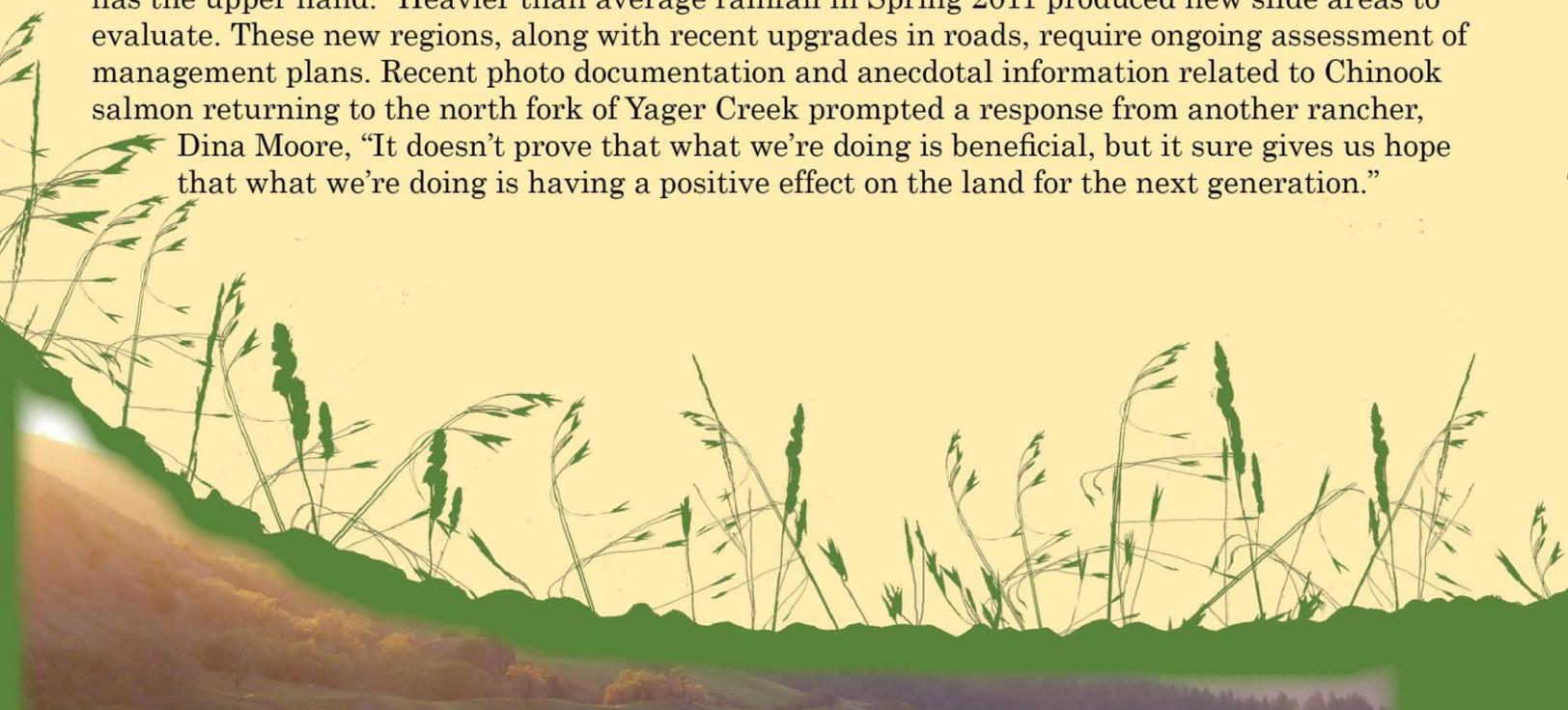
Ranch Roads

· Roads are upgraded to mitigate sediment delivery,

As of March, 2011, the group has received six grants to implement specific road restoration projects based on sites identified in the PWA Watershed Assessment (2003). Work is now being done to assemble data in a repository to be used for future planning and to assess the benefits of remediation work. Preliminary analysis of sediment savings is depicted in the graph below:



As stated by Yes Member, Kim Lucas, “We’re only somewhat effective, as Mother Nature always has the upper hand.” Heavier than average rainfall in Spring 2011 produced new slide areas to evaluate. These new regions, along with recent upgrades in roads, require ongoing assessment of management plans. Recent photo documentation and anecdotal information related to Chinook salmon returning to the north fork of Yager Creek prompted a response from another rancher, Dina Moore, “It doesn’t prove that what we’re doing is beneficial, but it sure gives us hope that what we’re doing is having a positive effect on the land for the next generation.”



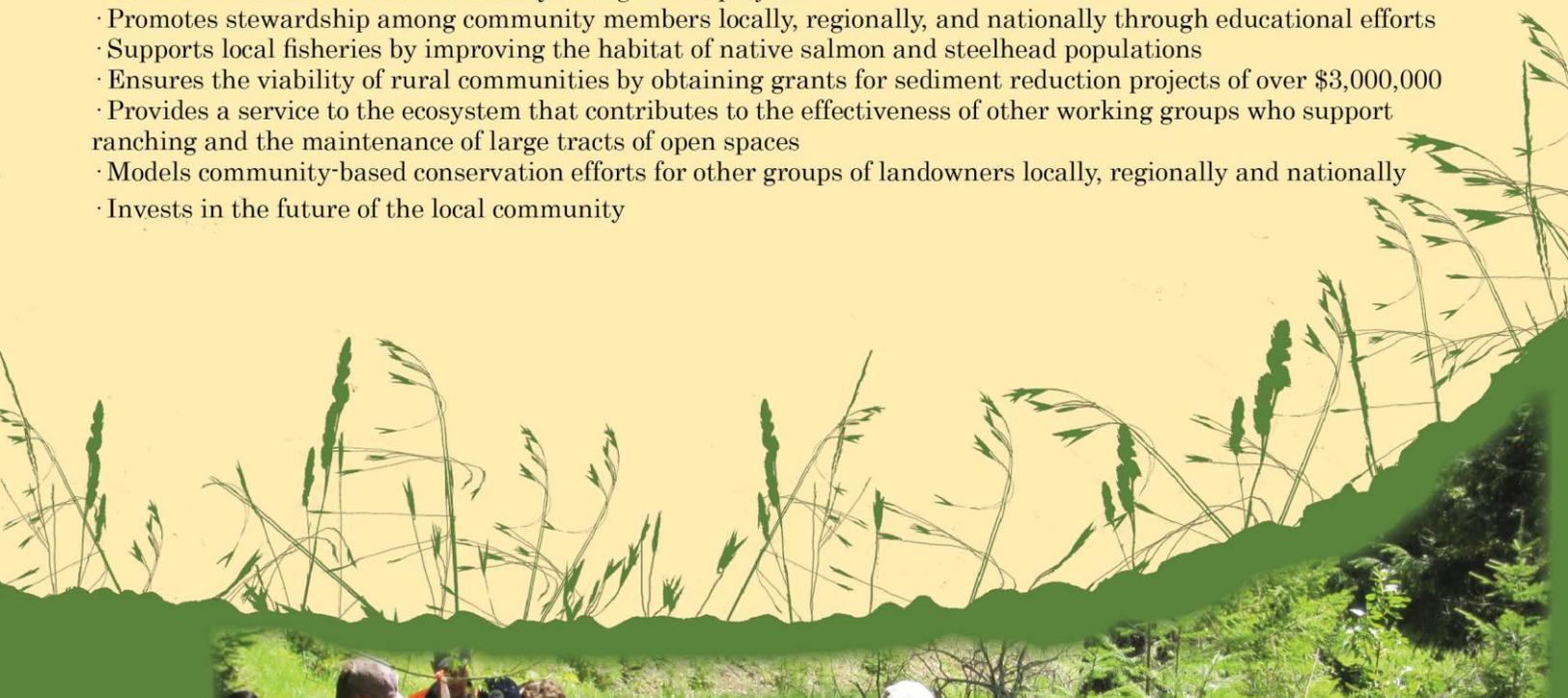
LESSONS LEARNED MOVE US FORWARD

“Yes, forty years ago, little thought would have been given to the effect of grazing and discharge of sediment into the watershed. I am guilty as charged on that account, although not wantonly abusive--more a bit ignorant. Over the years, education about the environment and what impact I, as an individual, have on protecting became clear to me that stewardship was not only an important aspect of my responsibility, but a most necessary goal. Joining YES enhanced that goal tenfold and being involved with the group has strengthened that bond between land and man for me,” Micheal Mullen, YES member.

In the last ten years, YES has grown from a loosely organized group of ranchers into a unified conservation coalition that has credibility in both the public and private sector. Guided by core values of fairness, care for neighbors, commitment, education, transparency, and stewardship, YES exemplifies the qualities needed for collaborative conservation groups to be successful socially, economically, and environmentally. The paradigm of this group of ranchers has changed over time. Due to their solitary independent nature, collaboration has not come naturally. Working together has taken time. The payoff has been huge and has required calculated risk-taking. The success of YES is testimony that landowners can, indeed, participate in conservation efforts by voluntarily self regulating their land use, and can maintain a sustainable rural way of life for succeeding generations. Although there are no blueprints, or hard rules, the lessons learned by YES provide effective guiding principles that will serve as a model for other communities and watersheds. Our work has not ended with our past successes, but continues as we face new challenges.

Benefits of YES Collaboration

- Contributes to a healthy watershed
- Empowers individuals through the collective effort
- Creates infrastructure for community dialogue and projects
- Promotes stewardship among community members locally, regionally, and nationally through educational efforts
- Supports local fisheries by improving the habitat of native salmon and steelhead populations
- Ensures the viability of rural communities by obtaining grants for sediment reduction projects of over \$3,000,000
- Provides a service to the ecosystem that contributes to the effectiveness of other working groups who support ranching and the maintenance of large tracts of open spaces
- Models community-based conservation efforts for other groups of landowners locally, regionally and nationally
- Invests in the future of the local community



PRINCIPLES AND PROCESSES THAT GUIDE US:

Each watershed is unique, as is the composition of landowners and stakeholders who inhabit its region. YES has recognized key processes and principles to be components of successful community-based conservation efforts. First, a shared goal must be identified. For YES, the goal was delineated because of the perceived threat of greater regulation. Next, individuals in the group must have a keen personal investment in the outcome of that goal. For YES, the landowners/land-managers were invested in the long-term health of the ecosystem. It is only through a shared vision for the future and strong personal investment that a productive coalition could be achieved. In addition, the particular people, place, and time contributed to the successful collaboration of YES.

People

Any collaborative effort must begin with people. For YES, the people and their stories were first brought together in the Yager Creek/Van Duzen Historical Narratives collected at the beginning of the TMDL development. This document organized and preserved the insights and recollections of the people who have lived in the Van Duzen watershed for generations--people who are deeply attached to, and affected by the land. Their voices are heard in the quotes throughout this publication.

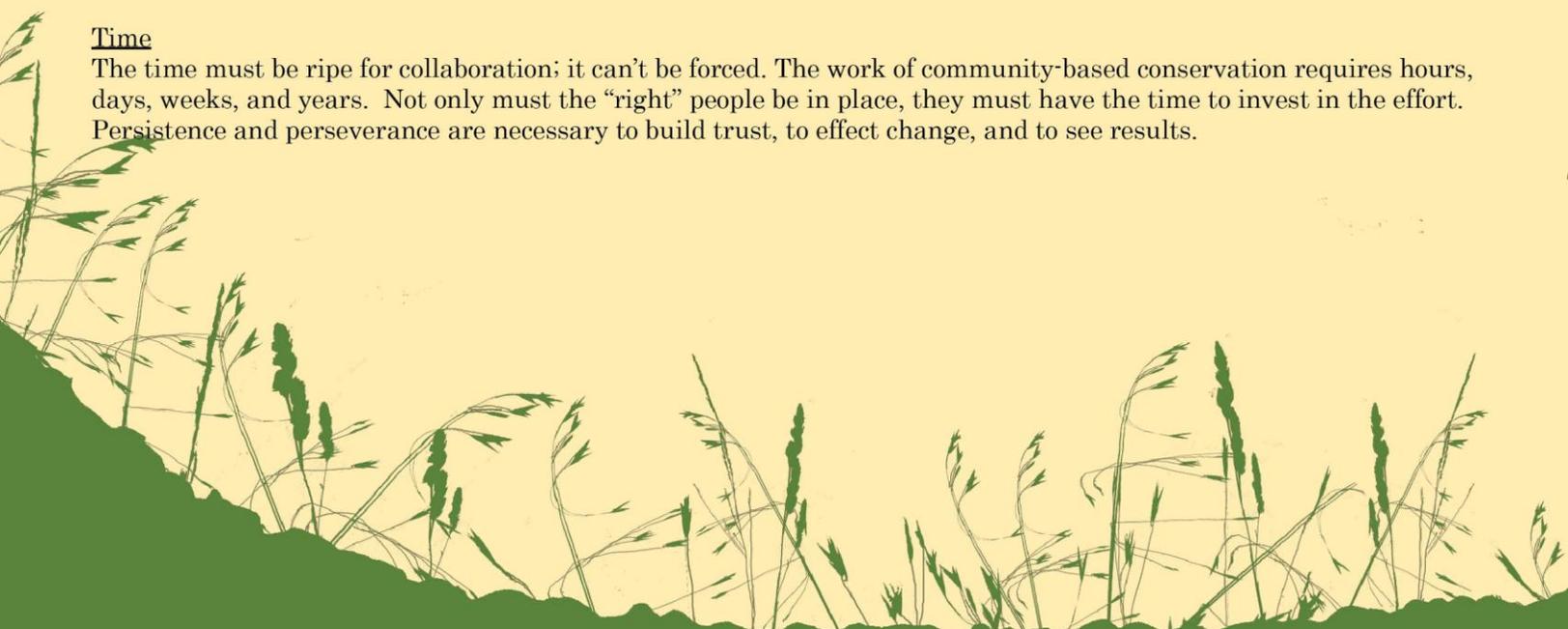
Moreover, the “right” people must be enlisted to contribute to the group. Individuals must demonstrate leadership/communication skills, a passion for the work the group seeks to accomplish, and an ability to share with others. These qualities engender the trust and respect of the extended community. Leadership must be encouraged and fostered; as the effort expands, so must the leadership.

Place

There must be a need for collaboration. Conditions in a particular place must allow for change that will mutually benefit ecosystems and communities of people. Small successes can lead to returns that will leverage future actions. Sound science based on the resources of a geographic area, and individuals with knowledge to develop plans, projects, and processes to improve the watershed are critical.

Time

The time must be ripe for collaboration; it can't be forced. The work of community-based conservation requires hours, days, weeks, and years. Not only must the “right” people be in place, they must have the time to invest in the effort. Persistence and perseverance are necessary to build trust, to effect change, and to see results.



“His kids always said that whenever he went up to the ranch he would carefully look over each blade of grass, because he just dearly loved every bit of it. So the ranch

A successful collaborative process for private lands must:

- Be a grass-roots effort driven by landowners who have an historical view and a relationship with the land base
- Develop leadership within the group which is developed over time
- Identify shared problems/issues - share a common vision and strategy
- Build partnerships in the scientific community and among all stakeholders
- Educate - learn and share knowledge about the ecology and resources of the region
- Commit time to collaboration
- Start small with problems that can be easily addressed
- Observe Pareto's Principle, or the 80-20 rule (That is, focus 80% of attention on the issues upon which stakeholders can agree, and 20% of attention on issues that are more difficult. Look past differences to find common goals.)
- Develop relationships and value differing perspectives
- Realize that collaboration and consensus are not synonyms (Collaborating on a conservation goal does not require consensus.)

ACKNOWLEDGEMENTS

YES is grateful for the efforts of Prosperity! Plan, a regional organization that has served to enhance the sustainable economic development of Humboldt County, and to assist those of us striving to make a living wage in our rural community. It has focused resources and expertise to examine nine industry clusters, among which are our sister economic clusters of fisheries and forestry. We acknowledge the contributions each of these industries make to the unique resource-based region we call home. The key values of community, environment, people, economy, and government identified by Prosperity! Plan have helped guide the work of YES. Support for this publication provided by the U.S. Fish and Wildlife Service, Partners for Fish and Wildlife Program

IN CLOSING

Take a moment to consider the characteristics of the magnificent maple pictured on the back of this publication. Each spring, this tree renews itself, completes another cycle, and reminds us of our commitment to the landscape in which we live. We hope our work will encourage you to consider a balanced approach to land-based conservation and move you forward on a path of thoughtful action in relation to your own unique landscape.



GLOSSARY OF TERMS

Anadromous Fish: Fish that are born and rear in freshwater, move to the ocean to grow and mature, and return to freshwater to reproduce. Salmon and steelhead are examples. (Weaver 94)

Best Management Practice (BMP): Methods that have been determined to be the most effective, practical means of preventing or reducing pollution from non-point sources. (EPA)

Culvert: A transverse drain, either a metal or plastic pipe, set beneath the road surface which drains water from the inside of the road to the outside of the road. Culverts are used to drain ditches, springs and streams across the road alignment. (Weaver 94)

Decommission: To remove those elements of a road that unnaturally reroute hillslope drainage or present slope stability hazards. (Weaver 94)

Ditch relief Culvert: A drainage structure or facility which will move water from an inside road ditch to an outside area, beyond the outer edge of the road fill. (Weaver 94)

Earthflow: A mass movement landform and slow to rapid mass movement process characterized by downslope translation of soil and weathered rock over a discrete shear zone at the base, with most of the particles being smaller than sand. (Weaver 94)

Environmental Impact: The positive or negative effect of any action upon a given area or resource. (Weaver 94)

Erosion: The dislodgement of soil particles caused by wind, raindrop impact or by water flowing across the land surface. (EPA)

Evaluate: To determine the significance, worth, or condition of usually by careful appraisal and study. (Merriam Webster Dictionary)

Ecosystem: The interacting system of a biological community and its non-living environmental surroundings. (EPA)

Holistic: Concern for complete systems and wholes, not the analysis or dissection of into parts. (Merriam Webster Dictionary)

Mitigation: Measures taken to reduce adverse impacts on the environment. (EPA)

Restoration: Restoring to an improved condition. (Merriam Webster Dictionary)

Rotational grazing: Grazing in which animals are rotated through a series of paddocks (pastures), generally on some flexible basis.

Sediment: Topsoil, sand, and minerals washed from the land into water, usually after rain or snow melt. (EPA)

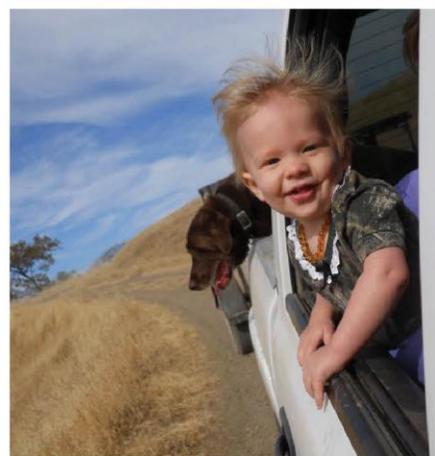
Stewardship: Environmental stewardship is the responsibility for environmental quality shared by all those whose actions affect the environment; an ethic that embodies cooperative planning and management of environmental resources to actively engage in the prevention of loss of habitat and facilitate its recovery in the interest of long-term sustainability.

Sustainability: Creates and maintains the conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations. (EPA)

Total Maximum Daily Load (TMDL): A calculation of the highest amount of a pollutant that a water body can receive

REFERENCES

- California Department of Fish and Game. California Salmonid Stream Habitat Restoration Manual: 3rd edition; 1998.
- <http://www.dfg.ca.gov/fish/resources/habitatmanual.asp>
- Chambers, Donna. Personal interview. 28 March 2011.
- Bixler, R Patrick. Navigating the Waters Beyond the Blackfoot: The Transferability of the Collaborative conservation Model. A research report for the Center for Collaborative Conservation; 2010.
- Elsebree, Dawn. Email interview. 14 March 2001.
- EPA site: <http://www.epa.gov/OCEPAterms/mterms.html>
- Golightly, Paula. Personal interview. 3 March 2011.
- Heppe, Chris. Personal interview. 3 March 2011.
- Kelsey, Harvey. Earthflows in Franciscan Melange, Van Duzen River basin, California: *Geology*; June 1978; v. 6; no. 6, p. 361-364.
- Map of the Van Duzen Watershed <http://www.epa.gov/region9/water/tmdl/vanduzen/vanfig11.pdf>
- Moore, Dina J. Yager/Van Duzen Historical Narratives. October 1999.
- Naugle, David E., Gregory A. Neudecker, Alison L. Duvall, and Jame W. Stutzman. Energy Development and Wildlife Conservation in Western North America Chapter 12: Community-Based Landscape Conservation: A Roadmap for the Future. 2011.
- Pacific Watershed Associates. Watershed Assessment and Erosion Prevention Planning Project for the Middle Van Duzen River, Humboldt County, California, 2003.
- Prosperity! The North Coast Strategy. Humboldt County's Comprehensive Economic Development Strategy. 2004
- Unmack, Jessica M. Collaborative Environmental Stewardship in the Van Duzen River Watershed, Humboldt County, California. A Thesis Project. Humboldt State University; 2011.
- Van Duzen River and Yager Creek Total Maximum Daily Load for Sediment, U.S. Environmental Protection Agency, Region IX, 1999.
- <http://www.epa.gov/region9/water/tmdl/vanduzen/vanduzen.pdf>
- Water: Watershed Central, U.S. Environmental Protection Agency
- <http://water.epa.gov/type/watersheds/datait/watershedcentral/index.cfm>
- Sediment, U.S. Environmental Protection Agency, Region IX, 1999.
- <http://www.epa.gov/region9/water/tmdl/vanduzen/vanduzen.pdf>



Addison Lucas, the next generation

For more information contact:
yagerstewards@gmail.com

Dean Hunt Dina Moore
707.499.2491 707.496.3570

YES
P.O. Box 40
Fortuna, CA 95540

