

**IDENTIFYING AND CLARIFYING THE MULTIPLE IDENTITIES OF U.S.  
CONSERVATIONISTS BY LISTENING TO THEIR VOICES**

A Dissertation

by

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## **ABSTRACT**

Persons interested in conservation are often involved in negotiating their identities based on cultural values that guide what it means to be conservationists within the United States. In this dissertation, I focused on how negotiation of multiple identities impacts decisions regarding conservation and interactions with others. I adopted a critical interpretative lens to explore how conservationist identity emerged from roles of conservation scientists as they promote biodiversity conservation and negotiate the scientist-advocate paradox, agriculturalist producers as they talked about Best Management Practices (BMPs) for the Yellowstone River, and local community leaders that explained their governance of the Yellowstone River watershed and negotiated tensions between individual rights and the common good.

In my first study, I analyzed professional conservation biology literature to determine how it framed credibility. Findings indicated that when identifying themselves as conservationists, conservation scientists typically discussed credibility as a static entity lacking dimensionality (expertise, trustworthiness, and goodwill). They identified expertise or trustworthiness as important, but rarely mentioned goodwill. For my next study, I selected a cultural inventory research approach to examine voices agriculturalists used to construct their conservation identity. Findings indicated that agriculturalists, when identifying themselves as conservationists, talked about their ecological and social responsibilities and explained how conservation and production are intricately linked to enable them to provide a sustainable resource base for future

generations. In my final study, I used informant directed interviews to enable local community leaders to explain their perspectives about democratic governance along the Yellowstone River. Results indicated that when identifying themselves as conservationists, local community leaders talked about negotiating the democratic paradox and the importance of agonistic pluralism to effectively govern the Yellowstone River watershed.

Overall, this research demonstrates that negotiation of multiple identities may differ when addressed to professional and lay audiences that perform particular roles associated with natural resource conservation. These findings offer general principles that can be applied to similar groups involved in conservation across the United States and enable an enhanced understanding of how the negotiation of multiple identities impacts decisions regarding conservation and interactions with others.

## **DEDICATION**

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## **CHAPTER I**

### **INTRODUCTION**

Persons interested in conservation are often involved in negotiating their identities based on cultural values that guide what it means to be conservationists within the United States. It is important to understand how the negotiation of multiple identities impacts decisions regarding conservation and interactions with others. This negotiation may differ when addressed to professional and lay audiences that perform particular roles associated with natural resource management. One approach is suggesting appropriate roles for conservation professionals as they work to promote biodiversity conservation. I analyze the professional literature to explore this approach. Another approach is discussing Best Management Practices (BMPs) for particular natural resources. Because people draw much of their conservationist identity from specific places that serve as a foundation for their interaction with that place's natural resources, I use the Yellowstone River (Montana, USA) to explore this approach.

### **BACKGROUND**

#### **Impetus for Conservation in the United States**

In the late 18<sup>th</sup> century with the first white settlements on the Atlantic Coast, the exploitation of wildlife, marine life, forests, and grasslands was common practice (Trefethen, 1975). The late eighteenth century saw the first questioning of humans exploitation of nature. This redirection of thought originated from several sources. One source was the Romantic and primitivist ideals in art and literature that exalted the appreciation of wilderness. Literature and art fostered the sublime, an aesthetic category

that associated God's influence with feelings of awe and exultation experienced in the wilderness and strongly countered the Judeo Christian Bible stories of man struggling with the harsh and forbidding character of wilderness (Oravec, 1981). An increasing number of people lived on farms or in cities and did not experience the fears or hardships of wilderness but viewed it as an exciting and temporary alternative to civilization. Combined with the primitivist belief that a man's happiness and well-being decreased in direct proportion to his degree of civilization, the ideals had far-reaching and positive implications for wilderness. Another source was the search for a national identity. The young America needed to compete with Europe's iconic landmarks. Americans "sensed that their country was different: wilderness had no counterpart in the Old World and they recognized it as a cultural and moral resource..."(Nash, 2001:67). Finally, the emergence of transcendentalism, the complex attitudes toward man, nature, and God was an important force for re-evaluation of nature. Henry David Thoreau's writings challenged older ideas about nature. For him, wilderness was valuable as its existence was "a subtle magnetism in Nature, which, if we unconsciously yield to it, will direct us aright"(Thoreau, 1893:265). The best chance at moral perfection and knowing God were accomplished by interacting with nature.

Although nature had increased in cultural value, other competing values impacted fledgling conservation ideals. Ecological ignorance combined with unrelenting political and economic pressures created disastrous results for much of America's natural resources before conservation efforts were redirected to manage the use of these resources. A key political force was the Homestead Act in 1862 which encouraged

settlement of western lands. With the signing of the Act, wilderness became a commodity. Settlement of surveyed land created a fundamental shift in what wilderness meant to settlers. Its measurement created value in terms of size or number and allowed an offer of something else of equivalent value in exchange for land. It was something that could be speculated upon, traded, or borrowed. However, from an ecological and economic standpoint, 160 acres in semi-arid climate made it difficult for farmers to make a living. The acreage limitation had been written by eastern legislators who had used soil and climate standards of Illinois, Ohio, and Maryland to determine the land's production capacity. In their ecological ignorance, decision-makers failed to realize these standards did not apply to a region that was ecologically different from the east resulting in unproductive farms and bankrupt farmers (Linklater, 2002; Trefethen, 1975).

The Dust Bowl of the 1930s provides another poignant example of how humans have viewed and responded to nature. A belief that man could conquer nature combined with ecological ignorance and technological pressure set the stage for disaster. As western settlement continued, farmers introduced the tractor to increase land's production. Hampered by poor farming habits, farmers depleted the soil and continued to convert more grassland into cropland. In addition to responding to economic pressure to increase production, increased grassland conversion was a response a political call from President Woodrow Wilson's to plant more wheat to help win World War I. By 1938, approximately 500,000 square miles of land had lost its native grasses to be replaced with crops. The land was severely eroded, farmer bankruptcy was prevalent, and a need

for an ecologically (versus economic) driven conservation effort was evident (Worster, 1994).

### **Conservation and Ecology Relationship**

As a direct consequence of the Dust Bowl, conservation philosophy morphed into one that was more comprehensive, coordinated, and based on principles of scientific ecology. “If conservation was an applied science, ecology was the research side of the same coin...”(Kingsland, 2005:4). Similar to the conservation’s development, ecology was influenced by specific cultural conditions and validated by social and personal needs (Worster, 1994).

Some ecologists, such as Frederic Clements, argued that the Dust Bowl was the United States’ most serious failure to adapt to the natural economy. Clements came from an organismic perspective, a perception that nature is a complex organism with qualities that result from the integrated functioning of the whole: the whole is more than the sum of its parts. Clements advocated that if humans had to interfere, then they should follow nature’s model as closely as possible. Nature’s crops were more stable and resistant to disease and weather than human’s crops. Humans should learn from these prairie grasslands so that they can better understand consequences for disturbing ecological balance. Clements’ plant studies provided a coherent and elaborate system of ecological theory and discussed implications about pioneers’ relation to the grassland. Two themes were evident: dynamics of ecological succession in plant communities and organismic character of the plant formation. Vegetation is dynamic. Plant communities change and develop through time and eventually reach a final climax stage. If nature is disturbed, it

will get back on track. His climax theory guided land-use policy after the Dust Bowl. Clements advocated leaving the grassland climax as undisturbed as possible, not because of the intrinsic value of virgin wilderness but because it had proven itself to be stable and well adapted to its habitat.

Critics of Clements came from the mechanistic perspective, a perception that nature has parts much like a machine that can be replaced when needed. Henry Gleason argued the presence of particular plant species was solely dependent on seeds' ability to migrate and to find a favorable environment in which to flourish. Because of this random process, Gleason countered the notion of succession progressing in a steady forward movement to reach an equilibrium or steady state. Instead, he suggested that the world is in a constant flux and is not moving toward stability (Gleason, 1926). His individualistic view of nature dictated that humans did not need to concern themselves about disturbing nature. A.G. Tansley did not support that humans were always a disruptive force and contended that they could create biological systems as stable and balanced as nature's systems (Worster, 1994).

Historically conservation practices have responded to a supply and demand economic model: whenever the demand exceeded the supply, a management program would be implemented but lacked coordination and was rarely based in science (Worster, 1994). However, conservation was a "scientific movement and its role in history arises from implications of science and technology in modern society" (Hays, 1999:2). The consequences of the Dust Bowl moved the conservation effort to a more inclusive, coordinated, ecological perspective reflecting a nascent understanding that

human actions in one place could potentially destroy a whole biota over a large geographic area. Thus, concern for synthesis and for maintaining the whole community of life in stable equilibrium with its habitat emerged. However, Clements feared that human's economy would always take precedence over nature's economy and therefore advocated that ecologists needed to demonstrate how to manipulate the successional process with care and expertise so that humans did not completely ignore ecological criteria, displacing it with short-term market-oriented criteria (Worster, 1994).

### **Culture and Identity**

Identity and its relationship to culture have been explored as one way of understanding how people view and respond to natural resource conservation policies (Bratman, 2011; Schmidt & Peterson, 2009). Conservationists tend to offer natural science as the best guidance for management of natural resources but also consider cultural values that shape people's perceptions about their relationship with natural resources. Increasing human population combined with limited natural resources leads to conflict over the social, political, and economic costs related to use of natural resources. Environmental conflict is entangled with culture or "the learned system of traditions, symbolic patterns and accumulated meanings that foster a particular sense of shared identity-hood, community-hood and interaction rituals among the aggregate of its group members" (Ting-Toomey & Oetzel, 2013:763). Groups of people draw much of their cultural identity from particular places which serve as a basis for their decisions on how to interact with natural resources and with other resource users. Conflict intensifies between these groups when members perceive the resource is scarce and incompatibility

exists among different groups' cultural values and goals (M. N. Peterson, Peterson, Peterson, Lopez, & Silvy, 2002).

Influenced by cultural factors, identity emerges out of social interactions that influence how people construct themselves and the natural resources that matter to them. These social interactions can lead to identities based upon meanings about a person's particular traits and qualities; meanings people attach to themselves while performing a particular role; or meanings that reflect how people categorize themselves as similar to some (we) and different from others (they) (Lewicki, Gray, & Elliott, 2003; Stryker & Burke, 2000). Strong connections with group identity can occur when an individual's person and role identities closely link to their group identity.

People have multiple identities based on the many roles and various groups to which they belong. These identities are hierarchically arranged and act as standards to organize and motivate actions in social structures (Kim, 2013; Owens, Robinson, & Smith-Lovin, 2010). The more salient the identity, the higher it is positioned in the hierarchy and the more likely it will be played out across different social situations. Dependent upon interactions with others, identities can exist in harmony or in opposition to other roles (Cinoğlu & Arıkan, 2012).

### **Human Voice and Identity**

Human voice is important in understanding identity. Voice is more than a medium for speech; it is a dialogical and ideological process that goes beyond the individual to produce meaning that enables cultural and political life (Phillips & Carvalho, 2012). It provides a way to combine and organize the milieu of social

interactions that influence how individuals construe their identities in relation to the natural resources that matter to them. Human voice enables individuals to provide accounts of their lives; explain the ethical choices they make; and describe their emotional attachments to people and places. Through this process, individuals articulate and acknowledge the obligations and anxieties of living with others in a changing natural environment (Peeples & Depoe, 2014).

## **JUSTIFICATION**

Concern for degradation of natural resources, much of which is attributed to humans, has contributed to an increased awareness of the importance of involving diverse and often competing user groups' perspectives about conservation practices (Holmes, 2012; Schmidt & Peterson, 2009). Even though ecologists search for ways to make research relevant to the public and communicate why particular issues are important, achieving buy-in from these diverse groups can be challenging if cultural factors are not considered. Several studies have examined particular natural resource users' cultural perspectives (Hall, Gilbertz, Horton, & Peterson, 2012; Higgins, 1991; T. R. Peterson & Horton, 1995). Findings from these studies suggest the importance of understanding that environmental conservation occurs within a social context that includes biophysical as well as cultural factors such as people's identity.

## **RESEARCH OBJECTIVES**

Although concern for degradation of the natural environment and appeals for conservation of natural resources is a global phenomenon, my dissertation research focuses on conservation in the United States; with particular attention to the



management of the Yellowstone River (Montana, USA). I focus on the multiple identities of United States' conservationists and examine the meanings people attach to themselves when they perform particular roles associated with conservation of the natural environment. Using voice, I explore how people construct and share their own identity as conservationists.

Although there are multiple people involved in the conservation of natural resources, I focus on three groups of people at the grassroots level of conservation whose decisions impact the present and future use of the natural environment and its resources. My second chapter examines the professional conservation biology literature and how it offers guidance to conservation scientists on negotiating the relationship between scientific objectivity and political advocacy without damaging conservation biology's credibility. My third chapter explores the communicative construction of a conservationist identity among primary producers by excavating the voices of farmers and ranchers operating along the Yellowstone River (Montana, USA). My fourth chapter focuses on the democratic paradox to discover whether and how the paradox is evident in the dynamics of the democratic process. Specifically, I examine how local community leaders of the Yellowstone River watershed describe their perspectives of governing in an ever-changing ecological and social environment and explain best management practices for the watershed.

## **CHAPTER II**

### **HOW UNDERSTANDING THE MULTIDIMENSIONALITY OF CREDIBILITY CAN ENABLE CONSERVATION BIOLOGISTS TO MORE EFFECTIVELY NEGOTIATE THE SCIENTIST–ADVOCATE PARADOX**

#### **OVERVIEW**

Conservation policy sits at the nexus of natural science and politics. On the one hand, to maintain scientific credibility, observers must perceive that conservation science emerges from disinterested observations of reality. On the other hand, conservation biologists are committed to conservation even if they do not advocate a particular policy. The professional conservation literature has offered guidance on negotiating the relationship between scientific objectivity and political advocacy without damaging conservation biology's credibility. The value of this guidance, however, may be limited by failure to recognize that credibility is multidimensional: that it emerges through perceptions of expertise, goodwill, and trustworthiness. We used thematic content analysis of conservation biology literature to determine how it framed credibility as related to the scientist–advocate paradox. The literature typically framed credibility as a static entity lacking dimensionality. Authors identified expertise or trustworthiness as important, but rarely mentioned goodwill. They typically did not identify any of the three entities as dimensions of credibility, nor did they recognize interactions among the three dimensions. This oversimplification may limit conservation biologists' ability to legitimize their roles in shaping conservation policy. Accounting for the emergent

quality and multidimensionality of credibility should enable conservation biologists to advance biodiversity conservation more effectively.

## **INTRODUCTION**

Conservation policy sits at the nexus of natural science and politics.

Conservation biologists practice a crisis discipline that requires them to juggle the roles of providing objective information about the natural world and advocating policies and approaches likely to promote biodiversity conservation (Soulé, 1985, 1986). Risks to biodiversity and sustainability often require conservation biologists to act before they are confident in the sufficiency of their data. This creates tension because, like other natural scientists, conservation biologists prefer to have all the facts before acting (Morrison, Block, Strickland, Collier, & Peterson, 2008; M. J. Peterson, 2009). This often is impossible for biodiversity conservation, because time is of the essence where species at risk are concerned (Soulé, 1985, 1986). Therefore, a central conundrum grows out of the relationship among scientific expertise, advocacy, and credibility. On the one hand, to maintain the credibility of conservation science, observers typically assume that the knowledge science produces emerges from disinterested observations of objective reality (Platt, 1964; Popper, 1959, 1962). On the other hand, conservation biologists are committed to conservation even if they do not advocate a particular policy (Naess, 1986; M. J. Peterson, 2009). This means that they simultaneously play the apparently paradoxical roles of scientist and advocate—a situation bound to produce dissonance. Recognition of this paradox has prompted several discussions of scientific credibility in the conservation biology literature.

The study of credibility dates at least to the fourth century BCE with Aristotle's *Rhetoric* (Aristotle, 1991), which guided citizens regarding how to discover and use the available means of persuasion in any situation. Aristotle argued that the most effective persuasion combined situationally appropriate logical, emotional, and ethical appeals. Ethical appeals referred to the construction of credibility. Although credibility is associated with perceptions of an author's (speaker's/writer's/etc.) character, it does not exist within an individual, but is jointly constructed by all participants of a communicative event. Aristotle described credibility as emerging from the dimensions of expertise, goodwill, and trustworthiness (Aristotle, 1991; Kennedy, 1999). Expertise refers to specialized knowledge a person possesses about the subject matter, and is often embodied in credentials or special skills obtained from training or education. Goodwill describes caring for others' well-being, and is demonstrated by empathy developed by direct interaction with others. Trustworthiness refers to the person's honesty. Trustworthy persons demonstrate integrity, are unbiased, and absolutely honest.

Credibility is more of an emergent property than a static entity, attaining relative stability only when it functions as an "attitude toward a source of communication held at a given time by a receiver" (McCroskey, 1997:87). The most productive credibility emerges from integration of expertise, goodwill, and trustworthiness, but the ideal relationship among these dimensions of credibility is situationally dependent (Aristotle, 1991; Burke, 1966; Kennedy, 1999). As a perceptual construct, credibility is based on social relations, and is co-constructed within each situation. For these reasons, it is difficult to predict which dimension(s) of credibility will be more or less central to

satisfying expectations in any given situation (Cronkhite & Liska, 1976). For example, in some cases a scientist's impeccable credentials (i.e., Ph.D. degree, publication record, etc.) may be less important to her/his credibility than demonstrated willingness to join with community members in their efforts to ensure that the effects of a drought do not extinguish a small population of endangered Attwater's Prairie Chickens (*Tympanuchus cupido attwateri*). In other situations, such as determining whether to list a species as endangered, impeccable credentials may be the most important factor in credibility.

Participant expectations vary according to cultural, economic, and political aspects of a situation, and the credibility that participants attribute to an individual in any given time and space relies largely on whether their expectations are fulfilled (Burke, 1966; Cronkhite & Liska, 1976). A situationally nuanced understanding of credibility is especially important to conservation biologists because, as an act of dynamic progression, credibility is largely contingent on situational aspects that contribute to or mitigate against the satisfaction of participant expectations. It is not static, but is subject to linguistic patterns or "terministic screens", that provide people with socially accepted ways to represent and constitute reality (Burke, 1966; M. N. Peterson, Peterson, Peterson, & Leong, 2013:94). As such, there is a strategic imperative for conservation professionals to understand how to enhance their credibility by first contributing to public expectations, and later, by satisfying them.

Conservation biology literature recognizes the importance of credibility, yet struggles with the scientist-advocate paradox. Recognizing that credibility matters, however, is not the same thing as understanding how it emerges. In this study, we

analyzed the professional conservation biology literature to identify the primary points of guidance offered to conservation biologists regarding how to manage their paradoxical responsibilities as scientists and advocates. We first determined which dimensions of credibility the literature emphasized when describing conservation scientists' credibility. Next, we identified relative concern about risks to biodiversity, professional credibility, and sustainability. Third, we identified the preferred roles conservation professionals should play. We then explored how the literature defined conservation science. Finally, we determined how the professional literature described a credible environmental policy process. After coding for each of these variables, we explored the relationships among them. We conclude by recommending that conservation biologists direct greater attention to the multidimensionality of credibility and its dependence on sociopolitical context.

## **METHODS**

We used a grounded theory approach (Corbin & Strauss, 2008) to guide a thematic content analysis of the professional conservation biology literature (M. N. Peterson, Peterson, Birkhead, Leong, & Peterson, 2010). We began with articles from a special issue of *Conservation Biology* that discussed policy advocacy and conservation science (i.e., Brussard & Tull, 2007; Lackey, 2007; Meffe, 2007; Murphy & Noon, 2007; Noss, 2007; Scott et al., 2007). The key terms used in this issue to address the scientist–advocate paradox were advocacy, opinion, and scientific independence. Using these terms, we searched the ISI Web of Knowledge for refereed journal articles in the field of conservation biology from 1990 through 2010. We found 30 articles of which 11

were relevant to the scientist–advocate paradox. We then conducted a close textual analysis (Leff, 1980) of each article to identify additional key terms to guide an expanded search. This led us to select seven additional terms that represented points discussed in the scientist–advocate paradox (i.e., conservation, credibility, expert opinion, neutrality, science impartiality, science integrity, subjectivity).

Next, we searched the ISI Web of Knowledge, Google Scholar, Wiley On-line, and Discovery databases for the terms we identified in titles, key words, and abstracts of refereed journal articles and book chapters published 1976–2012. In publications that lacked keywords or abstracts, we searched the entire document. We carefully read each publication, and removed those not directly relevant to the scientist–advocate paradox. This process yielded an additional 119 publications for a total of 136.

We used thematic content analysis (M. N. Peterson et al., 2010; T. R. Peterson et al., 1994) to create categories to capture the concepts used to explore the scientist–advocate paradox. Saturation was reached after creating 5 categories and 12 subcategories (Table 1, Appendix A). In addition to credibility, the categories that emerged were risk (what are conservation biologists most worried about?), role (how should conservation biologists engage the issues?), conservation science (what does it include?), and environmental policy (what should it be based upon?). During this process, we used constant comparison (Corbin & Strauss, 2008) to challenge our formulation of the categories and to document and analyze ideas about categories as they emerged and were refined.

Our methods and results were iteratively linked (Corbin & Strauss, 2008), such that each category and subcategory that emerged during thematic analysis contributed to refinement and clarification of already existing categories (see Thematic content analysis, in Results, for linkage details). When authors explicitly discussed credibility, we examined the sentence to determine relative emphasis on expertise, goodwill, and trustworthiness (Table 1, Appendix A). We developed a codebook which defined categories and subcategories and then used it to train coders and assess intercoder reliability (Krippendorff, 2013). Coders used NVivo 10.0 qualitative software (QSR International, Doncaster, Victoria, Australia) to code publication abstracts. For publications without abstracts, we coded the publications' introduction or conclusion (hereafter summaries) depending on which one best summarized the content. Sentences were the unit of analysis. The same sentence was coded in multiple categories if it fit more than one. Two people independently coded all abstracts and summaries. We calculated intercoder reliability across all summaries and categories using weighted Cohen's Kappa (Cohen, 1968;  $\kappa = 0.8756$ ).

Our final analytic objective was to explore relationships among the 12 subcategories (i.e., variables) delineated through thematic content analysis (Table 1, Appendix A). Because procedures such as principle component and factor analysis produce principle components and factors, respectively, that include information from all variables, we used oblique component cluster analysis to group variables using SAS 9.3 (VARCLUS procedure; SAS Institute, 2012). This procedure iteratively reassigns variables to clusters such that variance explained by cluster components, summed over



all clusters, is maximized. We stopped iterative clustering once the largest second eigenvalue dropped below 0.95.

## **RESULTS**

### **Thematic Content Analysis**

All of our findings relate in some way to credibility. References to the value of conservation biologists' specialized knowledge as a means of enhancing credibility demonstrate attention to *credibility–expertise* (Table 1, Appendix A). For example, the sentence, “Nobody is suggesting that conservation scientists should always and consistently shy away from policy and never lend their expertise to public issues” (Meffe, 2007:11), illustrates this concern. Recommendations that conservation biologists should care for natural resources indicates concern with *credibility–goodwill*. Examples include phrases such as, “wildlife managers are stewards of a public resource” (Decker, Roland, Nielsen, & Parsons, 1991:526), and “we have little choice if we truly want to conserve that diversity for its inherent good” (Meffe & Viederman, 1995:331). Authors sometimes referred to conservation biologists' integrity, or *credibility–trustworthiness*. For example, the phrase, “budgetary dependence of state wildlife agencies on...license fees automatically raises concerns about their ability to act fairly” (Rutberg, 2001:33), illustrates a focus on *credibility–trustworthiness*.

Risks of various sorts are important aspects of credibility for conservation biologists. Risks of losing biodiversity demonstrate concern with *risk–biodiversity* (Table 1, Appendix A). The phrase, “The accelerated loss of biodiversity” (Vohland et al., 2011:1188) indicates such an emphasis, whereas the phrase, “because of the

increasing consequences of the alteration of biotic systems” (Mooney, 2003:49) exemplifies concern with *risk–sustainability*. Statements referring to conservation biologists’ loss of standing or believability illustrate awareness of *risk–scientific credibility*. For example, the sentence, “However, scientists who lack impartiality often create the perception of bias, and they can suffer a concomitant loss of credibility” (Ruggiero, 2010:1179), demonstrates concern with *risk–scientific credibility*. This sentence also illustrates the possibility of assigning multiple codes to a single sentence, as its reference to “lack [of] impartiality” indicates concern with *credibility–trustworthiness*.

The roles conservation biologists should play in the environmental policy process also informed credibility for conservation biologists. When authors explained the appropriate role for conservation biologists was to educate and/or provide data in the policy realm, they tended to direct their colleagues to play an advisory role, which primarily consists of reporting on the results of their research (Table 1, Appendix A). For example, the phrases, “policymakers, managers, and the lay public need scientific counsel all the more” (Allen, Tainter, Pires, & Hoekstra, 2001:484), and “they [scientists] should inform the public about issues while avoiding direct involvement in policy development” (Ruggiero, 2010:1179), suggests that conservation professionals should limit their policy involvement to the role of *advise and/or report*. Some authors, however, recommended that conservation biologists should support specific policies, taking the role of *advocate*. For example, the sentence, “In sum, the question is not

whether we should advocate but how” (Chan, 2008:3), recommends that conservation professionals have a responsibility to function as *advocates*.

Many authors described conservation science as a social process that includes values and argumentation, resulting in a code of *conservation science–intersubjective* (Table 1, Appendix A). The sentence, “Conservation biologists should reflect on the constitutive values (especially contextual, but also methodological and bias) underlying their research programs” (Barry & Oelschlaeger, 1996:905), typifies statements that described conservation science as *intersubjective*. Other authors stated that conservation science should be based strictly on empirical evidence, because conservation science should be *objective*. For example, “it is imperative to understand the distinction between science and professional judgment. The former is the acquisition of knowledge by applying the principles of the scientific method” (Sallenave & Cowley, 2006:203) illustrates such claims, and was coded as *conservation science–objective*.

Authors presented similarly divergent arguments regarding what led to excellent environmental policy. Some claimed that it should be based only on natural science (Table 1, Appendix A). For example, the statement that “Environmental policies and actions can be improved...by calling attention to relevant scientific information and ensuring that policies and their implementation are consistent with the best available science” (Meyer, Frumhoff, Hamburg, & de la Rosa, 2010:299) represents *environmental policy process–natural science*. Alternatively, sentences that explained appropriate environmental policy as based on the integration of natural (e.g., ecology) and social sciences (e.g., economics, law, politics), demonstrates the focus on

*environmental policy process—social and natural science*. Text such as “identification of visionary science questions...and identification of questions about human values and their role in political processes could all help advance real-world conservation science” (Rudd, 2011:860) illustrates a preference for environmental policy process that links social and natural science.

When authors discussed credibility, 40.2 and 34.0% of the text evaluated, on average ( $N = 136$  publications), addressed expertise and trustworthiness, respectively, rather than goodwill (8.1%; Figure 1A, Appendix B). The majority of statements describing risks focused on concern about loss of scientific credibility, rather than risks to biodiversity or sustainability ( $\bar{x} = 51.2\%$  versus 11.0 and 11.4% of text evaluated, respectively (Figure 1B, Appendix B). As authors considered the roles conservation scientists should play in the conservation policy arena, they emphasized educating the public and policy makers or providing data to policy makers rather than advocating for particular conservation actions ( $\bar{x} = 33.6\%$  versus 20.8% of text evaluated, respectively; Figure 1C, Appendix B). When authors discussed conservation science, they described it as including social processes rather than being limited to evidence-based natural science ( $\bar{x} = 12.3\%$  versus 0.9% of text evaluated, respectively; Figure 2A, Appendix B). Finally, statements about environmental policy centered on the claim that the policy process involves natural science and important social components—including economics, politics, and law—as contrasted with the notion that environmental policy should be based strictly on natural science ( $\bar{x} = 18.0\%$  versus 1.1% of text evaluated, respectively; Figure 2B, Appendix B).

## **Interactions among Categories**

When authors discussed credibility, risks, and the roles conservation scientists should play, there were recognizable interactions among the textual themes they emphasized. Authors who emphasized credibility as trustworthiness were quite concerned about risks to their scientific credibility, and claimed conservation science should be an objective enterprise (Table 2, Cluster 1, Appendix A). Statements such as “bias...associated with lobbying efforts all tend to dissuade scientists from participation as advocates...[but] the presentation of relevant data and insistence that it be interpreted accurately and acted upon is an effective method of achieving biologically sound policies” (Salzman, 1989:170) illustrate the claim that conservation scientists’ integrity (trustworthiness) is essential to their believability when practicing evidence-based conservation science. Authors who used scientific expertise to define credibility also discussed risks to ecological sustainability and claimed the primary roles conservation scientists should play were assessing data, reporting results, and advising the public and environmental policy makers (Table 2, Cluster 2, Appendix A). For example, the statement, “development of new laws and policies must account for uncertainties...and complexities of ecological systems.... Scientists need to recognize that...the results of fundamental research can contribute greatly to the use of sound ecological principles in legislation and policy” (Brosnan, 1995:333) indicates that expertise is important to legitimizing the preferred role of advisor/reporter. Finally, when authors defined credibility as goodwill—or acting in the interest of the resource and society—they also were concerned about risks to biodiversity (Table 2, Cluster 3, Appendix A). “The vast

majority of those who call themselves conservation biologists were attracted to their field out of a love for nature.... Scientific knowledge and understanding will help us to be more successful in our common goal of preserving global biodiversity” (Tracy & Brussard, 1996:918) illustrates that goodwill is intrinsic to any effort to curtail the continued loss of species, communities, and ecosystems.

Interactions among textual themes also emerged when authors discussed environmental policy. Authors who argued that environmental policy should be grounded almost exclusively on evidence-based natural science claimed that conservation biologists should indeed play the advocate role in the policy process (Table 2, Cluster 4, Appendix A). For example, the statement, “involvement in developing...conservation policy is an important activity that more wildlife professionals should become comfortable with as objective advocates for science-based policy” (Thompson, 1995:318) suggest that conservation biologists should advocate for specific conservation policies so long as their advocacy is based on objective natural science. Authors who maintained that environmental policy must be grounded on both social and natural science argued that conservation science is an intersubjective rather than a strictly objective discipline (Table 2, Cluster 5, Appendix A). Statement such as “how they [science and policy] fit together is best understood by viewing land management as a process [that clarifies]...why it is proper for conservation biologists to base their work on normative goals” (Freyfogle & Newton, 2002:863) illustrate that for these individuals, conservation science encompasses evidenced-based natural science, social science, and social interactions.

## **DISCUSSION**

Credibility is a slippery shibboleth (Macnab, 1985) for conservation biologists. As Alagona (2008:1365) put it, “everybody seems to think credibility is a good idea.... But exactly what credibility is remains the subject of considerable confusion”. Various pairings of the term contribute to the confusion, such as “scientific credibility” (Costanza, 2001:459; Wilhere, 2012:40), “professional credibility” (Gill, 2001:22) , and “agency credibility” (Rutberg, 2001:33). Occasionally, the conservation biology literature defines credibility as believability, or inspiring trust (Blockstein, 2002; Nelson & Vucetich, 2009; Ruggiero, 2010; Yamamoto, 2012)—but, as noted in the introduction—such definitions are incomplete characterizations of credibility. The terministic screens (Burke, 1966) formed by these descriptions of credibility lead to oversimplification and confusion that impedes conservation biologists’ efforts to negotiate the scientist–advocate paradox.

### **Confusion about Credibility**

Our analyses demonstrate that the conservation biology literature fails to present a multidimensional picture of credibility. The publications we analyzed demonstrate a lack of awareness that credibility develops along the three dimensions of expertise, goodwill, and trustworthiness delineated by Aristotle (1991; Kennedy, 1999). These dimensions are either omitted or listed as entities that exist separately from credibility (e.g., Blockstein, 2002; Goodwin, 2012). Depending on situational demands, conservation biologists should emphasize an appropriate combination of these dimensions when seeking to enhance credibility. We are not suggesting that they behave

dishonestly, simply that conservation biologists respond to the needs of the situation. For example, when discussing potential changes in the legal status of the federally endangered Golden-cheeked Warbler (*Setophaga chrysoparia*) with decision makers, they would most likely need to emphasize their expertise. Conservation biologists also should recognize and respond to opportunities to use a powerful combination of two or more credibility dimensions (Table 2, Clusters 1–3, Appendix A). For instance, if they are interacting with bird watchers concerned that Golden-cheeked Warbler habitat is being destroyed on public property, they would most likely need to highlight both their expertise and trustworthiness. Conversely, if conservation biologists are interacting with ranchers concerned that their livelihood is threatened because their property has been designated as critical habitat for the endangered species, conservationists would most likely need to demonstrate both goodwill and trustworthiness, with expertise being less important.

The conservation literature we analyzed typically framed credibility as an entity rather than a process. Credibility emerges as a social construct that is dependent on precarious, but quite real, social relationships (Aristotle, 1991; Burke, 1966; Kennedy, 1999). Conservation biologists must remember that humans are egocentric (Duffy & Ryan, 1987), understanding the world from within their own sense of self. Preexisting values and beliefs give meaning to new experiences, which then modify those values and beliefs. This iterative process produces expectations that people use to judge any message, policy, or action. These expectations also are governed by broader cultural norms (Terry, 1996) and influence credibility in any sociopolitical context. For example,



if birders believe scientists have ignored their concerns in the past, they will expect similar treatment in future interactions. On the other hand, if they have been involved in successful citizen-science projects, they are likely to expect positive interactions with conservation biologists. Because it is a perceptual construct, conservation scientists only have partial control over their credibility. They must work with stakeholders to determine what it means to be credible, work toward achieving that credibility, and then behave as credibly as possible given the demands of each situation.

### **Recognizing Credibility's Multidimensionality**

The overly simplistic and unidimensional framing of credibility in the conservation biology literature limits the value of advice about how risk and roles contribute to, and potentially damage, credibility. For example, although conservation scientists are alarmed about risks to biodiversity and sustainability, these concerns are overshadowed by risks to their professional credibility (Figure 1B, Appendix B). A more nuanced understanding of credibility would provide a means for assessing which dimensions of credibility are most important in each situation. We noted that the preferred role of advise/report (Figure 1C, Appendix B) clustered with expertise as the means for addressing risks to sustainability (Table 2, Cluster 2, Appendix A). In some situations, however, the trustworthiness and/or goodwill dimensions may be more credible ways to address sustainability risks than expertise. Conservation professionals sometimes must play an advocacy role, and risks to biodiversity and sustainability may trump risks to professional credibility. Awareness of multiple possibilities for enhancing credibility by strategic role taking could contribute directly to successfully negotiating

whichever risk requires the most immediate attention in a given situation (Table 2, Appendix A).

The oversimplified framing of credibility also limits the value of advice regarding how to best use conservation science to inform policy. The conservation literature we evaluated linked the trustworthiness dimension of credibility with risks to professional credibility and the claim that conservation science should be objective (Table 2, Cluster 1, Appendix A). This suggests that professional credibility depends on accepting the premise that conservation science should be an objective enterprise uncoupled from social values. As noted above, however, any momentary condition of credibility results from complex sociopolitical processes that operate recurrently (although not necessarily consistently), and that are socially constructed (Aristotle, 1991; Burke, 1966; McCroskey, 1997). Despite the relationships identified in Cluster 1, the professional literature characterizes conservation science as intersubjective (Figure 2A, Appendix B), and as the basis for environmental policy (Figure 2B, Appendix B). These close connections indicate an understanding that both conservation science and environmental policy include sociopolitical aspects that extend well beyond the material world into humans' relationships with Earth (Table 2, Cluster 5, Appendix A). A more complete understanding of how credibility develops should enable conservation scientists to more effectively build on this awareness by explicitly emphasizing the appropriate dimensions of credibility when using conservation science to shape environmental policy.

Understanding the multidimensionality of credibility and recognizing it as an emergent property, rather than as a static entity, should help conservation scientists make conditionally appropriate choices for legitimizing the various roles they play. Returning to the example of conservation biologists communicating with stakeholders who have varied, even oppositional, interests in management of Golden-cheeked Warbler habitat, the role of advocate would likely be completely inappropriate, while the role of advising/reporting may be acceptable. An awareness of human egocentricity helps to explain why credibility may be enhanced by emphasizing trustworthiness and goodwill over expertise. Downplaying their expertise is one way conservation biologists can signal respect for ranchers' local experiential knowledge, which is especially important if the ranchers are feeling nervous about potential inroads into their property rights (T. R. Peterson & Horton, 1995). Conversely, if conservation biologists think their findings indicate that the species has made significant strides toward recovery, they may decide to step into an advocacy role, suggesting that the U.S. Fish and Wildlife Service downlist the species to threatened. In this situation, conservation biologists might want to emphasize their expertise, and complement this with indications that they are unbiased, or trustworthy. For this stakeholder group and in this situation, the biologist's goodwill may be less relevant.

Conservation biology is about more than material reality; its very existence depends on symbolic realities that emerge from socially constructed values (Naess, 1986; Soulé, 1985). M. N. Peterson et al. (2013:100–101) argued that, “To do proper justice to these values in the public sphere requires rhetoric and public processes that are

honest about human politics and human relationships with biodiversity”. With a more nuanced understanding of credibility, conservation biologists are better equipped to recognize existing terministic screens and to reframe them in ways that better meet stakeholder expectations. Reconceptualizing credibility as a sociopolitical process that produces only fleeting moments of stability, and then recognizing the multidimensionality of credibility, will not do away with the scientist–advocate paradox within conservation biology, but it will help conservation professionals negotiate it more effectively.

## **CHAPTER III**

### **VOICE AS AN ENTRY TO AGRICULTURALISTS' CONSERVATIONIST**

### **IDENTITY: A CULTURAL INVENTORY OF THE YELLOWSTONE RIVER**

#### **OVERVIEW**

We explored the communicative construction of a conservationist identity among primary producers by excavating the voices of farmers and ranchers operating along the Yellowstone River (Montana, USA). We used a cultural inventory research approach to discover and then listen to the voices our informants used to construct their conservation identity. These agriculturalists talked about their ecological and social responsibilities when identifying themselves as conservationists and described the obligations and anxieties associated with protecting individual resources and system processes of the watershed. For these agriculturalists, conservation and production are intricately linked, and enable them to provide a sustainable resource base for future generations. Insight from these voices enhances understanding of what sustainability could mean to those who self-identify as producers.

#### **INTRODUCTION**

If I sold this ranch, I would lose my identity...I don't think the town of Terry needs another town drunk. That's probably all I would be...You just create some sort of identity from the land (Gilbertz, Horton, & Hall, 2006, segment 2, 3)

Identity is built upon an understanding of self that is comprised of how individuals view themselves, how individuals think others view them, and how individuals think they compare to others (Owens et al., 2010). These views emerge from

social interactions creating person-based identities, which include meanings about a person's particular traits and qualities; role-based identities, which include meanings people attach to themselves while performing a particular role; and socially-based identities, which include meanings that reflect how people categorize themselves as similar to some (in-group) and different from others (out-group) (McGuire, Morton, & Cast, 2013; Stryker & Burke, 2000). Strong connections with group identity occur when individuals' person and role identities closely link to their group identity. Individuals have multiple identities that are based on various groups and roles to which they belong or perform and are hierarchically arranged acting as standards to organize and motivate actions in social structures (Kim, 2013; Owens et al., 2010). The more salient the identity, the higher it is positioned in the hierarchy; the more likely it will be played out across different social situations (Cinoğlu & Arıkan, 2012) and exist in harmony or opposition to other identities (Owens et al., 2010).

There are many ways to approach identity. In this article, we focus on how identity is intertwined with culture, “the learned system of traditions, symbolic patterns and accumulated meanings that foster a particular sense of shared identity-hood, community-hood and interaction rituals among the aggregate of its group members” (Ting-Toomey & Oetzel, 2013:763). Individuals draw much of their cultural identity from particular places (Carbaugh & Cerulli, 2013) and this connection provides a basis for choosing how to interact with natural resources and with other resource users. Cultural identity has been suggested as one way of understanding how individuals view and respond to natural resource conservation policies (M. N. Peterson et al., 2002).

Conservationist identity develops out of an amalgamation of cultural identity with the animals, plants, and other dimensions of the places where people live, work, and play (M. N. Peterson et al., 2002). As part of this process, natural resource systems such as watersheds, provide basic components of their human residents' conservationist identities. Recognizing landowners have multiple identities (McGuire et al., 2013; Sulemana & James, 2014), researchers have explored how conservationist identity influences landowners' perspectives about nature conservation on their land. McGuire et al. (2013) describes conservationist identity as embracing environmental concerns and balancing these with production goals. Although some authors claim that, among primary resource users, the conservationist identity is secondary to the good producer identity which is based on high input, high output production systems (Burton, 2004) others have found that the conservationist identity balances production and conservation roles (McGuire et al., 2013). Sometimes conservationist identity even means prioritizing environmental protection over production. For example, Sulemana and James (2014) found that farmers who considered themselves conservationists also believed protecting the environment was more important than production. They suggested farmers' conservationist identities guided their views regarding ethical practices for environmental management (Sulemana & James, 2014). Other researchers have found that the more farmers felt they were capable of conserving nature, the more they saw themselves as conservationists (Lokhorst, Hoon, le Rutte, & de Snoo, 2014). All of this research is unified in its conclusion that, for primary natural resource users such as farmers and ranchers, conservationist identity mediates relations between conservation

and production. Synthesizing this research has led us to define conservationist identity as a sense of connection to nature that emerges through integration of conservation and production intentions and actions.

Voice is important in understanding conservationist identity. As numerous researchers have noted (Peeples & Depoe, 2014; Senecah, 2004), voice is not just individuals speaking in a public forum about potentially contentious environmental issues, but also an expression of individuals' distinctive viewpoints about the natural environment and their interactions with natural resources. Voice allows individuals to provide accounts of their lives; explain the ethical choices they make; and describe their emotional attachments to people and places. Through this process, individuals articulate and acknowledge the obligations and anxieties of living with others in a changing natural environment (Peeples & Depoe, 2014). Environmental communication scholars have suggested a variety of ways of approaching voice, extending beyond human voice. These voices may be in the form of internatural or human-animal communication (Carbaugh, 2007; M. N. Peterson, Peterson, & Peterson, 2007; Plec, 2013) that explores the interaction among and between natural communities and social groups; or communication with the living organism, Earth (Schutten, 2011); or attending to the corporeal experience of the nonhuman world (Salvador, 2011). Human voice takes various forms in environmental management, whether organizations supporting industry (Bsumek, Schneider, Schwarze, & Peeples, 2014; Plec & Pettenger, 2012), coalitions fighting against environmental regulations (Peeples, 2005), or community-based organizations that attempt to provide voice to people impacted by environmental



injustice (Chen, Milstein, Anguiano, Sandoval, & Knudsen, 2012; Klassen & Feldpausch-Parker, 2011). Some human voices such as agriculturalists or recreationalists, are less organized and less likely than either industry or environmental organizations to be heard in formal hearing processes regarding management of natural resources (Hall, Gilbertz, Horton, & Peterson, 2013; T. R. Peterson & Horton, 1995). Regardless of whose voice is involved, environmental communication scholars (Senecah, 2004) encourage listening and respectfully responding to that voice, lest it be marginalized or silenced.

### **Human Voice as a Window to Identity**

Human voice is more than a medium for speech; it is a dialogical and ideological process that goes beyond the individual to produce meaning that enables cultural and political life (Phillips & Carvalho, 2012), as individuals not only provide an explanation of their life and circumstances but also articulate their person-based, role-based, and socially-based identities. Voice provides a way to consolidate and organize the milieu of social interactions that influence how individuals construe their identities in relation to the natural resources that matter to them.

In this essay, we listened to the voices of agriculturalists operating along the Yellowstone River (Montana, USA) to learn how they constructed and lived out their conservationist identity. Unlike the voices of relatively well funded wise-use groups (Peeples, 2005) or corporate organizations (Plec & Pettenger, 2012) that mimic the voices of environmental advocates, these agriculturalists' voices were unlikely to circulate among government officials within formal hearing processes or in the broader

public sphere via slick marketing campaigns (Klassen & Feldpausch-Parker, 2011; M. N. Peterson et al., 2007). Because agriculturalists' voices were not neatly collapsed into preexisting ideological frames, we explored how their colloquial expressions of human-nature relationships (Marafiotte & Plec, 2006) reflected and shaped their identity to clarify how agriculturalists reconciled production with what it meant to be a conservationist. We used a functional definition of identity, emphasizing meanings agriculturalists attached to themselves when they performed particular roles associated with conservation of the natural environment. In particular, we focused on roles that reflected social and ecological responsibilities agriculturalists claimed they used to measure their relative success and failure in protecting the river and other watershed resources.

### **Context**

Watershed management provides an opportunity to study this communicative process. The scale of watershed management ranges from local to international levels, involving diverse and competing human and non-human users (Cronin & Ostergren, 2007; Flanagan & Laituri, 2004; Rickenbach & Reed, 2002).

Montana's Yellowstone River is the longest undammed river in the contiguous United States. It flows 670 miles from its source in Yellowstone National Park (Wyoming) through scenic Paradise Valley, Montana and then easterly through Montana's productive irrigated agricultural lands to its confluence with the Missouri River just inside the North Dakota border (McKenzie County) (Hall et al., 2012). Approximately 84% of the riparian lands are privately owned (Hall et al., 2012) and

provide home sites for vacation homeowners and irrigation opportunities for agriculture producers. Additionally, its scenic amenities attract retirees and recreationalists. The river's floodplain is experiencing moderate to significant land-use changes including increased recreational pressure upstream (fly-fishing), riverfront development to accommodate suburban growth in Billings, Montana and downstream ranch land purchased for leased hunting. Many Montanans fear that unplanned riverfront development and growth of the recreation industry threaten the attractive qualities of the river (Hall et al., 2012; Herring, 2006).

A free-flowing, meandering river with diverse ecosystems, the Yellowstone River can appear serene. Yet, during the spring (March-June) the river is prone to flooding because of melting snow from the mountains (National Oceanic and Atmospheric Administration), and during the winter months, river debris snags floating chunks of ice that form temporary dams (National Oceanic and Atmospheric Administration). The floods that occur when water overflows the riverbanks to by-pass the dam exacerbate stream-bank erosion.

The U.S. Army Corps of Engineers (Corps) regulates riparian corridor activities under the authority the Rivers and Harbors Act of 1899 (Rivers and Harbors Act, 1899) and the Federal Water Pollution Control Act (Federal Water Pollution Control Act, 1972). The Corps works in conjunction with state agencies (e.g. Montana Department of Environmental Quality), county conservation districts, and county floodplain administrators to review and grant bank modification permits to stabilize stream banks to prevent erosion. The floods of 1996 and 1997 changed river channels; caused large-scale

erosion; and destroyed human structures, pasture and cropland. Subsequently, over 100 permits for bank stabilization structures were filed by private landowners and subsequently granted by the Corps. Environmentalists contested the permits, arguing that bank stabilization structures intensify erosion problems elsewhere on the river and degrade fish habitat (Kudray & Schemm, 2006). In a successful lawsuit, the court ruled that the Corps must improve how they consider the cumulative effects of bank stabilization on the integrity of the riverine ecosystem (Brown, 2000). In 1999, the Corps placed a moratorium on stabilization projects until further research could determine the “potential environmental and ecological consequences of channel modification” (Auble et al., 2004:1). An interdisciplinary cumulative effects study with funding from the Water Resources Development Act (Water Resources Development Act, 1999) was initiated to understand how human activities affect the river and to recommend voluntary management practices designed to promote a healthy river system.

## **METHODS**

We used a cultural inventory research approach (Hall et al., 2012) to learn whether and how people living along the Yellowstone River identified themselves as conservationists. This approach relies on participant voice as a window into identity. For this paper, we focused on how agriculturalists constructed a conservationist identity for themselves. To provide a point of contrast, we also asked them to describe fellow producers who were not conservationists (Hall et al., 2012); those who formed an ‘out-group’ in this context (McGuire et al., 2013; Stryker & Burke, 2000).

## **Study Area**

Since, people connect to place in significant and lasting ways that influence their identity (Hall et al., 2013), we interviewed agriculturalists along the entire length of the river. To create a purposive sample, we divided the river's reach into five geographic segments delineated by topographic and cultural differences (Gilbertz et al., 2006). The first geographic segment (segment 1) included the Montana counties of Prairie, Dawson and Richland; along with McKenzie County, North Dakota. This segment is dominated by a broad, relatively slow-moving river that serves an expansive farming community and is important habitat for paddlefish and Pallid sturgeon. The second geographic segment (segment 2) included Treasure, Rosebud and Custer Counties, and shares characteristics with other warm water fisheries. It also has significant agricultural presence. The third geographic segment (segment 3), was limited to Yellowstone County and has a sizable urban population (Billings, Montana). This stretch of the river includes important out-takes near the town of Laurel, Montana to divert water to irrigation projects further east and has experienced loss of agricultural bottomlands to urban development. The fourth segment (segment 4) included Sweet Grass, Stillwater, and Carbon Counties. The river in this area is fast-moving and supports a cold-water fishery. In this segment, agricultural lands near the river are being converted to home sites for retirees and vacationers. The final segment (segment 5), was Park County. This segment of the river leaves Yellowstone National Park (Wyoming) and enters Park County at Gardiner, Montana. It flows in a northerly direction and is fast-moving. It supports a cold-water fishery that is well-known for its fly fishing potential (Gilbertz et al., 2006).

## **Informant Directed Interviews**

We identified agriculturalists who were affected by changes in stabilization permits, those interested in and likely to participate in riparian planning, and those directly impacted by management changes (Hall et al., 2012). Members of local Conservation Districts, the Yellowstone River Conservation District Council, and the Yellowstone River Conservation District Council's Technical Advisory Committee helped recruit informants (Gilbertz et al., 2006). We used snowball sampling to obtain additional names of potential informants (Lindlof & Taylor, 2002). We sorted the resulting names by county to ensure that we included informants from every county that borders the river. We selected at least 10 individuals operating in each of the five river segments, ending up with a total of 86 informants.

We used informant directed interviews (M. N. Peterson et al., 2002; T. R. Peterson et al., 1994) to enable informants to find their own voice and share with us their self-descriptions of their identities as conservationists. Because we did not want to co-opt this process, we traveled to informants' counties to conduct interviews in a one-on-one setting so they could control both the macro and micro aspects of the conversation (Bsumek et al., 2014). The interviews were approximately 45 minutes long and allowed the informants maximum opportunity to fully explain their individual perspectives. To minimize collapsing their voices into predetermined frames for conservation (Bsumek et al., 2014), we followed our informants' lead so long as they continued talking about their connection with the river. We audio-recorded the interviews and made detailed field

notes immediately after each interview. We then transcribed the interviews to provide a verbatim record.

### Interview Transcript Analysis

We began our analysis of the interview transcripts guided by a combination of techniques for fragmenting and reformulating the data (Corbin & Strauss, 2008; Hall et al., 2012). We wanted to document how agriculturalists described their conservation roles in the management of the river and watershed. We used the following process for interviews in each geographic segment. We began by identifying phrases, words, and stories that clearly articulated each informant's main ideas. Based on these main ideas, we identified important themes. Based on frequency of appearance and connectedness between frequent themes we created a composite thematic outline. We then supported each theme with individual informants' quotes to reflect the narrative structure created by the informants. We maintained vernacular quality by keeping local phrases, terms, and axioms intact. To test our assessment of the themes' importance, we examined our informants' responses to the final question on the interview protocol which asked them to summarize their thoughts on what was most important to them regarding management of the Yellowstone River. We compared those self-identified themes in their answers to our emergent themes so that our final outline accurately reflected agricultural voices in each segment. Since, we knew our analysis would create a representation of these people, we continued to critique our claims by asking, if any of our informants read this, would they agree that it was their voice describing what they experienced, thought, and believed (Gilbertz et al., 2006; Hall et al., 2012).

Because we wanted to learn how agriculturalists identified as conservationists, we selected text to create categories that captured concepts related to their roles in conserving the river's natural resources (M. N. Peterson et al., 2010; T. R. Peterson et al., 1994). The categories of identity-related talk that emerged from this process were production-ecological responsibility (agricultural production is connected to ecological responsibility), and production-social responsibility (agricultural production is connected to social responsibility). We added a third category to provide contrast; characterization of people our informants believed were not conservationists. Lewicki et al. (2003:23) described characterization frames as statements describing how people "understand someone *else* to be; that is, Who are *they*?" In this case, agriculturalists used characterization to clarify what differentiated them from non-conservationists. During this process, we used constant comparison (Lincoln & Guba, 1985) to challenge the formulation of categories and to document and analyze ideas about categories as they emerged and were refined.

We used NVivo 10.0 qualitative software (QSR International, Doncaster, Victoria, Australia) to code the text. Sentences served as the unit of analysis, with the same sentence being coded in multiple categories if it fit more than one. We continued to use constant comparison to challenge the categories during the coding process to document and analyze how the text was coded.

## **RESULTS**

Using the process described above resulted in 219 separate utterances where agriculturalists talked about what being a conservationist meant to them.



## **Ecologically Responsible Conservationists**

In 76% of the utterances, agriculturalists talked about their ecological responsibilities when identifying themselves as conservationists. Agriculturalists described themselves as protectors of soil, water, and wildlife. The statement, “through the Conservation District, we have tried to build some receding banks and put willows in, to stop the erosion” (segment 1, 80) illustrates the desire to protect soil. Agriculturalists also voiced their intention to protect water quality and quantity. Examples include statements such as, “I really do believe in protecting the river as far as pollution goes. [For example], I haven’t gone right up to the stream bank and sprayed weeds” (segment 4, 158) and “I have sprinkler irrigation so I don’t have any waste” (segment 4, 158). Protecting wildlife from disease is a component of agriculturalists’ conservationist identity. For instance, the sentence, “we encourage them to hunt because I don’t want to be overrun with deer. Every time you let the deer overrun you, it just seems like they get some disease that kills them by the thousands” (segment 1, 113) illustrates their concern with wildlife disease. Agriculturalists also wanted to protect and promote what they believed was healthy wildlife population growth, as illustrated in the statement, “we don’t allow any bird hunting. They [birds] raise their young down by the barn” (segment 3, 122). They also described themselves as ecologically responsible conservationists who chose not to interfere with natural ecological processes. An agriculturalist discussing the natural flow of the river stated, “I’m not sold on whether we should try to engineer the river with rip-rap. I think you got to let them [streams] have their natural habitat” (segment 4, 85).

## **Socially Responsible Conservationists**

Not only did agriculturalists identify themselves as ecologically responsible, but they also included social responsibility within their conservationist identity. They talked about social responsibility in 35% of the utterances. They tended to express social responsibility as being accountable for protecting resources for their neighbors. For example, the following statement illustrates a sense of responsibility for contributing to the security of others living along the river, “the river was affecting [the neighbor] tremendously. When we got done [stabilizing the riverbank], it turned the river away from their property. Now they feel safe and secure” (segment 3, 65). Agriculturalists also explained that they felt accountable to avoid jeopardizing their neighbors’ property. The statement, “I just think that there needs to be some careful planning when stream bank stabilization is done to make sure that you are protecting your property but not jeopardizing someone else’s” (segment 5, 102) demonstrates this consideration.

When our informants described their intentions to safeguard the natural environment for others, they often included providing responsible public access to the river. They identified themselves as caretakers who monitor access to the river, its resources, and allow admittance to other conservation-minded people. For instance, this statement characterizes the safe-guarding responsibility, “we have had people ask to fish here. I figure if they are good enough to ask, they are good enough to use the river” (segment 4, 109). Agriculturalists opposed their practice of providing public access for neighbors to outsider landowners who refused access to the river. One informant explained, “you can go to a Montana farmer and rancher, not to the New York boys or

the Californians, and ask permission to go hunting or fishing, and nine times out of ten you're going to get that authorization" (segment 3, 117). Finally, agriculturalists depicted themselves as protecting Montana's open spaces from residential development. The statement, "without [our] cropland, instead of mowing hay, we'd be mowing lawns" (segment 5, 9), illustrates this sentiment.

### **Irresponsible Non-Conservationists**

In 30% of the 219 utterances, agriculturalists characterized people who were not conservationists. They differentiated these people from themselves by describing various irresponsible behaviors. Our informants described the non-conservationists as farmers and ranchers whose management practices are only motivated by personal profit. For example, "they want to farm it right to the edge [of the river]" (segment 2, 58) and "that guy, across the river, he's . . . looking at . . . production only" (segment 2, 42). Their list of non-conservationists included greedy hunting guides that take "as many big bucks off" (segment 2, 155) a property as possible, inconsiderate jet boat drivers that are "disturbing all natural habitat" (segment 4, 121), and government officials whose poor decisions to release flood waters change "the whole channel of this river completely" (segment 2, 84). Our informants perceived these people as creating ecological problems for the entire watershed. The statement, "the biggest problem that is going to be faced on the Yellowstone is ignorance of the natural process, and bad practices" (segment 3, 23), sums up agriculturalists' concerns about ecologically irresponsible non-conservationists.

They also characterized non-conservationists by their socially irresponsible behaviors. One informant told us, "to get on my naughty list, you leave a bunch of

garbage, [and you are] not taking care of the land—that’s how you get on the bad list” (segment 2, 143). They added to the “naughty list” unethical hunters that throw “their puny antelope and deer off on our place and [go get] another, bigger deer and antelope” (segment 2,151), neighbors who deny public access by posting, “‘No Hunting,’ ‘No Fishing,’ and ‘No Trespassing’” signs (segment 1, 98), and people who are “messing with the river above us” (segment 4, 90). These irresponsible behaviors were characterized as harmful to the human community along the river.

## **DISCUSSION**

### **Conservation and Production Relationship**

Increasing awareness of agriculturalists’ contributions to the degradation of natural resources has led to consideration of how conservationist identity reconciles relations between conservation and production. Much of the literature describes production in opposition to conservation (Burton & Wilson, 2006; Groth, Curtis, Mendham, & Toman, 2014; Sulemana & James, 2014). However, the voices of agriculturalists along the Yellowstone River describe production and conservation as interwoven processes that require each other. According to the story they tell, conservation serves as the lynch pin between revenue generation and personal connection with the land. One agriculturalist stated, “conservation is just pretty important” (segment 2, 147).

These agriculturalists insisted that conservation practices are necessary to protect the reciprocal relationship they have cultivated with the land and the river. Statements such as, “if we don’t take care of our land, it won’t take care of us” (segment 2, 31) and

“take care of this river and it’ll take care of us” (segment 3, 161), illustrate this reciprocity. Agriculturalists described the river as the lifeblood of their land-based agricultural operations; the river supplies water to irrigate cultivated crops and drinking water for livestock such as cattle. These crops and livestock generate income that enables them to remain agricultural producers. Agriculturalists identified hard work and sacrifice as necessary to maintain the relationship. For example, one agriculturalist commented, “I ended up irrigating and putting up 4,500 bales [of hay] by myself. That is hard work” (segment 3, 7). Another interpreted sacrifice as eating “a lot of noodle soup. And maybe drive not too nice a vehicle” (segment 2, 6) so money can be spent on tractors and irrigation sprinklers to work and otherwise care for the land.

Agriculturalists contended that protecting the reciprocal relationship between themselves and their river is integral to their quality of life. The relationship affords them a way of life that they value deeply. One informant stated, “I’m not going to retire from a job that I really love doing” (segment 2, 1). Others told us they are fortunate to provide their families with a lifestyle that keeps “kids out of trouble by providing wholesome activities and a lot of good hard work” (segment 5, 1). Agriculturalists also explained the importance of inheriting a way of life that can be passed on to future generations. As one agriculturalist stated, “there is a relationship that forms working with the land...It becomes part of your character...It becomes part of your soul. I think of the legacy and the heritage. Our kids understand that formative influence on their character. This place defines who they are” (segment 5, 3). They recognized that outsiders have difficulty understanding their way of life. One agriculturalist summed it

up by telling us about an incident when, “a very wealthy man called us and said anytime we are ready to sell the ranch, he had a blank check in his desk drawer. It was an insult. It was just money. They knew nothing of the heritage. Nothing of the lifestyle ... You can’t sell who you are” (segment 5, 41).

### **Ecological Responsibility**

Cognizant of the interdependence of production and conservation, agriculturalists explained their activities must be ecologically responsible. Although they shared the same basic values, they did not necessarily support the same conservation practices. Some agriculturalists focused on protecting individual resources, some on protecting system processes, while others tried to balance protection of the individual resource with system processes. For example, some agriculturalists voiced strong support for bank stabilization techniques to prevent soil erosion. One claimed, “the best way to fix the erosion is to slope the bank and put rocks on it (segment 1, 87). However, some agriculturalists opposed any stabilization technique because they believed bank stabilization interferes with system processes. For example, one agriculturalist stated, “What do I do about the erosion? ...Stand back, away from the bank” (segment 2, 94). Others tried to protect both the individual resource and the system processes. One agriculturalist commented, “I think that you could spot control some of that [erosion], not to change the river completely. But just give it a little guidance” (segment 4, 84).

Regardless of focusing on individual resources or system processes, agriculturalists explained that they want to actively participate in decisions regarding management of the watershed. For example, agriculturalists discussed hunting as a

means to control wildlife populations. As was noted earlier (segment 1, 113; segment 3, 122), they took the responsibility for deciding what type of wildlife people may (i.e. deer), or may not (i.e. birds) hunt on their land. Agriculturalists were more than willing to participate in state agency hunting programs such as Block Management, that allow landowners to manage hunting activities and monitor hunters. One agriculturalist commented, “I like the Block Management. [Hunters] have to sign up, and I know who is on my property” (segment 1, 109). The program allows this agriculturalist to monitor not only the number of hunters on his property, but also to identify specific individuals.

All of our informants based their conservationist identity on being ecologically responsible. However, each one of them chose to demonstrate this responsibility differently. Additionally, the availability of meaningful choices for putting their sense of ecological responsibility into action via appropriate watershed management techniques is vital to these agriculturalists.

### **Social Responsibility**

Agriculturalists explained that the intertwined relationship between production and conservation requires them to be socially responsible neighbors. As one emphatically stated, “I don’t care who you are—you’ve got to be a good neighbor” (segment 2, 32). For these agriculturalists, some neighbors are identified by proximity; they are located across the river or share a property line. Agriculturalists frequently interact with these neighbors, and are careful not to create problems for them when implementing conservation practices. One agriculturalist stated, “I think it’s [bank stabilization] a good approach as long as it doesn’t wash out the neighbor on the other

side” (segment 2, 105). Some of the agriculturalists’ neighbors are located further downstream. Although they may not meet or interact frequently with these neighbors, agriculturalists still take their needs into consideration. One agriculturalist said, “I hope to see more sprinklers [and] less drain water back to the river...That is a good thing for us and a good thing for everybody downstream” (segment 2, 222). Finally, some informants even described more generalized Montana residents and visitors from other states and countries as neighbors. These neighbors do not necessarily live near or downstream of agriculturalists and they rarely, if ever, have any direct interaction. However, our informants explained that as conservationists, they have a social responsibility to protect the natural resources for these neighbors’ enjoyment. One example of this is permitting public access to the river for recreational purposes. An agriculturalist stated, “There are a lot of local people that use it [the river]. We have had people ask to fish here that come from Billings, [Montana]” (segment 4, 109). Another example is protecting open space for visiting neighbors. One agriculturalist commented, “The tourists are coming because of the scenery and the recreation. Frankly, [I think] part of the beauty of the land are these big unspoiled ranches” (segment 4, 150).

The temporal definition of neighbors toward whom agriculturalists expressed a sense of responsibility was also extensive. Neighbors can include future generations of people that will own riverfront land, recreate on or near the river, and visit Montana for the scenic views. Although the agriculturalists we met did not expect to interact with these neighbors, they contemplated how their present-day actions will impact these future generations. One agriculturist captured this sentiment with the statement, “I can’t



imagine anything that I can pass on to future Americans, future family, future friends, generations down the road, as a resource as magnificent as the Yellowstone River, intact, for generations to come” (segment 2, 77).

As conservationists, agriculturalists expressed a sense of social responsibility to their neighbors whether these neighbors live in close proximity or not. Regardless of the spatial or temporal circumstances, agriculturalists explained they are accountable to their neighbors, and their production and conservation activities must reflect that responsibility.

### **Interaction among Ecological and Social Responsibilities**

Agriculturalists who lived and worked along the Yellowstone River expressed their belief that being a conservationist required a certain type of ecological and social responsibility. Although the two responsibilities are both important, our informants maintained that they must first be ecologically responsible so that natural resources thrive to provide a foundation for their social responsibility. They explained that protecting natural resources enables them to share these resources with their present day and future neighbors. The following statements capture the interaction of these conservationists’ ecological and social responsibilities. An agriculturalist stated, “We own it, but somebody else is going to have it someday, and I want to leave it in as good a shape as it was when I got here, if not better” (segment 3, 11). Another commented, “I think we can put [ourselves] in a position that we can protect that river as a resource and it can be there for generations to come” (segment 2, 40).

However, sometimes these agriculturalists feel conflicted. Their conservationist identity requires them to carry out both responsibilities and yet, they explained that to be ecologically responsible may seem to require them to be socially irresponsible. For instance, one agriculturalist explained the dilemma of wanting to minimize soil erosion but not wanting to jeopardize the neighbor. He stated, “erosion [happens] on the banks. You hate to lose areas of the ranch, but [if you] put structures in the river, and try to push the river over, you effect somebody else” (segment 5, 101). Not only did agriculturalists explain their perception of tension between their responsibilities when they make choices but they also explained that the people they have characterized as irresponsible non-conservationists create additional dilemmas for agriculturalists who are struggling to fulfill both ecological and social responsibilities. For instance, one informant explained that some landowners refuse to allow any hunting on their property. These landowners close their land to hunting which contributes to exponential deer population increases. As an ecologically responsible conservationist, he explained, “we want to thin out the deer. [But] too many [new owners] don’t allow hunting. How do you get control of the habitat, [the] deer and game?” (segment 5, 45). Additionally, less available land for hunting also means that an agriculturalist who continues to allow hunting receives even more requests from hunters for public access. As a socially responsible conservationist, he wants to provide this public access. However, since more of the people desiring hunting opportunities are funneled into his property, he now has the dilemma of allowing too many hunters on his land; both more hunters than are needed to control the

deer population, and more hunters than are appropriate for the sense of self-in-place (Cantrill & Senecah, 2001; Carbaugh & Cerulli, 2013) his hunters seek.

Their explanations of how these responsibilities work together and sometimes conflict suggest that for these agriculturalists, humans and other components of nature are intricately linked. Their self-described need to be both ecologically and socially responsible stewards of the natural environment demonstrates strong awareness of internal contradictions, along with a determination to work through the contradictions in the best way they can.

### **Imagining Sustainability as Constructed by Agricultural Conservationists**

The cultural inventory approach allowed us to listen to voices of landowners involved in production agriculture, as they explained how they constructed a conservation identity for themselves. Like all humans, the agriculturalists we interviewed constructed identities and stories within which those identities could perform, to make sense of their complex relationship with Earth (Butzer & Endfield, 2012; Hall, Lazarus, & Swannack, 2014). Their voices constructed, expressed, and organized tales about living with the Yellowstone River, including judgments regarding which actions are appropriate and inappropriate for producers who identify themselves as conservationists and want to sustain their vision of life along the river for both present and future neighbors.

In a milieu where ecological and social systems interact in complex ways, these agriculturalists explained they have obligations to sustain the land community, including humans, soils, waters, plants, animals, and other components (M. N. Peterson et al.,

2007). They explained that, by fulfilling their ecological and social obligations, they help protect the river and other watershed resources for current and future members of this community. Furthermore, agriculturalists described their anxieties regarding changes in the land community that cause their ecological and social responsibilities to conflict; thus creating difficulty in living out their conservationist identity.

Sustainability provides a vision that includes complex constructions of identity such as those voiced by our informants. In its broadest sense, sustainability seeks to reconcile social aspirations with ecological limits (Sarewitz, Clapp, Crumbley, Kriebel, & Tickner, 2012), and directs research toward the production of useable knowledge for transitioning human patterns of living toward more sustainable trajectories (Miller et al., 2014). The tremendous effort needed to power these transitions is unlikely to materialize unless the proposed transitions are meaningful to persons who are embedded in the problem context, are affected by probable outcomes, and identify themselves as having significant connection with a place (or places) on Earth (Carbaugh & Cerulli, 2013; Talwar, Wiek, & Robinson, 2011; Wiek, Ness, Schweizer-Ries, Brand, & Farioli, 2012). The voiced identities of agriculturalists in the Yellowstone River watershed offer one means for identifying shared values and viable paths for integrating divergent social and ecological values into planning for a more sustainable future.

When we listened to the voices of these agriculturalists that live, work, and play in the watershed, we heard them explain how humans are intricately linked with their places. Through their stories, we gained insight about the interwoven relationship between conservation and production that sustains both individual resources and system

processes of the watershed. Through understanding the identity they have articulated, environmental communication scholars could imagine new ways to encourage sustainable development (Lindenfeld, Hall, McGreavy, Silka, & Hart, 2012). These agriculturalists have articulated a particular way of integrating ecological and social responsibility, along with production, that could be generalized to other natural resource management efforts that hope to develop more sustainable ways for humans to inhabit Earth.

**CHAPTER IV**  
**NEGOTIATING THE DEMOCRATIC PARADOX: CIVIC LEADERS’**  
**APPROACHES TO GOVERNANCE OF THE YELLOWSTONE RIVER**  
**WATERSHED**

**OVERVIEW**

We focused on how community leaders of the Yellowstone River watershed described their perspectives of governing in an ever changing ecological and social environment and explain best management practices for the watershed. We used a cultural inventory research approach to learn whether and how local decision-makers along the Yellowstone River recognized and negotiated the democratic paradox. These local civic leaders talked about the importance of managing conflict when negotiating tension between protecting individual rights and working for the common good; embracing multiple and diverse viewpoints about watershed management; acknowledging that change drives the paradox. Examining the democratic paradox provides a window into the dynamics of the democratic process and suggests ways to re-imagine public participation in ways that provide more meaningful engagement opportunities for all participants in the democratic process.

**INTRODUCTION**

Two things come to mind right now. Although I believe in personal property rights...I believe, too, that...not everybody is going to get everything they want. It just has to be that way (Gilbertz et al., 2006, segment B, 1).

Present-day western democracy is grounded in the concepts of liberty and equality (Mouffe, 2000, 2005). The concept of liberty emphasizes individual freedom and

limiting government power to secure that freedom, while the concept of equality focuses attention on the importance of enabling everyone to fully participate in decisions that ultimately lead to the laws and policies that govern society. Chantal Mouffe (2000) theorizes that these two strands of thought represent a paradox within contemporary democracy that is both difficult and important to negotiate. Failure to recognize the centrality of this irreconcilable paradox encourages practices that attenuate democracy and lead to either autocracy, where a single individual or party controls all important political matters, or mobocracy, where lawlessness and chaos prevail. Either eventuality jeopardizes both individual rights and community good (Mouffe, 2000).

Lack of opportunity for meaningful participation in the democratic process has been linked to increased public apathy, and even hostility, toward environmental policy (Depoe, Delicath, & Elsenbeer, 2004). Senecah (2004) argues that participatory processes often fail because they do not provide meaningful voice for citizens. Other critiques of the participatory process have focused on consensus and collaboration. Toker (2004) advocates for abandonment of consensus-based approaches and Walker (2004) critiques the United States Forest Service's resistance to using collaboration in the public participation process. Examining the democratic paradox provides a window into the dynamics of the democratic process and suggests ways to re-imagine public participation in ways that provide more meaningful engagement opportunities for all participants in the democratic process.

## **The Democratic Paradox**

Mouffe (2000) describes politics as an “ensemble of practices, discourses and institutions which seek to establish a certain order and organize human coexistence in conditions that always are potentially conflictual” (p. 101). Under the current democratic model, she cautions that in striving for equality conflict is squelched as a rational thinking is imposed over passions; homogeneous citizenship is privileged over heterogeneous citizenship; and consensus is emphasized over dissent. Her fear is citizens perceive that the democratic process as nothing more than a “mechanism for choosing and empowering governments and has been reduced to a competition between elites” (Mouffe, 2005, p. 120). This combination results in unfilled citizens that question whether they have any real means to effect change through their participation in the democratic process.

### Pluralistic Democracy

Mouffe (2000) offers pluralistic democracy as an alternative to the current democratic model to negotiate the paradox. For her, pluralism is linked with the acceptance of conflict that is irreconcilable and ineradicable. Acceptance of conflict within the political system provides an opportunity for passions to be an integral component in the democratic process. Mouffe (2000) contends that the failure to accept the expression of passions as part of contemporary democracy grows out of a misplaced assumption that rationalist modes of thinking have largely displaced others within modern society. She reminds readers that passions are pervasive not only in individuals,



but also in politics, where they provide the basic material used in the formation of collective identities (Mouffe, 2000).

Recognizing the intractability of conflict encourages society to make room for passions, discourages an over emphasis of homogeneity, and highlights the importance of pluralism. There are at least two understandings of pluralism (Mouffe, 2000). One form is polytheism of values, with multiple values some of which are defined in direct contradiction to others and most importantly can neither be reconciled nor even exist concomitantly. She contrasts this form with liberal pluralism which emphasizes harmonies—perhaps discordant or in a minor key—but still a variety of harmony based in multiple value-based viewpoints. The key is for individuals to explore issues from multiple viewpoints, which should enable them to realize that multiple values may interact within a system, without the necessity of all members of that system subscribing to all the same values (Álvarez, 2010; Mouffe, 2000).

Finally, Mouffe (2000) critiques contemporary democracy's tendency to move contentious issues of public interest to the non-public sphere to achieve consensus. She cautions this move marginalizes or even removes conflict altogether from the decision-making process taking this process away from the people and giving it to judges and courts. Although she agrees consensus is necessary at certain points, she stipulates it must be complemented by dissent. A “well-functioning democracy calls for a confrontation between democratic political positions, and this requires a real debate about possible alternatives. Consensus is indeed necessary but it must be accompanied

by dissent” (Mouffe, 2000, p. 113); democracy’s main objective must be managing dissent.

Mouffe (2000, 2005) refers to dissent as antagonistic conflict that is based on a pluralism of values that cannot be resolved. Antagonistic conflict can morph into two forms. In its purest form, antagonistic conflict is conceptualized as a division between people; some are viewed as friends while others, the opponents, are viewed as enemies. The crux of the conflict is lack of common ground based on shared principles of freedom and equality. Conflict expressed as antagonistic is not compatible with sustainable democracy as the divisions it creates leads to violent acts such as war (Ivie, 2007) or terrorist attacks (Álvarez, 2010). However, antagonistic conflict can be expressed as agonism. In this form of conflict, the opponent is seen as an adversary versus an enemy (Holmes, 2012; Mouffe, 2000). The adversary approach allows opponents legitimacy in holding different positions from ourselves. Agonism enables adversaries the ability to agree there will be dissent about different positions that are not reconcilable.

For Mouffe (2000), the agonistic form of conflict is more compatible with a sustainable democratic model that has a primary objective to create institutions that provide space that permits dissent and construction of political identity that can never be “fully constituted, and it can only exist through multiple and competing forms of identification” (Mouffe, 2000, p. 56).

Identities are constructed through social interactions comprised of conflicting ideologies and experiences which form the basis of how people categorize themselves as similar to some (“us”), and different from others (“them”) (McGuire et al., 2013; Stryker

& Burke, 2000). The “us-them” idea has important implications for democracy. Mouffe (2000) advocates that the goal of democratic process is “to construct the ‘them’ in such a way that is no longer perceived as an enemy to be destroyed, but as an ‘adversary’, that is, somebody whose ideas we combat but whose right to defend those ideas we do not put into question”(pp.101-2).

In this essay, we used Mouffe’s concept of the democratic paradox to discover whether and how the paradox is evident in the dynamics of the democratic process as seen through the eyes of local civic leaders. In particular, we focused on how community leaders of the Yellowstone River watershed described their perspectives of governing in an ever changing ecological and social environment and explain best management practices for the watershed.

### **Management of Yellowstone River (Montana) Watershed**

The scale of watershed management ranges from local to international levels, involving diverse and competing human and non-human users (Cronin & Ostergren, 2007; Flanagan & Laituri, 2004; Rickenbach & Reed, 2002). The Yellowstone River watershed management provides an opportunity to study the democratic paradox.

Montana’s Yellowstone River is the longest undammed river in the contiguous United States. It flows 670 miles from its source in Yellowstone National Park (Wyoming) through scenic Paradise Valley, Montana and then easterly through Montana’s productive irrigated agricultural lands to its confluence with the Missouri River just inside the North Dakota border (McKenzie County) (Hall et al., 2012). Approximately 84% of the riparian lands are privately owned (Hall et al., 2012) and

provide home sites for vacation homeowners and irrigation opportunities for agriculture producers. Additionally, its scenic amenities attract retirees and recreationalists. The river's floodplain is experiencing moderate to significant land-use changes including increased recreational pressure upstream (fly-fishing), riverfront development to accommodate suburban growth in Billings, Montana and downstream ranch land purchased for leased hunting. Many Montanans fear that unplanned riverfront development and growth of the recreation industry threaten the attractive qualities of the river (Hall et al., 2012; Herring, 2006).

A free-flowing, meandering river with diverse ecosystems, the Yellowstone River can appear serene. Yet, during the spring (March-June) the river is prone to flooding because of melting snow from the mountains (National Oceanic and Atmospheric Administration), and during the winter months, river debris snags floating chunks of ice that form temporary dams (National Oceanic and Atmospheric Administration). The floods that occur when water overflows the riverbanks to by-pass the dam exacerbate stream-bank erosion.

The U.S. Army Corps of Engineers (Corps) regulates riparian corridor activities under the authority of the Rivers and Harbors Act of 1899 (Rivers and Harbors Act, 1899) and the Federal Water Pollution Control Act (Federal Water Pollution Control Act, 1972). The Corps works in conjunction with state agencies (e.g. Montana Department of Environmental Quality), county conservation districts, and county floodplain administrators to review and grant bank modification permits to stabilize stream banks to prevent erosion. The floods of 1996 and 1997 changed river channels;

caused large-scale erosion; and destroyed human structures, pasture and cropland. Subsequently, over 100 permits for bank stabilization structures were filed by private landowners and subsequently granted by the Corps. Environmentalists contested the permits, arguing that bank stabilization structures intensify erosion problems elsewhere on the river and degrade fish habitat (Kudray & Schemm, 2006). In a successful lawsuit, the court ruled that the Corps must improve how they consider the cumulative effects of bank stabilization on the integrity of the riverine ecosystem (Brown, 2000). In 1999, the Corps placed a moratorium on stabilization projects until further research could determine the “potential environmental and ecological consequences of channel modification” (Auble et al., 2004:1). An interdisciplinary cumulative effects study with funding from the Water Resources Development Act (Water Resources Development Act, 1999) was initiated to understand how human activities affect the river and to recommend voluntary management practices designed to promote a healthy river system.

## **METHODS**

We used a cultural inventory research approach (Hall et al., 2012) to learn whether and how local decision-makers along the Yellowstone River recognized and negotiated the democratic paradox.

### **Study Area**

Since, community leaders have to negotiate between competing demands of river user-groups, (Hall et al., 2013), we interviewed local civic leaders along the entire length of the river. To create a purposive sample, we divided the river’s reach into five segments delineated by topographic and cultural differences (Gilbertz et al., 2006). We

began segmenting the river at the northern entrance to the Yellowstone National Park (Gardiner, Montana). The river flows in a northerly direction through Paradise Valley and is fast-moving. Near Livingston, Montana the river turns easterly. It supports a cold-water fishery that is well-known for its fly fishing potential. This segment (segment A) included Park County. The next segment (segment B) begins at the northeastern edge of Park County and flows through Sweet Grass, Stillwater, and Carbon Counties. The river supports a cold-water fishery. In this segment, agricultural lands are being converted to home sites for retirees and vacationers. Segment C included Yellowstone County that has a large urban population (Billings, Montana). This stretch has important out-takes near the town of Laurel, Montana to divert water to irrigation projects further east and has experienced loss of agricultural bottomlands to urban development. The next segment (segment D) began at the Big Horn River tributary and ended at the Powder River tributary. It included Treasure, Rosebud and Custer Counties. This segment of the river has characteristics of warm water fisheries. It has significant agricultural presence. The last segment (segment E) begins at the Powder River tributary and ends at the confluence of the Missouri River (North Dakota). This river segment included the Montana counties of Prairie, Dawson and Richland; along with McKenzie County, North Dakota. This segment is dominated by a broad, relatively slow-moving river that serves an expansive farming community and is important habitat for paddlefish and Pallid sturgeon (Gilbertz et al., 2006).

## **Informant Directed Interviews**

We defined community leaders as full-time residents of the municipalities and counties that were located between the confluence of the Yellowstone River (Gardiner, Montana) and Missouri River (North Dakota). These leaders were either elected or appointed by the elected officials and included city mayors, council members, and planners; county commissioners and planners; and public works managers. We focused on counties and cities that were affected by changes in stabilization permits, those interested in and likely to participate in riparian planning, and those directly impacted by management changes (Hall et al., 2012). We searched public records to obtain contact information for civic leaders in these stretches of the river (Gilbertz et al., 2006). We used snowball sampling to obtain additional names of potential informants (Lindlof & Taylor, 2002). We sorted the resulting names by county to ensure that we included informants from every county that borders the river. We attempted to select at least 10 individuals in each of the five river segments, ending up with a total of 68 informants.

We used informant directed interviews (M. N. Peterson et al., 2002; T. R. Peterson et al., 1994) to enable informants to find their own voice and share with us their perspectives on whether and how democratic governance operates along the Yellowstone River. Because we wanted to meet our informants in places that were most comfortable for them, we traveled to informants' counties to conduct interviews in a one-on-one setting so they could control both the macro and micro aspects of the conversation (Bsumek et al., 2014). The interviews were approximately 45 minutes long. We allowed the informants maximum opportunity to fully explain their individual

perspectives. To minimize collapsing their voices into predetermined frames for conservation (Bsumek et al., 2014), we followed our informants' lead so long as they continued talking about governance in the watershed. We audio-recorded the interviews and made detailed field notes immediately after each interview. We then transcribed the interviews to provide a verbatim record.

### Interview Transcript Analysis

We began our analysis of the interview transcripts guided by a combination of techniques for fragmenting and reformulating the data (Corbin & Strauss, 2008; Hall et al., 2012). We wanted to document how local civic leaders describe their governing approaches to management of the river and watershed. We used the following process for interviews in each geographic segment. We began by identifying phrases, words, and stories that clearly articulated each informant's main ideas. Based on these main ideas, we identified important themes. We used frequency of appearance and connectedness between frequent themes to build a composite list of salient themes. We then supported each theme with individual informants' quotes to reflect the narrative structure created by the informants. We maintained vernacular quality by keeping local phrases, terms, and axioms intact. We used responses to the final question on the interview protocol, which asked informants to summarize their thoughts on what was most important to them regarding management of the Yellowstone River, to provide internal validation of our judgment about thematic importance. We compared themes drawn directly from answers to the final question with our emergent themes to provide additional validation for the themes we had identified as most important. Since, we knew our analysis would



create a representation of these community leaders, we continued to critique our claims by asking, if our informants would recognize their voices in the themes we had identified (Gilbertz et al., 2006; Hall et al., 2012).

Because we wanted to learn what civic leaders believed was important about watershed governance, we selected text to create categories that captured concepts related to their leadership roles (M. N. Peterson et al., 2010; T. R. Peterson et al., 1994). The categories that emerged from this process were individual rights versus the common good (private rights versus what is good for the public), plural perspectives (diverse viewpoints about watershed management), and change (present and future changes in the watershed). During this process, we used constant comparison (Lincoln & Guba, 1985) to challenge the formulation of categories and to document and analyze ideas about categories as they emerged and were refined.

We used NVivo 10.0 qualitative software (QSR International, Doncaster, Victoria, Australia) to code the text. Anecdotes served as the unit of analysis, with the same anecdote being coded in multiple categories if it fit more than one. We defined anecdote as a brief account of an incident that included action that was happening and individuals doing the action. The length of the anecdote ranged from three to twelve sentences. We continued to use constant comparison to challenge the categories during the coding process to document and analyze how the text was coded.

## **RESULTS**

The process described above resulted in 290 separate anecdotes where local civic leaders discussed watershed management.

## **Individual Rights versus the Common Good**

In 62% of the anecdotes, local civic leaders talked about negotiating tension between protecting individual rights and working for the common good as they made decisions about watershed management practices. For these community leaders, priority afforded to individual rights or to the common good varied.

Some community leaders strongly believed in private property rights and disagreed with any interference, especially from the government.

I still believe very strongly in property rights, and I still think that if you own it, and if somebody wants to cross, and if I say I'll let you cross...That's up to [the landowner]. I don't think that the government should step in and say we're going to pass a law that says that you have to give access to that private land.....I just don't believe that's right (segment 1, 38).

As this passage suggests, individuals, based on their individual rights, should have the ability to decide who can enter and remain on their property and this decision should remain with the individual and not left to the discretion of the government. This sentiment was expressed about more than public access to private property. One example is individuals' rights to protect property from erosion. One local civic leader stated, "Erosion is very serious, and, because of the laws, it's almost impossible to protect your land....The Greater Yellowstone Coalition and ...environmental groups sued because...[the bank stabilization method] was supposedly ruining the river....They didn't care about the landowner losing his property" (segment D, 10). Community leaders also emphasize individual rights when discussing zoning regulations. One local civic leader explained, "Right now, we're kind of in the mode of not a lot of zoning because we don't want to put a lot of restrictions on the property" (segment D, 43).

Similar concerns were expressed about infringing on individuals rights to develop property. One community leader stated, “The government has to be careful that controls don’t go overboard... [And] start infringing on private development rights” (segment C, 66). This infringement concern was not only reserved for the present property owner but also for future development. A local civic leader commented, “I don’t agree with conservation easements because it takes away the power of the future generations to make a decision... [about] further subdivision” (segment B, 40).

Although community leaders’ conversations were about individual rights, local civic leaders also stressed serving the interests of the common good:

[Landowners] do not have the right to...do anything they want.... [In one] situation, where [a fellow wanted] a subdivision, [there was a] big petroglyph on the site... [and this] conservative planning board... [was] saying, ‘The guy owns the land and he should be able to do what he wants with it.’ Now, wait a minute....This is a cultural resource. It belongs to all of us.... [We can] force this guy to do a cultural resource inventory, which would be really expensive....But, [he can also] register this site with the State Historical Society and...put a deed restriction on the lot (segment C, 36).

This anecdote demonstrates that even though individuals have rights, those rights should not extend to making all decisions about cultural and natural resources that belong to the people, especially if those decisions harm or destroy those resources. This idea of looking out for the common good extended into other topics. For example, local civic leaders stressed that flood plain regulation was important for the safety of the public. One community leader commented, “[The] flood plain ordinances, people forget that it’s not just because somebody wants to keep you out of some place...It has to do with loss of life” (segment D, 42). Civic leaders also explained they have an ecological and social

responsibility to the river and people downstream; they cannot allow individual rights to supersede those of the public. One community leader said, “I think the river is threatened....We need to update our regulations. We need to look at them and revisit them” (segment A, 22). Another civic leader commented, “We also respect the fact that the river is going to flow where the river deems that it needs to go. And if you build homes in the floodway...you are probably going to get wet.... if we are going to do subdivisions,...we need to make sure that people are safe and that they don’t affect this river (segment C, 28). A civic leader added, “We do have minimum standards for the flood plain by state law. One of those is public health and safety; you can’t permit something if it is a public health and safety threat” (segment B, 19).

Some community leaders explained they carefully balance individual rights and the common good:

We just need to balance regulations and rights....Right now [the community is] so anti-regulation.... [but] we need more effective regulation. We need rules...that have some teeth. The things that are in place...we need help enforcing (segment A, 34).

As this anecdote suggests, balancing individual rights with concern for the common good is not an easy task; the balance is aided by enforcement of regulation. One community leader stated, “If we don’t have regulations we’re going to have development right next to the river. I think development is the worse of the two evils, so we wind up accepting the regulation (segment D, 23). Another civic leader commented, “I hate to say it, but the usage is going to have to be limited. You can’t just send 200 boats a day down that river....it will have to be limited or on a permit basis” (segment A, 9). Civic leaders explained that planning is necessary to help with the balancing act. One

community leader stated, “[We need a] collaborative plan that ensures varied use for all users, just so there was adequate planning to address all of the needs fairly for all” (segment D, 25). Planning helps civic leaders prepare for growth and helps keep the balance. A local civic leader explained, “[you’re] trying to promote survival of the community, we want the power plant and...150 new jobs.... How does that impact the farmers, the users of the resource? How does that impact the recreation? Sit down and give it serious consideration (segment D, 30).

### **Plural Perspectives**

Community leaders talked about diversity of viewpoints in 36% of the anecdotes. They acknowledge that perspectives about watershed management issues are diverse.

One of [the local groups]...are loyal to their community, but they are ‘opposed.’ Whatever the issues are, they are ‘opposed.’... [Then] you have a definite environmental group....I think they are helpful in the sense that they create a perspective.....The other group that shows up is not organized...but would be what I would call the ‘Native Montanan’ group. The first two groups include native Montanans, but they also include folks that aren’t....[The] third group tends to be the people that have lived here year-in and year-out for decades....they tend to be the don’t-get-in-my-way-I-won’t-get-in-your-way sort of folks. They aren’t hyper-environmentalists or hyper-development people....There is a stark contrast between those that have been here for generations and those that haven’t....They tend to be more in the middle. They would be the folks that wouldn’t want to see you cut down all the trees for the sake of cutting down all the trees....They kind of have this balanced approach, whereas a lot of times the ones that you hear from are on the extremes: you shouldn’t cut down any trees, or you should give me a license and a chainsaw and let me cut down whatever I want (segment A, 39).

The multiplicity of viewpoints is captured in the above anecdote. As community leaders contemplate how best to govern the Yellowstone River watershed, they encounter individuals that support various “causes” whether those causes are oriented towards the

environment or development; they interact with individuals that differ in membership organization to promote their “cause”. Variety of viewpoints and extremity of those viewpoints stem from their citizenship; individuals may or may not be natives to Montana. Community leaders explained they deal with “a very complex stew of interests” (segment A, 35) because of varied use of the river. One civic leader commented, “This is a diversified county, and we need diversified use of the river, too....agriculture, the recreation and the industry (segment E, 29). Other community leaders described pluralist views as oriented as positive and negatively but nevertheless important to acknowledge. One local civic leader stated, “People have to realize that there are two sides to every story, maybe one good, one bad, but there’s two sides. I learned a long time ago when I was working that I had to listen to both sides” (segment C, 75).

### **Present and Future Change**

In 56% of the 290 anecdotes, community leaders talked about changes in the river, changes in its management, or both.

We’re lucky that we had a 100-year flood along the Yellowstone back in ’97 and ’98. There were photos taken at that time, so the photos help substantiate where the [flood] boundaries were. That is allowable evidence when trying to determine where a flood plain is. You can use historical records...water lines... [and] anecdotal stories about where the flood was. In this case, we’ve got pretty good evidence of where it was....It’s useful to use the photos. Many of the maps were created in the ’70s and ’80s, and there hadn’t been a 100-year flood....Also, the river has shifted quite a bit. The Yellowstone is a typical graded stream, it really is a very dynamic stream [that] can shift quite a bit, and it has (segment C, 87).

This anecdote illustrates how civic leaders recognize that policy regarding flood plain designation is contingent on the river's boundaries during times of high and low water. Community leaders are concerned policy does not account for the meanderings of the river. One civic leader stated, "[When] a river channel has changed....there gets to be a gray area [where] one part of the law will say an island is public, and then you've got landowners that actually have deeds to islands...[that] weren't always islands"(segment D, 28). Other community leaders are concerned policy is created without regard to changes in the river. When discussing construction in close proximity of the river, one civic leader commented, "I [am] in favor of [a] setback [policy]....when you start building along that river... you've got to protect them....now you're forced with making decisions that are contrary to the natural flow of the river (segment C, 69).

Community leaders explained that the "river experience" changes as more people build near the river. One local civic leader commented, "The experience of floating the river changes dramatically if you have houses on both sides of the river....How do we encourage understanding that there is the possibility of losing...the culture of Montana?...How can we articulate that?" (segment C, 34). Another community leader expressed concern about changes such as these impacting the riparian areas, "The new people want to hunt from the rocking chair on the porch....[their] house,...[water] well, ...septic, all ...in the riparian areas...People coming in want to have their house in there (segment D, 6). Finally, local civic leaders acknowledge that future changes will potentially alter the river and watershed. One community leader stated, "A future issue is how much traffic that river can stand. When I was a kid we never thought much

[recreational use]. There wasn't any guides, now you have hundreds of them" (segment A, 51). Another civic leader explained that with change comes tough choices about water use and commented, "There is a potential, looking into the future, for...coal generation plants that use high levels of water...The question becomes... 'How can water be used?' Right now, there aren't tough choices being made. Everyone gets what they want around here" (segment D, 33).

### **Interactions among the Themes**

We need to find a way to protect the river assets because there is getting to be more and more and more of us. And we all want a piece of the river for our own private purposes and...you can't do that. I think we need to do some planning on the river before you destroy what you love...By taking a look and starting to appreciate...what a tremendous resource the river is....And I think you have to work together with agriculture, and recreation, and industry. I don't like to see the either/or options being thrown around. No one ever benefits by that (segment C, 57).

This anecdote illustrates how change makes the tension between individual rights and the common good more visible. In this anecdote, the common good is at risk of being subordinate to individual rights of ownership of private property. As this notion of using the river for private purposes is acknowledged, multiple perspectives about river management are brought to the forefront and include agriculture, recreation, and industry. Community leaders explained that this dynamic can cause policy to be suspended as these dynamics are negotiated. For example, a civic leader commented:

They are...completing a study in the valley trying to re-establish the actual flood plain....[One set of designations affected] a lot more land area than what they had anticipated...and ... kicked a lot [of property]...into the flood plain and...nobody really wants to be in the flood plain...because you can't do any building.... The DEQ is involved, and the Corps, and FEMA as an insurance part... We don't really know



[when they will make the final determinations]. It is still pending. I would guess within the next two to four years....Not having a flood plain [defined]...we have no idea what to expect from year to year, especially since we have been in a seven- to nine-year drought in this area (segment A, 16).

## **DISCUSSION**

### **Individual Rights versus the Common Good**

It's a real tussle sometimes between property rights and community values and who owns community resources. The river, like it or not, is fundamentally and primarily a community resource with very private sector edges, and that dynamic is not going to go away. The problems [are] there and the conflicts are only going to intensify (segment A, 26).

When community leaders talked about negotiating tension between protecting individual rights and working for the common good, the crux of that tension was conflict; a recognition of the incompatibility of liberty and equality. Community leaders identified “conflict between private ownership and [public] access”(segment C, 59), industry growth competing for a water resource “in conflict with the Ag users” (segment D, 30), a “most contentious situation” concerning the discharge water from coalbed methane production (segment D, 21), “landowner-fisherman conflicts” (segment A, 6) over interpretation of the high water mark, a spatial boundary allowing recreationists river access regardless of streambed ownership (Montana Fish, 2005), and the endangered species Pallid sturgeon as a “good example of a conflict” (segment C, 50) as decisions are made about moving “fish up and down the river from the different diversion structures” (segment C, 50).

For some local civic leaders, conflict stirs emotions which impede decision making. One community leader explained how decisions based on facts were in jeopardy

due to emotions. The civil leader stated, “[you can] get caught up in the emotion, rather than...facts ... [when making] the decision that’s for the betterment of the community. ...if you get caught up in the emotional decisions, you walk away and say, ‘What did I just do?’ (segment C, 76). For other community leaders, conflict moves decision-making into the legal court system that may or may not make an accurate decision. For example, a community leader discussed water rights explaining that the Montana’s state constitution stipulates individuals do not own water, but they do own the right to use water. The civic leader stated, “a full court decree [defines] who is first, and ...how much water can they take... the older basins history has shown that sometimes you have to [go to court] more than once because they [courts] never get it quite right” (segment C, 5).

Conflict also highlights power shifts. Sometimes the power shifts privileges individual rights. However, it is the new holder of the power that concerns local civic leaders. For example, landowners give permission for the public to hunt their land or cross their property to access the river. But with a change of ownership, that access may be denied. One community leader stated, “I have seen a major change in ownership along the river. We [now] have private landowners with a lot of money....buying up large tracts of land....we’ve got different people now controlling what’s going on, and...[they are ] going to lease it to somebody [for recreation] to maximize dollars....Access is going to be a major problem (segment E, 39). Local civic leaders are also concerned that power will shift from local to federal control. For them, this is undesirable because as they explain, federal control usually does not consider the unique

circumstances of the local area. One civic leader stated, “these federal mandates tend to get scary because, at the federal level, they are very gifted at the one-size-fits-all style of regulation” (segment D, 39).

Local civic leaders offered several approaches to dealing with the conflict. Working together was a common approach offered by civic leaders. For example, one community leader stated, “you don’t force things down people’s throats. You sit and work with them and you work on a solution to get it done (segment C, 77). Providing opportunities to participate in decision-making process was also suggested. One civic leader commented, “You have to be open and receptive to public comment—you have to be empathetic without necessarily having to agree” (segment A, 25). Local community members explained that they must consider alternative viewpoints and looked for commonalities to deal with conflict and perhaps come to consensus. One community leader stated, “I really believe in people respecting others’ thoughts, and not doing things just because the law is on their side... There isn’t a problem that can’t be solved if we work on it and reach a little consensus” (segment B, 3) while another local civic leader explained, “There are just a whole lot of people who can’t see anything but black and white. The rest of us see grays... Thankfully ...there’s a...majority that have seen the grays for periods of time....There’s a general consensus that things ought to be better” (segment C, 74).

### **Plural Perspectives**

When local community leaders of the Yellowstone River watershed discussed diverse viewpoints about watershed management, they acknowledged this diversity is

necessary but does add complexity to the decision-making process. Complexity stems from layers of government agency jurisdiction creating contradiction of rules and policies. One civic leader discussing flood plains governance commented, “The interesting thing is the Corps of Engineers and the Montana State definitions of the flood plain are different....The boundaries...aren’t the same” (segment A, 16). Another community leader noted that giving consideration to all viewpoints added complexity. The civic leader stated, “Are we willing to cut our local economy for the Pallid sturgeon? If you’re from Missoula you’ll have a different answer than if you’re from Miles City. The problem is...the sturgeon...and the fisheries issues are not State [issues]. Even though the state is supposed to manage these streams, the Federal government has to be part of it” (segment C, 13).

Local civic leaders also explained collecting diverse viewpoints can take time. One community leader stated, “Slow is a relative term....If it’s a very complex project, [one] that you’ve never heard of before, ...you have to go to the State or some other agency to help make a determination...that this is ok, that takes a while” (segment C, 4). Another civic leader commented, “I wish [the Corps of Engineers] were more accessible....We’re having a problem on Bridger Creek with some people not complying with...stream regulations, and took them a long time to pay attention” (segment B, 25).

### **Present and Future Change**

When local civic leaders talked about present to future changes, they explained that uncertainty about ecological and social changes highlighted the importance of planning. Whether they dealt with changes such as floods, more development, or

different and increased recreational uses of the river, local community leaders explained planning helped provide flexible guidelines to responsibly manage change. One community leader commented, “The growth policy [compiled by the Planning Board]...essentially tries to forecast growth and allow for some flexibility. The City Council’s role is to become aware of responsible growth versus cancerous growth....Recreation would be included in that” (segment D, 38). Planning also helped provide guidelines that enabled some stability. A civic leader stated, “there will come a time when zoning will be needed.... So, if you buy property in a certain area, you can kind of predict some stability” (segment B, 50).

Local community leaders also talked about wanting and needing accurate, updated, and innovative information to help with the planning process. One community leader stated, “What is lacking for me in my job is [information about] the state-of-the-art [ideas].... I was amazed when Gallatin County...put in a mechanism where voters voted to tax themselves to buy view sheds.... When that was explained, it made me wish I knew some of the current best practices (segment C, 83). For these civic leaders, information helps set priorities “that the [local community] can then start working on incrementally” (segment D, 36).

### **Interactions among the Themes**

Local civic leaders of the Yellowstone River watershed explain that acknowledgment of current or future change is necessary to responsibly govern the watershed. The mismatch of scale of change both temporally and spatially challenges

their ability to create and enforce policies for the ecological and social changes. These changes happen more rapidly than policy changes.

Although multiple changes were spoken about, community leaders' discussion of flood plain policy captures and reflects the intricacies of negotiating these changes on this mismatch of scale. Local civic leaders explained that floods rapidly change the topographical features of the flood plain. However, an important information source, the flood plain maps are static. One local community leader noted, maps are not site-specific, "they are this blanket...They don't take in consideration difference in topography. When they were done, it was based on information what was from 1982" (segment B, 42). The discrepancies between the maps and specific sites makes it difficult to define the flood plain as was noted earlier by a local civic leader who explained how various agencies defined flood plain boundaries differently. Definitional discrepancies and redefinition of the flood plains calls into question what can and cannot be done with property and sets the scene for potential controversy over individual rights versus the common good. A community leader commented, "They are ... completing a study in the valley trying to re-establish the actual flood plain. It has been fairly controversial....[One set of designations affected] a lot more land area than what they had anticipated....it kicked a lot [of property]...into the flood plain and....nobody really wants to be in the flood plain...because you can't do any building....On the flip-side, [an area] above Emigrant was in the flood plain [before] and when they redid [the designation] it was out of the flood plain....So, which one do you go by?" (segment A, 16).

Even though local civic leaders face uncertainty, they continue to govern the watershed, relying on local knowledge as they await updated information. One community leader stated, “FEMA has told us they are producing new maps....We are holding our breath, actually. This has only been going on for five years....but being a local, I understand this place floods, this place doesn’t...So, even if it doesn’t say so on the flood plain map, [sometimes I know it’s] not a good place to build” (segment D, 46).

### **Envisaging Pluralistic Democracy for Watershed Governance**

Pluralist democracy offers local community leaders a model for governing the Yellowstone River watershed; a way to negotiate the democratic paradox. This negotiation can be messy as multiple viewpoints are considered. One local civic leader commented, “[We, the county] are trying to construct facilities that are safe for the river, in terms of fish habitat, etc., but [also] trying to protect the agriculture users.... Some people say they don’t care about Ag, they care about the ‘viability of the river.’...I understand that can be messy, but I can’t think of anything that isn’t [messy] when you are doing grassroots planning. You can’t exist in a vacuum” (segment B, 28).

Acknowledgment of existence outside of a vacuum provides opportunity for agonistic conflict; creating a symbolic space where dissent is encouraged so that differing viewpoint are expressed and passions are evident in a debate about what changes to current situations would foster improvement in the watershed. When local civic leaders embrace agonistic conflict, they encourage the “we” and the “they” to view each other as adversaries versus enemies and granting legitimacy to each other’s views. One civic leader commented, “[I] even suggest [to agriculturalists] that they become members of

environmental groups... Or, at least go to their website once in a while and look at their mission [statement]" (segment A, 36).

It is important to know adversaries' perspectives in order to foster a complementary relationship: what each adversary knows and does could complement what another adversary may not know and do. A local community leader explained how this could work in a contentious endangered species situation involving intake diversion structures and multiple "adversaries" that included a federal government agency, agriculturalists, environmentalists, and recreationalists. Agriculturalists in the lower Yellowstone river area use intake diversion structures to divert a portion of the river flow from its natural course to provide water for irrigation purposes. The structures block river channels and affect distribution and movement of the endangered pallid sturgeon (*Scaphirhynchus albus*)(Yellowstone River Conservation District Council, 2007). Modifications of the intake structures were needed to enable fish passage. The civic leader stated, "I...explain[ed] to [the agricultural community] that 'You need to listen to the Feds on this deal....It doesn't cost you anything, and you get your diversion structure rebuilt...The fish get to pass around it...There will come a point...where you will pay for that structure [for fish passage]....If you don't want that then you need to be at this discussion [and say] that's an appropriate use of Federal dollars.' An environmental community will agree with that...The recreationalists on that river...there shouldn't be an issue there. They both, the recreationalist and the environmentalist, want the Ag guy out there" (segment C, 50).



Healthy democracy builds in ways to change the system. Local civic leaders emphasize vigilance in working with watershed citizens and not assuming “that problems will solve themselves. The only thing that happens with that passage of time is... [various] sides of the issues become more concrete in their positions and less willing to look at the common elements of interest” (segment A, 37). In their leadership positions, local civic officials can encourage agonistic pluralism by legitimizing perspectives of heterogeneous citizens of the Yellowstone River watershed and placing citizens inside the borders in which moral values and rules of fairness apply (Clark, 2001). Dissent is necessary to negotiate the tension between liberty and equality. One local community leader stated, “If one takes a look at where we were in the ’50s and ’60s, and where we are today, one would have to say that there’s no need for pessimism....Have we done enough? Probably not. But it would be unbelievable if we hadn’t done anything....If private property rights were totally valid and you could do anything you wanted to do, it would be pretty awful” (segment C, 54).

## **CHAPTER V**

### **CONCLUSION**

My dissertation research focused on how negotiation of multiple identities impacts decisions regarding conservation and interactions with others. Influenced by cultural factors, people's identities were based on the roles they perform and the various groups to which they belong. I adopted a critical interpretative lens to explore how conservationist identity emerged from roles of conservation professionals as they promote biodiversity conservation (Chapter II), agriculturalist producers as they talked about BMPs, for the Yellowstone River (Chapter III), and local community leaders that explained their governance of the Yellowstone River watershed and negotiated tensions between individual rights and the common good (Chapter IV).

From these studies, I learned that conservation identity is negotiated in multiple ways. Conservation scientists talked about the importance of being credible when identifying themselves as conservationists. However, they typically discussed credibility as a static entity lacking dimensionality (expertise, trustworthiness, and goodwill); they identified expertise or trustworthiness as important, but rarely mentioned goodwill. It is important that conservation scientists account for the emergent quality and multidimensionality of credibility to enable them advance biodiversity conservation more effectively. Agriculturalists talked about their ecological and social responsibilities when they identified themselves as conservationists and described the obligations and anxieties associated with protecting individual resources and system processes of the watershed. For these agriculturalists, conservation and production were intricately

linked, and enabled them to provide a sustainable resource base for future generations. It is essential to understand what sustainability could mean to those who self-identify as producers. Finally, local community leaders explained the importance of negotiating the democratic paradox when identifying themselves as conservationists. For these local civic leaders, it is important to encourage agonistic pluralism to effectively govern the Yellowstone River watershed.

What has been learned about these various conservation identities offers general principles that can be applied to similar groups involved in conservation across the United States. Additionally, these principles provide a framework to explore conservation identities of other groups such as recreationists or residentialists that recreate or build along the Yellowstone River to enjoy its scenic amenities. This insight enables a better understanding how the negotiation of multiple identities impacts decisions regarding conservation and interactions with others.

## REFERENCES

- Alagona, P. S. (2008). Credibility. *Conservation Biology*, 22(6), 1365–1367. doi: 10.1111/j.1523-1739.2008.01109.x
- Allen, T. F. H., Tainter, J. A., Pires, J. C., & Hoekstra, T. W. (2001). Dragnet ecology—“Just the facts, Ma'am”: The privilege of science in a postmodern world. *BioScience*, 51(6), 475–485.
- Álvarez, E. D. (2010). Interview with Chantal Mouffe: Pluralism is linked to the acceptance of conflict Retrieved December 7, 2014, from <http://w2.bcn.cat/bcnmetropolis/arxiu/en/page238b.html?id=21&ui=438>
- Aristotle. (1991). *On rhetoric: A theory of civic discourse* (G. A. Kennedy, Trans.). New York, NY: Oxford University Press.
- Auble, G. T., Bowen, Z. H., Bovee, K. D., Farmer, A. H., Sexton, N. R., & Waddle, T. J. (2004). *Summary of studies supporting cumulative effects analysis of upper Yellowstone River channel modifications*. (Open File Report 2004-1442). Reston, VA: U.S. Geological Survey, Biological Resources Discipline.
- Barry, D., & Oelschlaeger, M. (1996). A science for survival: Values and conservation biology. *Conservation Biology*, 10(3), 905–911. doi: 10.1046/j.1523-1739.1996.10030904-2.x
- Blockstein, D. E. (2002). How to lose your political virginity while keeping your scientific credibility. *BioScience*, 52(1), 91-96.

- Bratman, E. Z. (2011). Villains, victims, and conservationists? Representational frameworks and sustainable development on the transamazon highway. *Human Ecology*, 39(4), 441-453. doi: 10.1007/s10745-011-9407-x
- Brosnan, D. M. (1995). Bridging gaps among ecology, law, and policy. *Wildlife Society Bulletin*, 23(3), 333-337. doi: 10.2307/3782937
- Brown, R. (2000). Social identity theory: past achievements, current problems and future challenges. *European Journal of Social Psychology*, 30(6), 745-778.
- Brussard, P. F., & Tull, J. C. (2007). Conservation biology and four types of advocacy. *Conservation Biology*, 21(1), 21–24. doi: 10.1111/j.1523-1739.2006.00640.x
- Bsumek, P. K., Schneider, J., Schwarze, S., & Peeples, J. A. (2014). Corporate ventriloquism: Corporate advocacy, the coal industry, and the appropriation of voice. In J. A. Peeples & S. P. Depoe (Eds.), *Voice and environmental communication* (pp. 21-43). New York, NY: Palgrave Macmillan.
- Burke, K. (1966). *Language as symbolic action: Essays on life, literature, and method*. Berkeley, CA: University of California Press.
- Burton, R. J. F. (2004). Seeing through the ‘good farmer’s’ eyes: Towards developing an understanding of the social symbolic value of ‘productivist’ behaviour. *Sociologia Ruralis*, 44(2), 195-215. doi: 10.1111/j.1467-9523.2004.00270.x
- Burton, R. J. F., & Wilson, G. A. (2006). Injecting social psychology theory into conceptualisations of agricultural agency: Towards a post-productivist farmer self-identity? *Journal of Rural Studies*, 22(1), 95-115. doi: <http://dx.doi.org/10.1016/j.jrurstud.2005.07.004>

- Butzer, K. W., & Endfield, G. H. (2012). Critical perspectives on historical collapse. *Proceedings of the National Academy of Sciences*, 109(10), 3628-3631. doi: 10.1073/pnas.1114772109
- Cantrill, J., & Senecah, S. L. (2001). Using the "sense of self-in-place" construct in the context of environmental policy-making and landscape planning. *Environmental Science and Policy*, 4(4-5), 185-203.
- Carbaugh, D. (2007). Quoting "the environment": Touchstones on earth. *Environmental Communication*, 1(1), 64-73. doi: 10.1080/17524030701334276
- Carbaugh, D., & Cerulli, T. (2013). Cultural discourses of dwelling: Investigating environmental communication as a place-based practice. *Environmental Communication*, 7(1), 4-23. doi: 10.1080/17524032.2012.749296
- Chan, K. M. A. (2008). Value and advocacy in conservation biology: Crisis discipline or discipline in crisis? *Conservation Biology*, 22(1), 1-3. doi: 10.1111/j.1523-1739.2007.00869.x
- Chen, Y.-W., Milstein, T., Anguiano, C., Sandoval, J., & Knudsen, L. (2012). Challenges and benefits of community-based participatory research for environmental justice: A case of collaboratively examining ecocultural struggles. *Environmental Communication*, 6(3), 403-421. doi: 10.1080/17524032.2012.698291
- Cinoğlu, H., & Arıkan, Y. (2012). Self, identity and identity formation: From the perspectives of three major theories. *International Journal of Human Sciences*, 9(2), 1114-1131.

- Clark, C. (2001). Stability and moral exclusion: Explaining conflict in timber-dependent communities. *Human Ecology Review*, 8(1), 13-25.
- Cohen, J. (1968). Weighted kappa: Nominal scale agreement with provision for scaled disagreement or partial credit. *Psychological Bulletin*, 70(4), 213–220. doi: 10.1037/h0026256
- Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Thousand Oaks, CA: Sage.
- Costanza, R. (2001). Visions, values, valuation, and the need for an ecological economics. *BioScience*, 51(6), 459–468.
- Cronin, A. E., & Ostergren, D. M. (2007). Democracy, participation, and Native American tribes in collaborative watershed management. *Society & Natural Resources*, 20(6), 527-542.
- Cronkhite, G., & Liska, J. (1976). A critique of factor analytic approaches to the study of credibility. *Communication Monographs*, 43(2), 91–107.
- Decker, D. J., Roland, E. S., Nielsen, L. A., & Parsons, G. R. (1991). Ethical and scientific judgements in management: Beware of blurred distinctions. *Wildlife Society Bulletin*, 19(4), 523–527. doi: 10.2307/3782167
- Depoe, S. P., Delicath, J. W., & Elsenbeer, M.-F. A. (2004). *Communication and public participation in environmental decision making*. Albany, NY: State University of New York Press.
- Duffy, B. K., & Ryan, H. R. (1987). *American orators of the twentieth century: Critical studies and sources*. New York: Greenwood Press.

- Federal Water Pollution Control Act, 33 U.S.C. § 404 (1972).
- Flanagan, C., & Laituri, M. (2004). Local cultural knowledge and water resource management: The Wind River Indian Reservation. *Environmental Management*, 33(2), 262-270.
- Freyfogle, E. T., & Newton, J. L. (2002). Putting science in its place. *Conservation Biology*, 16(4), 863-873. doi: 10.1046/j.1523-1739.2002.01042.x
- Gilbertz, S. J., Horton, C., & Hall, D. (2006). Yellowstone River cultural inventory. Billings, MT: Yellowstone River Conservation District Council.
- Gill, R. B. (2001). Professionalism, advocacy, and credibility: A futile cycle? *Human Dimensions of Wildlife*, 6(1), 21–32. doi: 10.1080/10871200152668661
- Gleason, H. A. (1926). The individualistic concept of plant association. *Bulletin of the Torrey Botanical Club*, 53(1), 7-26.
- Goodwin, J. (2012). What is "responsible advocacy" in science? Good advice. In J. Goodwin (Ed.), *Between scientists and citizens: Proceedings of a conference at Iowa State University, June 1–2, 2012* (pp. 151–161). Ames, IA: Great Plains Society for the Study of Argumentation.
- Groth, T. M., Curtis, A., Mendham, E., & Toman, E. (2014). Farmer identity in multifunctional landscapes: Using a collective identity construct to explore the nature and impact of occupational identity. *Australian Geographer*, 45(1), 71-86. doi: 10.1080/00049182.2014.869297



- Hall, D., Gilbertz, S., Horton, C., & Peterson, T. (2012). Culture as a means to contextualize policy. *Journal of Environmental Studies and Sciences*, 2(3), 222-233.
- Hall, D., Gilbertz, S., Horton, C., & Peterson, T. R. (2013). Integrating divergent representations of place into decision contexts. In W. P. Stewart, D. R. Williams & L. E. Kruger (Eds.), *Place-based conservation: Perspectives from the social sciences* (pp. 121-136). Dordrecht: Springer Press.
- Hall, D., Lazarus, E. D., & Swannack, T. M. (2014). Strategies for communicating systems models. *Environmental Modelling & Software*, 55(0), 70-76. doi: <http://dx.doi.org/10.1016/j.envsoft.2014.01.007>
- Hays, S. P. (1999). *Conservation and the gospel of efficiency: The progressive conservation movement, 1890-1920*. Pittsburgh, PA: University of Pittsburgh Press.
- Herring, H. (2006). Wild rivers and riprap: The case of the Yellowstone, *New West*. Retrieved from [http://newwest.net/topic/article/wild\\_rivers\\_and\\_riprap\\_the\\_case\\_of\\_the\\_yellows tone2/C38/L38/](http://newwest.net/topic/article/wild_rivers_and_riprap_the_case_of_the_yellows tone2/C38/L38/)
- Higgins, M. A. (1991). Bridging the communication gap between farmers and nonfarmers. *Journal of Applied Communication Research*, 19(3), 217-222.
- Holmes, J. (2012). Cape York Peninsula, Australia: A frontier region undergoing a multifunctional transition with indigenous engagement. *Journal of Rural Studies*, 28(3), 252-265. doi: <http://dx.doi.org/10.1016/j.jrurstud.2012.01.004>

- Ivie, R. L. (2007). *Dissent from war*. Bloomfield, CT: Kumarian.
- Kennedy, G. A. (1999). *Classical rhetoric and its Christian and secular tradition from ancient to modern times*. Chapel Hill, NC: University of North Carolina Press.
- Kim, Y. Y. (2013). The identity factor in intercultural conflict. In J. G. Oetzel & S. Ting-Toomey (Eds.), *The SAGE handbook of conflict communication: Integrating theory, research, and practice* (2nd ed., pp. 639-660). Thousand Oaks, CA: Sage Publications.
- Kingsland, S. E. (2005). *The evolution of American ecology, 1890-2000*. Baltimore, MD: The Johns Hopkins University Press.
- Klassen, J. A., & Feldpausch-Parker, A. M. (2011). Oiling the gears of public participation: the value of organisations in establishing Trinity of Voice for communities impacted by the oil and gas industry. *Local Environment, 16*(9), 903-915. doi: 10.1080/13549839.2011.615305
- Krippendorff, K. (2013). *Content analysis: An introduction to its methodology* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Kudray, G. M., & Schemm, T. (2006). Yellowstone River wetland/riparian change detection pilot study.
- Lackey, R. T. (2007). Science, scientists, and policy advocacy. *Conservation Biology, 21*(1), 12–17. doi: 10.1111/j.1523-1739.2006.00639.x
- Leff, M. C. (1980). Interpretation and the art of the rhetorical critic. *Journal of Applied Communication Research, 44*(4), 337–349.

- Lewicki, R. J., Gray, B., & Elliott, M. (2003). *Making sense of intractable environmental conflicts: Frames and cases*. Washington, DC: Island Press.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage Publications.
- Lindenfeld, L. A., Hall, D. M., McGreavy, B., Silka, L., & Hart, D. (2012). Creating a place for environmental communication research in sustainability science. *Environmental Communication*, 6(1), 23-43. doi: 10.1080/17524032.2011.640702
- Lindlof, T. R., & Taylor, B. C. (2002). *Qualitative communication research methods* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Linklater, A. (2002). *Measuring America*. New York, NY: The Walker Publishing Company.
- Lokhorst, A. M., Hoon, C., le Rutte, R., & de Snoo, G. (2014). There is an I in nature: The crucial role of the self in nature conservation. *Land Use Policy*, 39(0), 121-126. doi: 10.1016/j.landusepol.2014.03.005
- Macnab, J. (1985). Carrying capacity and related slippery shibboleths. *Wildlife Society Bulletin*, 13(4), 403-410.
- Marafiotte, T., & Plec, E. (2006). From dualisms to dialogism: Hybridity in discourse about the natural world. In S. P. Depoe (Ed.), *The environmental communication yearbook* (Vol. 3, pp. 49-75). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

- McCroskey, J. C. (1997). *An introduction to rhetorical communication*. Boston, MA: Allyn and Bacon.
- McGuire, J., Morton, L. W., & Cast, A. D. (2013). Reconstructing the good farmer identity: shifts in farmer identities and farm management practices to improve water quality. *Agriculture and Human Values*, 30(1), 57-69. doi: 10.1007/s10460-012-9381-y
- Meffe, G. K. (2007). Conservation focus: Policy advocacy and conservation science. *Conservation Biology*, 21(1), 11. doi: 10.1111/j.1523-1739.2006.00638.x
- Meffe, G. K., & Viederman, S. (1995). Combining science and policy in conservation biology. *Wildlife Society Bulletin*, 23(3), 327–332. doi: 10.2307/3782936
- Meyer, J. L., Frumhoff, P. C., Hamburg, S. P., & de la Rosa, C. (2010). Above the din but in the fray: Environmental scientists as effective advocates. *Frontiers in Ecology and the Environment*, 8(6), 299–305. doi: 10.1890/090143
- Miller, T., Wiek, A., Sarewitz, D., Robinson, J., Olsson, L., Kriebel, D., & Loorbach, D. (2014). The future of sustainability science: A solutions-oriented research agenda. *Sustainability Science*, 9(2), 239-246. doi: 10.1007/s11625-013-0224-6
- Montana Fish, W. P. (2005). Stream access in Montana: Rights and responsibilities of landowners and recreationists. Helena, MT: Conservation Education Division.
- Mooney, H. A. (2003). The ecology-policy interface. *Frontiers in Ecology and the Environment*, 1(1), 49. doi: 10.1890/1540-9295(2003)001[0049:tepi]2.0.co;2
- Morrison, M. L., Block, W. M., Strickland, M. D., Collier, B. A., & Peterson, M. J. (2008). *Wildlife study design* (2nd ed.). New York, NY: Springer.

- Mouffe, C. (2000). *The democratic paradox*. London: Verso.
- Mouffe, C. (2005). *The return of the political*. London: Verso.
- Murphy, D. D., & Noon, B. R. (2007). The role of scientists in conservation planning on private lands. *Conservation Biology*, 21(1), 25–28.
- Naess, A. (1986). Intrinsic value: will the defenders of nature please rise? In M. E. Soulé (Ed.), *Conservation biology: the science of scarcity and diversity* (pp. 504–515). Sunderland, MA: Sinauer Associates.
- Nash, R. F. (2001). *Wilderness & the American mind*. New Haven, CT: Yale University Press.
- National Oceanic and Atmospheric Administration, N. W. S. (June 25, 2009) Retrieved November 10, 2014, from <http://w1.weather.gov/glossary/index.php?letter=f>
- National Oceanic and Atmospheric Administration, N. W. S. (October 2011). Ice jams Retrieved November 10, 2014, from [http://www.crh.noaa.gov/images/dvn/downloads/backgrounder\\_DVN\\_Ice\\_Jams.pdf](http://www.crh.noaa.gov/images/dvn/downloads/backgrounder_DVN_Ice_Jams.pdf)
- Nelson, M. P., & Vucetich, J. A. (2009). On advocacy by environmental scientists: What, whether, why, and how. *Conservation Biology*, 23(5), 1090–1101. doi: 10.1111/j.1523-1739.2009.01250.x
- Noss, R. F. (2007). Values are a good thing in conservation biology. *Conservation Biology*, 21(1), 18–20. doi: 10.1111/j.1523-1739.2006.00637.x
- Oravec, C. (1981). John Muir, Yosemite, and the sublime response: A study in the rhetoric of preservationism. *Quarterly Journal of Speech*, 67(3), 245-258.

- Owens, T. J., Robinson, D. T., & Smith-Lovin, L. (2010). Three faces of identity. *Annual Review of Sociology*, 36(1), 477-499. doi:  
doi:10.1146/annurev.soc.34.040507.134725
- Peeples, J. A. (2005). Aggressive mimicry: The rhetoric of wise use and the environmental movement. In S. L. Senecah (Ed.), *The environmental communication yearbook* (Vol. 2, pp. 1-18). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Peeples, J. A., & Depoe, S. P. (2014). Introduction: Voice and the environment-critical perspectives. In J. A. Peeples & S. P. Depoe (Eds.), *Voice and environmental communication* (pp. 1-17). New York, NY: Palgrave Macmillan.
- Peterson, M. J. (2009). An ecologist's response to the SIU campaign: The role of natural scientists in environmental movements. In D. Endres, L. Sprain & T. R. Peterson (Eds.), *Social movement to address climate change: Local steps for global action* (pp. 361–387). Amherst, NY: Cambria Press.
- Peterson, M. N., Peterson, M. J., & Peterson, T. R. (2007). Environmental communication: Why this crisis discipline should facilitate environmental democracy. *Environmental Communication*, 1(1), 74-86.
- Peterson, M. N., Peterson, M. J., Peterson, T. R., & Leong, K. (2013). Why transforming biodiversity conservation conflict is essential and how to begin. *Pacific Conservation Biology*, 19(2), 94–103.

- Peterson, M. N., Peterson, T. R., Birckhead, J. L., Leong, K., & Peterson, M. J. (2010). Rearticulating the myth of human-wildlife conflict. *Conservation Letters*, 3(2), 74–82.
- Peterson, M. N., Peterson, T. R., Peterson, M. J., Lopez, R. R., & Silvy, N. J. (2002). Cultural conflict and the endangered Florida Key Deer. *Journal of Wildlife Management*, 66(4), 947-968.
- Peterson, T. R., & Horton, C. C. (1995). Rooted in the soil: How understanding the perspectives of landowners can enhance the management of environmental disputes. *Quarterly Journal of Speech*, 81(2), 139-166.
- Peterson, T. R., Witte, K., Enkerlin-Hoeflich, E., Espericueta, L., Flora, J. T., Florey, N., . . . Stuart, R. (1994). Using informant directed interviews to discover risk orientation: How formative evaluations based in interpretive analysis can improve persuasive safety campaigns. *Journal of Applied Communication Research*, 22(3), 199–215.
- Phillips, L., & Carvalho, A. (2012). Introduction. In L. Phillips, A. Carvalho & J. Doyle (Eds.), *Citizen voices: Performing public participation in science and environment communication* (pp. 1-17). Chicago, IL: The University of Chicago Press.
- Platt, J. R. (1964). Strong inference: certain systematic methods of scientific thinking may produce much more rapid progress than others. *Science*, 146(3642), 347–353.

- Plec, E. (2013). Perspectives on human-animal communication: An introduction. In E. Plec (Ed.), *Perspectives on human-animal communication: Internatural communication* (pp. 1-13). New York, NY: Routledge.
- Plec, E., & Pettenger, M. (2012). Greenwashing consumption: The didactic framing of ExxonMobil's energy solutions. *Environmental Communication*, 6(4), 459-476.
- Popper, K. R. (1959). *The logic of scientific discovery*. London: Hutchinson.
- Popper, K. R. (1962). *Conjectures and refutations: The growth of scientific knowledge*. New York, NY: Basic Books.
- Rickenbach, M., & Reed, A. S. (2002). Cross-boundary cooperation in a watershed context: The sentiments of private forest landowners. *Environmental Management*, 30(4), 584-594.
- Rivers and Harbors Act, 33 U.S.C. § 10 (1899).
- Rudd, M. A. (2011). How research-prioritization exercises affect conservation policy. *Conservation Biology*, 25(5), 860–866. doi: 10.1111/j.1523-1739.2011.01712.x
- Ruggiero, L. F. (2010). Scientific independence and credibility in sociopolitical processes. *Journal of Wildlife Management*, 74(6), 1179–1182. doi: 10.2193/2009-437
- Rutberg, A. T. (2001). Why state agencies should not advocate hunting or trapping. *Human Dimensions of Wildlife*, 6(1), 33–37. doi: 10.1080/10871200152668670
- Sallenave, R., & Cowley, D. E. (2006). Science and effective policy for managing aquatic resources. *Reviews in Fisheries Science*, 14(1/2), 203–210. doi: 10.1080/10641260500341783



- Salvador, M. (2011). The Weyekin Principle: Toward an embodied critical rhetoric. *Environmental Communication*, 5(3), 243-260.
- Salzman, J. E. (1989). Scientists as advocates: The Point Reyes Bird Observatory and gill netting in central California. *Conservation Biology*, 3(2), 170-180. doi: 10.1111/j.1523-1739.1989.tb00069.x
- Sarewitz, D., Clapp, R., Crumbley, C., Kriebel, D., & Tickner, J. (2012). The sustainability solutions agenda. *New Solutions: A Journal of Environmental and Occupational Health Policy*, 22(2), 139-151.
- SAS Institute. (2012). *SAS 9.3*. Cary, NC.
- Schmidt, P. M., & Peterson, M. J. (2009). Biodiversity conservation and indigenous land management in the era of self-determination. *Conservation Biology*, 23(6), 1458-1466. doi: 10.1111/j.1523-1739.2009.01262.x
- Schutten, J. (2011). Magick as an alternative symbolic: Enacting transhuman dialogs. *Environmental Communication*, 5(3), 261-280.
- Scott, J. M., Rachlow, J. L., Lackey, R. T., Pidgorna, A. B., Aycrigg, J. L., Feldman, G. R., . . . Steinhorst, R. K. (2007). Policy advocacy in science: Prevalence, perspectives, and implications for conservation biologists. *Conservation Biology*, 21(1), 29–35. doi: 10.1111/j.1523-1739.2006.00641.x
- Senecah, S. L. (2004). The trinity of voice: The role of practical theory in planning and evaluating the effectiveness of environmental participatory processes. In S. P. Depoe, J. W. Delicath & M.-F. A. Elsenbeer (Eds.), *Communication and public*

- participation in environmental decision making* (pp. 13-33). Albany, NY: State University of New York Press.
- Soulé, M. E. (1985). What is conservation biology? *BioScience*, 35(11), 727–734.
- Soulé, M. E. (1986). Conservation biology and the "real world". In M. E. Soulé (Ed.), *Conservation biology: The science of scarcity and diversity* (pp. 1–12). Sunderland, MA: Sinauer Associates.
- Stryker, S., & Burke, P. J. (2000). The past, present, and future of identity theory. *Social Psychology Quarterly*, 63(4), 284-297.
- Sulemana, I., & James, H. S. (2014). Farmer identity, ethical attitudes and environmental practices. *Ecological Economics*, 98, 49-61. doi: 10.1016/j.ecolecon.2013.12.011
- Talwar, S., Wiek, A., & Robinson, J. (2011). User engagement in sustainability research. *Science and Public Policy*, 38(5), 379-390.
- Terry, D. J. (1996). Group norms and the attitude-behavior relationship: A role for group identification. *Personality & Social Psychology Bulletin*, 22(8), 776-793.
- Thompson, D. J. (1995). Overcoming gaps in implementing policy: Influencing policy is just a means to an end, not the end! *Wildlife Society Bulletin*, 23, 317-318.
- Thoreau, H. D. (1893). *Walking Excursions: The writings of Henry David Thoreau* (Riverside ed., Vol. 9, pp. 251-304). Boston, NY: Houghton-Mifflin.
- Ting-Toomey, S., & Oetzel, J. G. (2013). Culture-based situational conflict model: An update and expansion. In J. G. Oetzel & S. Ting-Toomey (Eds.), *The SAGE handbook of conflict communication: Integrating theory, research, and practice* (2nd ed., pp. 763-789). Thousand Oaks, CA: Sage Publications.

- Toker, C. W. (2004). Public participation or stakeholder frustration: An analysis of consensus-based participation in the Georgia Ports Authority's stakeholder evaluation group. In S. P. Depoe, J. W. Delicath & M.-F. A. Elsenbeer (Eds.), *Communication and public participation in environmental decision making* (pp. 175-199). Albany, NY: State University of New York Press.
- Tracy, C. R., & Brussard, P. F. (1996). The importance of science in conservation biology. *Conservation Biology*, 10(3), 918-919.
- Trefethen, J. B. (1975). *An American crusade for wildlife*. Alexandria, VA: Boone and Crockett Club.
- Vohland, K., Mlambo, M. C., Horta, L. D., Jonsson, B., Paulsch, A., & Martinez, S. I. (2011). How to ensure a credible and efficient IPBES? *Environmental Science & Policy*, 14(8), 1188–1194. doi: <http://dx.doi.org/10.1016/j.envsci.2011.08.005>
- Walker, G. B. (2004). The roadless areas initiative as national policy: Is public participation an oxymoron? In S. P. Depoe, J. W. Delicath & M.-F. A. Elsenbeer (Eds.), *Communication and public participation in environmental decision making* (pp. 113-135). Albany, NY: State University of New York Press.
- Water Resources Development Act, Pub. L. 106-53 § 431 (1999).
- Wiek, A., Ness, B., Schweizer-Ries, P., Brand, F., & Farioli, F. (2012). From complex systems analysis to transformational change: A comparative appraisal of sustainability science projects. *Sustainability Science*, 7(1), 5-24. doi: 10.1007/s11625-011-0148-y

Wilhere, G. F. (2012). Inadvertent advocacy. *Conservation Biology*, 26(1), 39–46. doi:

DOI 10.1111/j.1523-1739.2011.01805.x

Worster, D. (1994). *Nature's economy: A history of ecological thought*. New York, NY:

Cambridge University Press.

Yamamoto, Y. T. (2012). Values, objectivity and credibility of scientists in a contentious

natural resource debate. *Public Understanding of Science*, 21(1), 101–125. doi:

Doi 10.1177/0963662510371435

Yellowstone River Conservation District Council. (2007). Intake diversion fish passage

position statement Retrieved December 18, 2014, from

<http://www.yellowstonerivercouncil.org/resources.php#position-papers>

## APPENDIX A

**Table 1.** Categories and sub-categories used for thematic analysis of publications ( $N = 136$ ; 1976–2012) discussing the scientist–advocate paradox.

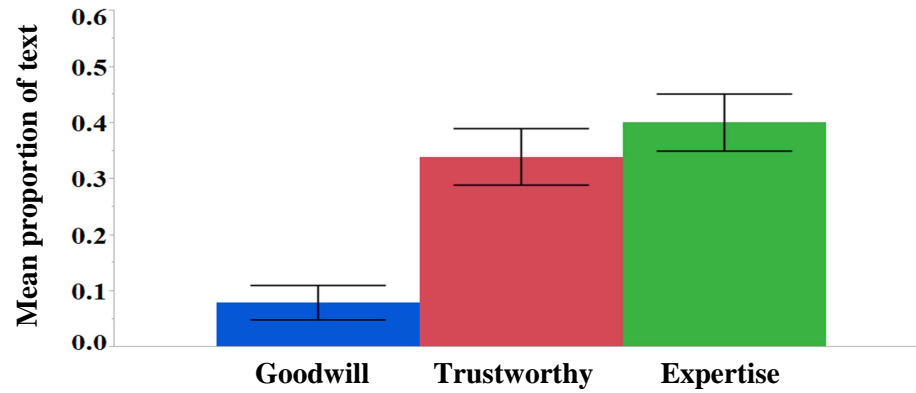
Category	Subcategory	Definition
Credibility	Expertise	Conservation biologists' specialized knowledge
	Goodwill	Conservation biologists' care for natural resources and society
	Trustworthiness	Conservation biologists' integrity
Conservation science	Intersubjective	Conservation science is in part a social process that includes values and argumentation
	Objective	Conservation science is evidence-based science
Environmental policy process	Natural science	Environmental policy is based only on natural science
	Social and natural science	Environmental policy is based on natural science and important social aspects (economics, law, politics)
Risk	Biodiversity	All aspects of variety in the living world
	Scientific credibility	Conservation biologists (believability/standing)
	Sustainability	Ecosystems and their functions
Role	Advise and/or report	Educate in the policy realm and/or provide data results
	Advocate	Support a preferred policy/practice

**Table 2.** Iterative oblique component cluster analysis results for thematic analysis variables for publications ( $N = 136$ ; 1976–2012) discussing the scientist–advocate paradox (proportion of total variance explained by variable clustering = 0.572). See Table 1 for category and subcategory definitions.

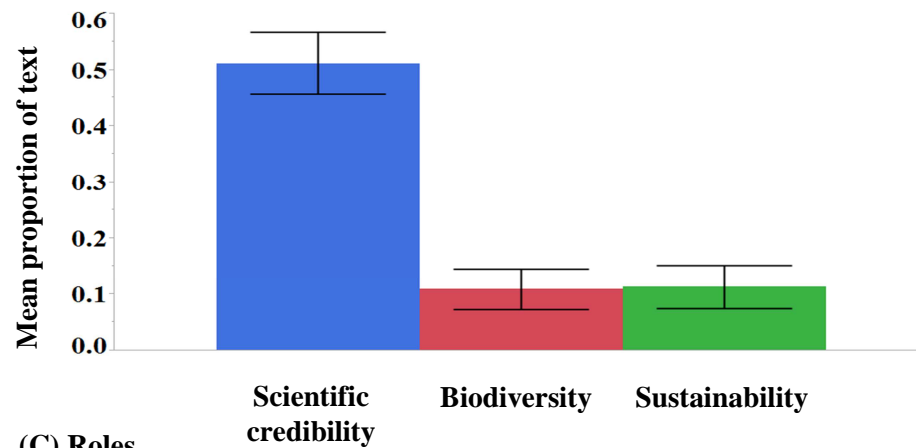
Cluster	Category	Subcategory	$R^2$ own cluster	$R^2$ next closest
1	Credibility	Trustworthiness	0.657	0.014
	Risk	Scientific credibility	0.625	0.058
	Conservation science	Objective	0.364	0.041
2	Credibility	Expertise	0.645	0.050
	Role	Advise and/or report	0.638	0.109
	Risk	Sustainability	0.189	0.023
3	Risk	Biodiversity	0.629	0.015
	Credibility	Goodwill	0.629	0.034
4	Environmental policy	Natural science	0.612	0.002
	Role	Advocate	0.612	0.036
5	Conservation science	Intersubjective	0.632	0.044
	Environmental policy	Social and natural science	0.632	0.081

## APPENDIX B

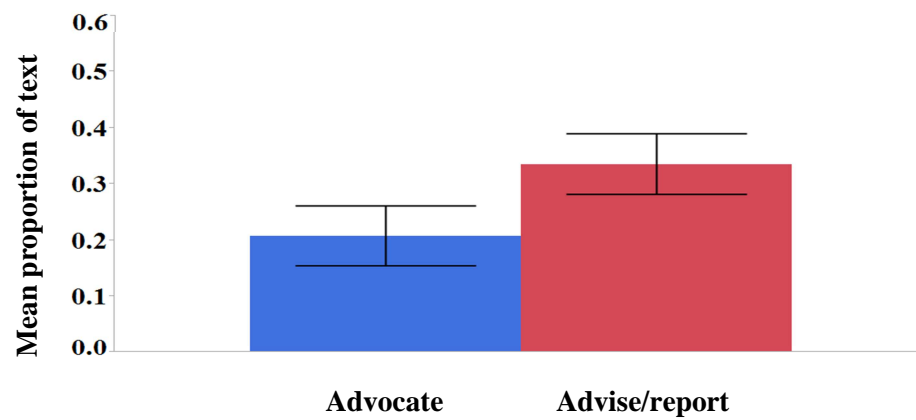
### (A) Dimensions of credibility



### (B) Risks

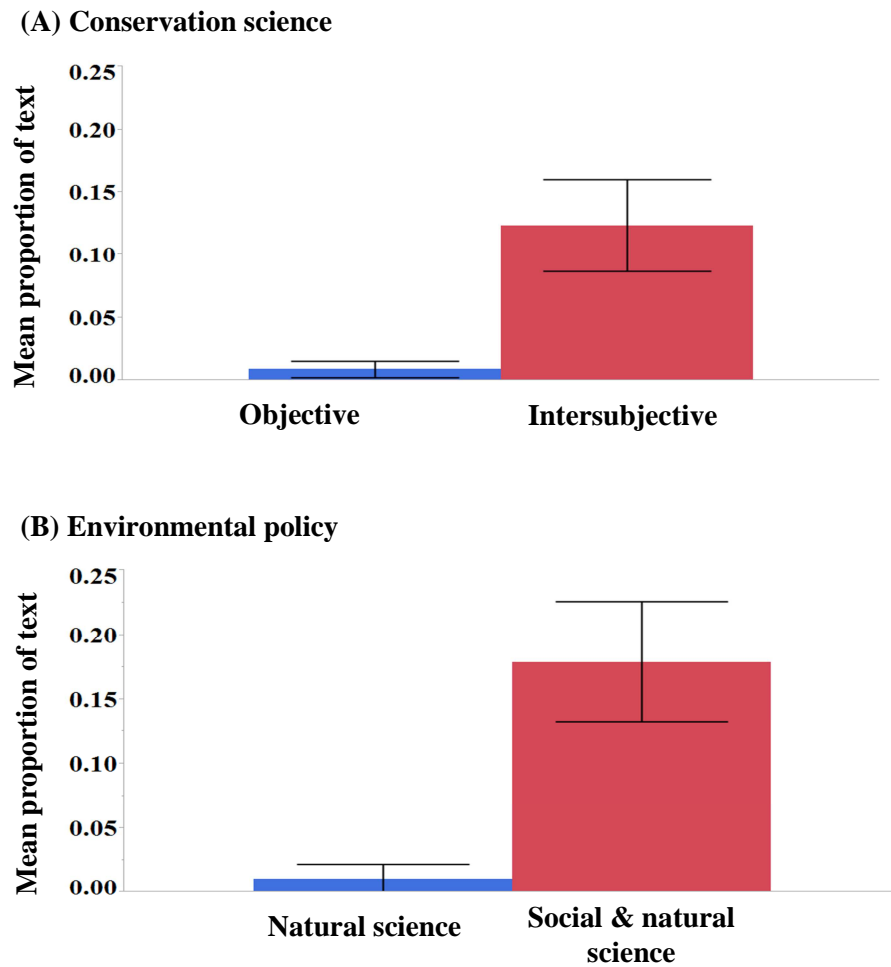


### (C) Roles



**Figure 1.** Mean (95% CI) proportion of evaluated text coded during thematic analysis as (A) *credibility–goodwill*, *credibility–trustworthiness*, or *credibility–expertise*, (B) *risk–scientific credibility*, *risk–biodiversity*, or *risk–sustainability*, and (C) *role–advocate* or *role–advise and/or report*.





**Figure 2.** Mean (95% CI) proportion of evaluated text coded during thematic analysis as (A) *conservation science–objective* or *conservation science–intersubjective*, and (B) *environmental policy process–natural science* or *environmental policy process–social and natural science*.