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Evaluating the Socio-Ecological Interrelationships between People and Public Land in the U.S.

An exploration of the Range of Values, Uses, and Attitudes of

Geographically Distinct Stakeholder Groups

By

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A thesis submitted in partial fulfillment

of the requirements for the degree of

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## **DEDICATION**

This thesis is dedicated to the life and memory of Joe Heaps —  
a mountain of a man who aspired to find balance between  
human dependency on resources and environmental health.

As such, this thesis is also dedicated to the residents of Lemhi County, and similar rural residents  
whose existence is precipitated upon the relatively continuous interaction with public land and  
localized natural resources.

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I once heard a sage advisor liken the process of conducting research to building a mountain: the foundation of such a mountain is built upon a network of people who support a common goal- in this case knowledge, and perhaps even some vision of grandeur. Throughout all stages of the research and thesis development, I was honored to have the support of many, and remain eternally grateful for the level of participation and collaboration that I found among colleagues, friends, and strangers.

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## LIST OF ABBREVIATIONS

SES.....	Socio-Ecological System
LC.....	Lemhi County
EG.....	Extended Geographic (Survey)
USFS.....	United States Forest Service
BLM.....	Bureau of Land Management
IDFG.....	Idaho Department of Fish and Game
EPA.....	Environmental Protection Agency
IDEQ.....	Idaho Department of Environmental Quality
FWS.....	U.S. Fish and Wildlife Service
DoD.....	Department of Defense
DoE.....	Department of Energy
ESA.....	Endangered Species Act
SCNF.....	Salmon Challis National Forest



## **ABSTRACT**

Evaluating the Socio-Ecological Interrelationships Between People and Public Land in the US:

An Exploration of the Range of Values, Uses, and Attitudes of

Geographically Distinct Stakeholder Groups

Thesis Abstract—Idaho State University (2020)

Mutual interests, comprised of disparate values and perceptions, create unique circumstances for stakeholders and management officials regarding the current and future use of public lands in the United States. These differences in values, uses, and attitudes among the American public cause dissension in determining the ‘best-suited’ use of shared landscapes and resources. In the rural west, where the federal government is the majority landholder, management complexities are especially tangible, where perspectives differ between locals, officials, and special-interest groups. This thesis attempts to capture the socio-ecological system between stakeholders and the public land ecosystem primarily among residents of a rural Idaho county. These perspectives are then compared with an extended geographic and demographic survey population to explore how these trends manifest across spatial areas. As the value of natural resources increases and access to public land evolves, management strategies must adapt to incorporate the diversity of stakeholder perspectives towards responsible and equitable use.

Keywords: Cultural Ecology, Environmental Anthropology, Socio-Ecological Systems (SES), US Public Land, rural communities, Idaho, ethnography, participant observation, co-management, place-based management, participatory research, qualitative GIS

## PREFACE

“What we call Man's power over Nature turns out to be a power exercised by some men over other men with Nature as its instrument.”

- C.S. Lewis (The Abolition of Man)

The idea for this research initially developed during my travels in Ecuador and Colombia, in which I found myself answering the question: ¿De dónde eres? (loosely: ‘where are you from?’). To which, I would respond ‘Idaho’ and then begin to provide details about the faraway land they often knew so little of. One of the recurring facts that I conveyed was that over half of the state is ‘public land,’ to which the reactions of South Americans and other travelers surprised me, many of whom had no current concept of a shared landscape like I described. It was in these conversations about home that spurred a new perspective: that being the unique and perhaps under-appreciated reality of public land in the US, and ultimately the potential value to the American public in having these lands and resource caches throughout the nation.

One conversation with a multi-generational Ecuadorian farmer particularly reframed my thinking about the value of land: after witnessing greenhouses perched precariously on steep mountain sides throughout the country, I inquired as to the reasoning behind practicing agriculture in this seemingly ‘less-traditional’ way. The elderly farmer replied that what I saw then was not how it used to be, but many years back, he explained, small-scale farmers were pushed from the agricultural lowlands into the mountain terrain so as to open up the best lands for large-scale agriculture. This formation of state policy to support large industry over small-scale operations and established communities continues to shape the landscape and culture to this day.

By the time of my return to Idaho, and the beginning of my graduate studies, I knew that I wanted to explore the relations between people and public land in the US, ultimately spanning a gamut of research interests within. In order to better understand the value of public land I investigated a wide-variety of topics including value and uses of public land, attitudes about management strategies, and community composition. Additionally, I gained an interest into evaluating the level of awareness stakeholders maintain regarding public land; knowledge, which I assume to have a positive correlation with the ability of interested parties to actively participate in and mediate management complexities with governing agencies towards cooperation and multiple benefit.

This research and resulting thesis, at times, felt like an unattainable task, largely due to the scope of the research, however, it has remained a pleasure to undertake in the hope that the method of participatory research among communities will highlight the potential for conducting further studies in the cultural ecology of people and public land.

## **CHAPTER ONE**

### **INTRODUCTION AND INTENT**

“We all need habitat — frogs and people alike” (Stocks, 2017)

The purpose of this research is to gauge public use and valuation of public lands and natural resources in times of changing political, economic and social policy. The research goal is to create a collection of tools and methods to incorporate public participation in public land-oriented studies which can capture social-cultural, economic, political, and environmental realities of the public land and natural resources domain. In the 21<sup>st</sup> century, data is power and good research data benefits society by supporting data-driven decisions. Further analysis of these research data and initial interpretation may contribute to the responsible progression of resource management benefitting rural communities, states and the nation as a whole.

Access to land and resources has long characterized the development of culture in general (Steward, 1955; Everard, 2011). Throughout the span of human history, the process of privatization, in land and resources, has altered the way that many people can sustain traditional livelihoods by creating disparate access among groups (Everard, 2011; McCormack, 2017). The United States of America, among a minority of countries, maintains land that is considered in the public domain which accounts for over 25% of the total land area in the US. While these lands are owned and managed by the Federal government, members of the public retain some use rights which can extend access between people and resources. Competing interests between users, or stakeholders, present challenges across managing agencies, the general public, and special-interest groups. As presented in Hardin’s theory regarding the tragedy of the commons (1968), without proper management some groups could invariably benefit more than others,

which can ultimately lead to resource competition among a diversity of user groups and unequal access between groups. This theory, later revised by Ostrom, posits that this tragedy of over consumption can be avoided by principled local governance which emphasize collective solutions to the use and management of common pool resources (1990; Matisoff, Accessed 2020). Public land management strategies and public attitudes regarding them are complex and must evolve to accommodate an increasing suite of objectives and challenges across socio-cultural, environmental, economic, and political boundaries.

In response to and as a means of supporting informed management, this thesis aims to investigate the socio-ecological system<sup>1</sup> (SES) that encompasses stakeholder relations with public land as a shared environment (human-environment), in addition to relations with other stakeholders (human-human). In general, studies that investigate social interactions with public land are gaining trajectory as tensions rise between stakeholders amidst increasing national and global interest in natural resources. Studies of this nature have largely confined themselves to single approaches, some oriented towards understanding one particular area of interaction like recreation, tourism, or subsistence (Reedy, 2012), and others towards measuring stakeholder attitudes about management preferences (Brown et al, 2015), or general bipartisan assessments of environmental and policy issues (Colorado College, 2020). Often these investigations are supported by a specific agency or institution, who provide funding and set guidelines to conduct a given study over a given period of time. While these studies are useful to gauge social relations with public land and natural resources in various capacities, few have explored the multiplicity

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<sup>1</sup> SES relates to the systems-based investigation that considers an inherent link or interconnectedness between humans and nature (Berkes et al, 2003).

of possible interactions between people and the public ecosystem (i.e. land and the encompassed natural resources).

These culture-nature studies have maintained an important place in the field of anthropology, and are often approached from two related theoretical frameworks: cultural ecology (Steward, 1955) and political ecology (Escobar, 2006). Cultural ecology refers to studies that aim to understand culture in relation to their environment, thereby evaluating the environment as a key component in cultural development and maintenance (Steward, 1955). Some culture-nature studies also fall into the equally valuable approach of political ecology, which positions the role of outside forces (i.e. political and/or economic) in mediating relations between people and the environment (Escobar, 2006). Key to the latter approach is an integrated analysis of cultural, environmental, political, and economic factors which ultimately contributes to a more comprehensive and holistic investigation. In many ways, this comprehensive approach to understanding is characteristic of general systems theory and the notable work of R. Buckminster Fuller (1970; 1979), which explicated the importance of evaluating the integrated system of related factors rather than solely focusing on interdependent components that comprise a whole system. Along these lines, this thesis aims to exemplify and quantify the multitude of interactions between stakeholders and public land, including their uses and values, in addition to measuring attitudes about current land and resource management strategies.

Considering the evolving nature of public land and resource management, national and global trends, and cultural configurations in general, this study required an approach that could evolve alongside changes both within the study area or public land in general. This study was primarily focused in Lemhi County, a rural area in Central Idaho, where the vast majority of land area within the county is public (~90%). I reasoned that this would be an ideal place to conduct

the study, postulating that rural residents may have a unique and under-considered relationship with the public land domain, particularly in their localized environment. Attitudes in Lemhi County (LC) have been somewhat understudied as indicated by the general response I received from colleagues and peers when reporting my chosen study area which was disbelief that anyone from that area would participate in a survey. While these assumptions were fair based on the remote nature of the community and a seeming lack of trust for outsiders, naysayers generally conceded their stance after learning that I had ties to the area. The timing of this study was unpurposefully conducted during a Forest Plan Revision process by the U.S. Forest Service (USFS) for the surrounding forest, which ultimately benefited the overall success of the survey, as community members had the opportunity to reflect on what the forest means to them as individuals and as a community, as well as reflecting on the efficiency and effectiveness of the agencies that manage these shared lands and resources.

This investigation was primarily supported through the use of a 200+ question survey instrument specifically for residents of LC which covered a wide diversity of topics. This survey research was largely complemented by an investigation of the context that encompassed participating community voices including an inclusive background of the socio-ecological-economic system, an assessment of the current state and potential implications for residents of the rural county. This scale of investigation provided insight into the complex nature of community relations with localized public land and resources which are largely mediated by governmental management agencies as well as influenced by special-interest groups.

While I initially planned to only survey residents of Lemhi County (LC) for this study, there was an opportunity to extend the study by capitalizing on the broader interest generated in the research. Throughout the LC survey development, implementation and evaluation stages, I

was intrigued by the general interest of the public who were not residents of the case-study area but still wanted to participate in the research. Many were very encouraging and appreciative of the research efforts, particularly considering it offered a medium for interested members of the public to reflect on their own level of interconnectedness with public land. Capitalizing on the initial interest, and with Human Subjects permission, I developed a secondary survey instrument to provide a means for public land stakeholders outside of Lemhi County to participate in the research. This broader interest in the research highlighted the potential value of this study, in that a wide-variety of stakeholders displayed an interest in contributing data about their stake in public land as a means of supporting informed land and resource management.

This inclusion resulted in a two-survey approach, which required a slight methodological adaption to incorporate data and generate insight about social relations with the public ecosystem in light of the results from the two surveys: the Lemhi County survey (LC Survey), and an Extended Geographic survey (EG Survey). While expanding the study introduced new challenges, it also provided a means of evaluating one of the early hypotheses that stakeholder uses, values, and perceptions change in relation to their lived proximity to public land. While direct comparisons are somewhat limited, this secondary survey provided a means of exploring general comparisons between LC participants and the three EG Survey geographic scales, which provided additional context to understand relations and complexities for community members and land managers primarily in the case-study but also more generally.

By evaluating data from both surveys in tandem with the context from which the data emerged, this thesis aims to exemplify the importance of public land to people in the U.S., including how they interact, what they value, how they perceive management strategies or public land uses in general or influential environmental policies, as well as how they view other



stakeholders and certain aspects of public land. While these were the primary lines of inquiry, I also included a few questions that were aimed at gauging each participant's level of awareness about public land and related topics in addition to assessing their level of access to leaders, particularly political, with whom they could discuss issues or concerns with. The inclusion of these questions supported the evaluation of a related research question about stakeholder's ability to access and synthesize information about public land related topics, thereby having informed knowledge on the topic, as well as their ability to access people who could help mediate different issues perceived in management schemes.

This research, including results, analysis, conclusions and recommendations is aimed at gaining a better understanding of U.S. Federal public lands and resources by their user and advocacy groups across a spectrum of short term and long-term strategies. Discrepancies in strategical timelines can be seen in the differing time horizons; short-term strategies for Wall Street that emphasize generating revenue in the next fiscal quarter versus long-term strategies by Native Americans who value multi-generation benefit from the landscape. In scope, this thesis is an in-depth exploration of a rural community in Central Idaho, regarding the connections between individuals and the community in general and their local ecosystem. In addition, this thesis aims to explore how these dynamics change across stakeholder groups in relation to an individual's geography. While this study is situated primarily within the field of anthropology, it leveraged a multi-disciplinary approach to improve both the implementation and analysis of this research. Of notable benefit was the inclusion of Geographic Information Systems (GIS), which provided a unique toolset to facilitate a more rigorous application of this socially-oriented research.

## **Theoretical Frameworks for Evaluation**

Within the field of Anthropology, this study falls under the framework of cultural ecology, which is a theoretical approach oriented towards explaining or understanding culture in relation to the environment, particularly as a product of technology and the economy (Steward, 1955). More recently, this theory has been contemporized as “a cognitive and action driven approach with a deep interest in current environmental and social problems” (Lapka et al, 2012, p. 22) While studies of this nature can occur at any scale, of particular interest in this study are social relations within rural environments that have a high percentage of public land. In rural western areas, the way that community members interact with the public land domain and localized natural resources has a direct influence on the construction of their livelihoods and cultural identities. Krannich and Smith (1998, p. 677) succinctly describe the cultural ecology of rural western communities with high proportions of public land:

“Traditionally, the social, economic, and cultural conditions that characterize rural areas of the West have been closely linked to the region’s natural resources. Frequent reference to places as ‘ranching communities,’ ‘mining communities,’ ‘logging communities,’ and so forth reveals a tendency for many communities in the region to exhibit development patterns, socioeconomic structures, and cultural traditions that in various ways reflect high levels of dependence on the availability and utilization of land-based natural resources.”

In rural western areas, changes in land and resource management can impact local communities at a greater scale than the general public, and present unique challenges to overcome. In this way, this study can also be evaluated within the Political Ecology framework, which considers how “agriculture and environmental change are influenced by state policy, regional trading blocks..., investments by transnational capital, penetration of the market, and the social relations of production” (Grossman, 1998, p. 18). Arturo Escobar, a major proponent of political ecology, once critiqued anthropology in general for a narrow approach that did not

consider the interrelatedness of cultural factors with economic and environmental factors (2006). Political ecology, more recently, has been applied towards understanding how the designation of national parks (i.e. the process of protection) impacts people, particularly in localized areas by integrating multiple lines of investigation (West et al, 2006). Others have investigated the interconnected nature of conservation projects and capitalism within which environmental values often directly contrast monetary values (Allen, 2018; MacDonald, 2010). By investigating these innately related factors, we can better understand natural resource conflicts arising around the globe which are gaining complexity since the nineteenth century.

The political ecology framework also posits “that the effects of power systems on environmental outcomes stem from the outcome of competing interests among various parties” or stakeholders (Haenn, 1999, p. 478), which alludes to an inherent power structure that ultimately characterizes and influences public access. In line with Laura Nader (1972), anthropology at times necessitates “studying up” which is established as examining the political processes that shape local realities, rather than singularly focusing on community composition or taking a horizontal approach to understanding. One must consider how government and the various policies shape the way in which communities and members of the general public utilize the public domain and public perceptions resulting from governmental decisions. In studying up researchers explore vertical dimensions or decisions as they influence horizontal or cultural composition, specifically how management policies, governmental agencies, and special-interest groups influence everyday life of communities near public land and natural resource landscapes.

In addition to the working frameworks of cultural and political ecology, this study can be categorized under the broad theoretical umbrella of applied anthropology, aptly characterized as “anthropology in use” (Rylko-Bauer et al, 2006, p. 183). Anthropology has long been critiqued

for a lack of practical application, the result of which are libraries full of descriptive texts only to be utilized for cross-cultural or cross-contextual comparisons. The notion behind applied anthropology amounts to a more engaged approach which culminates in practical knowledge for solving everyday problems. Often this work is aimed towards the amalgamation of scholarly and advocacy goals. While the field of applied anthropology is quite diverse in research goals and methods, many proponents argue for community-based, action-oriented research approaches, which emphasize working with communities by “documenting conditions in ways that might encourage increased acknowledgment of culpability and, ideally, generate the political will to fashion some sort of remedy” (Johnson, 2010, p. S236). Applied anthropology encourages the utilization of “sound ethnographic techniques, ...contemporary tools, participatory methods, and interdisciplinary knowledge” towards “empowering and enabling humans around the world to address social, economic, ...[and] other pressing concerns facing their communities” (Kedia, 2008, p. 14). In many ways, this framework is similar to public anthropology which explores a method to transition “from a solely enquiry-based methodology and towards one that is dialogic [or conversation based] and change oriented” (Beck, 2009, p. 1). Public anthropology is premised on the participation of locals in research and publications, towards the mutually held idea that ‘local groups and communities should be able to control their own well-being and quality of life with the sophistication of corporate or governmental institutions’ (Beck, 2009, pp 1). Collaboration is of the utmost importance within the applied framework, as it aims to make the knowledge gained accessible not only to academics but also to the people studied so that it can be utilized towards achieving community goals and co-management<sup>2</sup> (Steenbergen, 2016;

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<sup>2</sup> Co-management referring to cooperative management between people and ecosystems.

Wolanski, 2019; Nie, 2008), or to garner some support towards considering place-based management strategies (Brown et al, 2015; Mason, 2008).

In order to transition from ivory-tower specialization, the condition of this research is also premised upon a systems or network analysis of cultural composites. Envisioned by social theorists like Escobar (2006), and Eric Wolf (1984), this comprehensive approach aims to incorporate the multifaceted nature of cultural constructions. After lodging claims that the discipline of anthropology and social scientists in general were developing towards niche specialization, Wolf argued that humankind exists as a totality of interconnected processes and critiqued former approaches for failing to assess the interconnected world of politics, ecology, economics, power configurations, and culture (Wolf, 1984). This holistic and inclusive approach is tantamount to producing adequate understanding of societal composition as it relates to the socio-ecological system.

This study will contribute to the general knowledge of anthropology (including political ecology, cultural ecology, environmental, and applied approaches), the disciplines of political science, sociology, GIS, and environmental history. This is possible by offering a multidisciplinary research approach aimed at understanding community interaction with, and dependence on, localized natural resources. In this study, resources are primarily situated in the Federal domain, where currently public access is encouraged; however, this has the potential to change with vicissitudes in economic and political agendas influencing public land and natural resource policies and management directives. This model is situated as a ‘first world’ application of anthropological method and theory in the western United States where portions of communal land are considered to be part of the remaining global resource frontier. In this particular case, this anthropological case study reflects a form of backyard anthropology or “work that involves

the application of anthropological skills and knowledge to problems and needs in the towns and communities we call home” (Johnson, 2010, pp S238). In this approach, the interest lies in “a problem-focused, public service-oriented anthropology... [as a result] the close distance between engagement and outcome allows a stronger sense of responsibility and understanding of the social impact of doing anthropology” (Johnson, 2010, pp S238). Rather than study communal land and resource access somewhere foreign to my experience, I chose to investigate social relations with the public domain in a state and county that I had some familiarity with.

Anthropology has long equated objectivity with legitimacy in cultural analyses’ and representations. However, as the discipline has aged, some anthropologists have argued against the monopolizing status of objectivity; rather they emphasize intimate knowledge and experience as equally beneficial. Rosaldo, for example, argues that the truth of the case study “embedded in local contexts, shaped by local interests, and colored by local perceptions” challenges the status quo of ethnographic research by countering methodological standards (1993, pp 176). As opposed to overarching theoretical generalizations and cultural typologies, ethnographers should consider the “political processes, social changes, and human differences” (Rosaldo, 1993, pp 176) within case studies to explicate minute cultural variations and thus ascertain an accurate ethnographic analysis. I propose to use my position to elucidate patterns that have yet to be articulated or holistically (or systematically) approached.

The ethnographer, presented “as a positioned subject, grasps certain human phenomena better than others, occupies a position or structural location, and observes with a particular angle of vision” (Rosaldo, 1993, 175); as an aspirant it is only appropriate to disclaim my own position and structural location before proceeding. My position is thus: my family, whether in part or whole, has lived in Lemhi County since 1988, four years preceding my birth. When I graduated

high school in 2011, I left the community to pursue secondary education. Since then the majority of my family has moved out of the county either partial or full time. Having grown up only miles from public land, surrounded on all sides, my family spent a considerable amount of time interacting in this shared environment. We relied on the local environment for subsistence: whether it was harvesting game on the rich landscapes, catching fish from the rivers and lakes, or picking wild plants and berries, much of our childhood was spent on public lands using the available resources to provide for the family. While subsistence resources on public land were important, public land access also provided ample opportunities to learn, grow, and play: whether rafting down the River of No Return, swimming in high-mountain lakes, backpacking the Continental Divide, exploring historic mining sites, horseback riding, or general adventuring. It was a childhood that passed without the realization of how blessed I was to have grown up in such a unique and rich environment. While the existence of public lands largely shaped my own existence, I failed to grasp all of the details encompassing that reality; for example, until I began researching the public land domain, I was not aware that federal ownership in Lemhi County accounted for so much of the total land area, yet, it was all around us. This seemingly naïve position is not unique within the community or ultimately the nation, yet it is important to understand what constitutes public land and natural resource networks as well as the people that depend on them so as to strategize their management and use accordingly.

Acknowledging ones' positionality, via context, history, or structural location, is the first step in mitigating research concerns. It is my intention to present this case study with scientific objectivity. The position I hold regarding the future of the public land domain and all that is associated is surprisingly neutral at this time. My intention is to ascertain facts, weigh circumstances, and explore real-life implications of the shared spaces; then to produce data and

ultimately knowledge through the combination of scientific and cultural inquiry. Ultimately, the amalgam of research is designed to incorporate all facets of interaction so as to produce a succinct analysis of the bigger picture. In an area of the world where the landscape and inherent resources are increasingly rare and valued, it is of the utmost importance to be on the forefront of awareness and participation so that the land and resources available to these communities and the nation in general remain in continuity and collaboration with sustainable environmental practices.

A goal of this research was to delineate which resources were significant for community well-being and to present the potential of co-management strategies. While the approach of co-management (managing resources and people) has been under scrutiny for contributing to further marginalization of local groups, some suggest that this approach ‘offers substantial promise as a way of dealing with natural resource conflicts in a participatory and equitable manner’ (Castro et al, 2001, p. 229)<sup>3</sup>. As many western rural communities are surrounded by public lands, changes in policies can have significant impacts on the way communities have traditionally relied upon and interacted with their environments. A concurrent goal was to create usable data, or actionable information, which could potentially support data-driven decisions regarding land and resource management, both in consideration of the environment and the people who depend upon it. This type of data could be beneficial for the community in general, as well as policy makers, agencies, and organizations to develop place-based management strategies that include a consideration of social factors. In the case of Lemhi County, the collected survey data will be made available to community members to be used to represent their stake in public lands. Delivering the data in a way that makes the information accessible to all interested parties was a

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<sup>3</sup> See also Maze, C. et al, 2017 for an exploration of adaptive co-management in coastal areas.



primary goal of this research. In addition, and in consideration of Fuller's critique of niche specialization in education and research, I aimed to add rigor to the anthropological study by incorporating interdisciplinary knowledge, GIS technology, and other computer-assisted methods.

## **CHAPTER TWO**

### **METHODS**

This research was developed as a means of exploring the SES of people and public lands. The central question aims to provide insight into how people use and value a common landscape as well as to measure attitudes about stewardship strategies of the U.S. public land domain in the 21st century. More specifically, the driving question exemplified rural community relations with land and resources in an area that is largely federally owned. To better understand this interaction, I aimed to draw insight into how global and national trends influence policy and management decisions which can then create unique circumstances in local environments and pose challenges not only for individuals but for communities, as supported by the political ecology framework. I investigated the general awareness of participants on public land and related issues. I assumed that information and awareness were crucial factors in determining an individual's or group's ability to mediate [these changes and] relations not only between people and land in general, but also between general stakeholders and management agency employees.

In this research, I proceeded with a basic assumption that members of the case-study county and the wider public would have an interest in taking the survey and therein participating in the research because they value public land. In addition to exploring local and rural perceptions, I aimed to evaluate how these values, uses, and attitudes change based on a user's geographic location, in particular, respective to their lived proximity to public land. Do communities in close proximity to public lands have a unique, and under-considered perspective about public land interaction and resource use? This hypothesis is tested by comparing the case-study example (LC survey) through an examination of the extended geographic (EG) survey at

multiple scales including all submissions from Idaho, all submissions from 9 western states, and all submissions from central and eastern states.

## **Literature Review and Historical Data**

In order to situate this study in light of the surrounding context, it was important to conduct a review of available literature and data, both specific to the LC case-study, and also the greater context of which it is encompassed in. By including relevant literature and available data, insight into social relations with the public ecosystem can be more holistic and representative. In line with Escobar, and others, this background considers historical, cultural, environmental, and economic aspects which support a clearer representation of actual relations from the past and into the present. In this way, the review of literature and data contributes information to supplement and compare data gathered through the survey forms, and also a means of exploring how public relations are evolving alongside changes in the environment or management schemes in general. By accounting for these complex processes and networks throughout history and leading into the present, this study exemplifies the complexity of co-managing people and the landscape and attempts to provide insight into how these complexities have manifested today. Since social relations and management schemes are continually evolving, this thesis only represents the data available before publication, however, circumstances will continue to change and new data will need to be included as time goes on.

## **Surveys and Reviews**

This study leveraged a two-survey approach towards understanding networks between people and the public ecosystem. Each survey had its own set of respondents, whereas the LC survey was focused on participation from Lemhi County residents, the EG survey was targeted towards an extended geographic and demographic population. The EG survey did have three

participants from a zip code in Lemhi County, however, all other submissions were from outside of the study area.

This two-survey approach required a distinct method for each survey including what topics were covered and how participants were recruited, but similar in collecting stakeholder data to inform relations with the public ecosystem. The aim of designing the research in this way was to facilitate a holistic or comprehensive approach towards understanding social and environmental connections within the Federal domain.

Similar, also, is the digital format of both surveys, which used Survey123, an ArcGIS application that provides a platform to construct smart-form surveys in which a user designates questions, answer types (select one, or select multiple for example), response selections, and other features like relevancy (i.e. if respondent answered this question in this way, ask them this follow-up question). While the digital template saved substantial time in collecting and analyzing the data it also provided the means for respondents to participate on-line. While only one LC resident participated in the LC Survey through the on-line form, all participants in the EG survey participated on-line which made the digital form invaluable. As will be discussed, the LC survey was conducted offline and in person for the entire field research period. This was implemented as a means of maintaining integrity in the dataset by verifying a participant's residency in the county. While numerous interested recruits asked if they could participate in the survey online during the field research period, the survey was not published online until later and did not generate near the level of participation that the in-person approach generated.

It should be noted that both of the surveys were oriented towards a convenience sample, which positions that the resulting data is not representative nor random. Rather than estimating exact percentages for the entire population through generalization, I am interested in the possible

range of responses from the survey population. As such, this study is primarily exploratory, relying upon opportunities to reach and interact with stakeholders, therefore, participants in each group, likely had a particular interest motivating their participation in either survey.

### **LC Survey**

The LC Survey covered a variety of topics including: subsistence use of resources, recreation uses on land and water, interaction with timber and mining in the area, influence of tourism for the community, and perceptions of current management strategies of the local public land domain. The survey measured factors related to a respondent's level of awareness and access to address a secondary research hypothesis. This survey was largely constructed with my prior knowledge about the area regarding the possible range of interactions between the community and the public ecosystem. For the most part, this resulted in a thorough survey with 200+ questions, in which some questions generated more insight than others. The LC survey questions can be reviewed in Appendix I. The aim of this survey was to explore the multifaceted nature of human-environment and human-human networks within the public ecosystem. This extensive case-study survey captured these complex networks in a rural county, where interactions are relatively constant.

As this study involved real people with identities and livelihoods, I was required to obtain approval from my university's Institutional Review Board (IRB) to ensure that I mitigated participant risk. In order to mitigate participant concerns and risks I chose to exclude personal identifiers (i.e. name, gender, or age), and captured participant location by asking their zip code rather than their address. Overall, this contributed to the effort of maintaining participant anonymity and was a notable preference for many. Prior to implementing the LC survey instrument in the field, I conducted a number of pre-testing scenarios with willing participants to

ensure that the questions were clear and the response options were suitable for the range of possibilities.

The primary stage of data collection spanned ten days in August 2018, which accounted for the large majority of respondents (>90%). Recruiting efforts were localized to the city of Salmon, which is the seat of Lemhi County, boasting approximately 40% of the county's population. In my previous experience with conducting community surveys, the main method of recruiting was approaching households and knocking on doors, however, I considered that in LC this method would likely not yield the participation I aimed for, but rather dissuade participants by imposing on livelihoods and personal property. To mediate these concerns, I chose to approach recruitment through raising community awareness about the research and encouraging community members to meet with me in order to participate in the survey.

There were a variety of methods used to recruit participants throughout the week, including a publicized schedule of when and where I would be available for members of the community to participate. In order to facilitate participation, I scheduled a booth for two consecutive Saturday Farmer's Markets. Additionally, I advertised days and times throughout the week where community members could stop at a local establishment to take the survey. A primary reason for selecting these businesses and for participating in the LC Farmer's market was to provide a safe and public place for community members to participate in the survey and to potentially catch the attention of other community members. In addition, I made myself available to schedule meetings with individuals in a location of their choosing, which occurred approximately four different times. Twice I had the opportunities to address a weekday audience, the first of which was a presentation of my research to the local Rotary Club, the second of

which was a short stump speech to recruit participants at a community event with approximately 150 attendees.

The efforts to recruit participants built upon each other as the week progressed. For example, the first day in the field I went around the city hanging up posters and distributing fliers and broadcasted on the local radio station. These were the only forms of information to create awareness and draw participants leading into the first Saturday at the LC Farmers Market, which yielded approximately 11 survey submissions. Whereas by the second Saturday, total recruitment effort was much higher resulting in the progressive and somewhat exponential growth of participation, accounting for approximately 31 survey submissions, which doubled the total survey count for the preceding week. Generally, recruitment efforts consisted of distributing promotional media (posters/fliers), broadcasting on the local radio station (KSRA), attending a community event, presenting to the local chapter of Rotary Club, publishing an article in the local newspaper (Recorder Herald), and posting on social media. Table 1 summarizes the locations, dates, recruiting effort, and the estimated of the number of respondents recruited.

*Table 1 Lemhi County Recruitment Efforts*

<b>Location</b>	<b>Date</b>	<b>Recruiting Effort/ Publicity</b>	<b>Estimated number of Respondents</b>
Local Business	Day 1 - Friday	i) Poster, Flier, Radio (1)	2
Farmers Market	Day 2 – Saturday	i.	11
Local Business – ‘Odd Fellows Bakery’	Day 3 - Tuesday	ii) i + Radio (2)	6
Local Business – ‘Rise and Shine Espresso’	Day 5 – Wednesday	iii) ii + Rotary presentation, Community event	3
Local Business – ‘Rise and Shine Espresso’	Day 6 – Thursday AM	iii.	4

Salmon Public Library	Day 6 – Thursday PM	iv)      iii + Recorder Herald Article	4
Farmers Market	Day 7 – Saturday	iv.	31
Salmon Public Library	August 2018– April 2019	v)      iv + Social media	3
Online form	October 2018 – May 2020	v.	1

\*65 surveys were submitted in total, only 59 were either current (58) or previous (1) residents of LC.

As noted, the progression of recruitment efforts throughout the week generated an increase in total participation. At the end of the week, the Salmon Public Library offered to host two survey tablets, which would provide a means for interested community members to participate after the close of the field research period. Staff generously gave their time for a brief training and were then able to provide the materials for locals to participate in the survey. In addition, the survey was published on-line after returning from the field and discussing the inquiries of potential recruits with my advisor, likely many of whom would have participated if they could have done so without having to personally meeting with the researcher. Combined, these two methods accounted for a small percentage of the total survey population, which is largely due to less sustained recruitment effort after the field research period.

Although the result is more difficult to measure, word-of-mouth between community members is a powerful medium of spreading information about local events and it is plausible that it contributed to the overall recruitment effort. Throughout the week, I met many interested community members who after hearing about the research or participating in the survey would ask if they could share the research along their networks, in newsletters, emails, or social media postings.

When community members voiced interest in participating, I gave them the option of filling out the survey on their own or in an informal interview format with myself posing



questions and entering their responses. The majority of people opted to work through the survey on their own, though a handful of participants appreciated the ‘just talking’ approach. In most cases, the people who preferred the informal interview format were retired, which revealed a consequence of the digital form in that the technological platform was not ideal for older community members who wanted to participate.

### **EG Survey**

While conducting the research in LC a considerable number of visitors and tourists asked if they could participate even though they were not residents of the county, which included a number of calls from residents of the adjoining Custer County who wanted to know why they could not participate since they share the same forest (Salmon-Challis National Forest – hereafter referred to as the SCNF). The EG Survey was primarily developed as a means of capitalizing on the public interest generated regarding research about stakeholder relations with public land, including uses, values, and perceptions.

The addition of the second survey also provided a means of establishing some of the greater context of which Lemhi County residents are encompassed in. As generally held with the case-study approach, researchers not only explore phenomena in a particular instance, but also, they attempt to set this understanding in light of larger trends. In this instance, to understand the context of those community voices in LC, the investigation must also consider how both they and their situation are influenced by state, national or global trends. The EG Survey provided the platform to include other stakeholders in the research while at the same time, supplementing the case-study investigation by facilitating general comparisons between stakeholders and their geographic location.

An adaption of the LC survey for an extended demographic required removing all specificity to location, which resulted in a significantly shorter survey and far more general results than the LC survey. There were approximately 50 questions on the EG survey, which was formatted in a similar way to the LC survey, where previous responses determined the exact questions encountered in the form. As with the first survey, the list of questions, including the related responses, and relevancy can be viewed in Appendix II. Unlike the LC survey, the EG survey was hosted entirely on-line and I did not personally interact with any respondents during their participation. This adaption allowed anyone with internet access and the survey URL to participate in the EG survey and proved instrumental in recruiting by increasing the general ease of access. In addition, interested persons could visit the research website which gave more information about the research and included an embedded link to the EG survey. The EG survey was hosted between February 2019 and February 2020; however, recruitment effort was not consistent for every month.

The method utilized to recruit participants was similar to the approach used in Lemhi County, where the primary strategy was to create awareness of the research and provide an opportunity for local stakeholders to participate. Since this survey was not limited to the boundaries of a specific county, recruitment efforts required a different strategy than in LC. In general, recruitment strategies model a ‘mixed-bag’ which included participant observation in a variety of instances and the use of social media platforms to reach a wider audience. This included attending a variety of gatherings ranging between small-scale meetings to internationally attended public land-oriented events with thousands of attendees. In addition, I gave a number of formal and informal presentations about the research, or a particular aspect, and generally encouraged participation from attendees. In general, I made a point to share the

research with as many people that were willing to listen, whether at a specific event, on social media, or in general interactions with people. Table 2 details the recruitment strategies of the EG survey, including the location, the relative date, the publicity, and an estimated number of respondents.

*Table 2 Extended Geographic Recruitment Efforts*

<b>Location</b>	<b>Date</b>	<b>Recruiting Effort/publicity</b>	<b>Estimated number of Respondents</b>
Pocatello Rotary Club	November 2018	Presented to local Rotary Chapter some of the initial findings of the LC survey and discussed potential of collecting data from extended demographic/geographic.	NA
Western Hunting and Conservation Expo; Salt Lake City, Utah	February 2019	Interacted with stakeholders, handed out business cards, wore promotional sweatshirt	15-20
ISU Geosciences Colloquium; Pocatello, Idaho	February 2019	Presented on the use of GIS in this social study – invited attendees to participate	3-5
Idaho Fish and Game Meeting – proposed changes for big game season; Pocatello, Idaho	February 2019	Interacted with stakeholders, invited a few attendees to participate, and handed out a few business cards	Unknown
GIS User's Conference; Boise, Idaho	March 2019	Presented the application of Survey123 for social research about public land, invited attendees to participate	3-5
Social Media posts; remote	April 2019	Publication of short video providing information about the research and invitation to participate, and assorted posts about the survey research	60-65
Idaho Mining Association Policy Revision Meeting; Pocatello, Idaho	April 2019	Interacted with stakeholders and discussed the research.	<i>Unknown</i>
Idaho Trails Association Annual Volunteer Party; Boise, Idaho	May 2019	Presented on the research in Lemhi County and the EG survey, invited attendees to participate	1-5

AAG-UCGIS CyberGIS Summer School; Champaign-Urbana Illinois	July 2019	Interacted with students and mentors from a wide variety of backgrounds, invited students and mentors to participate.	15-20
NRCS – North Custer/Lemhi County Local Working Group; Challis, Idaho	November 2019	Interacted with local stakeholders from a variety of land/resource management backgrounds.	Unknown
Social Media – Recruitment Postings remote	February 2020	Posted infographics across social media platforms to show current distribution of participants and encourage participating before the survey closed.	21

Some of these recruitment efforts generated more participation than others, of notable success was the initial unveiling of the survey at the Western Hunting and Conservation Expo, which provided a means of networking and introducing my survey research on public land to an international audience that either valued hunting and conserving their traditions or provided products and services for people to continue practicing and preserving their interests. As with the LC survey, recruitment efforts built upon each other throughout the survey period. For example, while the presentation at the GIS User's Conference did not generate substantial recruitment, it precipitated meeting a board member of the Idaho Trails Association (ITA), who showed an interest in the research and asked if they could share it along their network. This was followed by one of the most significant peaks in participation which coincided with the publication of a short video about the research and related social media posts. It is likely that many of the participants in April were a direct result of having been introduced to this specific network. Having made this contact, I was also given the opportunity to present on my research at the ITA annual volunteer party the following month.

My aim throughout the recruiting process was to reach a variety of stakeholder subcultures that may have valued different uses or resources than other groups. While opportunity was somewhat limited, I was able to reach a relative diversity of stakeholders through the combination of events, presentations, and conversations. Complementary to these more direct and participatory recruitment efforts, was the use of social media which provided an indirect way of interacting with and recruiting stakeholders that was not limited to a particular geographic place. Dependent on platform use, social media posts have the potential to reach a somewhat global audience of individuals, corporations, non-profits, special-interest groups, and a wide-variety of others. It is likely that some of the recruits were a result of a post on social media, although it is difficult to differentiate these from event-generated recruits considering the contemporaneous application.

Since the purpose of incorporating data from the EG survey was to explore how stakeholder uses, values, and perceptions change throughout space, I decided to divide the national survey population into three separate groups based on their location which supported general macro-comparisons to the study area. To achieve this, I separated the database entries into all submissions from Idaho (91 records), all submissions from the remaining Western states (35), and the remaining submissions from all other states (28). An overview of participating states, counties, and cities will be presented in the results section of this thesis.

Statistically speaking, I would have preferred to have more evenly distributed survey population pools. As is, the Idaho dataset is far larger than the other two, which in turn can

produce an uneven representation of information in which the resulting percentages reflect different numbers of respondents<sup>4</sup>.

## **Participant Observation**

Ethnographic fieldwork using participant observation has provided a valuable tool for conducting social research. These strategies are not narrowly defined but flexible to the needs of the researcher in a specific social study. This broad approach ‘contains a variety of information-gathering techniques that involve various forms of observation- from unobtrusive ones to full-scale participation by a researcher...’ (Ervin, 2000, p. 142). While some methods are more participatory, others involve non-participatory methods, or indirect participation, where the researcher observes from a distanced position rather than having full-scale involvement with a study population.

Participant observation today is a commonly used method in Anthropology, credited to Bronislaw Malinowski (1922), who aimed to elevate social research to more rigorous ‘scientific’ standards, and instantiated a shift in social research that emphasized firsthand data collection in the late 19<sup>th</sup> century (Atkinson, and Hammersley, 2007). According to Hammersley, some proponents argue that participant observation is key to any social research as researchers cannot study the social world without being an active part of it (2007). The observation methods employed in this particular thesis include attending events and meetings, giving presentations, assessing current events, and generally interacting with stakeholders. As with the literature review, these observation methods occurred at different scales including local, state, national,

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<sup>4</sup> To amend this, in the results section, Figure 42 relates percentage ranges with the number of participants for each survey subgroup, this should, therefore, reduce the likelihood of misrepresenting the findings

and global (through the review of non-U.S. based publications) which all contribute to a clearer representation and investigation of the study. While some of these observations were previously discussed as methods of recruiting participants in either survey, they also contributed an environment to observe real-life instances and to gather information to supplement the collected survey data. The inclusion of participant observation provided new opportunities to collect additional information about the study area as well as public land and natural resources in general, particularly in instances involving stakeholders, thereby contributing significantly to the overall study of social relations with the public ecosystem.

### **Informal Interviews and Key Informants**

Despite the rich information and data collected between the literature review, surveys, and participant observation, there were a few instances that necessitated further investigation through the use of informal interviews and key informants. These interviews were conducted as a means of gaining additional perspectives from stakeholders, management professionals, or special-interest groups, many of whom had ‘expert’ knowledge about the topic. Key informants, or ‘gatekeepers’ are members of the study area that are enculturated and educated about community factors and issues (Ervin, 2000). In the case of Lemhi County for example, the LC survey did not generate significant participation from residents involved in grazing, mining, or forestry. In order to better represent this group, I identified a few key informants involved in these areas and conducted informal interviews to better understand their relation with and stake in local public lands. In the case-study, I also interviewed a few businesses, previous federal agency employees, well-informed community members, particularly those with positions of leadership in the community.

In some cases, I also identified key informants and conducted informal interviews with stakeholders, management agency employees, and special-interest groups outside of the case-study area. In a similar manner, this occurred throughout the research period as necessitated by the study or as opportunity was available through participatory observation. Most often, these interviews were open-ended, in which I presented general questions that stimulated conversation from the interviewee. Generally, these key informants and the interview generated specific insight that I was not able to succinctly capture in either of the previously mentioned methods and therefore contributed to the holistic-oriented investigation.

### **Adaption**

This research required a continual re-evaluation of methods and strategies towards informing the research question regarding social relations with public land. As a complex and dynamic relationship, the research approach evolved to accommodate changes, and incorporate related areas of inquiry as the investigation continued. This thesis captures these relationships (stakeholder-public ecosystem, and stakeholder-stakeholder) at a specific time, therefore limiting the applicability of the study and findings as time progresses and these networks evolve. As with the nature of Anthropological studies, especially socially oriented ones, cultures cannot be viewed as static entities that are uninfluenced by outside factors; rather, they are dynamic, constantly adapting to evolving circumstances. While this thesis provides multi-faceted insight into current relations, including uses, values, and perspectives of stakeholders amidst a backdrop of uncertainty about the future of public land in the US, these relations will continue evolving as necessitated by outside factors including state or national policies about public land use, or global trends regarding resource markets.



The suite of methods used in this study, including literature and data review, surveys, participant observation, and key-informant interviews contribute to a more holistic approach of understanding the dynamics of social relations with public land. While this thesis is focused primarily on these networks within the LC case study, it attempts to exemplify these trends at a broader scale in order to complement and highlight unique aspects about the rural study area. As a result, this thesis positions the current situating of interrelations, and considers how these networks may evolve in the future.

## CHAPTER THREE

### LITERATURE REVIEW AND HISTORICAL DATA

The purpose of this chapter is to highlight important aspects that contribute to the socio-ecological system of people and the U.S. public land domain that span culture, economics, politics, and the environment. By exploring the historical development of human-environment relations, and their evolution into the 21<sup>st</sup> century, the context of this study, and the resulting findings, can be more wholly represented. As espoused in the works of Fuller, Escobar, and political ecology as a whole, this multi-faceted approach attempts to capture the greater context of the case study.

#### **Setting the Stage: Public Land in the United States**

The Public Domain is defined as land in the U.S. that is owned and controlled by the state or federal government<sup>5</sup>. These lands were initially acquired throughout the U.S. history by wars, treaties and purchases all of which acted as a means for growth and development across the frontier. While some states have state-owned public land, the focus of this investigation is primarily situated within the federal public land domain.

The notion of public land in tandem with varied levels of access to natural resources is increasingly unique in the global domain. Public, or *common* land has no single agreed upon definition outside the realm of bureaucracy; to many, however, it alludes to a “piece of land in either state or private ownership to which other people have traditional rights to use it in

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<sup>5</sup> Public lands refer specifically to lands managed by the Bureau of Land Management, whereas federal land (public domain lands) more broadly includes “any land owned” and managed by the federal government excluding “easements, leases, contracts, or other arrangements” (Vincent et al, 2017), as well as “lands located on the Outer Continental Shelf, and lands held for the benefit of Indians, Aleuts, and Eskimos” (Grossman et al, 2012).

specified ways” (Everard, 2011, p. 5). While the concept of common land and resource access at once characterized the majority of the globe, the advent of agriculture and private property altered the landscape by establishing settled communities. Globally, there are few places where common land still exists, and the associated rights to commoners vary throughout time and space. In New Zealand for example, the hunting of non-native species does not require harvest tags, the guiding principles of which is to decrease competition for native species. In the U.S. the use of public lands by individuals, groups, and industries remains under the discretion of the federal government, which is regulated under a variety of policies and laws. Stakeholders, or persons with a vested interest or share in public lands, can be affected by these policies and laws which dictate land and resource use and how society interacts with the public ecosystem. This concept, in a nutshell, is the premise of political ecology which positions the importance of evaluating how overarching systems influence culture in general and everyday life.

Public use rights have been progressively established throughout the introduction and development of the U.S. public domain beginning in the late 18<sup>th</sup> century. While users of public land (commoners) are permitted a variety of rights, “landowners may retain other rights to the land, such as rights to exploitation of minerals, and large timber, and any other common rights left unexercised by the commoners” (Everard, 2011, p. 5). The U.S. federal land domain accounts for approximately 615.3 million acres, approximately 27% of the total 2.27 billion acres that comprise the United States, (Vincent et al, 2020).

These federal lands are owned and managed by various departments and agencies of the US government, each of which have their own mission and objectives. According to the Congressional Research Service Report, *Federal Land Ownership: Overview and Data*, there are five primary agencies which oversee the management of large land tracts: the Bureau of Land

Management (244.4 million acres), the U.S. Forest Service (192.9 million acres), The Fish and Wildlife Service (89.2 million acres), the National Park Service (79.9 million acres), and the Department of Defense<sup>6</sup> (26.9 million acres with 8.8 million in the U.S.) (Vincent et al, 2020)<sup>7</sup>. The five agencies listed manage approximately 97% of federal land, accounting for more than 10 million acres of federal land in the 11 western states and Alaska, whereas “more than 99%” of BLM lands reside in these 12 states (Vincent et al, 2020, p. 4) (See Appendix III for federal land ownership by these five agencies in the West, East, and Hawaii/Alaska). Throughout the US, the percentage of federal land among states ranges between “0.3% of land (In Connecticut and Iowa) to 80.1% of land (in Nevada)” (Vincent et al. 2020, p. 7). These agencies have a broad scope in determining future uses considering the vast acreage of federal lands.

While not all of the 615 million acres of federal land are allocated as ‘public’ lands (i.e. Tribal Reservations and Department of Defense lands), many of the designations are including National Forests, National Parks, National Wildlife Refuges, National Conservation Areas, National Monuments, Wilderness, National Historic Parks, National Memorials, National Recreation Areas, Wild and Scenic Rivers, National Seashores and National Lakeshores, and National Trails (DOI, 2016). The U.S. public land domain is vast in geography, including desert plains to mountain peaks, grasslands, relatively untrammelled wild spaces, and protected areas for

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<sup>6</sup> DOD managed lands are not considered part of the public land domain, as the purpose or designation of these lands is to support mission testing and training and to “sustain the long-term ecological integrity of the resource base and the ecosystem services it provides...” (Vincent et al, 2017), however, it is still ranked as one of the top five land-managing agencies of the federal land domain.

<sup>7</sup> As noted in the CRS report, “the figures [presented here] understate total federal land, since they do not include lands administered by other federal agencies, such as the Bureau of Reclamation and the Department of Energy”, in addition, these figures are current as of September 30, 2018, “except that DOD figures are current as of September 30, 2017” (Vincent et al, 2020).

cultural, historical or environmental purposes. These designations afford the public and some private companies certain rights to use these lands for a multitude of purposes, whether for recreation, subsistence (I.e. hunting and fishing), livestock grazing, mineral exploration/extraction, timber harvests, energy production (i.e. hydroelectric, wind, or solar) or to simply enjoy the conservation of landscapes that support biodiversity, both nationally and globally.

### **Brief History of Management and Influential Policies**

The current state of public land, including the inherent natural resources, is a direct result of policies and management schemes that have developed throughout the U.S. history since its creation in 1776 and the expansion that followed (Carstensen, 1963). Providing a detailed history of the U.S. federal land domain, and public lands specifically, is a somewhat momentous task, as such, I will limit the background to a brief history of landmark events and policies that generally had a greater impact on the development of public land leading into the 21<sup>st</sup> century. To complement this, I will include pertinent economic, social, environmental and political aspects to present a more complete background of public lands and natural resources.

Management of the U.S. public domain has been a source of division, or debate, among government parties, the general public, and special-interest groups since the onset of initial land acquisitions. The polarity among stakeholders and parties regarding the function and management of public lands in particular, has been characterized in a multitude of ways such as east versus west, or environmentalists versus ‘wise-use’ advocates, to name a few. Regardless of the labels used or the stances taken, this divide among segments of the US population has long influenced management directives and posed challenges to policy makers and agency officials. Alongside this polarity among groups, there have been two somewhat contradictory visions

which have influenced the trajectory of federal land management and the current expanse of federal lands: disposal (or selling of land/resources) and retention (keeping land and conserving/preserving it). After the initial acquisition of land by the federal government, these two goals, or management strategies reflect the social, political, and economic context of the time, as well as highlighting how the polarity between members of the public manifests. The broad schism of vision provides a framework to understand the succession of federal land management policies and shifts in management strategies in the context of the time that they emerged.

As an early form of statecraft, the ‘formation of the U.S. federal government was particularly influenced by the struggle for control over what were then known as the “western” lands—the lands between the Appalachian Mountains and the Mississippi River that were claimed by the early colonies’ (Vincent et al, 2017, p. 1). Gaining control of these western lands (and lands further west) proved a valuable method for defining the new government and its geographic region.

In the late 18<sup>th</sup> century, the government had passed the Ordinance of 1785, which attempted to mandate how the “new and untried” Republic would address “who should get the lands, under what circumstances, and at what price” (Carstensen, 1963, p. xvii). In order to properly manage and dispose of these newly acquired lands, the government developed a cadastral (or rectangular) survey system as part of the Ordinance, which initially ‘established a six-mile-square township as the basic survey unit... and in 1804 provision was made in law for base lines and meridians to control the location of ranges and towns’ (Carstensen, 1963, p. xvi). The rectangular survey was a “cheap and simple way of surveying and describing land” (Carstensen, 1963, p. xvi), as well as developing a system of land taxation. A recurring theme

during the development of the U.S. government and U.S. territory is that of Scott's legibility, which reflects a form of statecraft oriented towards creating defined boundaries of both landscape and people in order to manage and make productive use of these resources (Scott, 1998). While this process of legibility began with the acquisition of land, it prevailed throughout the development of the US federal land domain, whether the goal was disposal or retention. In line with political ecology, these bureaucratic methods directly influenced the developmental patterns of private land distribution, township locations, and socio-enviro-economic compositions of what exists today amidst the majority backdrop of federal landscape.

In the mid-to-late 19<sup>th</sup> century, the U.S. government's vision of management shifted towards the disposal of federal lands, much in support of promoting western settlement. During this time, many laws were passed to encourage westward development including the Homestead Act of 1862, which "allowed a man to obtain 160 acres for the cost of the filing fee and five years' residence" (Carstensen, 1963, p. xvii), and many others. In the year 1910, 18.3 million acres were transferred to private property through the Homestead Act alone, with significant declines after 1935 (less than 2000,000 acres per year), which led to the elimination of the Homestead Act in 1986 (Vincent et al, 2017). According to the Congressional Research Service, "approximately 1.29 billion acres of public domain land was transferred out of federal ownership between 1781 and 2015 [which includes] transfers of 816 million acres to private ownership (individuals, railroads, etc.), 328 million acres to states generally and 143 million acres in Alaska under state and Native selection laws" (Vincent et al, 2017, p. 2). During this time, policies regarding public land management were particularly influenced by East/West overtones, "with easterners more likely to view the lands as national public property, and westerners more likely to view the lands as necessary for local use and development" (Vincent et al, 2017, p. 2). Much

of general consensus supported “measures that promoted settlement of the lands to pay soldiers, reduce the national debt, or strengthen the nation” (Vincent et al, 2017, p. 2).

Retention-based management efforts followed the western settlement phase which began in the late 1800’s, and gained significant momentum with the preservation and conservation movement in the mid-to-late 20<sup>th</sup> century. This vision developed in response to growing concerns about preserving scenic treasures and resources for future use in light of the impending threat of development (Vincent et al, 2017). In 1872, for example, Yellowstone National Park (YNP) was designated to preserve resources in their natural condition and to provide recreation opportunities to the public: YNP was the first of its kind (Vincent et al, 2017). Later, the preservation and conservation movement led to many new policies (and government departments and agencies) that would preserve land and resources for future uses. For a time, the government’s vision of disposal and retention were somewhat complementary, or at least co-adjointing in land and resource management decisions and policies, whereas federal land continued to be disposed of contemporaneously as initial steps towards preservation and conservation of resources and landscapes occurred through the retention of federally owned land.

The retention phase of federal land management directives fully emerged with the continued development towards scientific basis in developing land management strategies and adapting to the changing ideologies of the nation and its populace. Acts that were put in place to encourage this vision or management strategy were the 1964 Wilderness Act, the 1970 Clean Air Act, the 1972 Clean Water Act and the 1973 Endangered Species Act; the latter three which stemmed from the Environmental Protection Agency established in 1969. This preservation and conservation directive towards federal land management has characterized the more recent developmental history of the public domain.



Within this preservation and conservation era, management directives have fluctuated while adapting to the complex conundrum of protecting the environment while meeting the needs of the public and the nation. What developed through this stage is the principle of ‘multiple use’, which designated federal land as available for a variety of activities. Multiple use was presented as a solution or an “idea rooted in the notion that all land must have an identity and a utility” (Carr Childers, 2016, p. 7). This directive of multiple use was initiated through the 1934 establishment of the Taylor Grazing Act, which gave western ranchers the ability to continue using federally owned lands for livestock grazing purposes. This act granted ranchers rights that they struggled to obtain through previous legal mandates: “multiple use was originally conceived as a way to legitimize the historical use of public lands for grazing without precluding future uses, such as outdoor recreation, weapons development, and wildlife management” (Carr Childers, 2016, p. cover). While the Act gave traditional use rights to ranchers, it also allotted rights for other types of uses. Within the Great Basin region, for example, Carr Childers emphasizes the dichotomous use of land for nuclear testing and ranching; or wildlife management and wild horse preservation which characterized the shared landscape (2016).

The overall goal that was conveyed for the multiple use principle was support the interests and needs of both the individual and the nation as a whole (Carr Childers, 2016). This directive was seemingly beneficial to the public land system, but the broad defining boundaries resulted in a smorgasbord of interpretations and applications that significantly influenced the development of public land use, and in some ways had detrimental impacts on the public land ecosystem. Developments in the multiple-use principle were enacted through the Multiple-Use Sustained Yield Act of 1960, which defined the Forest Services’ interpretations of multiple use for guiding management policy. The act outlined that the sustained yield interpretation “means

the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the national forests without impairment of the productivity of the land” (USFS, 1996, p. 10-4). The primary use, as defined for the forest reserve, was harvest and protection of forest resources (Carr Childers 2016).

Wide-spanning interpretations of what multiple-use meant in application led to vast discrepancies in management goals and strategies. The broad use of the federal landscape placed a significant impact on the environmental health of the public domain. As Richard White was quoted “despite multiple use, land cannot be simultaneously range, parking lots, and wilderness” (Carr Childers, 2016, p. 11). Despite the failures and successes, Childers considers the multiple-use policy to be the “most influential public lands policy of the 20<sup>th</sup> century” (2016, p. 7). A differing ideology emerged in reaction to multiple-use principles known as the ‘wise-use’ movement, which was primarily supported by western landowners who opposed increasing government oversight in how locally-based land and resources could be utilized. This social movement initially began with the Sagebrush Rebellion in the 1970’s but did not gain wider support until the 80’s and 90’s (Grossman et al, 2012). Between 1991 and 1995, local ordinances were passed by fifty-nine western counties that claimed “authority to supersede federal environmental and land use laws and regulations,” by the end of the decade sixty counties had passed ordinances to challenge “federal control of local lands” (Grossman et al, 2012, p. 9). For many of the advocates, their frustration was with overreaching outside influence (whether government or environmental organizations) which resulted in reduced access of landowners in the west to use local resources for local benefit.

In the early 90’s, a new management philosophy emerged that became known as Ecosystem Management (put in place during the Clinton Administration). The goal was for

“protecting biodiversity and economic development, and making federal management more collaborative and less hierarchical” as stated by James Skillen (2015, p. cover). He further suggested that this policy “simply reframed preservation and conservation into more comprehensive ecological and political terms” (Skillen, 2015, p. 2). This new era of management directives was meant to replace the loose bounds of the multiple-use principle with a more rigid scientific approach; however, it presented an ambiguous definition for what the approach meant in application. This management approach was created to mediate the two existing paradoxes of protection and use (Skillen, 2015) and thereby created a two-fold interpretation, one substantive (‘having a firm basis in reality’) and the other procedural (‘relating to an established or official way of doing something’) (Oxford Dictionaries, accessed 2020). Despite this new and tailored approach, it has had limited success in actualizing in federal management schemes into the 21<sup>st</sup> century, although it set a precedent for the development of fields like Ecosystem Services, which aims to evaluate and weigh the socio-ecological values of goods and services provided by various landscapes ranging from a local to global scale. This movement also posited the importance of public participation in the decision-making process about the management of shared lands and resources (Skillen, 2015).

### **U.S. Public land in the 21<sup>st</sup> Century**

Public and governmental relations over land and resource management in the U.S. public domain have maintained a somewhat contentious history. At times, conflict manifests in historically-significant events such as the Sagebrush Revolution of 1979, or the more recent Bundy Standoffs of 2014 and 2016 which continue to reveal differences in public opinion or interpretations of multiple-use and/or wise-use principles in management strategies. The polarization between stakeholder groups over land and resource access, preferential uses, and

management strategies are becoming increasingly complex. While some factions advocate for increased conservation and preservation efforts, others support development to exploit the inherent natural resources for economic gain, community development, or national security. One characterization of stakeholder debate distinguishes environmentalists who advocate for increased regulation by government, and those that view current or additional regulations as an infringement of government on local livelihoods (Grossman et al, 2012). Many individuals and groups fall somewhere on the spectrum between these management extremes, where an aspect of conservation is important to ensure the preservation of landscapes and species, while maintaining access to facilitate a stakeholders personal or commercial use of the lands and resources (I.e. grazing and timber permits, river and stream use, and non-motorized or motorized travel on (un)developed trails and roads). Without clear consensus between groups, Hardin's tragedy of the commons could prove itself in U.S. history books someday, where disintegrated interests and self-preservation undermine the benefit of society and the landscape.

Changes in the public land and natural resource domain are relatively constant in the 21st century, as influencing factors, including political agendas, economic interests, and environmental advocacy evolve. Examples to showcase the preexisting tumult of guiding policies and frameworks can be found in and between administrative terms. Since the inauguration of the Trump Administration, for example, approximately 73 environmental regulatory rollbacks have been documented by the Environmental and Energy Law Program at Harvard Law School<sup>8</sup> (Harvard Law School, accessed 2020), attesting to a mode of public land and resource management that adheres to less stringent environmental regulations and

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<sup>8</sup> These 73 regulatory rollbacks documented by Harvard Law include 18 with final rule, 18 with final rule in litigation, 26 in process, and 11 in process and litigation.

protections. According to calculations by the Center for American Progress, the Trump administration has “attempted to remove protections from nearly 35 million acres of public lands” which is more than they have protected, “these actions equate to stripping protections from an area the size of Florida” (Rowland-Shea et al. 2020). Further, the CAP poses that “the Trump administration’s crusade against public lands has since exposed wildlife refuges and national forests, opened public lands to mining and development, and stripped protections out of land management plans” (Rowland-Shea et al, 2020). The current administration’s actions have garnered both support from private industries and others who advocate less government regulations and the utilization of natural sources, as well as public disapproval and formal lawsuits from conservation-oriented stakeholders and special-interest groups.

This division between segments of the population regarding the ‘best-suited’ future for public lands is prevalent both in the decision-making process and the implementation of differing management schemes. Policies that determine how public lands are to be utilized can have significant implications for stakeholders in the U.S. and while these changes are often implemented at a national scale, many impact local areas and populations more than the general populous. On a larger scale, it is pertinent to consider how political agendas and polarities influence the future direction of public lands, particularly with changes in leadership positions. For example, since 2001, the Department of the Interior’s position of Secretary, who oversees 70,000 employees across Federal agencies such as the BLM, USGS, and the NPS has been vacated and filled six times. In this period, the longest span a Secretary has stayed in office was for five years under George W. Bush, and the shortest span was less than two years under President Donald Trump. These positions of leadership in public land and natural resource

administration are continually filled, vacated, and filled again, contributing to a segmented continuity of management and policy directives.

Often, these changes in management policies reflect political or economic agendas, as opposed to more stringent environmental protections or a realistic consideration of the social implications. For example, in December of 2017, two National Monuments in Utah, Bears Ears and Grand Staircase-Escalante, were reduced in size to open up the surrounding areas to “entry, location, selection, sale or other disposition under the public land laws; disposition under all laws relating to mineral and geothermal leasing; and location, entry, and patent under mining laws” (Trump, 2017). Clinton designated them (controversially) and then Trump reduced them (controversially).

This trajectory of decisions, as aligned with political parties and agendas is nothing new in the history of US public lands and natural resources, as “the back-and-forth regulations seem to rise and fall depending on which administration is in power in Washington D.C.” (Grossman et al, 2012, p. 3). In the following quote Grossman and Bryner succinctly capture this sentiment.

As Clinton, and Bush, and Obama have seen, while there is wide support for environmental protection, there is also deep and sustained opposition to the government taking land for public use, especially in the West. The economic, social, and environmental changes such as set-asides have created and will continue to create, have yet to be adequately examined by any side of the argument. As the need for increased use of natural resources, most notable energy such as oil and natural gas, expands due to the high costs of imported gasoline, this debate will continue to gain steam and pit environmentalists against those who advocate the ‘wise-use’ of the lands” (Grossman et al, 2012, p. 4-5).

The national goals regarding conservation, public land and natural resource policy, and environmental protection are subject to the elected leaders’ determinations which sometimes fail to coincide with the broader national interest of stakeholders, which are varied and complex.

This tendency to work outside of the national interests disintegrates the integrity of the whole. It produces and reproduces agendas that can be difficult for stakeholders to keep in stride, while enacting policies with less than sufficient representation or comprehensive consideration.

Considering that national and global forces put US public lands in increasing jeopardy over the years to come, constructive and informed management of the public land domain and the inherent natural resources is beneficial to the citizens, the Nation, and the globe as a whole. Along the vein of common land, Everard argues that the “fate of both former peasants and nomads [in Europe’s history] illustrates a larger global trend towards the centralization of power and access to key resources in the hands of the politically and economically powerful land-and other resource-owning classes” (2011, p. 11). Again, this alludes to the premise of political ecology, in which political and bureaucratic oversight, as well as global market forces, all entangle the composition of what public land is including the designated purpose of the land, the utility of the resources, and the use and access rights that members of the public retain. It is plausible to consider that land and resource issues in the United States could follow along a similar trajectory as the global population rises and the value of finite natural resources increases as their availability (supply) decreases. The process of privatization and the commodification of natural resources taking place alludes to “fundamental changes in ecosystems...[which] compromise the ability of many more people to continue to meet their needs or sustain traditional livelihoods” (Everard, 2011, p. 13). In order to properly manage public lands and resources, in consideration of increased pressure, administrators must be competent and stakeholders must be actively engaged with management decisions. Sometimes, stakeholder concerns or objectives are incompatible with hierarchical goals, which result in policies that fail to include these perspectives and therefore have the potential to negatively impact people whose

viewpoints are excluded. One example can be seen in the differences in stakeholder time horizons, whereas Native Americans likely value the decisions that benefit into the 7<sup>th</sup> generation, and Wall Street values decisions that generate money in the next quarter. These types of differences in the perception of land and resources can have drastic influence on the ability of people to use these shared landscapes and resources or to envision a future of continued access and use.

Economically the U.S. federal domain has long been a source of contention, as management efforts of the vast estate are costly, and the debate over disposing, managing, or conserving (to varying degrees) have been tense since the initial development of the US federal land domain. According to the Cato Institute, “federal land management costs government entities – including federal, state, and local – approximately \$7 billion a year” (Grossman et al, 2012, p. 13). In addition, “since 2001, the federal government has spent, on average, \$3.13 billion annually to protect communities from wildfire” (Western Priorities, 2014, p. 1). While these annual costs are extensive for managing the federal landscape, it should be noted that there is a significant backlog of costs that relate to deferred maintenance and repairs of assets across governmental agencies. For example, for FY2018 the four-primary land-managing agencies including the BLM, USFS, NPS, and FWS, had a maintenance backlog of \$19.38 billion (CRS, 2019). In each fiscal year from 2009, the NPS had the largest share of deferred maintenance costs (62% in FY 2018), followed by the FS (27%), the FWS (7%), and the BLM (5%) (CRS, 2019).

While these incurred costs are substantial, there are some aspects of public land use that generate revenue for the federal government and for public land states (Western states and Alaska). For example, in 2017, “the U.S. outdoor recreation economy accounted for 2.2 percent



(\$427.2 billion) of current-dollar gross domestic product” (BEA, 2019). In 2016, the “total economic output...of recreation activities on BLM lands, was more than \$3 billion, including “3.1 million hunting trips, 2.8 million fishing trips, and 2.2 million trips to view wildlife” which in turn generated “more than \$1 billion in salaries and wages, supporting 26,500 jobs, and producing over \$421 million in federal, state, and local tax revenue” (PEW, 2018). While it appears that the economic output decreased between 2016 and 2017, the Outdoor Recreation Satellite Account (ORSA) “also shows that inflation-adjusted (real) GDP for the outdoor recreation economy grew by 3.9 percent in 2017, faster than the 2.4 percent growth of the overall U.S. economy. “Real gross output, compensation, and employment all grew faster in outdoor recreation than for the economy as a whole” (BEA, 2019). The Outdoor Industry Association (OIA) publication regarding economic output differs slightly than the previously discussed figures. For example, OIA reports that in 2017 the outdoor recreation economy generated: \$887 billion in consumer spending annually, 7.6 million American jobs, \$65.3 billion in federal tax revenue, and \$59.2 billion in state and local tax revenue (OIA, 2017). These numbers are up from the OIA 2012 publication which reported \$646 billion in outdoor recreation spending, 6.1 million jobs, \$39.3 billion in federal tax revenue, and \$39.7 billion in state and local tax revenue (OIA, 2012). This growth in economic output from recreational uses alludes to an increasing level of interaction between recreation users and public lands. Although this revenue contributes to both the federal government and public land states, it is not enough to stabilize public lands economy/management efforts, particularly with declining budgets across federal agencies.

More recently, some potentially landmark policies have been put in place and have yet to materialize. For example, at the end of 2017, the Trump administration released ‘A federal strategy to ensure secure and reliable supplies of critical minerals,’ which aims to reduce US

dependency on foreign exports of minerals that are critical for economic prosperity and national defense, including technology (Federal Register, 2017)<sup>9</sup>. In 2018, the DOI released a list of 35 minerals that were identified as ‘critical’ for the US economy, military, and technology sectors (Federal Register, 2018). According to the U.S. Department of Commerce, “the United States is import-reliant (imports are greater than 50 percent of annual consumption) for 31 of the 35 minerals designated as critical by the Department of the Interior” (U.S. Commerce, 2019). For mining companies and communities that are situated near the deposits of these critical minerals, this single Executive Order can have significant impact on the future of the industry and the people who live in areas with these and other mineral deposits. As a means of supporting the development of national supply chain, the U.S. Army announced their intent to fund the domestic construction of rare earth processing plants, which would reduce national dependence on China specifically, as they refine ‘most of the world’s rare earths [and] ha[ve] threatened to stop exporting the specialized minerals to the United States’ (Scheyder, 2019).

In addition, one of the largest and most influential policies relates to the passing of the Natural Resource Management Act of 2019 (S. 47, also known as the John D. Dingell, Jr. Conservation, Management, and Recreation Act), a legislative package which combined over 100 bills that relate to “public lands, natural resources, water projects, and infrastructure” (Senate RPC, 2019). The purpose of this bill is to set ‘forth provisions regarding various programs, projects, activities, and studies for the management and conservation of natural resources on federal lands’ (U.S. Congress, 2019)<sup>10</sup>.

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<sup>9</sup> See appendix IV for a brief summary of this Executive Order (EO 13817) from the Federal Register 2017.

<sup>10</sup> A brief summary of S.47 can be viewed in Appendix V.

The permanent authorization of the Land and Water Conservation Fund (LWCF) is one of the most significant aspects of this conglomerate of legislation into a single act (Senate RPC, 2019). However, it is the breadth of what the bill provides that makes it arguably one of the most influential pieces of conservation legislation to ever have been passed (Reimers, 2019). Aside from re-authorizing the LWCF, this bill also “conveys tens of thousands of acres of federal land to state and local government to promote community and economic development, increases access to federal lands for hunting and fishing, authorizes studies and surveys to determine the resource value and boundaries of federal land,...designates new wilderness areas...new national monuments, recreation areas, wild and scenic rivers, and national heritage areas” (Senate RPC, 2019). As with the passing of the federal strategy to ensure secure and reliable supplies of critical minerals, many of the short- and long-term impacts are yet to be determined. These policies facilitate and highlight the changing nature of land and resource management in the US and public land states specifically.

Of note is the currently proposed Great American Outdoors Act, which, if passed would create a legacy fund ‘to support deferred maintenance projects on federal lands...not to exceed \$1.9 billion for any fiscal year...[composed of] an amount equal to 50% of all federal revenues from the development of oil, gas, coal, or alternative or renewable energy on public lands and waters’ (U.S. Congress, 2020). This bill would also permanently fund the LWCF at \$900 million annually and receives federal revenue generated from off-shore oil and gas drilling royalties (Reimers, 2020).

### **Public Land in Idaho: State and Federal Lands**

The State of Idaho is approximately 52,933,120 total acres (<53 million), or over 83 thousand square miles (Vincent et al., 2017), which ranks Idaho 14<sup>th</sup> among other states in total

area of the state, and 11<sup>th</sup> by total land area (excluding surface water) (Census Bureau, 2012). Of the total state acreage, the Federal government owns approximately 61.9% of the total state, which equates to approximately 32,789,648 acres (>32 million) (Vincent et al, 2017). An additional 5% of land in Idaho is state owned (~2.5 million acres), of which over 2.4 million acres are endowment lands, and almost 200,000 acres are Fish and Game land (IAC, 2011). While many of these state-owned acres are also designated for specific public uses, the primary focus of this study is on social relations with federal public lands which account for the vast majority of public lands in the state. Idaho, in comparison to other states, ranks in the top three for highest percentage of federally-owned land which is surpassed only by Nevada (80.1%), and Utah (63.1%), and followed by Alaska (60.9%) (Vincent, et al 2020). These percentages reflect the acreage of land that is managed by one of the five primary land management agencies, which suggests that the percentage of public land in these states is slightly higher than the figures presented (Vincent et al, 2020). Between 2015 and 2018 federal land ownership in Idaho had an increase of 0.3 percent; this growth was due to increases in federal acreage administered by the BLM (+162,167 acres), USFS (+3,759 acres), NPS (+363 acres), and decreases in acreage administered by the DOD (-18 acres) (Vincent et al, 2017, and 2020).

Within the state of Idaho, there are numerous federal land designation types, including areas of substantial areas of National Forest which account for approximately 38% of federal land in Idaho, or 20.4 million acres (Misachi, 2019). Of these forests, four are shared with neighboring states, and eight are completely within the state. In addition, Idaho has several Wilderness areas including the Frank Church River of No Return, and the Selway-Bitterroot which are the second and third largest wilderness areas in the lower 48. Federal lands in Idaho also account for two National Monuments, a Reserve, Grassland, Historical Park, Conservation

area, recreation areas, a National Park, and numerous trails designated under the National Scenic and Historic Trail system. There are also some portions of the state that are under federal ownership, however, they are not designated for public use which includes the Idaho National Laboratory, and the Mountain Home Air Force Base.

*Table 3 Federal Land Designations in Idaho*

<b>Federal Land Designation Type</b>	<b>Designations in Idaho</b>
National Forest	Bitterroot, Boise, Caribou-Targhee, Clearwater, Idaho Panhandle, Kootenai, Nez Perce, Payette, Salmon-Challis, Sawtooth, Wallowa-Whitman, and Wasatch-Cache NF
Wilderness Area	Frank Church River of No Return, Selway-Bitterroot, Sawtooth, Gospel Hump, Hells Canyon, and White Clouds
National Monuments	Craters of the Moon and the Hagerman Fossil Beds
National Park	Yellowstone National Park
Recreation Area	Hells Canyon Recreation Area and Sawtooth Recreation Area
National Scenic and Historic Trails	Continental Divide Scenic Trail, the Lewis and Clark National Historical Trail, and the Nez Perce National Historical Trail
Others	City of Rocks National Reserve, Curlew National Grasslands, the Nez Perce National Historical Park, and the Birds of Prey Conservation Area

Just as there are significant portions of public land in Idaho, there are also substantial publicly owned water bodies and flowing freshwater, including the Snake River, the Salmon River and a multitude of lakes and streams. Some of these rivers and streams fall under protection by inclusion in the National Wild and Scenic River System, including portions of the Salmon, Owyhee, Clearwater, and Jarbidge Rivers. According to the National Wild and Scenic Rivers Systems publication, less than 1% of the state's river miles are designated as wild and scenic, which accounts for 891 river miles of the approximately 107,651 total river miles in Idaho (NWSRS, accessed 2020). While the majority of land in Idaho is managed by one or more federal agencies, some bodies of water also fall under similar management structures.

The four primary federal agencies that direct initiatives of public resource management within the public land (and water) domain in Idaho include the Bureau of Land Management, the United States Forest Service, the Fish and Wildlife Service, and the National Park Service. Based on a 2017 Congressional report, within the State of Idaho, the BLM manages 11,776,995 acres (>11.7 million), the USFS manages 20,447,859 acres (>20.4 million), the FWS manages 49,733 acres (<50 thousand), the NPS manages 511,963 acres (>0.5 million) (Vincent et al, 2020). In addition, the DoD manages 3,098 acres set aside for national security, training, and defense purposes. Similar to DoD lands, the Department of Energy (DoE) manages approximately 569,139 acres in Idaho, which is primarily comprised of Idaho National Laboratory lands spanning 890 square miles (INL, accessed 2020). The Idaho Department of Fish and Game, although not listed, manage some lands set aside for special projects, however, they are primarily focused on managing species and habitat across federal land designations including BLM and USFS lands. Additionally, though not a primary land manager, the Idaho Department of Environmental Quality (IDEQ) provides services and evaluations regarding water quality, air quality, and mining remediation throughout the state under direction of the EPA.

According to a report by the USFS, BLM, and FWS, for Representative Simpson in 2012, these three agencies combined spent \$392 million to manage 32 million acres of public land in Idaho (Magic Valley, 2013), which is comparable to annual averages (Western Priorities, accessed 2020). Some of the most significant costs include wildfire management, in which the USFS “spends more fighting wildfires in Western states than those states spend on their own law enforcement” (Western Priorities, accessed 2020). Idaho, in 2012, spent \$50 million in state law enforcement spending, whereas the USFS spent 169 million in fire suppression during the 2012

fire season (Western Priorities, 2014)<sup>11</sup>. Of note, this data does not include DOI spending on BLM lands or ‘the millions more spent by the USFS on wildfire preparedness, rehabilitation and hazardous fuels reductions’ (Western Priorities, 2014, p. 2). As “two-thirds of all forests in the West lie on public lands...a majority of wildfires occur on public lands; [i]n Idaho, for example, 98 percent of the acres burned over the last decade have been on federally managed lands” (Western Priorities, 2014, p. 3),

Managing these wildfires represents a substantial deficit that western states would inevitably face in seizing ownership of public lands from the federal government. While some proponents for granting states ownership of federal lands exist throughout Idaho and the West in general, the overall cost of assuming ownership is relatively substantial (incurring costs of an estimated \$111 million per year), or \$2 billion over 20 years (Western Priorities, accessed 2020), which inevitably plays into any discussion regarding state land seizures from federal ownership. Other management costs if states seized federal land would include the remediation of abandoned mines on public land which could incur between \$9.6 and \$21 billion in costs for each western state (Western Priorities, accessed 2020). One mining project developing in Idaho has a reported \$1.1 billion investment to build the project and additional investments will also be made (Midas Gold, accessed 2020).

While the cost of managing public land is substantial, public lands generate revenue in a variety of ways. For example, in fiscal year 2014, DOI managed lands generated \$360 billion in economic output, as well as \$646 billion every year from the outdoor recreation economy (Western Priorities, accessed 2020). Additionally, revenue is generated from hunting, fishing,

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<sup>11</sup> See Appendix VI for figure depicting comparison of funds spent on wildfire management versus state law enforcement in three western states (Western Priorities, 2014).

and wildlife-watching on 11.9 million acres of BLM lands; Idaho for example, “saw 466,155 fishing visits, 296,569 hunting visits, and 193,571 wildlife-watching visits in 2016, [which generated] 2,559 jobs, \$85 million in salaries and wages, \$295 million in sales, \$15 million in state and local tax revenue, and \$18 million in federal tax revenue” (PEW, 2018). Outdoor recreation also accounts for some revenue from public lands in Idaho including \$7.8 billion in consumer spending, 78,000 direct jobs, \$2.3 billion in wages and salaries, and \$447 million in state and local tax revenue (OIA, 2017).

### **Idaho Demographics: Spanning People, Economics, and the Environment**

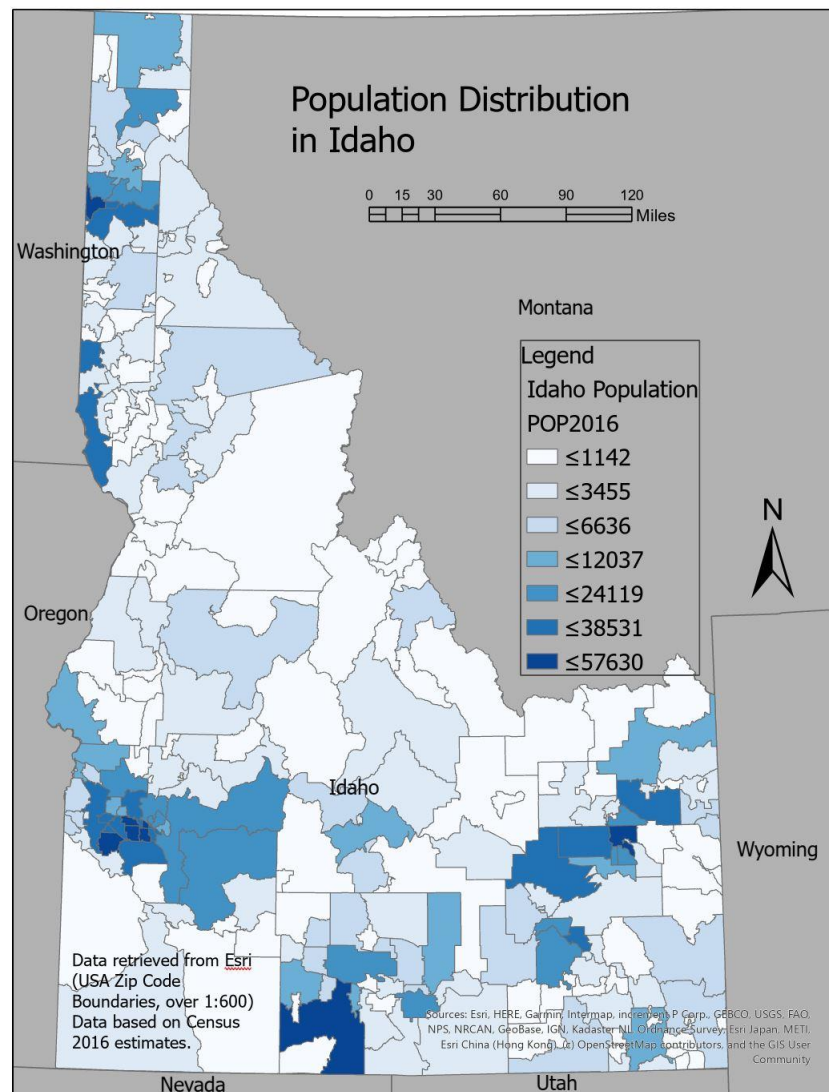
The population of Idaho is approximately 1.75 million persons, as estimated by the Census Bureau in 2018. This estimate, in combination with the total square miles of the state produces a low population density of 21 people per square mile. This statistic ranks Idaho as the 45<sup>th</sup> of the 50 states (US Census Bureau, 2018). This markedly low population density and the high percentage of public land provides a unique environment for residents composed of relatively open access and use of the majority of land in the state. The state of Idaho is comprised of 44 counties, one of which, Idaho County, is larger in area than Rhode Island, Delaware, and Connecticut combined, accounting for approximately 5.4 million acres of land in the state (IAC, 2011). Twenty-two, or 50 percent of Idaho counties have public land acreage exceeding 50% of the total county area, two of which have over 90%: Custer and Lemhi, and eight counties with over 70% public land, listed in descending order: Valley, Butte, Idaho, Blaine, Owyhee, Lincoln, Shoshone, and Boise (IAC, 2011). The majority of counties in Idaho are primarily rural, however, a few counties are experiencing urban sprawl. Idaho is generally considered a rural state, with approximately 80% of Idaho counties maintaining rural demographics, and



approximately 9 counties, or in-county districts that are urban. Boise, the state capital, is currently the only city in Idaho with a population that exceeds 100,000 people.

Currently, population growth is at an all-time high in Idaho, which ranked in 2016 as the fastest growing state in the US. According to the Idaho Department of Labor, in 2016, Idaho population increased by 2.2%, which was three times faster than the national average (2018). In 2016, Idaho gained 36,917 new residents, 28% of which were the result of natural increase, and 72% of which from in-migration (IDL, 2018). So far, state in-migration exceeds that of out-

migration, whereas ‘about 15,800 more people from other states moved to Idaho than moved away’ (IDL, 2018). Regarding net-migration, ‘Idaho gained more in-migration from 28 other states than it lost to those states in out-migration...residents gained from other states was nearly 28,600 people, with 47% from California, retaining its rank as the largest single source’ of Idaho in-migration (IDL, 2018).



*Figure 1 Distribution of Population throughout Idaho in 2016*

Population growth throughout the state is not evenly distributed: between 2000 and 2016, ‘its nine urban counties grew by 37% while rural counties only grew by 9%’ (IDL, 2018).

Based on the IDL population projections, population growth in urban areas will account for approximately 65% of growth in 2026 from 2000 numbers (2018). It is estimated, that by 2040 that population in both Ada and Canyon counties will exceed 1 million people, both having been significant in-migration destinations: between 2000 and 2015, population in Ada grew approximately 44% and 37% in Canyon (Barnhill, 2016).

Throughout the state, this influx of in-migration is a source of some contention, as it is implicating a rural and urban divide, particularly near the developing urban areas that were once rural and still practice these traditions, for example ranching and grazing. Some of this tension arises from an inherent concern about losing representation among longer-time Idaho residents, as well as the concern that outsiders come to Idaho to get away from the politics of their state, yet, directly or indirectly, alter Idaho to reflect where they came from. According to a Capital Press article, “as the state’s population center rapidly shifts to the Boise area, Idahoans involved in agriculture [and arguably mining, timber, and grazing] see the prospect of more urbanites with less understanding of agriculture wielding more clout in the state legislature” (Ellis, 2014). It is feasible to consider that in-migration to Idaho will continue, which presents some challenges to the state in addressing how to effectively and efficiently transform for the continued population growth and adapt to shifting ideologies that may not reflect the traditional way of life as Idahoans know it.

One of the important issues, for long-time residents, as well as new Idaho migrants, is that of education, which has had a variety of challenges and shortfalls producing poor placement in national education standards. Education in Idaho has historically had low national rankings; in

2018 for example Idaho ranked 40<sup>th</sup> in education standards, ‘based on test scores, graduation rates, and access to pre-K’ (Richert, 2018). In the 2018 Kids Count data profile publication, numerous metrics were used to evaluate educational standards across the nation, which reveal some shortcomings in educational attainment of children in Idaho. The first major metric, for example evaluates access to pre-K, revealing that an estimated 66% of Idaho’s young children (ages 3 and 4) are not in school, which is four percent higher than in 2009-2011 (AEC Foundation, 2018). The markedly low percentage of 3-4-year-olds in school (32% in 2016) is often correlated with state policy that does not support state-funded pre-K programs, making Idaho one of only six states that do not fund pre-K pilot programs (Richert, 2018). Test scores accounted for additional metrics including reading proficiency in fourth-graders and math proficiency in eighth-graders. In 2017, 62% of fourth-graders were not proficient in reading (down 4% from 2009), and 65% of eighth-graders were not proficient in math (up 3% from 2009) (AEC Foundation, 2018). Another metric evaluated the graduation rate which reported that approximately 20% of high school students are not graduating on time in 2017-2018, which is up from 16% in 2010-2011 (AEC Foundation, 2020). Regarding secondary education, an estimated 39% of young adults (ages 18-24) are enrolled in or have completed college in Idaho (AEC Foundation, 2020). Educational attainment among Idaho population aged 25-34 estimates that 8% did not graduate high school, 54% received a high school diploma or GED, 10% have completed an Associate’s degree, 22% a Bachelor’s degree, and 6% that have completed graduate school (AEC Foundation, 2020).

These metrics highlight potential issues of education standards in Idaho. In an interview with a rural school district superintendent some of the causes were brought to light, many of which relate to insufficient funding. For example, this district planned to update their English

curriculum for K-12 classrooms, their ideal textbooks cost approximately \$94,000, which they trimmed to the absolute basics for a final cost of \$63,000. The state however, only allots \$4,000 per year towards updating curriculum, requiring the district to rely on funds from supplemental levies which they have grown dependent on for district needs including infrastructure improvements, technology implementation and upgrades, as well as many other needs that arise in the district. According to the interviewee, the district had to make a choice between repairing damage in the elementary school or the junior high school, both of which necessitated significant infrastructure improvements, yet the levy (or accrued levies over multiple years) could only cover repairs for one, resulting in a permanent closure of the other. He suggested that the biggest issue facing education in Idaho is related to such limited funding: ‘if we all have to pass supplemental levies to get more money, obviously no one is being funded’ (D.S. Personal Interview, 2020<sup>12</sup>). While natural resource revenue used to generate valuable revenue for rural school districts, these funds are less consistent and limited due to the vicissitudes of natural resource extraction in the area including mining and logging.

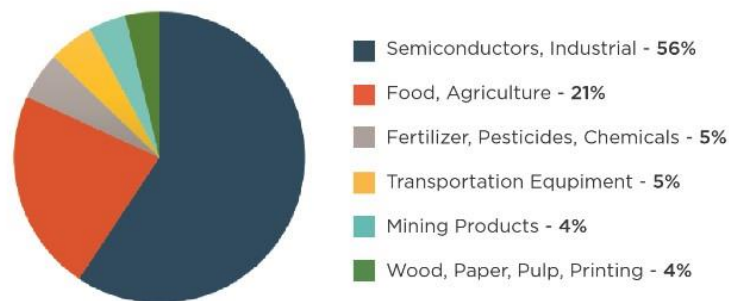
The Idaho economy is largely supported by exports in the industrial sector, including semiconductor production and agricultural sectors, including dairy, livestock, and other food items. According to the Idaho Department of Commerce, the value of Idaho exports grew from \$2 billion in 2003 to \$4.2 billion in 2018; “Idaho companies are selling goods and services to 162 countries around the world while supporting over 22,000 jobs in Idaho” (Idaho Commerce, accessed 2020). Between 2017 and 2018, ‘Idaho exports to the world increased by 4.08% despite changing trade regulations...tech companies grew exports of machines to produce semiconductors [by] 229.3% [and]... dairy producers increased exports by 17.28%... with milk

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<sup>12</sup> Initials of local key informants have been altered to protect their identities.

and cream being the strongest sector” (Idaho Commerce, 2018). As shown in Figure 2, the three largest export partners of Idaho in 2018 were Canada, Taiwan, and China; over half of Idaho exports were in semiconductors and industrial products/services, and 21% of exports were of food and agricultural products/services (Idaho Commerce, 2018).

## TOP EXPORT INDUSTRY OVERVIEW



Exports totalling < \$100M not displayed and include personal care products; fabricated metal products; office, home and outdoor; apparel; textiles; and other.

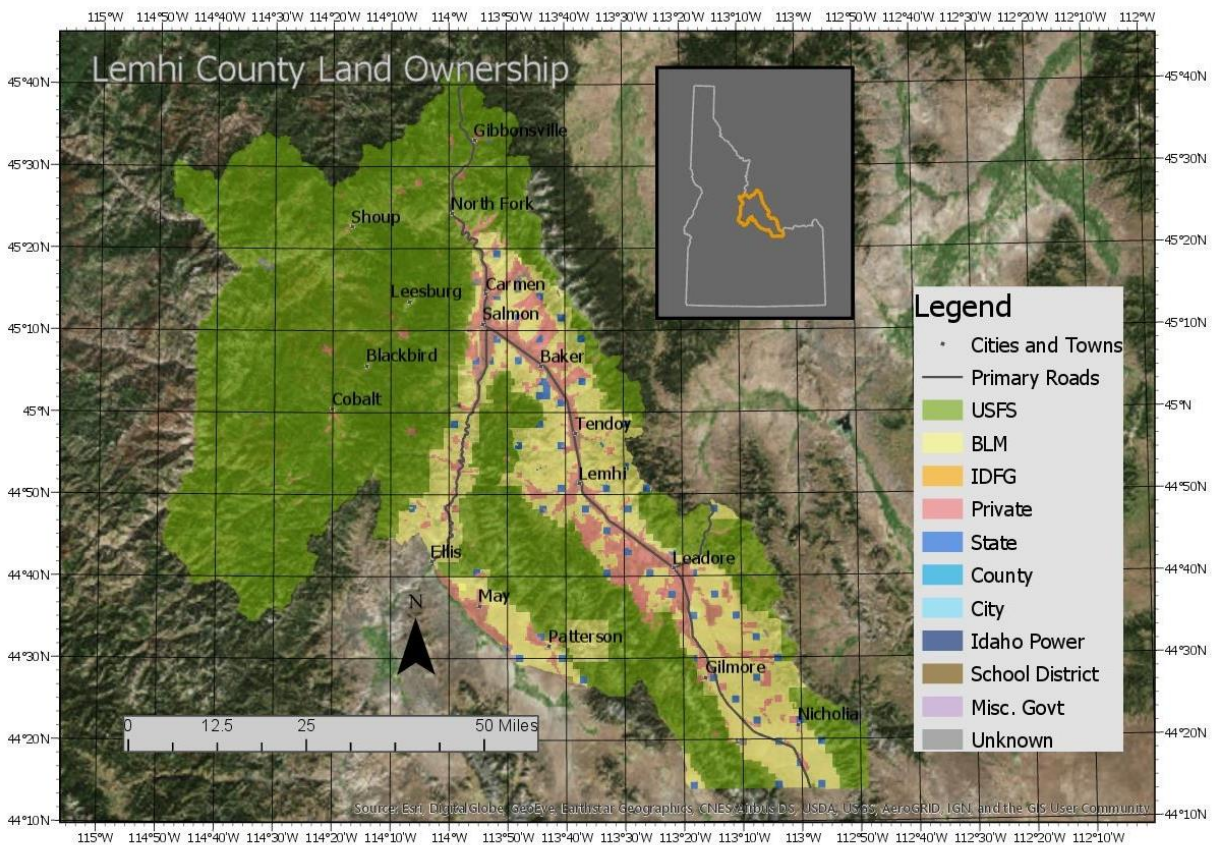
	PARTNER	2018
1	Canada	\$925,998,492
2	Taiwan	\$675,149,257
3	China	\$417,262,119
4	Singapore	\$345,039,391
5	Mexico	\$230,105,083
6	Japan	\$215,164,194
7	United Kingdom	\$188,815,187
8	Malaysia	\$111,042,237
9	Hong Kong	\$109,056,204
10	South Korea	\$107,624,407

*Figure 2 Overview of Top Export Industries in Idaho. (Source: Idaho Commerce, accessed 2020)*

While semiconductors and industrial exports significantly outrank all other industries combined, agriculture in Idaho is also important to the state’s economy. According to the USDA, in 2018, the value of Idaho’s agricultural production totaled \$7.69 billion, which is up three percent from last year; crop production specifically totaled \$3.26 billion, and livestock production totaled \$4.43 billion (NASS, 2019). In 2019, milk was the states’ highest value agricultural commodity (totaling \$2.38 billion in 2019), cattle and calves were second totaling \$1.41 billion, and potatoes, ranked as the third highest commodity, accounted for \$1.03 billion; these three commodities, including hay (\$773 million), and wheat (\$539 million) accounted for \$6.13 billion in state revenue (excluding government payments), which is up from \$6.02 billion in 2017 (NASS, 2019).

## Case Study Background: Lemhi County, Idaho

Lemhi County is an area long considered rich with natural resources. As an Idaho county, situated in the Western United States, Lemhi County's position is not unique in the prevalence of federally owned land, however, it is an instance where the percentage of land ownership in the county is particularly weighted. Lemhi county encompasses approximately 2,921,152 acres (IAC, 2011), or 4,563.39 square miles (Census Bureau, 2016), an area slightly smaller than the state of Connecticut. The total area includes approximately 926 square miles of water area (USGS, accessed 2020). The proportion of public land in Lemhi County is approximately 90.7% of the total area, the remaining 9.3% of the county being either owned by the state (1.3%), or privately (8%) (IAC, 2011).



*Figure 3 Distribution of Land Ownership in Lemhi County Idaho*

The pristine beauty of the landscape heralds the wealth of natural resources embedded within the geographic region. There are two main rivers that flow through Lemhi County: the Lemhi River, and the Salmon River, both tributaries of the Snake and Colombia River. These rivers, and all associated tributaries provide habitat for a number of communally beneficial species including a variety of trout, steelhead, and both wild and hatchery salmon (primarily Chinook and Coho). The Salmon River remains as the longest un-dammed river in the coterminous United States; its connection to the greater ecosystem warranted protection of certain segments through the Wild and Scenic Rivers Act. The county valley is situated among vast mountain ranges including the Lemhi Range, the Beaverhead Range, the Salmon River Mountains and the Bitterroot Range. The area is also known for its Eastern alignment with the Continental Divide, separating Idaho and Montana and providing access in LC to the Continental Divide National Scenic Trail.

Lemhi County is in large part comprised of the Salmon-Challis National Forest (SCNF); this forest is 4.3 million acres in size, including 1.3 million acres of the Frank Church River of No Return Wilderness, which is the second largest contiguous wilderness area in the lower 48 (USFS, accessed March 2020). On the Northern boundary of the Frank Church Wilderness, lies the Selway-Bitterroot Wilderness (SBW), separated only by a historic and scenic roadway (Magruder Corridor) that was built by the Civilian Conservation Corps in the 1930's. This wilderness (SBW) is shared with the neighboring Idaho County and Ravalli County in Montana. Geographically, Lemhi County is situated within a network of neighboring counties that share different portions of the federal spaces. On the southern boundary for example lies Custer County, which is 93.2% federally owned, and Butte County (86.1%), Valley County (87.6%) to the west, Idaho County to the north-west (83.3%), and Clark County to the south-east (66.2%)



(IAC, 2011). In addition, the Salmon Challis National Forest is the southern-most area of the Yellowstone to Yukon conservation initiative (Y2Y), which is a large-scale approach towards preserving a 2,000+ mile stretch of mountain ecosystem (Y2Y, accessed 2020). This highlights the value of the ecosystem in Lemhi County, as well as its connection to a far greater ecosystem.

Within this primarily forested ecosystem many species find the optimal requirements for their continued existence. Inhabiting the vast region include rocky mountain elk, mule and whitetail deer, mountain lions, gray wolves, black bears, rocky mountain bighorn sheep, mountain goat, lynx, bobcat, bald eagle, and wolverine among others. Species in the regional ecosystem are a direct example of political ecology in that policies and laws influence ecosystems as well as culture and livelihoods. This is particularly visible with both the Gray Wolf, and the Grizzly Bear, each of which have an enduring history of varied protections under the Endangered Species Act of 1973 (ESA) in Lemhi County. While the history of each species have differing details, the general trajectory of causation (or cause and effect) share many similarities; whether the scale of protection and/or reintroduction was framed as part of the Greater Yellowstone Ecosystem, or the Northern Rocky Mountains, conservation and management decisions regarding these species has directly affected regional and local ecosystems. These instances have ultimately altered the socio-ecological system in and around Lemhi County to varying degrees<sup>13</sup>.

The prevalence of public land within the county boundaries, and the surrounding federal land tracts creates a unique space, both environmentally and socially. The management strategies of the federal government reflect the multiple-use era of the 1970's which was directed towards public utilization of the national public domain. While conservation, preservation, and economic

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<sup>13</sup> A brief summary of the reintroduction of Gray Wolves in Idaho can be viewed in Appendix VII.



opportunity adjoin the conversation, management policy stemming from the multiple-use era had substantial environmental impacts on the public domain. This directive manifests in the opportunity for citizens to use public lands for a multitude of purposes including hunting, fishing, grazing, mining, and recreation; this was further extended to include uses stemming from governmental agencies including wild horse and burro management (in the neighboring Custer County), and designated conservation areas.

Within Lemhi County, the presence of public land represents an amalgam of uses that have become culturally recognizable. The interaction of stakeholders that presides over the shared spaces incorporates livestock grazing for ranchers, hunting and fishing for subsistence seekers and sportsmen, recreation opportunity for locals and tourists, conservation areas for preservation purposes, substantial timber reserves and (vast) mining opportunity for interested parties. Additionally, residents within this space encounter special cases of stakeholder interaction, for example, public access points through private land for river/stream or forest access. The rural roadways carved throughout the public lands stem from federal initiatives, in practice by the Civilian Conservation Corps, the Army Corps of Engineers, and the U.S. Forest Service; these initiatives established a vast system of unpaved roadways that wind through the vast forests and mountain ranges encompassing the Lemhi County valley. The benefits of access, and the surrounding cultural constructions characterize an inimitable space where public use of their immediate natural environment is not only encouraged but relatively ingrained. The interaction of stakeholders and the established community order is often challenged by federal oversight that is characteristically broadly applied.

For example, since 2017, the USFS has been undergoing a Forest Plan revision process regarding the SCNF, where they reassess the existing plan, obtain public comment, and determine

the ‘best-suited’ future for the forest. A large part of this process, and certainly not the only aspect, is to evaluate potential areas within the forest that could be designated as wilderness, which generally has received poor support from locals, including a public demonstration at community meetings in which the majority of attendees stood to show their opposition to any additional wilderness designations in the SCNF (Adams, 2019). During these meetings in December 2018, a variety of issues were voiced including: “firewood gathering in wilderness, temporary access roads,...problems doing post-fire rehabilitation in wilderness, forgone timber harvest, negative effects on other use, withdrawal of areas from mining, too many regulations and protections, managing isolated blocks of wilderness” and discrimination against people with disabilities, including veterans, who would no longer be able to access these areas (Adams, 2019). While these plan revisions are useful to reassess forest management strategies, and update obsolete policies, within the surrounding communities of the SCNF this process presents opportunities for substantial conflicting interests in the future of the forest. This conflict is largely due to competing interests, for example, roadless conservation areas and public/economic multiple-use strategies versus access and permitting rare earth and strategic mining on public land, or more significant timber harvests. After two years of reviewing current plans and input from numerous FS-hosted community meetings, the Forest Supervisor and staff decided to evaluate the SCNF on the basis of two separate pre-existing plans, one for Salmon and one for Challis. While the purpose the Forest Service planning rule is to update management plans to evolve with changing conditions, it presents a situation in which uncertain futures cause turmoil in the community.

The founding of the valley has direct correlations with natural resource endeavors. This was initiated through the establishment of Leesburg mine, directed towards extracting Placer Gold. Other mining communities historically established in the area include Grantsville, Smithville, and

Summit City, all of which after their abandonment were demarcated as ghost towns (Barber, 1959). The Idaho Museum of Natural History reports forty-eight active mines within Lemhi county, with an additional five that are currently inactive (INHO, accessed 2020). Additionally, there are a reported 46,996 mining claims on public land managed by the BLM, 7,144 of which are active; the primary resources of interest include gold, copper, silver, lead, and thorium (Diggings, accessed 2020). From numbers published in 2017, the total number of claims has decreased by 7,982 and the number of active claims managed by the BLM increased by 2,657 (Diggings, accessed 2017). Mining is one of the several natural resources industries that have developed within Lemhi County, although arguably, has yet to fully materialize.

The landscape also has historically proved beneficial for agriculture in the valley floor, and grazing throughout the county on both private and public land. The timber reserves are also a substantial resource within the county, attracting the attention of bidders both nationally and internationally. While this market is nowhere near its capacity, it is a valuable resource that local households and businesses benefit from whether for firewood, building, or fencing materials, all of which are used in varying extent as a community form of revenue.

As for the current social composition of Lemhi County the US Census Bureau reported the 2018 population estimate for Lemhi County as 7,961 residents, resulting in a markedly low population density of 1.7 people per square mile, significantly lower than averages in Idaho and in the U.S. (Census Bureau 2018). Between 2010 and 2018, population growth in Lemhi County was 0.3% (Census Bureau, 2018), which is far less than in other Idaho counties. The population of Lemhi County is comprised of 18.7% of persons under 18 years old, and 30.3% of the population that is 65 year or older (Census Bureau, 2018). Lemhi County has a greater population of residents over 65 years in comparison to Idaho and the US in general. According to

the Census, there are an estimated 3,549 households in Lemhi County, 84.9% of which have a computer, and 77.5% with a broadband internet subscription (2018). At the 2018 census, an estimated 4,910 housing units were identified, and 32 building permits were filed in the year. Regarding education, a reported 92.2% of LC residents 25 years or older were a high school graduate or higher, higher than in the state of Idaho or the US; inversely, LC has less residents 25 years and older with a bachelor's degree or higher than Idaho and the US (Census Bureau, 2018). Residents in LC have a higher percentage of persons under 65 with a disability than in Idaho or the US, additionally, 12.4% of LC residents do not have health insurance (under the age of 65), which is slightly less than in Idaho and greater than in the US (Census Bureau, 2018). In Lemhi County, 51% of the population over 16 years old is in the civilian labor force, over 11% less than in Idaho or the US. Median household income in Lemhi County in 2018 was \$37,921, which is approximately 28% less than the state median household income and approximately 37% less than in the US (Census Bureau, 2018). In association, the percentage of persons in poverty in Lemhi County is 14.7%, which is 2.1% greater than in Idaho or the US (Census Bureau, 2018).

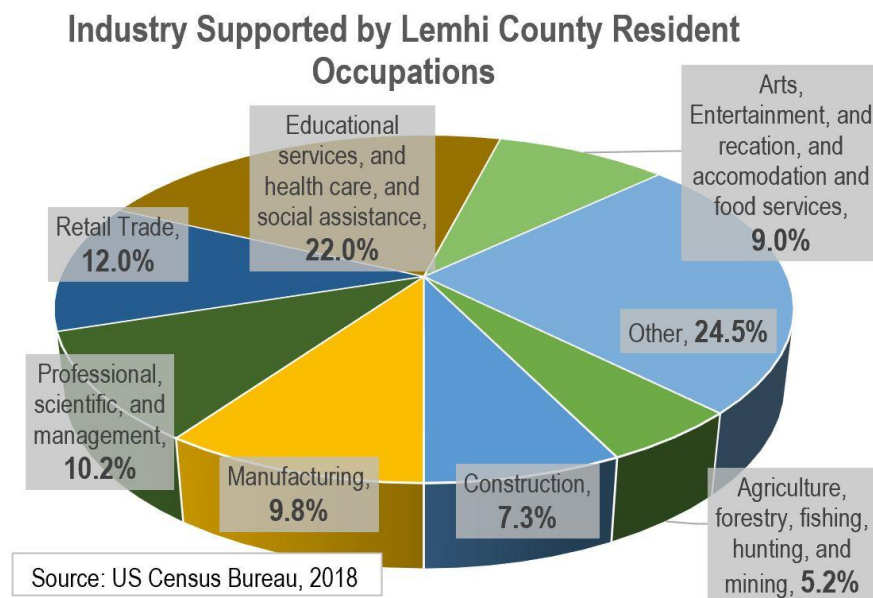
*Table 4 Comparison of Census Data by County, State, and US*

<b>Census Demographic Category</b>	<b>Lemhi County</b>	<b>Idaho</b>	<b>United States</b>
Population Density (People per square mile)	1.7	21	87.4
Population Under 18 Years Old	18.7%	25.1%	22.3%
Population 65 Years and Older	30.3%	15.9%	16%
Population 65 Years and Older with Disability	10.1%	9.3%	8.6%
Education: residents 25 years or older with high school or higher	92.2%	90.6%	87.7
Education: residents 25 years or older with bachelor's degree or higher	21.1%	26.9%	31.5%

Residents without Health Insurance (Under age of 65)	12.4%	13.2%	10%
Median Household Income	\$34,921	\$53,089	\$60,293
Percent of Persons living in poverty	14.7%	11.8%	11.8%
Percentage of Population (over 16 years old) in the civilian labor force	51%	61.1%	62.9%

(Source: US Census Bureau, 2018)

Currently, within the county, 5.2% of the registered labor force maintain careers in the agriculture, forestry, fishing, hunting, and mining industries, which is the third most common employment sector after educational services, health care and social assistance (22%) and retail trade (12%); in addition, 7.3% work in construction, 9.8% in manufacturing, and 10.2% in professional, scientific, and technical services (Census Bureau, 2018).



*Figure 4 Census Reported Occupations in Lemhi County Idaho*

The natural resource industry sector percentage remains significantly higher than the state composite of 5.2% or the national of 1.8% (Census Bureau, 2018), suggesting a relative degree of economic productivity and community dependency on the natural resources procurable in the area.

Many of these jobs stem from federal agencies like the Bureau of Land Management, the U.S. Forest Service, and the Fish and Wildlife Service; additionally, the Idaho Department of Fish and Game, all of which have considerable impact in community employment; however, there is a considerable portion of the community employed in the natural resource sphere that work for privately-owned industries (i.e. mining companies, excavation companies, or special-interest groups).

In the present condition, locals rely on the natural resources at a caliber unknown to many portions of the nation. This way of life is in no way only a recent occurrence. It is premised upon the historical utilization of the environment and has continued as a significant community factor. The resulting implications from federal management of these commonly used resources and the encompassing land can have intense manifestations within the county, ultimately providing the determinant factors for how people can interact and utilize the resources around them.

## **CHAPTER FOUR**

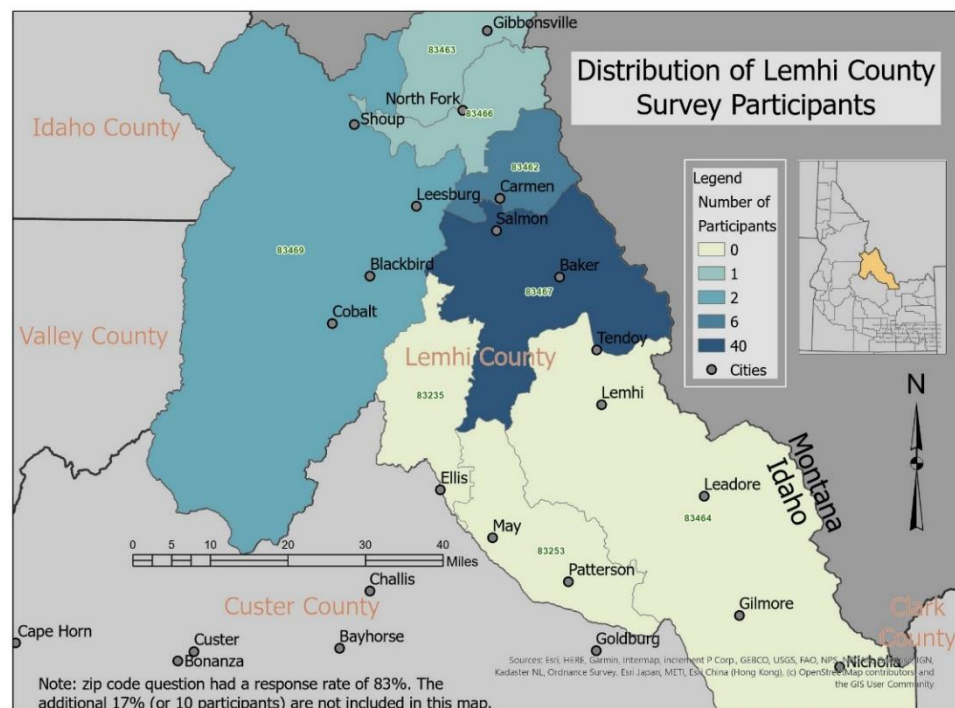
### **LEMHI COUNTY SURVEY RESULTS**

Both the Lemhi County Survey and the Extended Geographic Survey generated a significant amount of qualitative and quantitative data that contributed to the stated research goals of exploring the cultural ecology of people and public land. Considering the scope of data generated, the totality cannot be represented or discussed in this thesis. Rather than attempt to give detail to all findings, I will present the results of pertinent data that contribute towards answering the stated research questions and evaluating the reported hypotheses. As the primary objective of this thesis is to evaluate these trends in rural communities, the results section is primarily focused on the findings of the LC survey including participant demographics, public land uses and interactions, community perceptions, and community attitudes about management strategies and agency efforts. In addition, the results section includes a brief exploration of the EG survey demographics before leading into the analysis where participating groups (Idaho, Western states, and Eastern states) are compared in light of the case-study. This comparison facilitates an exploration of proximity as a factor in social perceptions regarding public land and natural resources, and provides context for the case-study findings.

## Lemhi County Case-Study: Summary of Results

In total, 65 recruits completed the survey instrument and contributed data towards the research effort. The ten-day field research period in August 2018 generated submissions from 61 participants through mixed-method, in-community recruitment efforts. Additionally, three residents participated in the survey via tablet computers hosted by the Salmon Public Library, and one community member participated in the LC survey after the form was published on-line. After initially reviewing the distribution of participation throughout the county, only 59 of the survey submissions were residents of Lemhi County, which excluded the remaining six from analysis and reporting. Two of these participants were residents of the adjoining Custer County, and the remaining entries appeared to be temporary residents working in the area for the Student Conservation Association. One additional participant reported that they ‘used to’ live in Lemhi County; after some consideration I decided to include this participant’s responses particularly

because the person reported having lived in Lemhi County for a duration of forty years. Figure 5 shows the distribution of survey participants throughout Lemhi County, parsed by reported zip code.



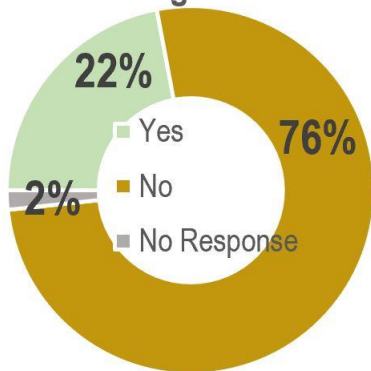
*Figure 5 Distribution of Lemhi County Survey Participants throughout county by zip code.*



## Lemhi County Survey Demographics

While asking each participant to report their zip code provided a general means to explore their spatial distribution throughout the county, I also wanted to generate a better picture

**LC Participants with Property Bordering Public Land**



*Figure 6 Participant Proximity to Public Land – do you own property that borders public land?*

and 10 miles,’ and 4% reported living ‘more than ten miles’ from public

lands. This revealed a close physical association between community

members and their localized public

domain. Understanding participant

proximity to public land highlights the

potential capacity for interconnectedness

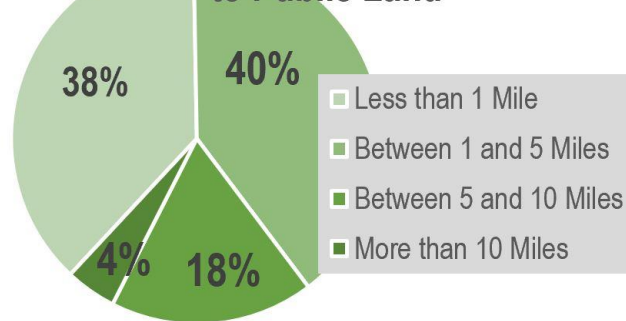
between community members and the landscape. While this reality is represented similarly in the

previous map, this information provides another level of understanding about the community’s

interaction with and valuation of public lands.

of how close community members live to public land boundaries. To accomplish this, respondents were asked if they owned land that bordered public land, of which 22% of the respondents answered ‘yes’. Of the 76% that answered ‘no,’ the survey populated a follow-up question asking them to estimate their lived proximity to public land boundaries: 38% answered ‘less than one mile,’ 40% ‘between 1 and 5 miles,’ 18% ‘between 5

**Proximity of LC Participants to Public Land**



*Figure 7 Participant Proximity to public lands - if you do not border public land how far from public land boundaries do you live?*

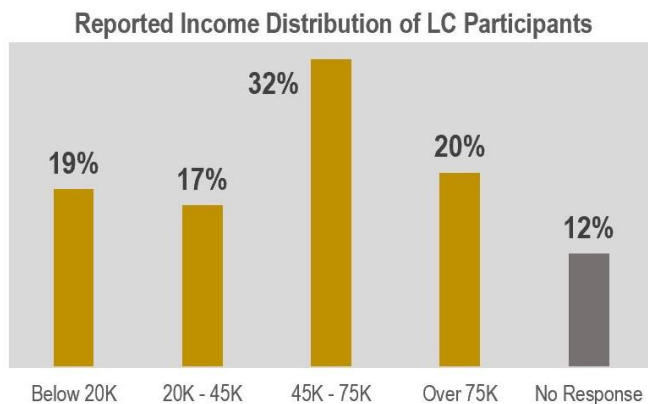
For a somewhat limited survey population, there was relative diversity among the community members that participated in the research. This diversity was prevalent in the range of participants reported demographics which included: time of residency in the county, income or economic status, level of education, employment categories, and whether or not they had previous employment with state or federal managing agencies. However, regarding community experience with ranching, mining, and forestry, only a small percentage of participants in the LC survey reported involvement in one or more of these areas, contributing to a low representation and diversity among participants in these industries.

To understand each individual's association with the study area, I asked participants how many years they lived in Lemhi County and how many years they had lived in Idaho. The number of years lived in Lemhi County ranged between zero and seventy-one years, and residency in Idaho ranged between zero and seventy-seven years. The average number of years lived in Idaho (28 years) was slightly higher than the average for time of residency in Lemhi County (23 years) (Table 5). Therefore, not only did new residents contribute data but so did community members who spent their entire lives in Lemhi County.

*Table 5 Reported Years of Residency in Lemhi County and Idaho by LC Survey Participants*

<b>Location of Residency</b>	<b>Average time of residency (years)</b>	<b>Minimum time of residency (years)</b>	<b>Maximum time of residency (years)</b>
Lemhi County	28	0	71
Idaho	23	0	77

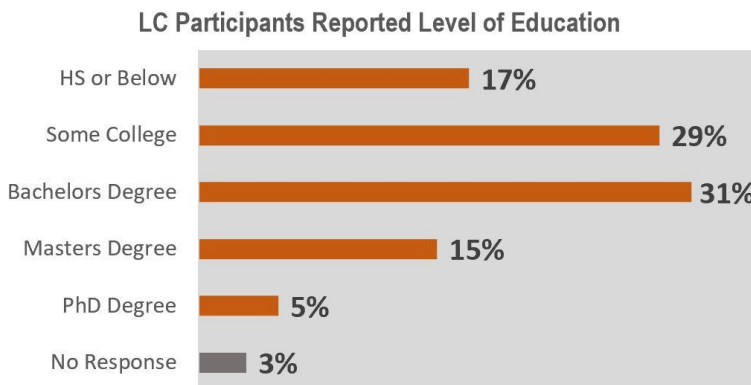
The distribution of income among LC participants showed a representation of various economic groups. The question was split into four income brackets: below \$20,000 (19%), between \$20,000 to \$45,000 (17%), between \$45,000 and \$70,000 (32%), and over \$70,000 (20%)



*Figure 8 LC Participants Reported Distribution of Income*

When asked to identify the participants' last grade of school completed, the categories generated from the responses included: High School or below (17%), some college or currently in college (29%), Bachelor's degree (31%), Masters (15%), and PhD (5%) level. In

comparison with census-derived educational attainment in LC, 92% reportedly have a high school education or beyond (Census Bureau, 2018), whereas 80% of the LC survey population reported education beyond High School. This discrepancy could be due to the combination of responses that included both high school graduates and as well as participants who did not graduate.



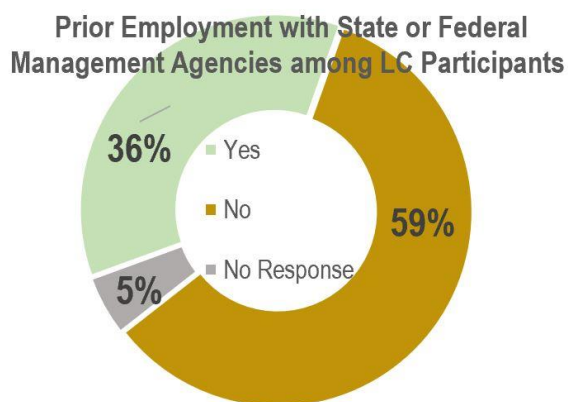
*Figure 9 LC Participants Reported Distribution of Education*

Comparing income discrepancies, the census-reported median household income (\$37,921) did not account for the majority of participants (only 17% in this income range) and more participants reported either higher or lower income.

As a means of understanding the way that community members maintain their livelihood, I asked them to provide a short text description of their job title. One of the primary goals in

developing the survey was to protect each participants anonymity, however, a few participants noted that this particular question could undermine this goal due to the size of the community and the limited job titles. Leaving the question open-ended resulted in a wide variety of responses which were not particularly simple to categorize, however, by summarizing rather than directly relaying job titles the identities of participating community members can remain anonymous. Some of the more widely used categories included business-owner (8%), teacher (5%), self-employed (5%), or retiree (32%). The remaining collection of reported job titles were rather varied, and to some degree sensitive to report considering recognizable positions whether for the community, City, State, or a Federal Agency. Other participants reported that they were writers, students, pastors, mechanics, laborers, contractors, drivers, or city council members. Retired community members were the most likely to participate in the survey, considering that 30% of LC is 65 years or older (Census Bureau, 2018), this trend is not surprising.

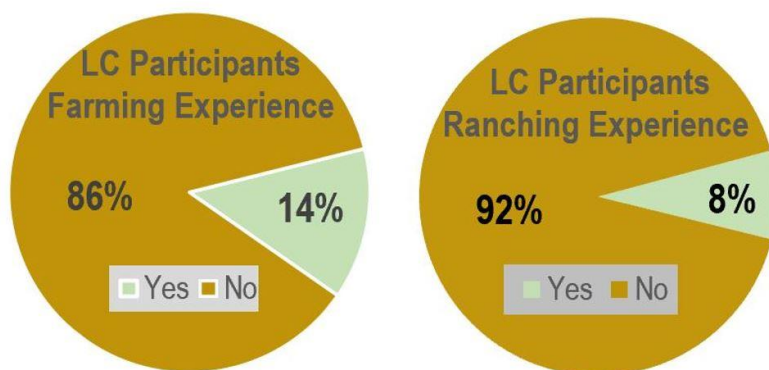
Directly after participants were asked to provide their current job title, they were asked to report if they had ever worked for a federal or state land/resource management agency. In response, 36% of survey participants reported that they had either previously or currently held state/federal employment positions. Of these positive responses, eight were correlated with retired participants, and all but three were likely ‘past’ experience based on the description of their current job title. Some of the ‘yes’ responses were associated to titles that reflect current positions of natural resource and public land interaction including: technicians, interns,



*Figure 10 LC Participants Prior Employment with State and/or Federal land and resource management agencies*

biologists, program managers, collaborators, or directors. The distribution of participants that had experience in resource management under state or federal employment in contrast to the portion that did not, is encouraging because to some degree it captures two different community perspectives, those with state or federal land and resource managing experience, and community members that may not have this experience. This ultimately led to contributing a diversity of local knowledge about land and resource management in the area.

One of the demographic areas I aimed to capture was whether or not participants practiced farming or ranching. When asked if they considered themselves a farmer, only 14% of respondents answered yes; and 8% of respondents answered positively about ranching. Of these



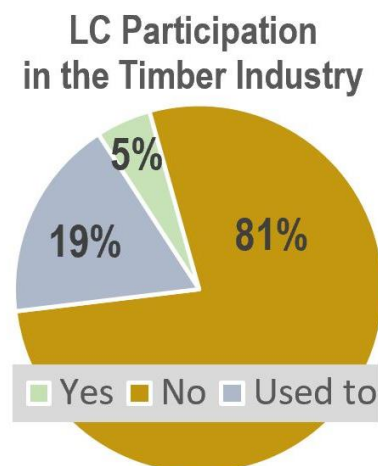
farmers, 75% of them noted that they had family who farmed previously, and 25% that were first-generation farmers. Of the reported ranchers, 60% had

family who had ranched previously, and 40% were first-generation ranchers. Interestingly, 25% of all participants reported that their family had ranched previously, although only 5% of respondents reported ranching currently. In tandem, 49% of the survey population reported that their family had farmed previously, where only 10% of participants reported currently farming. These findings, while limited due to the size of the survey sample, suggest a shift in land use as well as a potential erosion of family-based businesses; however, further studies would need to be conducted to evaluate this at a representative scale<sup>14</sup>.

<sup>14</sup> See additional data in Appendix VIII.

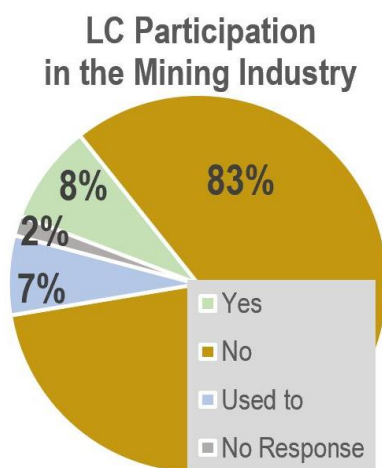
While few participants reported that they considered themselves a farmer, 77% reported that they grew little (44%), some (40%), or most (16%) of their own food, primarily seasonally (86%) and some year-round (14%). In order to capture ranching/grazing perspectives, all participants were asked if they had grazing rights in Lemhi County and only one person reported that they ‘used to’ have grazing permits (2%), and no positive responses were given. The single ‘used to’ participant opted out of answering any additional questions about their grazing permits or uses. In this survey, the rancher demographic was not represented very well, particularly when it came to exploring rancher relations with public land through grazing rights. Generally speaking, among the findings of the LC survey, the ranching and farming demographics (and perspectives) are limited.

To account for any particular involvement or experience with both the timber and mining industries I asked participants if they had previously or currently worked in either industry. Each question was followed by a text box asking them to explain how they were involved in the specific industry. Within the LC survey population, only 5% of participants reported that they were currently involved in the timber industry, 19% reported that they had previous been involved. It is worth noting that more participants had previously worked in this industry than currently did so. The mining question generated 8% that currently work in the industry, and 7% that used to. Current versus previous employment were also comparable for the mining question. In three instances, participants had



*Figure 12 LC Participant Experience with Timber Industry*

work experience with both the timber and mining industry: one participant that currently worked in both industries, a second that used to work in one and currently works in the other, and a third



*Figure 13 LC Participant Experience with Mining Industry*

that used to work in both industries. Of the participants that reported they had either currently or previously worked in the timber industry, 67% reported having directly worked for the USFS, 8% reported selling firewood, 8% did not report specific connections with the USFS, and 17% did not provide a description of their interaction. The reported timber/forestry jobs included trail maintenance, timber marking and cruising,

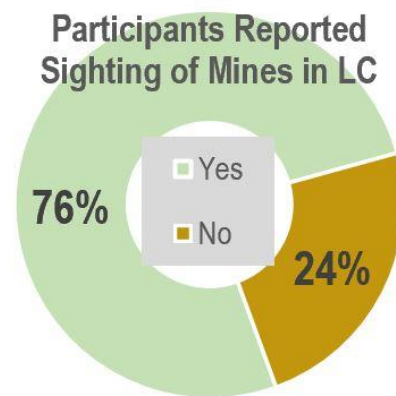
managing timber sales, and general Federal employment. Of the participants that reported participating in the mining industry, the three current participants, and one previously involved participant all reported having a mining claim (71%), whereas the remaining two participants noted previous employment at a local mine or as an environmental coordinator.

### **Lemhi County Public Land Uses and Interactions**

To further explore community interaction with mining I asked a few related questions including 1) whether the participant had personally seen any of the mines in Lemhi County, 2) *what status the mine had*, 3) *if they could name any minerals currently or historically mined in Lemhi County*, and 4) *if they could name any minerals in Lemhi County that have global significance*. Of the LC survey population, 76% reported having personally seen a mine (or multiple mines) in Lemhi County (Figure 14), and the observed mine statuses ranged from currently active, to closed, and historic [or a combination of all three]. Rather than provide pre-

defined options to select from participants were provided a text-box to name any minerals currently or historically mined, which was followed by a question asking them to name any minerals found in Lemhi County that have global significance. Due to the vast mineral estate in and around Lemhi County, many accurate answers were provided, however, I chose to focus on the specific occurrence of cobalt due to the prevalence of cobalt in the area and movements towards mining this deposit. For

minerals in Lemhi County 86% of respondents provided between 1 and 5 different minerals/materials, whereas ‘cobalt’ was specifically mentioned by 80% of participants (7% provided minerals did not mention cobalt and 13% did not respond). For minerals in Lemhi County with global significance, 81% of participants provided between 1 and 5 different minerals and ‘cobalt’ was mentioned by 78% of participants (3% who answered did not mention cobalt, and 19% did not respond).

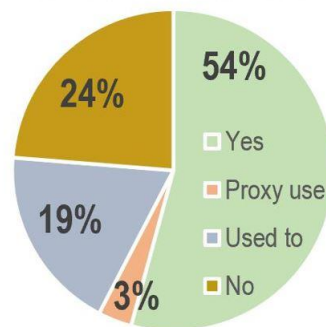


*Figure 14 LC Participants interaction with local mines – have you seen any mines in Lemhi County?*

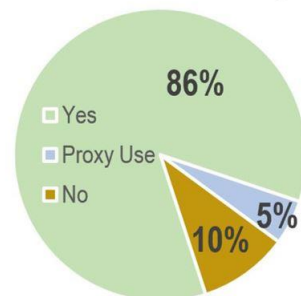


I asked participants a few questions related to timber and forest interaction as well, including their use of wood permits and their interaction with wildfires in the area. When asked if the participant used US Forest Service personal use firewood permits 54% said ‘yes’, 19% said they ‘used to’, 24% said ‘no’, and 3% did not answer. If participants reported that they currently or previously used US Forest Service firewood permits, they were asked if they harvested firewood in Lemhi County, where 86% reported that they do, and 5% reported having a proxy harvest firewood for them within the county.

**LC Participants Use of USFS Firewood Permits**

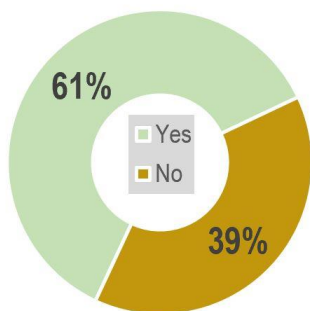


**Reported Firewood Harvests within Lemhi County**



*Figure 15 LC Use of Firewood and location of harvest in Lemhi County*

**LC Participants Reported Close Contact with Wildfires**



*Figure 16 LC Participants interaction with wildfires*

To understand how the community is impacted from

wildfires, I asked if they had ever been in close contact

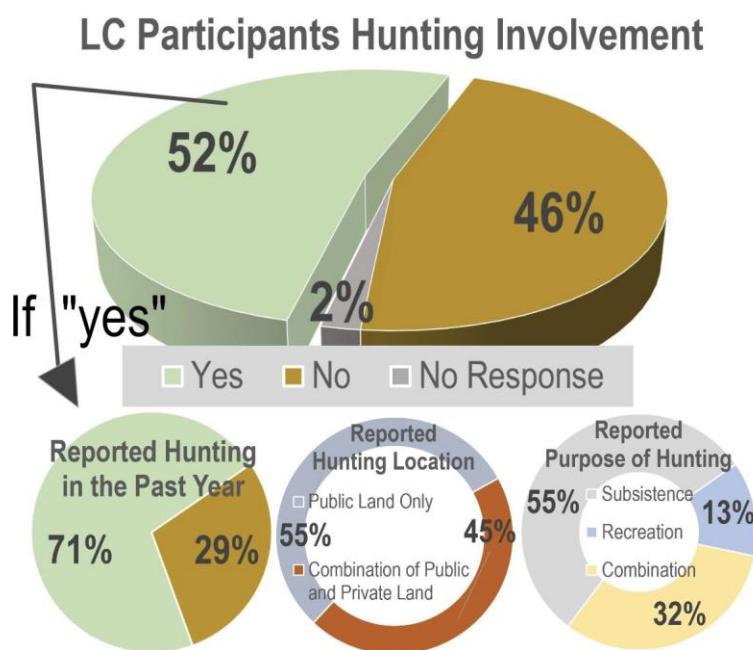
with a wildfire where 61% said ‘yes’, 39% said ‘no’. Of the majority that answered ‘yes’, 11% reported having experienced property damage due to wildfires. When asked how burn years affected their lifestyle there were a variety of

impact areas including: recreation (49%), health (34%), hunting (20%), fishing (14%), timber (10%), grazing (3%),

and others (10%). Approximately one-quarter of participants noted that they were not noticeably impacted by wildfires (27%). The level of impacts felt by participating community members were minimal (31%), moderate (43%), or severe (22%).

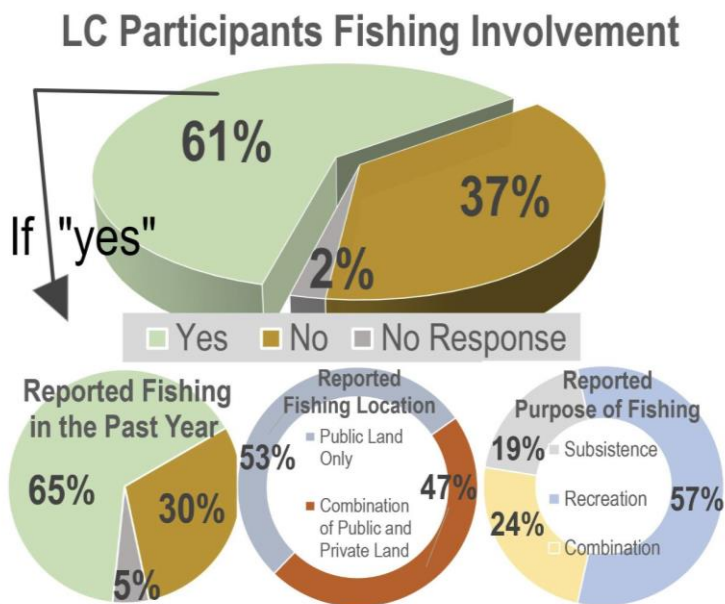
There were a variety of questions that aimed to gauge the level of community interaction with public lands and natural resources regarding subsistence uses, including hunting, fishing, and harvesting wild plants and berries. Participant responses to this series of questions revealed a close association between stakeholders and their localized public lands, and in some ways highlights the multiple-use nature of public lands in LC.

All participants were asked if they practiced hunting, and over half of the LC survey population responded positively (51%). Those positive responses generated additional questions about participant hunting practices including whether or not they hunted in the past year (71% reported 'yes'), their hunting location (55% hunting on public land only), and regarding the purpose of hunting to them (55% reported subsistence based, 13% recreation based, and 32% reported a combination of subsistence and recreation-based purpose for hunting).



*Figure 15 LC Participants Reported Hunting*

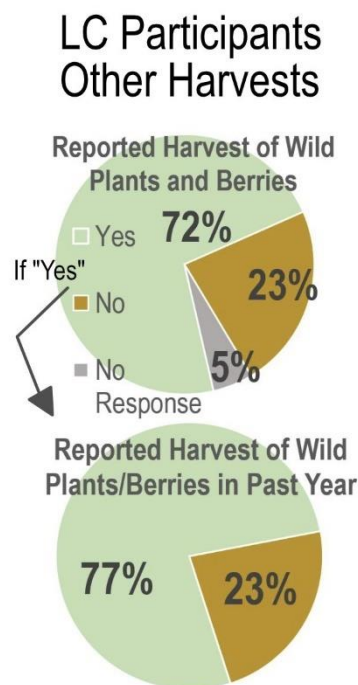
In addition to hunting, 61% of respondents reported they practiced fishing, 65% of whom did so in the past year. In addition, regarding hunting location 53% of participants reported fishing on public lands, and 47% use a combination of public and private locations. When asked about their purpose for fishing, more respondents reported a recreation-based purpose (57%),



*Figure 16 LC Participants Reported Fishing*  
In response to harvesting wild berries or plants, a

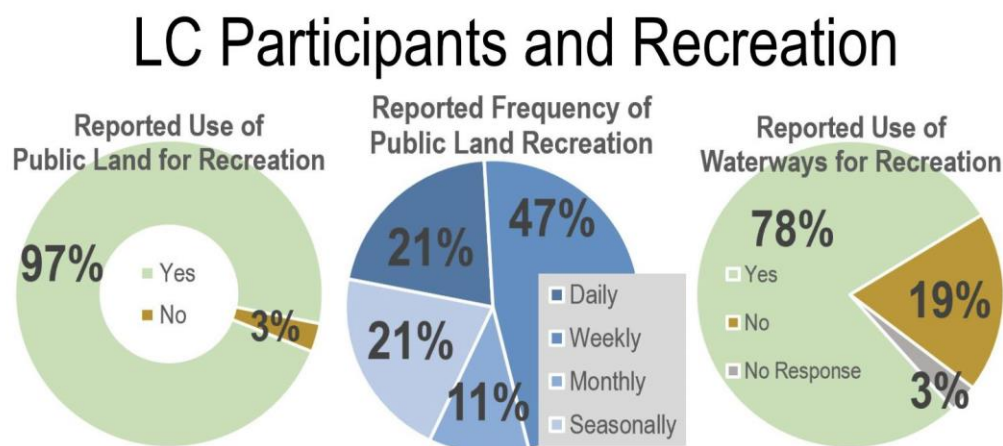
stark 77% reported that they do, and of these harvesters, 72% reported that they harvested wild berries and/or plants in the past year. While harvesting wild berries and plants is not generally considered in subsistence practices as highly as hunting and fishing, the results to this question reveals a notable tendency of surveyed community members to utilize additional means of acquiring wild foods, as well as taking advantage of localized resources for pleasure and a tasty snack on the trail.

than subsistence purpose (19%); an additional 24% reported a combination of purposes.



*Figure 17 LC Participants Reported Harvests of Wild Plants and Berries*

While community members reported high use of public land and resources for subsistence (over 50% in every category), another area that generated significant use was recreation. When asked if respondents used public lands for recreation purposes, a significant 97% reported ‘yes.’ For the majority that responded positively, they were then asked to report their frequency of use, where 21% said daily, 47% weekly, 11% monthly, and 21% reported seasonal recreation use of public lands. Respondents were also asked if they practiced water-based recreation, 78% answered ‘yes.’ A summary of recreation activities reported are detailed in Appendix IX.



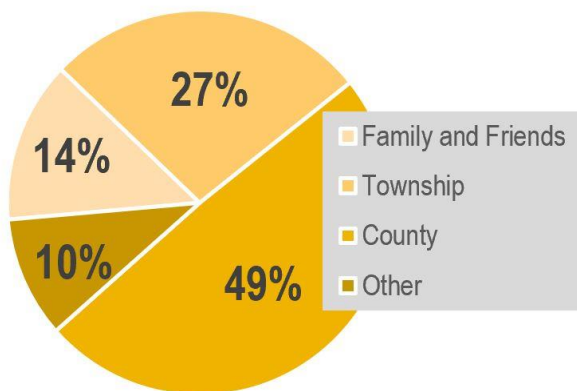
*Figure 18 LC Participants and Recreation including land, water, and frequency of use*

### Community Perceptions in Lemhi County

The LC survey included a variety of questions that were aimed at understanding the community composition in general, in light of evaluating the socio-ecological system in this rural environment. These questions attempted to measure different aspects such as each participants’ view of community, how they interact with each other and the surrounding landscape, and how they perceive their shared situation in a county with more public land than private.

To start, I wanted to quantify each participants definition of ‘community’ by asking them how they would define it based on the options given. The majority of participant defined community as ‘county’ (49%), followed by ‘township’, (27%), ‘family and friends’ (14%), and

**LC Participants Definiton of 'Community'**

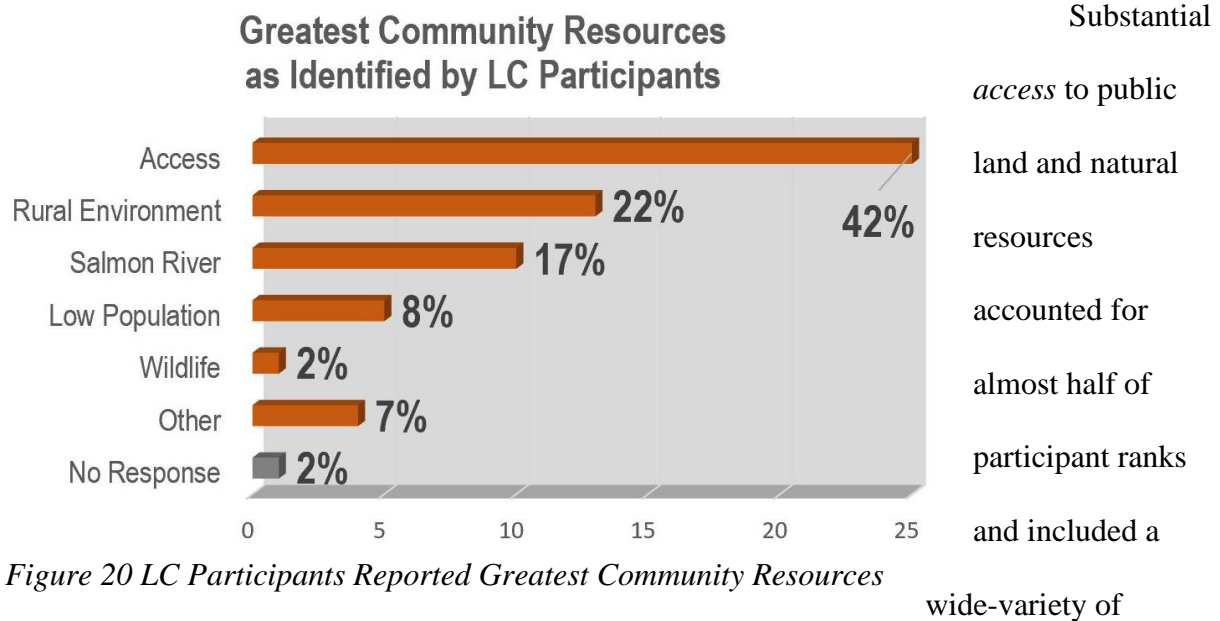


*Figure 19 LC Definitions of Community*

‘other’ (10%). In two instances, participants suggested that their definition of community not only included Lemhi County but also the neighboring Custer County. Others suggested that their definition included ‘all of the options given’, and some more generally included

‘people working together’, or the ‘town and its surrounding ecosystem and bioregion’. These responses revealed the boundaries of ‘community’ among LC participants, which captured, in essence, how the questions regarding their community were interpreted.

To gauge what participants perceived as the most valuable resources, I asked what they considered to be *Lemhi County’s greatest community resource*. Participants were able to select a single choice from the list of pre-defined options including: substantial access to public lands and natural resources (accounting for 42% of participant selections), rural environment (22%), Salmon river (17%), low population density (8%), wildlife (2%), or other (7%) (Figure 20). Employment was another option given, however, no surveyed community members identified this as the greatest community resource. Some insight into the issue of employment might stem from limited jobs in the county, considering that one-third of LC participants reported that they have had to leave the county to find work (34%).



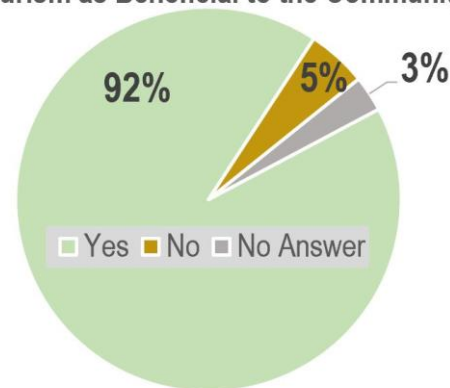
justifications whereas some broadly suggested that ‘all of the answers go back to our access to public land and the amount that surrounds us’, or that they are ‘blessed to have public land access right out of our front door [as] not many US citizens do.’ More generally, the justifications included ‘great campgrounds and recreation’, ‘industry’, or ‘why people are here’. One participant offered that they ‘could make more money elsewhere but live here for the access’ or that ‘we wouldn’t have the adventure community without our public lands.’ One respondent critiqued that access would be the greatest community resources if it had “less bureaucracy and more local control.” The *rural environment* was ranked second by participating community members who commented that ‘we live here for the outdoors’, ‘we love the quiet, lack of crowds and traffic, and the value placed on individuals.’ Some acknowledged general distance from population centers, wide open spaces, low crime, friendly people and the overall beauty of the surrounding landscape as a benefit of rural living. These justifications were markedly similar to the ones given for the *low population density* ranks which included ‘low population, low stress’, ‘unique’, ‘obvious’ and an ‘I don’t like people.’ The *Salmon River* was



ranked third by community members which included justifications like “everything depends on the river,” or ‘because it’s the main attraction to the area, that’s why it runs through the middle of Salmon.’ Two participants who ranked the Salmon River as the greatest community resource noted that this option should be included with two other options [rural environment, and wildlife] because they are all intertwined and contributing factors. Only one person ranked wildlife as the greatest community resource and justified that a ‘lot of people hunt so they have winter food.’ As for the respondents that selected *other*, comments included ‘all things that we have, rural, water, access’, ‘people’ generally, or the ‘sense of community [which] is the most valuable resource we have, [we are] not rural but isolated.’

As a means of understanding community perceptions of public land or natural resource-based tourism, I asked participants if they felt that tourism in Lemhi County was beneficial to the community. In response, the vast majority of participants answered ‘yes’ (92%). Many of the comments reflected that tourism was beneficial for the community because it generates outside revenue and supports local businesses. Stated simply by one participant: “tourism brings in outside money that our residents don’t have to spend. It supports those businesses that slow down during the winter.” In addition, tourism overall supports resource-dependent businesses like river guides and hunting outfitters. One resident noted that “without the hard industries of mining and logging to stimulate the economy, the soft industry of tourism has to be embraced.” Another

**LC Participants Attitudes regarding Tourism as Beneficial to the Community**



*Figure 21 LC Attitudes Regarding Public Land and Natural Resource Tourism – is tourism beneficial to the community?*

stated that “recreation [based tourism] is the last potential for increased financial well-being here unless we can better utilize our public lands for added value.” While many valid comments were provided by community members, the overall pattern of acknowledging how important tourism is to the community was oriented towards generating revenue, keeping local businesses open, in addition to bringing new ideas and people. One participant explained that “It [tourism] seems to be the future of the county, [we] can really see the absence of tourism in the winter.” One of the few participants who answered ‘no’, suggested that tourism is too dependent on weather and seasons, they noted that ‘it is better for a community to thrive instead of just survive.’

Having gauged how participants perceived tourism impacts for the community, I also wanted to understand how they perceived the impacts of tourism on public land. I asked if they felt that tourism was beneficial to the public lands and waterways, to which 81% of participants

**LC Participant Attitudes regarding Tourism as Beneficial to Public Land**



*Figure 22 LC Attitudes Regarding Public Land and Natural Resource Tourism – is tourism beneficial to public lands?*

answered ‘yes’. The results from this question generated less positive support than the general benefit of tourism to the community. Some respondents were a little uncertain about what this question was asking, however, many seemed to interpret that tourism was beneficial for public land because it keeps access open for all.

Including comments like ‘any use is beneficial, some abuses too but it happens anywhere’, or tourism ‘generates support for preservation of accessible lands.’

Others suggested that it provides an opportunity ‘to plan for growing population in a sustainable way,’ One idea that was shared by a variety of respondents proposed the need for greater education which would promote the responsible use of public land and natural resource and



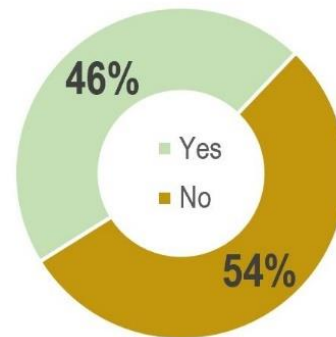
continued public access. One community member that responded ‘no’ expressed that ‘non local use has a much higher potential to be exploitive and destructive, this leads to backlash for locals that have a higher investment in their public lands and waterways.’”

As a way of understanding their level of interaction, I followed these two questions with a third question that asked if the participant directly benefited from tourism: slightly under half of the survey population said ‘yes’(46%). Of the participants that reported benefiting from tourism, they were asked to describe how they benefitted using a multiple-choice question. The

options provided were ‘increased business’, ‘increased opportunity’, ‘seasonal employment’, or ‘other’. While some participants only selected one area of benefit, others included multiple selections. Increased business from tourism accounted for 56% of all community ranking, increased opportunity was selected by 37% of the self-identified benefiting population, seasonal employment was selected by 26%, and ‘other’

accounted for 22%. Regarding ‘other’ benefits defined by community members primarily related to meeting new people, having the opportunity to share their way of life and host new people, some suggested that tourism even impacts local churches, or more generally, that the benefit is both physical and spiritual.

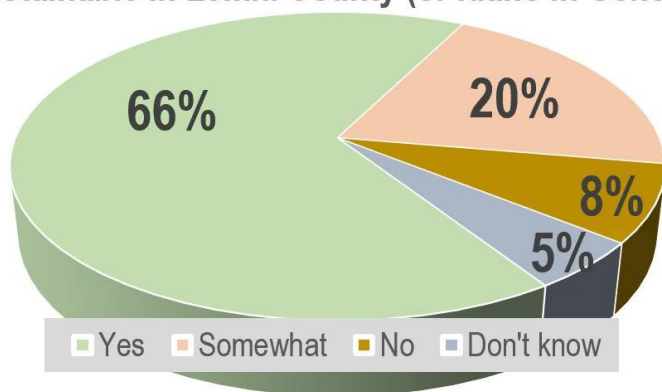
**LC Participants Self-Identify as Directly Benefiting from Tourism**



*Figure 23 LC Participants Reported as directly benefitting from tourism in Lemhi County*

In order to understand community perceptions regarding public land grazing I asked if participants felt that public land grazing in Lemhi County (or Idaho) was responsible and/or sustainable. In response, 66% said ‘yes’, 20% said ‘somewhat’, 8% said ‘no’, and 5% said they

**"Public Land Grazing is Responsible and/or Sustainable in Lemhi County (or Idaho in General)"**

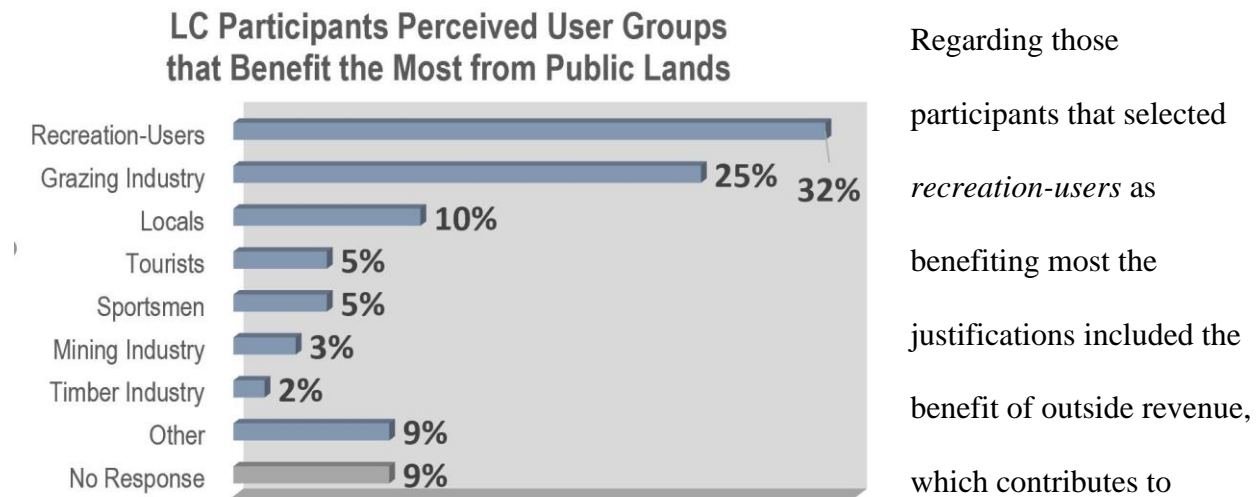


*Figure 24 LC Perceptions of Public Land Grazing*

did not know. Only six participants provided comments for this question, five of whom responded ‘yes’ and one who responded ‘no’. From the one negative response, the person noted that “grazing should be eliminated

period from public lands. Cattle destroy habitat. Ranchers don’t pay enough.” The respondents that reported grazing was responsible and sustainable suggested that public land grazing is sustainable for responsible ranchers, but those that not all ranchers are responsible users. Others suggested that agencies provide oversight to monitor environmental health [therefore it must be responsible and sustainable], that grazing is necessary for an ecosystem, or that while grazing is hard on the landscape, it is beneficial for reducing nearby fuel loads. One respondent noted that ‘the vast majority of ranchers take very good care of their range. It is in their benefit to do so. They are better stewards of the land than the new comers that just [come] to lock it up and watch it burn.’ Generally speaking, perceptions of public land grazing in Lemhi County and/or Idaho were positive, whereas 86% either agreed or somewhat agreed.

When asked what group they thought benefited the most from public lands in Lemhi County, recreation-user was selected with the highest frequency (32%), followed by the ‘grazing industry’ (25%), and ‘locals’ (10%). For this question, only one response could be selected, but participants had the opportunity to provide comments or justifications on their response.



*Figure 25 LC Perceived Stakeholder Groups that benefit the most from public lands*

public lands, others stated that there is a huge variety of recreation possibilities... people are growing more aware of this and beginning to travel here to enjoy all of the abundant possibilities, in addition, someone succinctly described that ‘it’s the greatest place in the world to enjoy the outdoors.’ Of the participants that ranked the *grazing industry* as a top beneficiary, participants reflected that the local allotments are fully stocked and that public land grazers have access and priority over all other users. Some others noted that without public land grazing the cattle industry would be non-existent, as subsidized grazing is relatively cheap and provides economic generation from ranching. Recreation and grazing users were the most frequently selected stakeholder groups among LC participants.

A number of participants considered *locals* as the greatest beneficiaries of public land, simply put they justified that everyone has access to it which is equally important to all, “we

[locals] are here all the time, use it [public land] more than people passing through and benefit all the time by just being here.” Another participant stated that ‘we are always in the woods’ suggesting year-round use by locals. Three of the five respondents that selected ‘*other*’, reflected that federal employees are primary beneficiaries, for example “Fish and Game and their endless budget, why do I pass four IDFG vehicles frequently with only one person in a vehicle?” or more generally: ‘the federal government and all of their employees’, or USFS career employees. The remaining ‘other’ explanations were: ‘there are so many benefits I cannot choose one’, or ‘tourists and locals: we get firewood they get recreation and fishing.’ *Tourists* ranked somewhat low as the greatest beneficiary of Lemhi County public lands. Some explained that tourists have ‘unique opportunities’, ‘close proximity to resources’ or criticizing that tourists must benefit more because local policy is anti-local and favorable to certain organizations and land owners. Sportsmen were also ranked relatively low, one justification given was that there are many hunters who use public land, including people who come from the upper-mid west every year. The mining and timber industry ranked lowest in the community’s evaluation of public land beneficiaries; the one justification provided for ranking the mining industry as the most important was that ‘all should benefit.’ Although neither the mining or timber industry acquired very many community votes, the overall comments reflected consideration of these potential beneficiaries. For example, ‘more ranchers than miners or timber cutters in the area,’ or ‘they got rid of the mills for timber. Mines have been shutting down. I think tourism and hunting are huge,” or ‘when mines are going, it’s significant – either full bore or nothing. Over time recreation [has been] sort of exponential”, and that grazing is the “number one industry, but mining is coming up.”

To understand how community members perceived their well-being, I asked participants to rank the *standard of living in Lemhi County*<sup>15</sup>. Of the survey population, 59% reported the standard of living was below average, 19% reported average, and 14% reported that the standard of living was above average. In addition, 8% of participants did not respond to the question. Participants often noted that this was the single most difficult question to answer on the survey. While the distribution of responses is somewhat expected, the real insight stems from the justifications of respondents, reflecting a conflicted mentality in the community. Many of the justifications align with the counties' status of being below the poverty index, but based on the landscape they inhabit and the lives it allows them to lead, they considered their standard of living above average. Numerous participants gave justifications such as this: "we're poor in money but rich in nature", or "our standard of living based on only income is below average but our true standard of living is very high based on low traffic, low crime, low stress, beauty, etc." Additional comments in response to this question can be viewed in Appendix X.

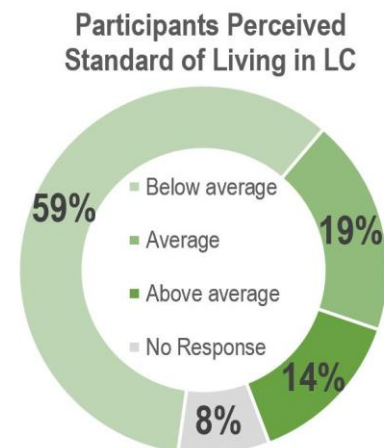
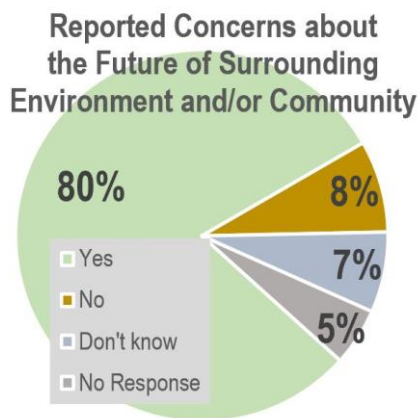


Figure 26 LC Participants Perceived Standard of Living

<sup>15</sup> Standard of Living is defined as "the amount of money and level of comfort that a particular person or group has" (Oxford Dictionaries, accessed 2020) or more generally it refers to material wealth.

In line with understanding community well-being, I also asked participants if they had any *concerns about the future of their surrounding environment and/or community*. A stark 80% reported that they had one or multiple concerns. While initially I did not consider that this

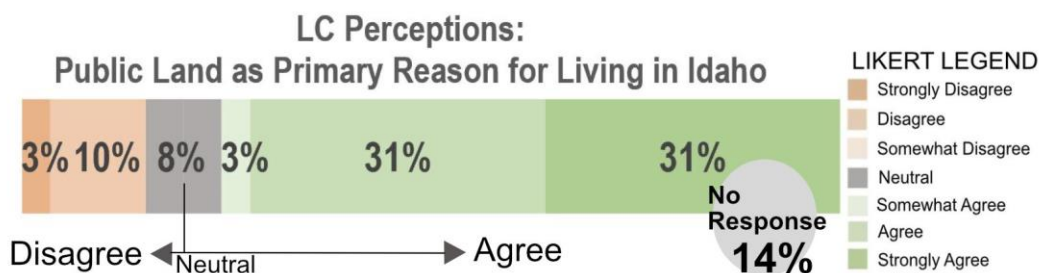


*Figure 27 LC Participants Reported Concerns about the Future*

question would generate any particular insight, I was genuinely surprised by the percentage of participants who had some concern about their future. Again, what adds depth to these results are the justifications community members provided, which varied from: losing access to public spaces, increasing threats from wildfires, watershed degradation, low/poor education standards and job

opportunities, poor access to health care, growing population combined with poor development plans, and a lack of common sense in land and resource management, or the poor regulation of uses. Respondents gave multiple justifications, similar to this: “our community exists because of our natural resources and if they are closed off our community will cease to exist”, or positively that “I believe that land management can evolve into a more efficient entity as well as the people living here can work together as a whole to find a well knowledged [sic] existence to further groom the interactions with each other and the land.” Additional comments can be viewed in Appendix XI.

In response to *the high percentage of public land in Idaho is a primary reason for living in the state* total agreement accounted for 65%, total disagreement accounted for 13% of the surveyed population (Figure 28).



*Figure 28 LC Perspectives: Public Land as Primary Reason for living in State*

This question generated comments from 9% of participants and all comments given were from participants who either agreed, or somewhat agreed to the statement. These comments included: public land ‘is why I moved here [and] why I stay here,’ or not the ‘primary [reason] but a benefit,’ another noted that the area is no place for people who do not like the outdoors. One commenter who strongly agreed with the statement reported that the participant did not like being in private land states where ‘the only place to stop for lunch is cemeteries.’ While few justifications were provided by participants, the majority of participants positively reported that public land in Idaho was a primary reason for living in the state, revealing the inherent value of public land to residents.

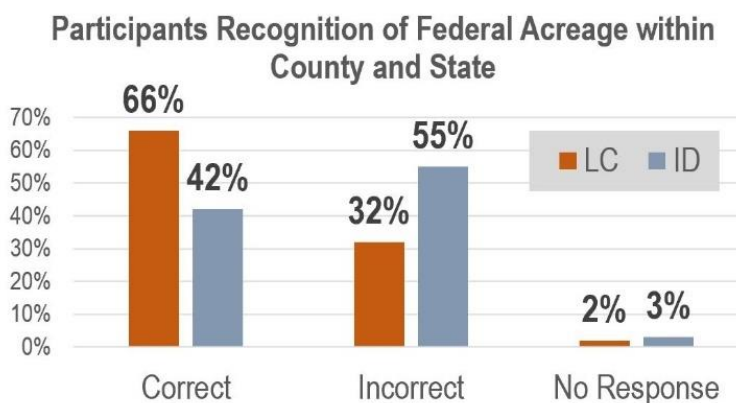
### **Awareness and Access**

One of the aims within this survey research attempted to measure participating community members level of awareness about public land related topics and their general degree of access to community members and leaders who will listen to their concerns. As a measure of general awareness, I included two questions which asked participants to identify the percentage of public land in Lemhi County and in Idaho. These were the only two questions in the survey that had a single ‘correct’ answer. In addition, I asked participants if they could recall any environmental policies that impacted them, Lemhi County, or Idaho in general; and if they recognized any changes in the ecosystem whether in the environment or in species distribution.

As a means of measuring access, I asked participants if they had access to community members who they could go to for advice or assistance, and if these people were considered leaders in the community. As a more general measure of access to political figures, I asked participants to rank a Likert statement about their access to political leaders who they could go to about issues within the community and surrounding environment. The resulting data from this series of questions provides insight into how community members can mediate issues or concerns with persons in leadership positions as an aware and knowledgeable public.

The question asking each participant to approximate the percentage of Lemhi County owned by the Federal government, 66% of the survey population estimated correctly, 25% answered 70% of county which was the second closest approximation. In terms of participant numbers, 39 community members knew approximately how much of Lemhi County is Federally owned. When asked to approximate the percentage of Idaho that is owned by the Federal government, 42% of the survey population answered correctly; 25% answered 70%, slightly greater in proportion than the 5% who approximated 50% of Idaho as federally owned. In the case of estimating the

percentage of public land in Idaho, respondents were less accurate, whereas only 25 community members approximated correctly.

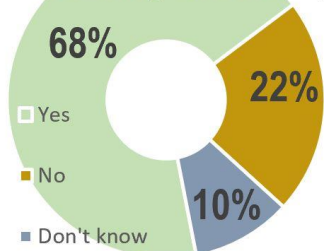


*Figure 29 LC Participants Identification of Public Land Acreage in County and State*



When exploring participants awareness or recognition of changes occurring in the federal landscape, either stemming directly from environmental policies or more generally occurring in

**LC Participant Recognition of Environmental Policies Influencing Community**



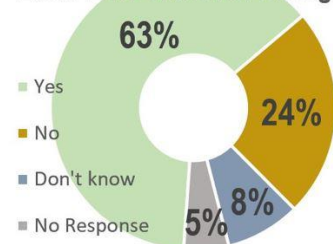
*Figure 31 LC Awareness: Recalling environmental policies that directly influenced individual or community*

the local ecosystem, I asked three particular questions. When asked if the participant could recall any environmental policies put in place that directly impacted them, Lemhi County, or Idaho in general: 68% of the survey population reported that they could. Of the participants that answered this first question, 63% provided explanations. The remaining questions revealed that participant recognition of environmental changes

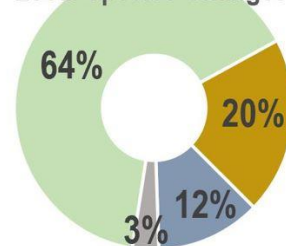
(63%) and changes among species (64%) all generated similar results, whereas approximately six out of ten participants were aware of ecosystem changes as well as identifying an influential policy. There was substantial overlap in the text-based explanations given for these three questions. In order to condense these narratives, only the comments regarding influential policies are summarized below. Participant comments in response to local changes in the environment and among species are documented in Appendix XII.

While some of the participants identified a specific policy like the Endangered Species Act or the National Environmental Policy Act, others reference overarching agencies like the Environmental Protection Agency. The responses to this

**LC Participant Recognition of Local Environmental Changes**



**LC Participant Recognition of Local Species Changes**

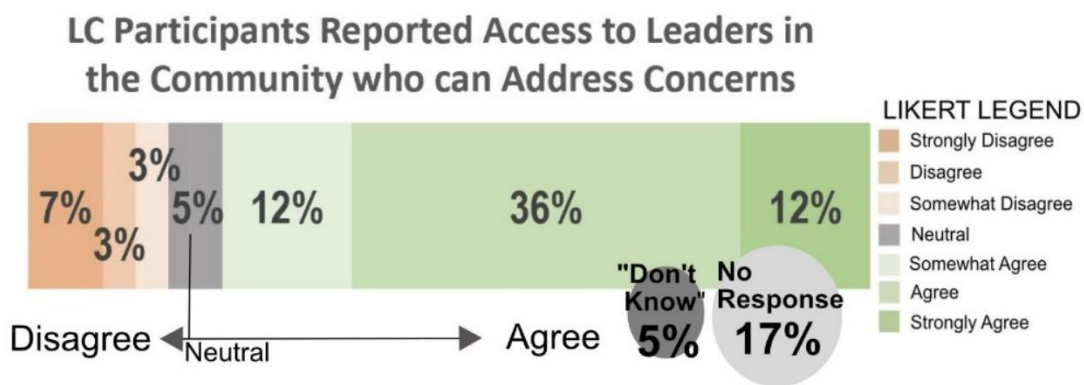


*Figure 30 LC Awareness: Recalling environmental changes or changes in species occurring in LC or Idaho*

question were relatively substantial and somewhat diverse where participants provided one or more impact areas. Some participants responded very generally with comments like “many policies do affect us, [but they are] nebulous to get a hold of” and others provided specific instances like a community member who stated that their group had to deal with environmental agencies when considering including a basement in the construction of the new public library. Some of the most frequently noted environmental policies describe outcomes of the ESA including the impacts of wolf reintroduction in the area, fish populations and regulations, and the presence of grizzly bears. A number of comments discussed the impact of the EPA’s Clean Water and Clean Air Act whereas some respondents noted a concern about changing water quality regulations and the potential impact on the community, or a connection with the recent push for residents to upgrade their woodstoves to an EPA-certified model in an effort to improve air quality. Some participants generally stated that any policy pertaining to mining, timber, and grazing affects them, others provided more specific comments regarding these industry influences which include added restrictions in logging and mining which has ‘worsened the viability of Lemhi County’ according to some, and others reflected that “logging policies took away a lot of jobs.” As stated by one participant “no timber sales [and a low harvest rate] have caused massive wildfires that burn so much hotter than before, we lose [business] in August and September due to wildfires.” A surprising number of participants reported the impact of environmental policies as reducing access through road or trail closures, or limitations in resources access (i.e. harvesting firewood in roadless areas). While a variety of comments focused on specific instances some participants took a more holistic approach to expand on how different policies and impacts in turn influence other areas: the “endangered species act affects [the] economy, grazing allows more cattle production [which leads to] reduced farming. Fish

policy affects water law and therefore ranching, [and] hay production due to [water] availability.” The range of topics presented, and in some cases, the consideration of the larger interconnected system, highlights the span of influence that policies can have on rural livelihoods.

As policies and changes in the public land domain can have consequences in rural areas like Lemhi County, I also wanted to measure the level of access that participants had to people who, to some degree, can participate in these decisions. In response to the statement: *‘I have access to the community political leaders and feel that I can talk with them about issues with the community and our surrounding area’* Total agreement accounted for approximately 60% of the responses, suggesting that over half of participating community members had some level of access that might address local concerns. Only 14% of participants provided a comment and 13% of these were from participants who did not provide a ranking. In some instances, participants commented that they were new to the area so they had not made any of these connections yet.



*Figure 32 LC Participant Measures of Access to Leaders*

### **Measuring Community Attitudes about Management Strategies and Agency Efforts**

To get a general sense of how community members perceived different management strategies, I asked a variety of questions and presented numerous statements for respondents to rank using a Likert scale. While a few of these statements were relatively broad (i.e. “the use of

public lands and natural resources in Lemhi County is responsible and sustainable”), many of the statements were specific to public land management agencies and the directives established in their mission statements. There were subsections with statements pertaining to the BLM, USFS, FWS, IDFG, EPA, and IDEQ. The purpose of asking participants to rank their level of agreement or disagreement was to measure community attitudes regarding Federal agency efforts in land and resource management, particularly as it relates to their local socio-ecological system. Each Likert statement was followed a text box where participants could justify or expand on their response and some agencies generated more comments from participants than others. These agency specific responses produce a richer understanding of community relations with the various management agencies involved in Lemhi County, and what they perceive as successes and failures in land and resource management strategies.

To measure community attitudes about public land use and management in general, participants were asked to rank their level of agreement or disagreement on the *responsible and sustainable use of public land and natural resources in Lemhi County*. The majority of participants

generally agreed

with this

statement

(62%), half of

which reported they

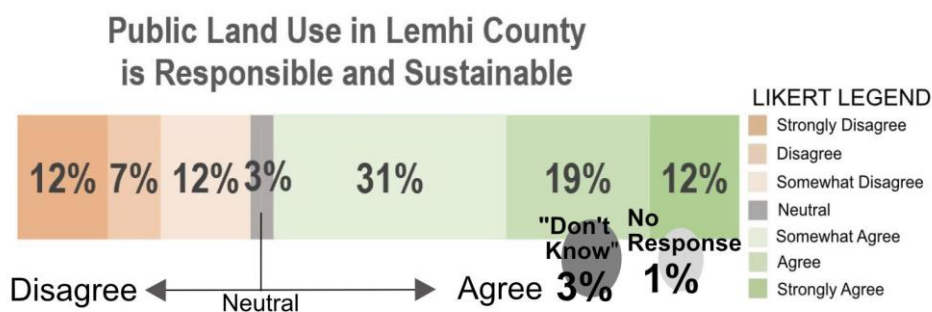
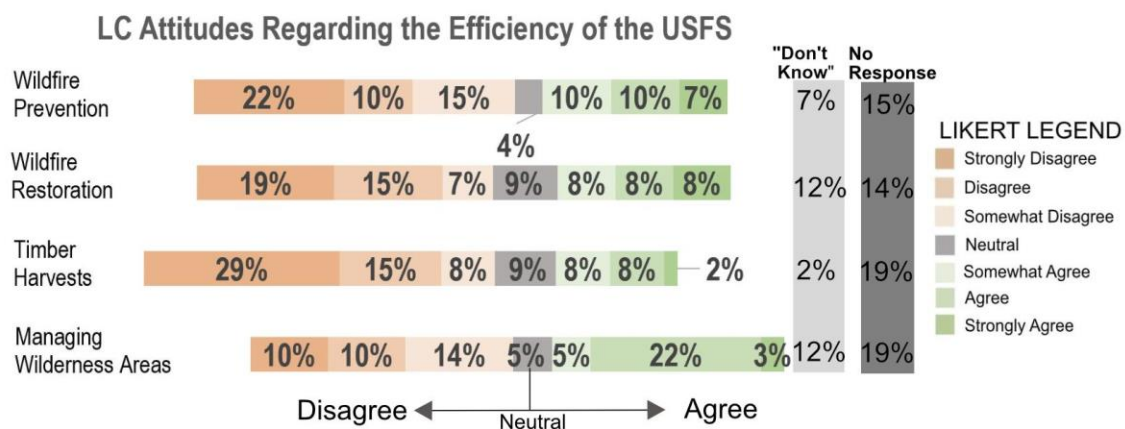


Figure 33 LC Perceptions of Public Land Use in Lemhi County

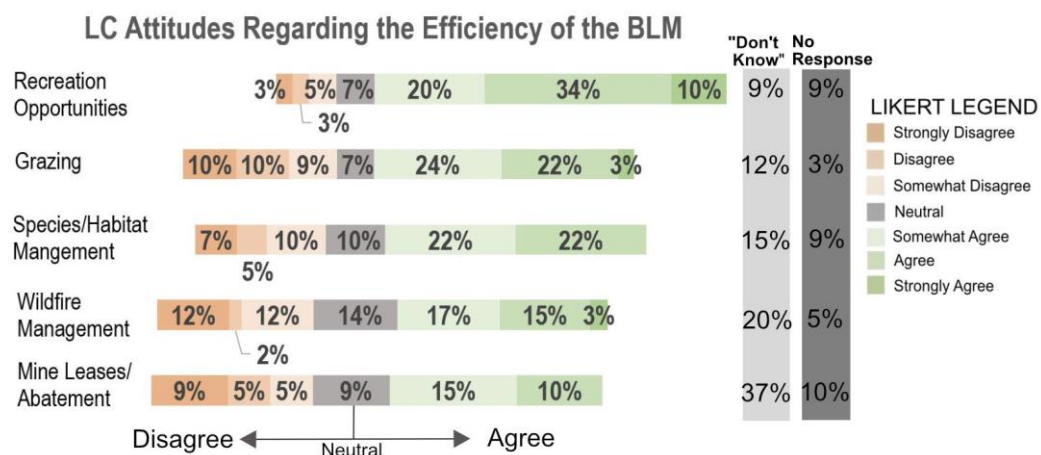
‘somewhat agreed.’ This statement generated comments from approximately 44% of participants ranging across the spectrum of selected responses. Comments in response to this Likert statement can be viewed in Appendix XIII.

The Likert section regarding the U.S. Forest Service was of noticeable interest to participants in Lemhi County. Some participants were recruited on the sole basis that they could voice their opinion about this agency. This interest is likely due, at least in part, to the current revision process around the SCNF management plan, as well as perceived mismanagement both of which are widely and intensely discussed within the community. Each statement began with ‘the Forest Service does an effective job managing the forest within and around Lemhi County with respect to []’ which was followed by one of four categories (Figure 34). Participants generally disagreed more than they agreed in response to all USFS related categories. General disagreement was highest in *timber harvests* (52%), which also had the highest frequency of strong disagreement (29%). Efforts towards wildfire prevention (47%), wildfire abatement/restoration (41%), and managing wilderness areas (34%) were also generally disagreed with. Note the prevalence of ‘don’t know’ and no responses among participants.



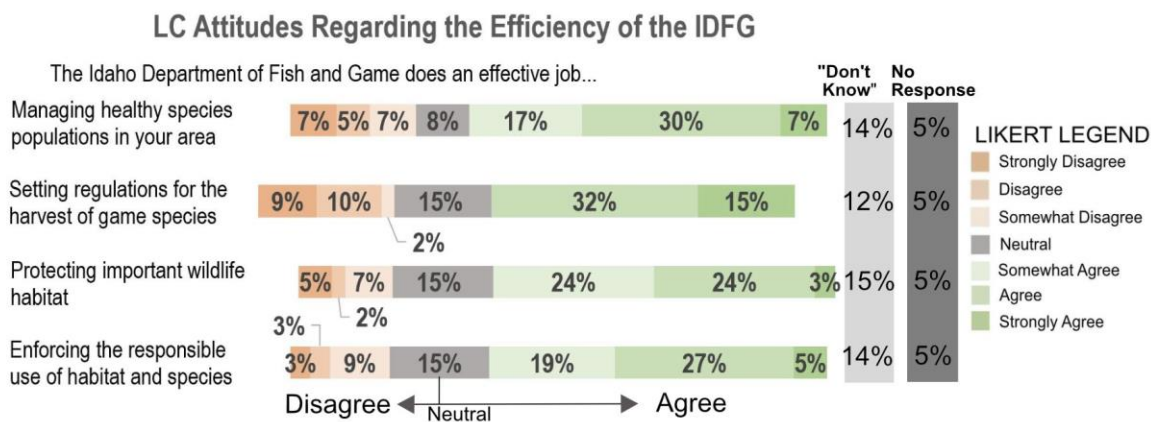
*Figure 34 LC Attitudes Regarding Management Efforts by the USFS*

Each question about the Bureau of Land Management began with ‘the BLM does an effective job managing public lands with respect to []’, which was followed by one of five categories. Participants in the Lemhi County generally agreed with the BLM’s effectiveness in managing public lands for *recreation opportunities* (64%), *grazing* (49%), *species and habitat* (44%), and *wildfire* (35%) Regarding their effectiveness in managing *mineral leases and abatement* projects the majority of participants reported that they did not know (37%), followed in frequency by 25% who generally agreed and 18% who generally disagreed. In response to the BLM’s effectiveness in wildfire management the majority of participants reported that they did not know (20%), ranking higher than the 17% who somewhat agreed and the 15% who agreed.



*Figure 35 LC Attitudes Regarding Management Efforts of the BLM*

To gauge participant attitudes about the Idaho Department of Fish and Game and the effectiveness of their management strategies I included four statements. In all categories, general agreement accounted for the majority of participants. In response to the statement that the IDFG does an effective job managing healthy species populations in the area, total agreement accounted for 54% of the survey population, including 19% who generally disagreed and 14% who did not know. When considering the effectiveness of the IDFG in setting regulations and policies pertaining to the harvest of fish and game species total agreement accounted for 47% of the survey population and 21% generally disagreed. As for protecting important wildlife habitat, total agreement accounted for 51% of the survey population including relatively even frequency between total disagreement (14%), neutral (15%), and ‘don’t know’ (15%). Community attitudes about the effectiveness of the IDFG in enforcing the responsible use of habitat and species were generally positive whereas 51% generally agreed, in addition, 15% reported they were neutral, 15% generally disagreed, and 14% did not know.

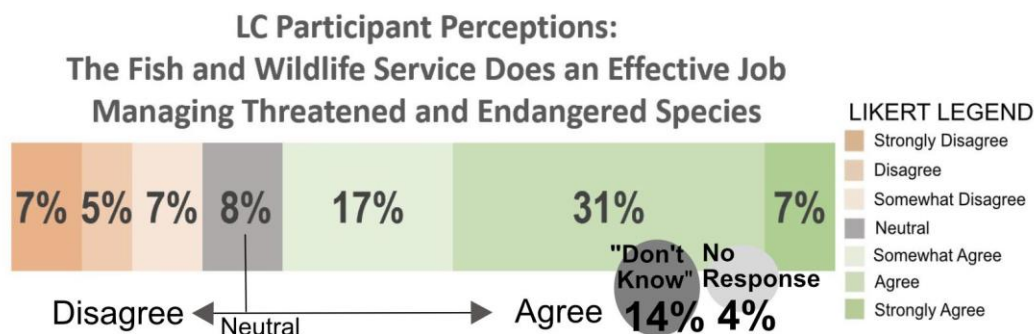


*Figure 36 LC Attitudes Regarding Management Efforts of the IDFG*

In order to complement participant attitudes about fish and wildlife management under the IDFG, I also included a question about the overarching Fish and Wildlife Service. In response to the statement that the FWS does an effective job managing threatened and



endangered species, approximately 55% of participants agreed in total, and 19% disagreed. In this instance, participating community members primarily agreed, followed by somewhat agree, and then strongly agree. This question was primarily included to measure participant attitudes about threatened and endangered species management, which I considered might be of interest to community members considering their direct experience with associated outcomes.



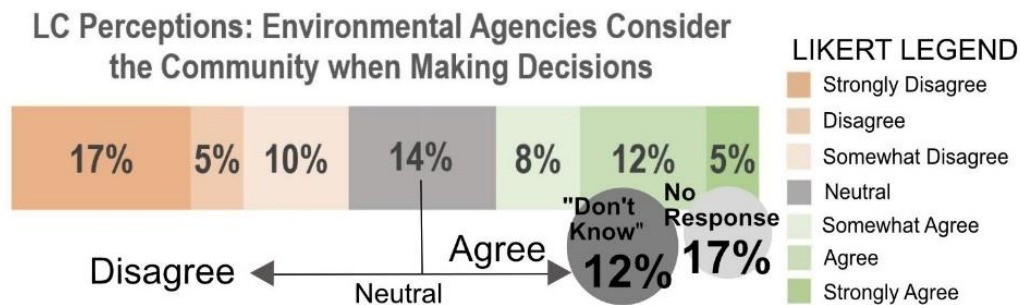
*Figure 37 LC Participant Attitudes about the FWS and the ESA*

As a means of evaluating how community members perceive environmental-based policies and agencies, I also included a number of Likert statements relating to the EPA and IDEQ. While responses were somewhat sporadic, a surprising number of participants were either neutral, reported that they did not know, or did not give a response. Among IDEQ categories, while some agreement was reported, the majority of participants did not know, followed by no response, and neutral. General agreement was greater than disagreement regarding EPA categories, but a significant number of participants selected either don't know or did not provide a response. These findings are detailed in Appendix XIV and highlight a different relation between these environmental agencies than with agencies like the BLM, USFS, and IDFG.

As a secondary measure of attitudes regarding environmental agencies I included the Likert statement that *environmental agencies like the Environmental Protection Agency and the Department of Environmental Quality consider the community when making decisions*. In



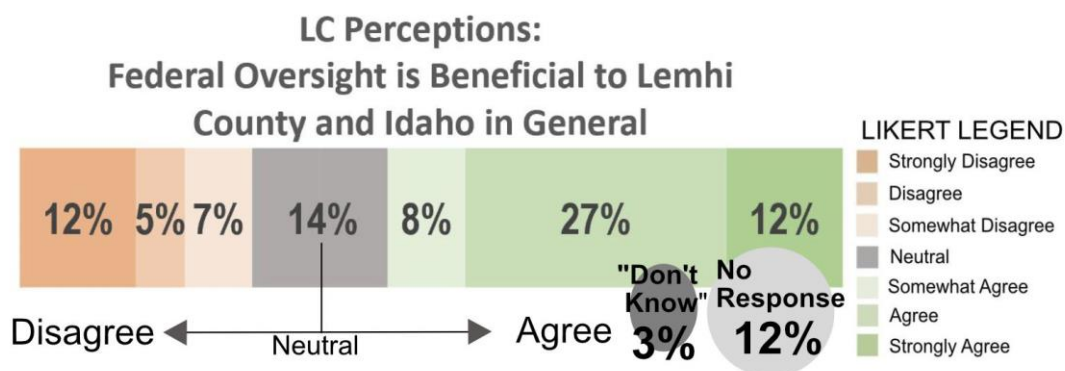
varying degrees, 25% of participants agreed and 32% disagreed. The most frequently selected stance was ‘strongly disagree’ (17%), followed by neutral (14%).



*Figure 38 LC Attitudes Regarding Local Consideration of Environmental Agencies and Decisions*

Generally speaking, more participants disagreed to some degree, than agreed; however, distribution was relatively even. This question generated comments from 25% of the survey population, 20% of which did not provide a ranked response to the statement. Almost half of the comments (47%), referenced the most-recent air quality mandates and wood stove certifications in Lemhi County. The majority of these comments reflected a work in progress in the community where they were currently involved in improving air quality and actively trying to work with locals in the process, another stated they were ‘working with the EPA right now, [so] we will see if they care.’ Some commenters discussed current work in other areas like water quality and waste. Specifically, regarding the air quality mandates, some agreed in that the EPA provided financial support for community members to upgrade their woodstoves, and others who disagreed noted that the funds were too limited which placed the burden on households in the community. One participant took the opportunity to state that the ‘wood stove / air quality fiasco would be a great example of utter failure in considering the community when making decisions.’

After asking respondents to reflect on different agencies and management strategies, I provided a general statement to gauge their agreement or disagreement regarding federal oversight in general. The statement that *'federal oversight in land and resource management including the BLM, the FWS, and USFS, and the EPA is beneficial to Lemhi County and Idaho in general'* generated more agreement in total (47%) than total disagreement (24%). In addition, 14% took a neutral position, 3% did not know, and 12% did not respond. This question generated comments from approximately 29% of the survey population, some who were livelier than others.



*Figure 39 LC Perceptions of Federal Oversight in Management*

Approximately one half of comments were from participants in the agreement spectrum, and the other half from the disagreement responses. Comments can be viewed in Appendix XV.

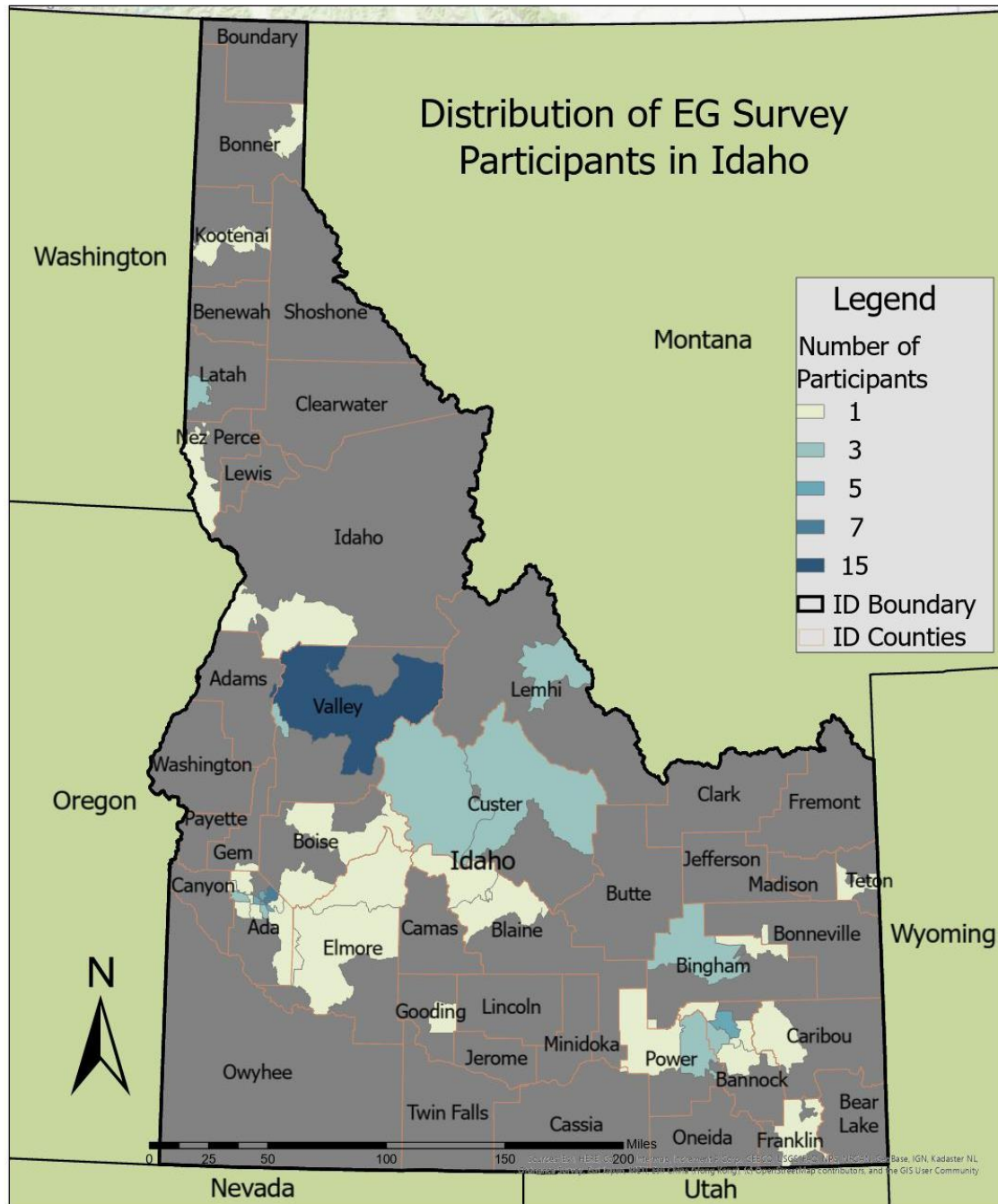
Despite some levels of discrepancy among survey participants regarding the perceived efficiency of differing government agencies and strategies, generally speaking, community attitudes were mostly positive. While some areas were critiqued, participants generally agreed that federal oversight in land and resource management is beneficial to the county and the state as a whole.

### Extended Geographic Survey Results

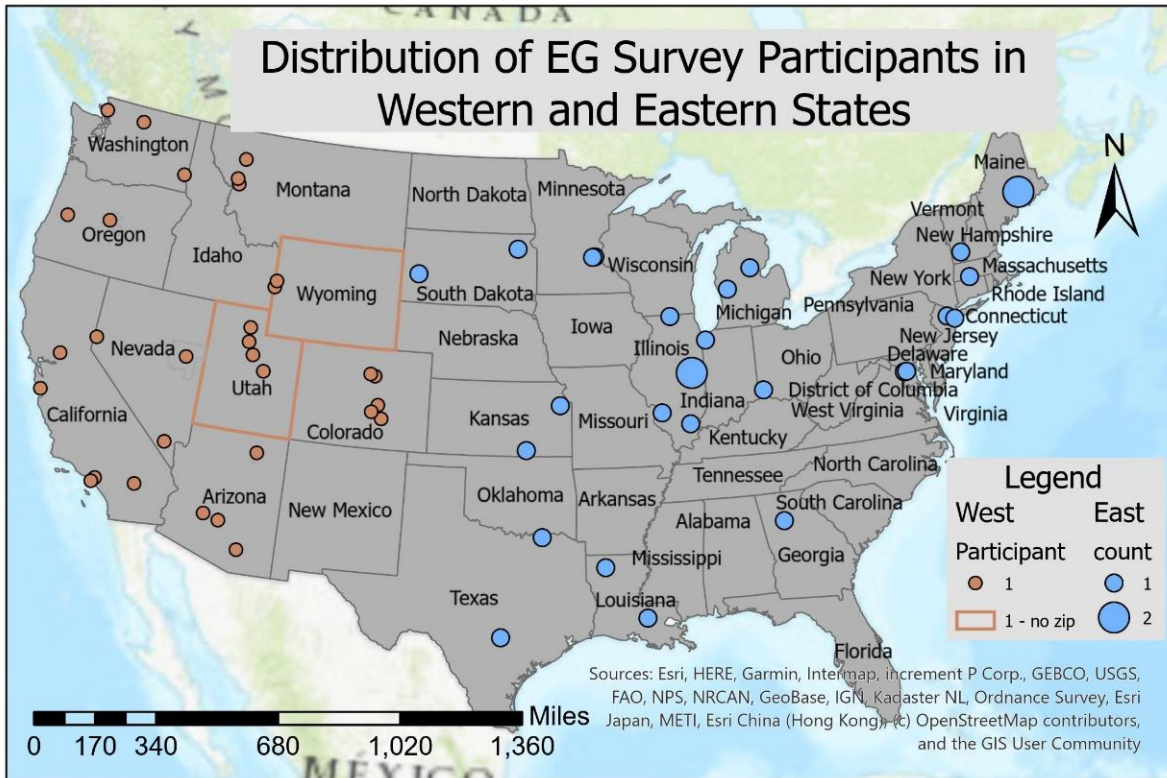
In order to evaluate the wider context of social relations with public land, the Extended Geographic survey provided a means to collect data to explore how values, uses, and perceptions

compare across the landscape. The EG survey generated participation from 154 individuals representing 26 states, 72 counties, and 85 different cities. These surveys were submitted between February 2019 and February 2020 through the on-line survey form. As a means of investigating how public land uses and attitudes change according to a person's relative proximity to public land, I chose to parse out three different scales to compare not only between these groups but also in consideration of the results in the case-study. In general, I wanted to explore how public land uses and attitudes in Lemhi County compared to other Idaho residents, which made Idaho a likely candidate for comparison, particularly with the high response rate from Idaho residents. In addition to this county-state comparison scale, I also wanted to investigate how stakeholder use patterns and attitudes change on a larger scale based on whether a person lived in the West where the majority of public land is. After separating the data into these scales, the total count for submissions from Idaho was 91, and participants represented 28 different cities or towns, and 18 counties (Figure 42). The total count for the Western states was 35, which included participants in Arizona, California, Colorado, Montana, Nevada, Oregon, Utah, Washington, and Wyoming. No surveys were submitted from residents of New Mexico or Alaska, and Idaho submissions were not included in the Western scale since they were analyzed separately. There was a total of 28 survey participants that composed the Eastern scale, which were all states situated to the east of the 11 western contiguous states. Surveys were submitted by participants in Maryland, Maine, Vermont, New Jersey, New York, Massachusetts, Georgia, Ohio, Louisiana, Minnesota, Michigan, South Dakota, Illinois, Kansas, and Texas. Figure 43 shows the distribution of participants in the western and eastern states. A detailed list of participant location, including state(s), counties, towns/cities, and a count of survey submissions can be reviewed in Appendix XVI.

Of the total survey population, 59% of participants reported they were residents of Idaho, 23% reported they were residents in one of the Western states, and 18% of the surveys were submitted from all states situated to the east. See Figures 40 and 41 for geographic distribution.

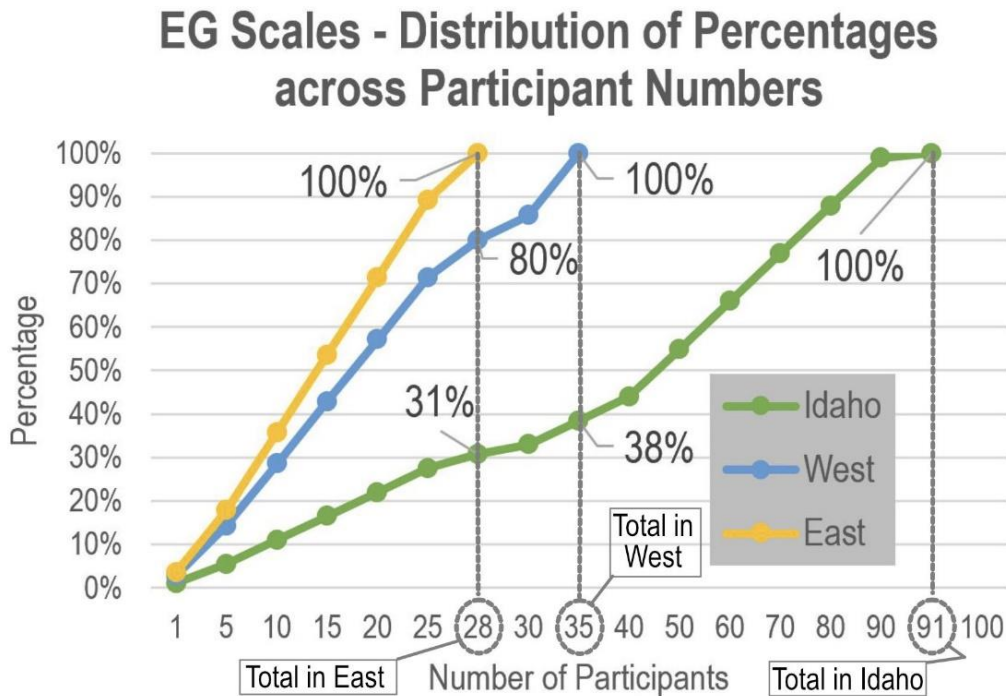


*Figure 40 Distribution of EG Survey Participants in Idaho*



*Figure 41 Distribution of EG Survey participants in Western and Eastern Groups*

In order to dissuade any misrepresentation of the EG survey findings due to discrepancies in survey scale sample sizes, Figure 42 shows the distribution of percentages based on number of participants for each EG group.



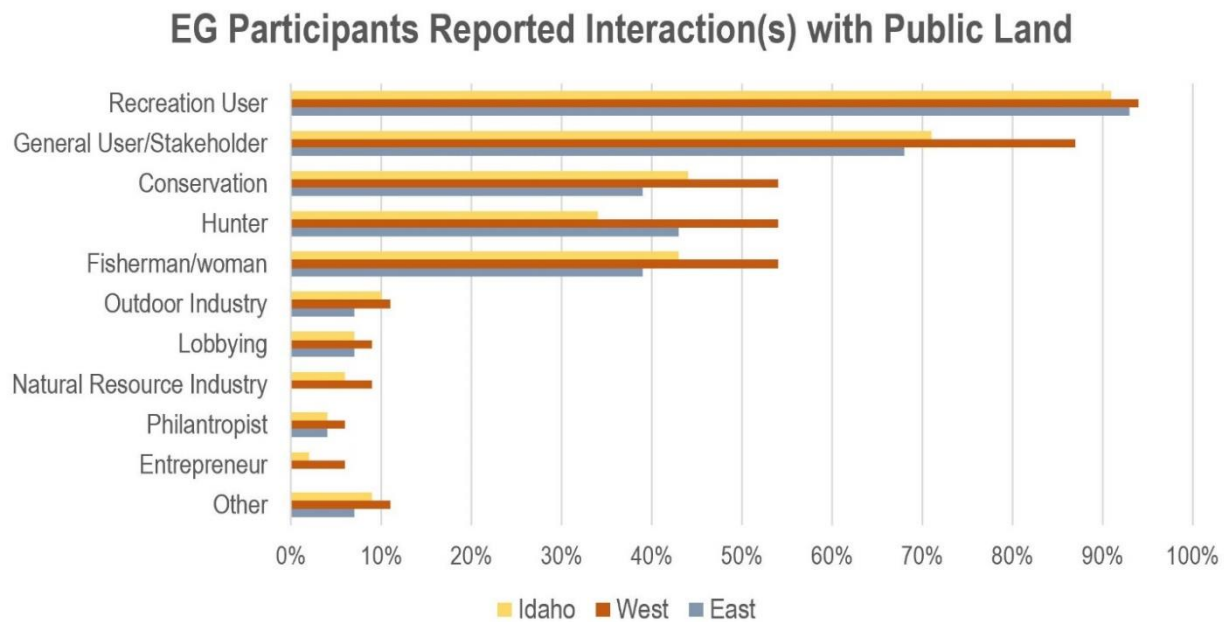
*Figure 42 Distribution of percentages across geographic groups in relation to differing sample sizes. Percentages were calculated based on 28 participants in the East, 35 participants in the West, and 91 participants in Idaho.*

### **Extended Geographic Survey Demographics**

In order to gauge each participants interaction and relations with public land, I asked an initial situating question which aimed to categorize an individual's role with public lands. Participants were prompted to select either one or more options to characterize their interaction. Options included: 1) general user/stakeholder, 2) conservation, 3) lobbying, 4) natural resource industry, 5) hunter, 6) fisherman/woman, 7) rancher, 8) recreational user, 9) outdoor industry, 10) philanthropist, and 11) entrepreneur. To account for additional possibilities, participants could select an 'other' option which provided a text-box to explain their alternative interaction.

Users could select one or more of the options to respond to the question and their selection(s) determined what other related questions would be included in their survey. The highest user group among all three scales was *recreation*, which over 80% of participants identified. The second highest response from all three scales was *general user/stakeholder* which I imagined would have a higher response rate considering that stakeholder refers to people with a stake or interest in public land, however, only between 65% and 85% from each group reported they considered themselves a stakeholder. The following three highest frequencies in each group after recreation and stakeholder, were *conservation*, *hunter*, and *fisherman/woman*, while hunting and fishing interactions were relatively equal for the West, there were slightly less hunters than fishermen/woman in Idaho, and slightly more hunters than fishermen/woman in the East. Less than 10% of participants reported being involved with *outdoor industry*, *lobbying*, or *philanthropy* in each group. Among the Idaho and Western participants, a small percentage identified themselves as involved in *natural resource industries*, *ranchers*, or *entrepreneurs* and no participants in the East selected any of these three options. As with the LC survey population, the EG provided a poor representation of persons involved with natural resource industry. Figure 43 details these findings.





*Figure 43 EG Participant Demographic Situating - understanding relations of participants and public land*

While I included this initial question to understand basic stakeholder interests or groups represented in the EG survey, I also used it as a means to filter in related questions based on Survey123's relevant feature, as implemented in the case-study survey. A respondent's selection on this question determined what additional questions participants would encounter as they progressed through the initial portion of the survey. The purpose of this was to gain basic information about the different stakeholder demographics represented in the survey population, as well as assess the specific area(s) or level(s) of interactions. Demographic data provided a means to evaluate the dynamics of the survey population and exemplify what stakeholder groups are represented in the resulting dataset. There was at least one additional question per selection for each 'recreation user', 'conservation', 'hunter', 'fisherman/woman', 'natural resource industries', and 'rancher'. These additional questions were used to assess less typical 'situational' demographics, as opposed to more traditional age or gender inclusions.



Participants that identified as recreation users were asked how frequently they use public lands for recreation purposes. Idaho participants reported the most frequent use, whereas approximately 23% reported daily use, and approximately 52% reported weekly use. Western participants reported using public lands primarily weekly (40%), or monthly (27%). Of the participants in the East,

weekly use was reported

most often (35%), followed

by monthly (27%), or

seasonally (27%). Regarding

‘other’ selections, one

participant in Idaho specified

they use public lands

between 3-5 days a week, in

addition a western participant

reported the same frequency of use (WY). In the east, one participant in reported they use public

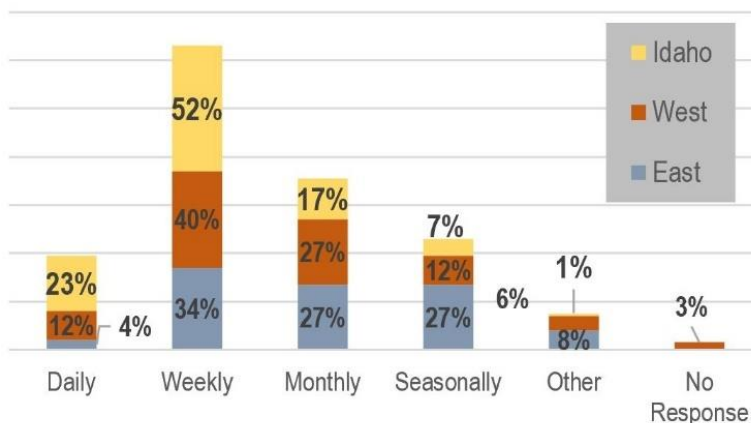
land yearly for recreation purposes (KS), that they were intimidated to spend time in forests

(CA), and another that has never went to public land (OH). In addition, respondents were asked

to select which recreation activities they use public lands for and a variety of purposes were

reported.

**EG Participants Reported Frequency of Public Land Use for Recreation**



*Figure 44 EG participants reported frequency of using public lands for recreation purposes*

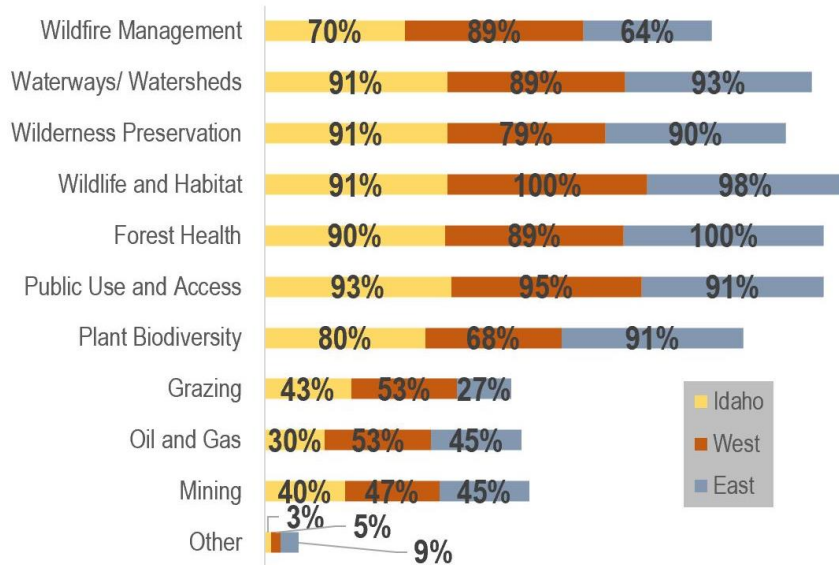
All participants who reported being involved with conservation were asked to define their specific interests. Users could select one or more of the pre-defined options, including other.

User groups ranked highest in categories one through six, in addition to number eleven.

Participants in the East were primarily interested in forest health (100%), followed by wildlife

and habitat (91%), wilderness preservation (91%), waterways/watersheds (91%), public access and use (91%), and plant biodiversity (91%). Participants in the West were primarily concerned with wildlife and habitat (100%), public access and use (95%), wildfire management (90%),

### EG Participants Reported Conservation Interests



forest health (90%), and

waterways/watersheds

(90%). Idaho participants

were primarily interested in

conserving wildlife and

habitat (98%), public access

and use (93%),

watersheds/waterways

(93%), wilderness

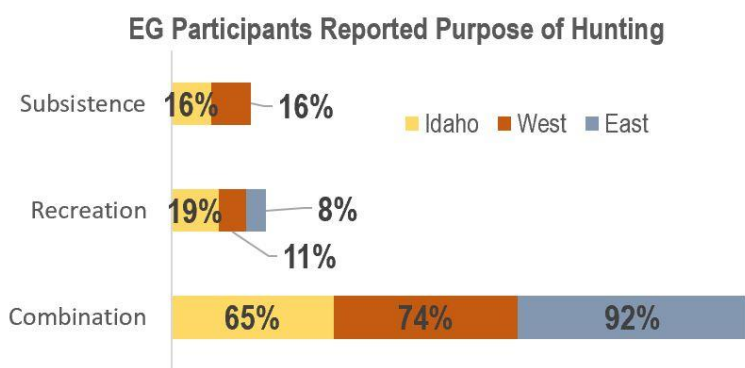
*Figure 45 EG Participants Reported Conservation Interests*

preservation (90%), and

forest health (90%). Less support from each group went to grazing/ranching, oil and gas, and mining as interests in conservation, however, in the West, over 40% of participants selected these interests. Oil and gas in combination with mining garnered approximately 40% of Eastern participants, and Idaho participants showed more support in grazing and mining than oil and gas. Regarding other selections, one Idaho participant noted an interest in ‘invasive species’, one western participant noted ‘maintaining indigenous cultural connections’(AZ), another specified ‘fisheries management’ (CA), and ‘renewable energy development’ (CA), and one eastern a participant in Michigan noted their conservation interest as to ‘keep it public under Federal stewardship.’ These responses captured a varied and complex web of stakeholder interests, all of which come into play when considering how public land use should be managed.

Participants that identified themselves as hunters were asked to estimate how often they use public land for hunting purposes, what their purpose of hunting is. Western participants were most likely to identify as a hunter accounting for 54% of the survey population, this was followed by 43% of the eastern group, and 34% among Idaho participants. Among each group, a number of participants reported that they use public land 100% of the time when hunting: among Idaho participants these users

accounted for 52% of the identified hunters, 37% in the west, and 25% in the east. Far fewer participants reported a sole subsistence purpose among EG groups than did LC participants



*Figure 46 EG Participants reported purpose of hunting*

and a combination of purposes (subsistence and recreation) was reported more frequently.

Among each group, a percentage of participants identified they were involved with fishing. In Idaho 43% identified as fishermen/woman, 54% in the west, and 39% in the east, which equates respectively to 39 participants in Idaho, 19 in the western group, and 11 in the east. Participants that identified as fishermen/woman in the preliminary assessment of stakeholder positions were asked questions similar to those asked of participants that identified as hunters, including one asking them to estimate the percentage of their fishing outings made possible with public access areas, and another gauging each participant's purpose for fishing. As with the hunting question, over half of the survey population reported using public access areas 100% of the time when fishing, accounting for 69% in the Idaho group, 63% in the west, and 73% in the east. In comparison to EG participants reported purpose of hunting, more participants

in Idaho reported recreation purposes (72%) than for recreation and subsistence (28%) in response to fishing. Participants in the west and east reported a combination of purposes, 58% and 92% respectively, with the highest frequency. In contrast to reported hunting purposes, no participants reported a sole subsistence purpose for fishing.

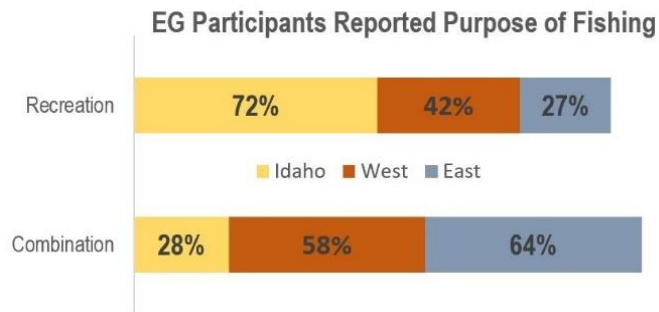


Figure 47 EG Participants reported purpose of fishing

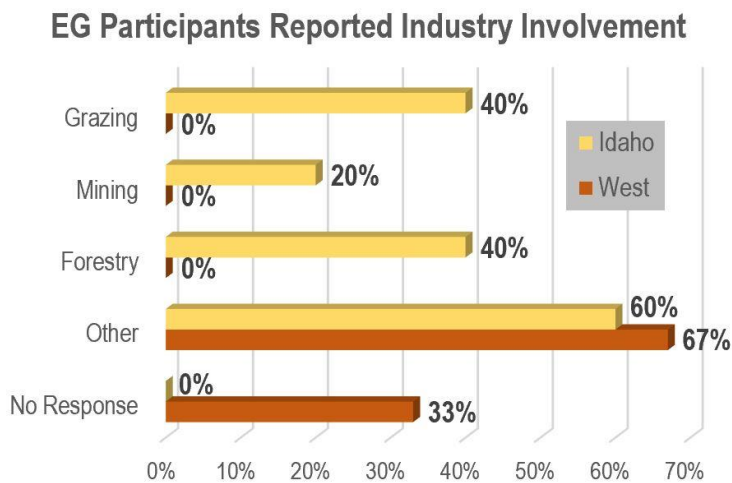
The reported ranchers were asked if they use public lands to graze their stock. The percentage of ranchers was poorly representative of the user group, in that only one participant identified as a rancher in the West, and 5 participants in Idaho. While the individual participant in the West identified as a rancher, they reported that they did not use public lands for grazing. Of the five Idaho ranchers, one reported ‘yes’ (20%), another said they ‘used to’ (20%), and the remaining 3 did not use public lands



Figure 48 EG Participants reported use of public land for grazing purposes

to graze their stock (60%). The rancher that currently uses public lands to graze stock in Idaho, reported in a following question that their allotments were leased directly from the State rather than the Federal government. As with the case-study, ranchers were an under represented group in this study.

If an individual reported that they were involved with natural resource industries they were asked to specify which area. The list of possible options included more categories than were selected; the only reported industries were 1) mining, 2) forestry, and 3) grazing. In



*Figure 49 EG Participants reported interactions with public land and natural resource industries*

response to this question participants could select one or more of the provided options including an ‘other’ option that they could define. No participants in the East reported that they were involved with natural resource industries. In Idaho, five participants reported that they were involved with

natural resource industries, of these participants, 40% were involved with grazing and/or forestry, 20% were involved with mining, and 60% selected other. From Idaho participants, other included ‘agriculture’, ‘trail management’, and ‘outfitting.’ In the Western demographic, only three participants reported they were involved in one of the pre-defined areas, whereas 67% selected other, which included general ‘conservation’ and a ‘land manager/biologist for the Federal Government. The remaining Western industry participant did not respond to the question (33%). While the survey did generate participation from some natural resource industry professionals, this is a minute percentage of the overall survey population.

## CHAPTER FIVE

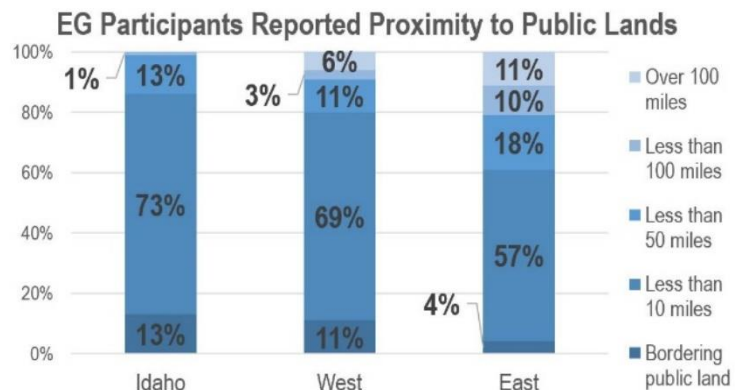
### ANALYSIS

#### Extended Geographic Survey Analysis: A Comparison of Scale

While the difference in sample size is not ideal for accurate statistical presentation, in a general sense, the data from each group can be used to explore trends among different user groups and make general comparisons not only within the EG survey groups, but also with the LC survey. These general comparisons act as a means to understand larger trends in public use and value of the public land domain, in addition to gauging attitudes about land and resource management. Of comparative value for the case-study are areas of public land uses and interactions, general perceptions, and a section on participant awareness and access. The data gathered in this research and presented in this thesis highlights the need for additional research to validate and refine or correct the analysis and interpretation of the smaller sample sizes.

#### Public Land Uses and Interactions among EG Participants

As a means of including a secondary factor about a participant's proximity to public land I asked them to estimate how far they lived from public land boundaries. The inclusion of this question also acted as a means of investigating spatial proximity with participants in the case-study who answered a similar question. Of the extended geographic survey populations, Idaho participants primarily reported living less than ten miles from public land (73%), followed by equal portions of users that live within 50 miles (13%), and those that border public land (13%).



*Figure 50 EG Participants Lived Proximity to Public Lands*

Western participants reported living less than ten miles with a frequency of 69%, again followed by equal portions of those living less than 50 miles (11%) and those bordering public land (11%). In the East, again the majority of participants reported living less than ten miles from public land (57%), followed by 18% who live less than 100 miles, and only 4% who border public land. The results of this question reveal that participant connections are less immediate than is the case with LC residents (the majority of which reported living less than one mile or less than five miles from public land boundaries).

While recreation users were asked how often they use public lands for recreation specific purposes, I also included a general question about individuals use frequency that was visible to all participants. In response to how

often they use public lands in general, Idaho participants highest percentage went to weekly use (48%), followed by daily use (31%). Among Western state participants, weekly use was again the most frequent selection (60%),

which far exceeded users reporting monthly (14%), or daily use (11%). Eastern participants reported primarily using public land either weekly (32%), or seasonally (32%), and less participants reported monthly use (25%).

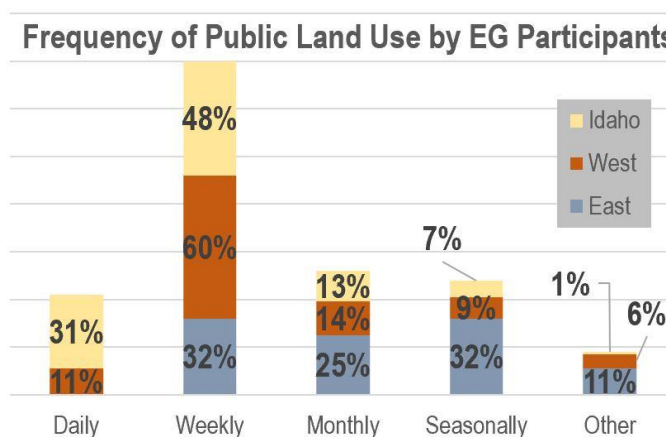
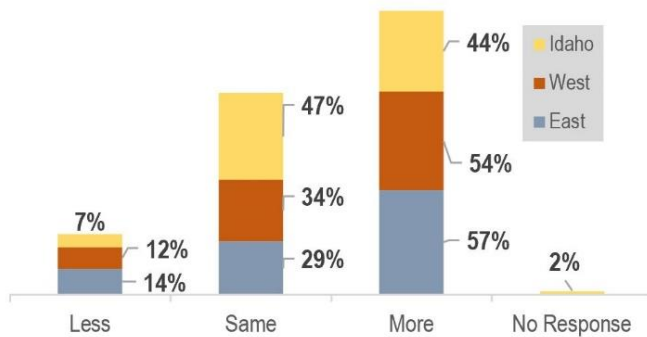


Figure 51 EG Frequency of Public Land Use in General

As a means of investigating general user trends, I asked all participants if they currently use public lands less, the same, or more than in comparison to the previous five years. At first

### Public Land Use Trends of EG Participants



*Figure 52 EG Participants Reported Trends of Public Land Use*

glance, data from the survey population reflects that in general, public land use is increasing, particularly among western and eastern participants with 54% and 57% respectively reporting using public lands more often. In the case of Idaho, more participants reported having the

same use frequency (47%), than increased use (44%). While it appears like use is less exponential in Idaho, as evidenced in their frequency of use, Idaho users reported the most frequent use. In this survey population, total use, including similar frequency and increased use account for the vast majority of each group, attuning to 91% of participants in Idaho, 88% among western participants, and 86% for eastern participants. While this question is not directly comparable to the case-study, this reveals a growing trend of public land use among participating stakeholders which could ultimately lead to increased competition between both uses and user groups.

### General Perceptions Among EG Participants

While very few questions were identical between surveys, participants provided data that acted as a means to explore general trends and measure participant attitudes about public land. Having reduced the specificity regarding the case-study area, the content of the extended demographic survey was far more general which facilitated a general comparison between spatially distributed groups and the LC case-study survey data. My aim in this section is to



investigate how trends and attitudes change throughout space and to tie in how this compares and what it highlights in the case-study investigation.

In the LC case-study survey I asked participants if they felt that the *current use of public lands for grazing purposes was responsible or sustainable*, and they responded with either yes, somewhat, no, or don't know. I included this question in the extended demographic survey, however I framed it as a statement for participants to rank on the Likert scale. Of the survey population, no participants from any scale selected 'strongly agree' in response. Among Idaho participants total agreement, in this case including 'agree' and 'somewhat agree' accounted for 31% and total disagreement, strongly included, accounted for 50% of participant selections. Of

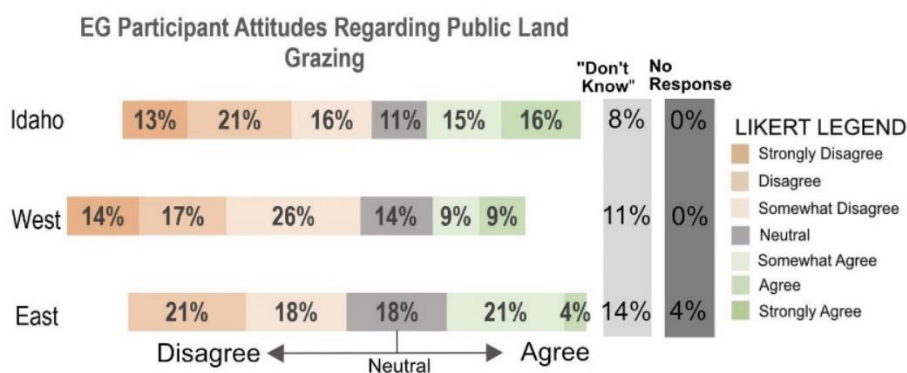


Figure 53 EG Participant Attitudes Regarding Grazing on Public Lands

neutral on the statement. Eastern participants total agreement with the statement accounted for 25% of the population, and total disagreement was 39%. In addition, 18% reported they were neutral, and 14% did not know if public land grazing was responsible or sustainable. In general, agreement with this statement was far greater among participants in the Lemhi County survey whereas 66% said 'yes', and 20% said 'somewhat.' This discrepancy between survey participants reveals that social attitudes regarding grazing on public land are diverse and based on appearances, somewhat conflicting.

participants in the western group, to varying degrees 18% agreed, and 57% disagreed; in addition, 14% reported being

Considering the positive attitudes regarding tourism in Lemhi County, I included the following statement: *tourism is an important aspect of maintaining public land access*. The majority of all participating groups primarily agreed with this statement. In Idaho, 30% of participants strongly agreed, 41% agreed, and 18% somewhat agreed. Among western participants, 37% strongly agreed, 40% agreed, and 11% somewhat agreed. Within the eastern group 32%

strongly

agreed with

the statement,

32% agreed,

and 25% somewhat

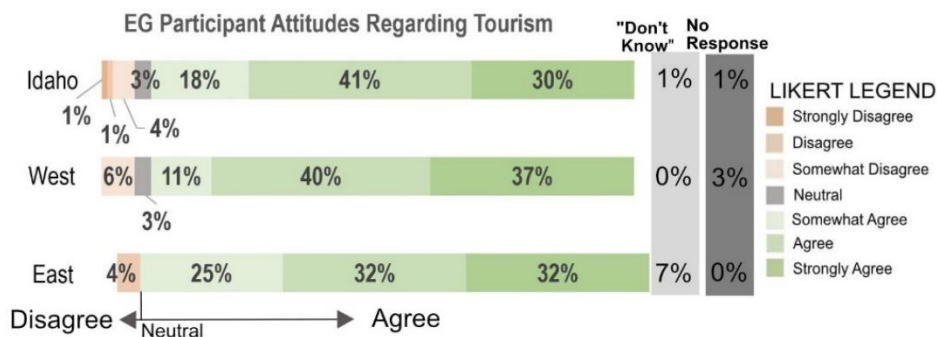


Figure 54 EG Participant Attitudes Regarding Tourism

agreed. In each group, less than 6% disagreed with this statement. As with the case-study,

general attitudes regarding the importance of tourism are relatively high within the survey group,

whereas 92% felt that tourism was beneficial to the community, and 81% felt that it was

beneficial to public land in general. While attitude regarding grazing were dispersed among

participants, attitudes regarding tourism were generally positive in LC and the EG surveys.

Many participating community members in Lemhi County voiced a concern about the state or health of their surrounding forest. While many of these comments were made in response to the section of Likert statements regarding the USFS, these concerns were also voiced through local publications and public comments made regarding the SCNF plan revision. In order to compare stakeholder attitudes about forested public land I included the following statement in the EG survey: *the current state of forest management is effective in supporting a healthy forest ecosystem*. In Idaho, total disagreement (49%) ranked higher than total agreement (34%), and

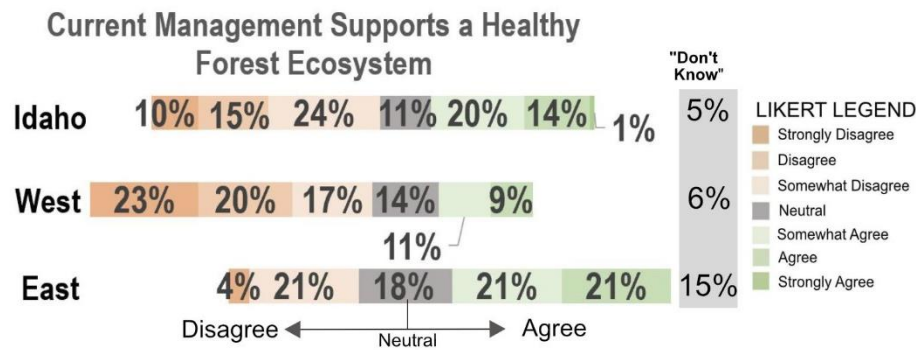


Figure 55 EG Participant Attitudes Regarding Forest Management

reported they were neutral. Eastern participants total agreement (42%) was greater than total disagreement (25%) and a higher percentage of this group were either neutral (18%), or reported that they did not know (15%) than the Idaho or Western groups. Comments can be reviewed in Appendix XVII.

While I did not include a specific question about wilderness in the LC case-study survey, I chose to include a Likert statement in the EG survey. In response to the statement: *in general, creating additional wilderness areas is a desirable approach to protecting wild spaces and natural resources*, the majority of participants in each group strongly agreed. Participants in

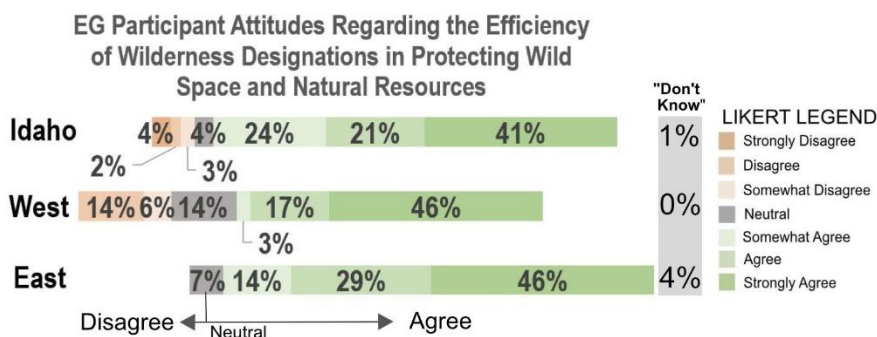


Figure 56 EG Participant Attitudes Regarding Wilderness

accounted for 66% of the survey population, with 46% strongly agreeing. Total agreement by participants in the East accounted for 89%, approximately half of participants reported that they strongly agree (46%). No participants from eastern states disagreed with the statement at any

respectively in the Western group

whereas 60% disagreed in total, whereas only 20% agreed and 14%

Idaho generally agreed with this statement (86%), including 41% that strongly agreed. In the Western group, total agreement

level. Notably, there was a spike of disagree (14%) and neutral (14%) in the West, and a less prominent spike of strongly disagree (4%) in the Idaho group. These findings were in direct contrast to opinions voiced by numerous LC community members who have staunchly opposed the designation of any additional wilderness areas throughout the SCNF plan revision.

In order to measure stakeholder attitudes regarding industry leases, I included the following statement: *mineral leases, including oil and gas, are responsibly carried out, with appropriate consideration of environmental and social impacts*. In this instance, participants

revealed that

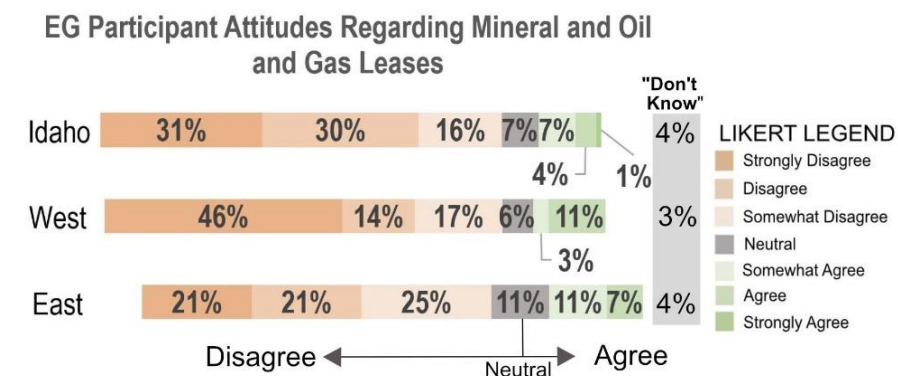
they primarily

disagreed with

the statement.

This was

particularly true

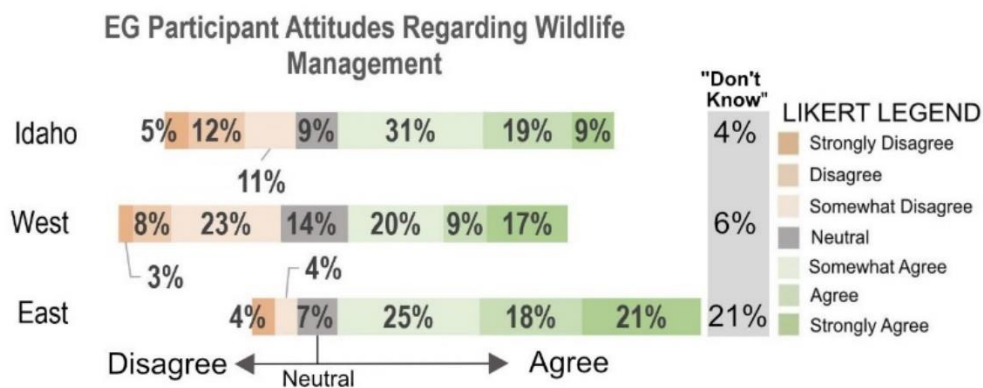


*Figure 57 EG Participant Attitudes Regarding Natural Resource Leases*

in the western group where 46% of participants strongly disagreed, which contributed to the percentage of total disagreement in the west (77%). Participants in Idaho displayed a general disagreement in response to the statement which included strongly disagree (31%), disagree (30%), and somewhat disagree (16%). Of eastern participants, somewhat disagree (25%) ranked highest, followed by 21% for each disagree and strongly disagree.

As a means of understanding general attitudes about wildlife management I presented the following Likert statement: *wildlife management, both in protecting sensitive species and balancing healthy fish and game populations is effective*. Participant attitudes were somewhat dispersed on this particular topic; however, total agreement was higher than total disagreement in each group. In Idaho where 59% of participants agreed, the majority selected ‘somewhat agree’

(31%). In addition, 28% generally disagreed with the statement. In the West, 46% of participants primarily agreed, the majority of which somewhat agreed (20%), in addition 34% generally disagreed, 23% of which only somewhat disagreed. Among the Eastern participants, a greater majority generally agreed with the statement (64%) and a greater percentage of respondents reported that they did not know (21%). While this specific statement was not provided in the LC survey, participants reported general agreement regarding the efficiency of IDFG efforts across presented categories.



*Figure 58 EG Participant Attitudes Regarding Wildlife Management*

In a general sense, I wanted to gauge participant attitudes about overall management of public lands and future stakeholder uses. To do this, I included the statement: *the current management of public lands and natural resources will ensure future generations similar benefits*. While one participant commented that this question was somewhat biased based from a statistical standpoint, for a general comparison, these findings were included. Participants in both Idaho, and the West disagreed with more frequency than they agreed. This difference was more prominent in the West where 57% generally disagreed, and 26% generally agreed, than among Idaho participants where 44% disagreed, and 42% agreed. In the eastern survey population, more

participants

agreed (53%)

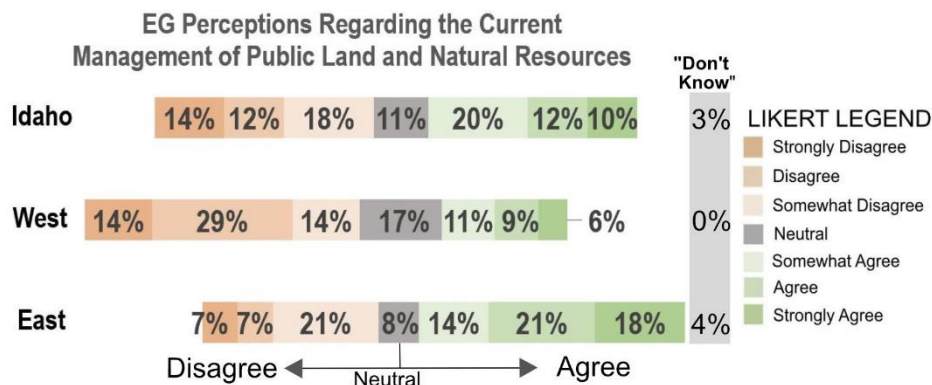
than disagreed

with the

statement

(35%). Of

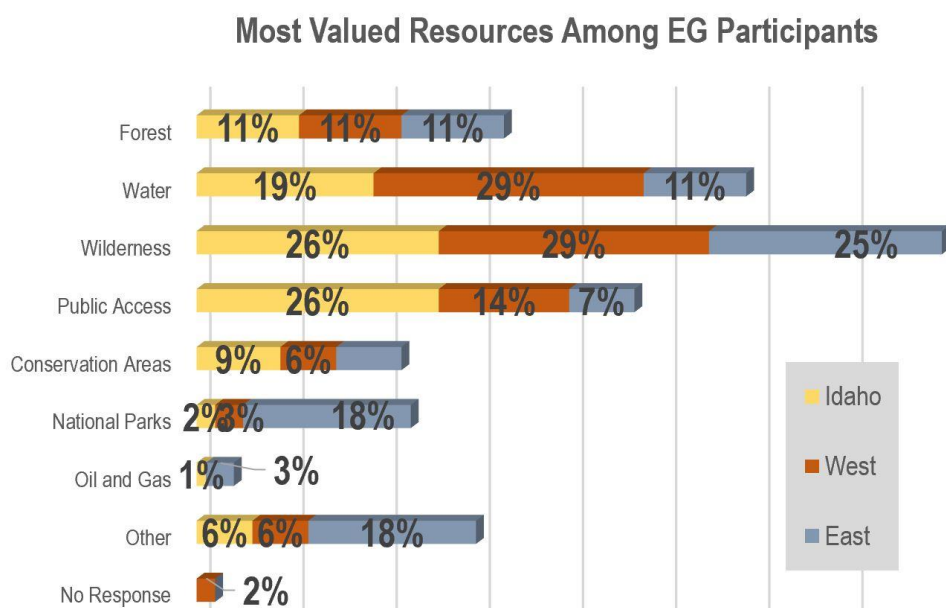
notice is the 17%



*Figure 59 EG Participant Attitudes of Current Management Strategies*

who were neutral in the western group, and the spike of ‘disagree’ accounting for 29% of total disagreement. While participants in Idaho were relatively split between agreement and disagreement on this statement, more participants in the west primarily disagreed, and more participants in the east primarily agreed.

In line with asking participants in the LC case-study survey about their greatest community resource, I asked participants in the extended geographic survey what they considered to be the *most valuable resource on public lands*. Participants had a variety of pre-



*Figure 60 EG Participants Reported Most Valued Resource*

defined options to

select from

including: forests,

wilderness,

national parks,

mineral estate,

public access,

grazing

allotments, oil and

gas, water, conservation areas, and an option to select ‘other.’ Of Idaho participants, 26% selected public access and an additional 26% selected wilderness. The third highest valued resource was water (19%). Western participants valued wilderness (29%), and water (29%), followed by public access (14%). Participants in the East primarily valued wilderness (25%), national parks (18%), and other (18%). It is worth noting that in response to this question no Idaho participants selected forest, few western participants selected oil and gas, and eastern participants had the highest value placed on national parks. In addition, no participant in any of the groups selected mineral estate or grazing allotments as the most valued resources on public land. In comparison with the data from the LC case-study, participants highest valued resource was general access, which accounted for 42% of the LC survey population (followed by rural environment (22%)). Within the Idaho demographic general access (26%) tied for first place with wilderness.

To follow up with each participants attitude regarding management strategies in general, I included the following question: *considering the way that things are currently going, in ten years, which stakeholder group do you think will benefit the most from public lands.* I included a variety of options for participants to select from, including an option to designate an ‘other’. All three groups ranked the oil and gas industry with the greatest frequency, accounting for 42% in Idaho, 49% in the West, and 25% in the East. Among Idaho participants, the second highest frequencies went to the general public (14%), and foreign investors (13%). These two selections were the next highest frequency options among western participants with 14% to each. Eastern



### EG Participants Perceived Greatest Public Land Beneficiaries Looking Forward Ten Years

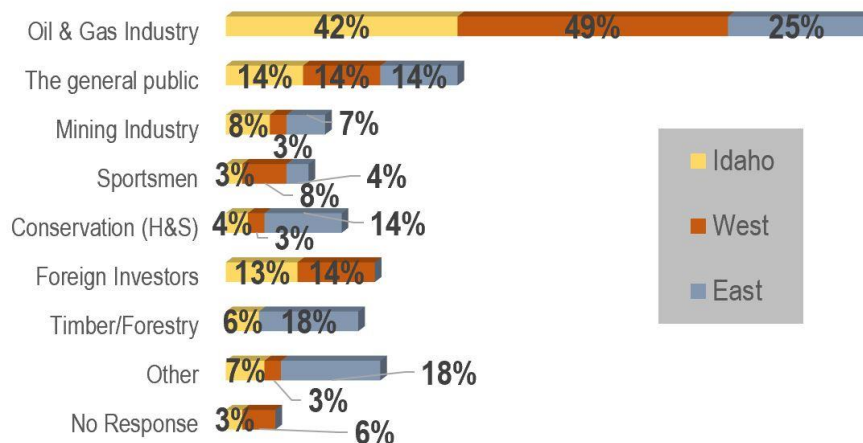


Figure 61 EG Participant Perceived Greatest Public Land Beneficiaries

participants were not as likely to choose the oil and gas industry as the other groups, considering a less drastic difference between categories whereas timber/forestry was selected by 18% of participants and an additional 18% selected ‘other’. The findings of this question are not particularly comparable to the LC findings considering a difference in current versus future benefit as well as differences in pre-defined options. However, both survey findings provide insight into current social perceptions regarding what stakeholder group has or might have preferential use.

As with the case-study survey, I included a question that asked participants to identify what they considered to be the biggest issue facing the future of public lands. While the wording

### Biggest Issue Facing the Future of Public Lands

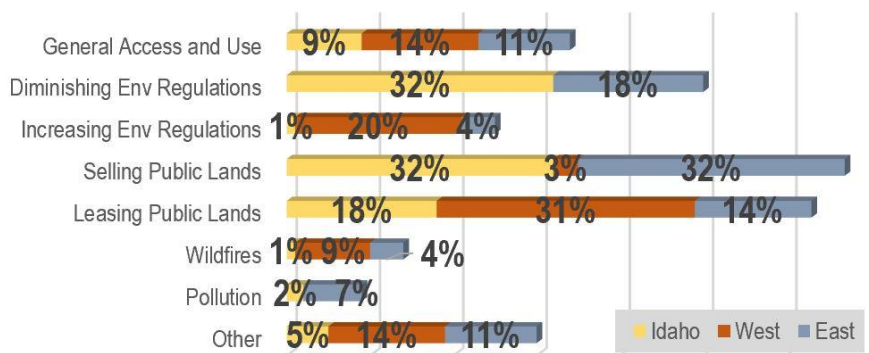


Figure 62 EG Participant Concerns about the Future of Public Land

was slightly varied between the two surveys, the aim was the same which attempted to gauge stakeholder concerns in general about public



lands and their continued stake. Idaho participants equally ranked selling public lands (32%), and diminishing environmental regulations (32%), and the third highest ranked category was the leasing of public lands (18%). Eastern participants top issues were identical to Idaho participants, whereas 32% reported selling public land as their primary concern, followed by 18% for diminishing environmental relations, and 14% to leasing public lands. Western participants also ranked selling public lands as the most frequent issue accounting for 32% of the population, followed by diminishing environmental relations for 20%, and 14% for each general access and use and other.

### **Awareness & Access**

As with the case-study, I included a number of questions that were used to gauge each participants level of awareness about public land and related topics in addition to evaluating their level of access to political leaders or persons involved with land and resource policies.

In Lemhi County, I asked participants to approximate the percentage of 1) Lemhi County and 2) Idaho that is owned by the Federal government, of which 66% and 42% answered correctly. In the EG survey, I asked participants to select the correct acreage of 1) the U.S. public land domain, and 2) the U.S. subsurface mineral estate. The majority of participants in all three groups identified the correct value of federal acreage in the U.S. which was approximately 640 million acres<sup>16</sup>. In Idaho, 57% identified correctly, 60% of western participants, and 54% of eastern participants. While these percentages account for over half of each survey population, the remaining responses were incorrect or not given.

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<sup>16</sup> Since conducting this survey, the overall acreage of the federal land domain has decreased from 640 million acres to 615 million acres.

As a secondary gauge of participant awareness, I noted that the Bureau of Land Management (BLM) administers roughly 248 million acres of land in the U.S. and asked participants to approximate how many acres of subsurface mineral estate the agency also administers. Far less participants in any group correctly identified the total acreage of subsurface mineral estate, in comparison to the over 50% margin on the general public land acreage question.

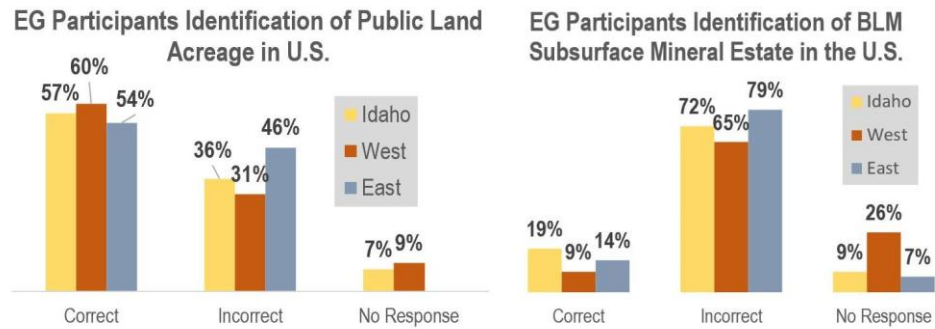


Figure 63 EG Participants Awareness: Identification of Federal Acreage

In Idaho, 19% answered with the correct value (700 million acres), which was the third most frequent option. Among western participants, 9% answered correctly, the least frequent option; and of participants in the East, 14% answered correctly which was the third most frequent option.

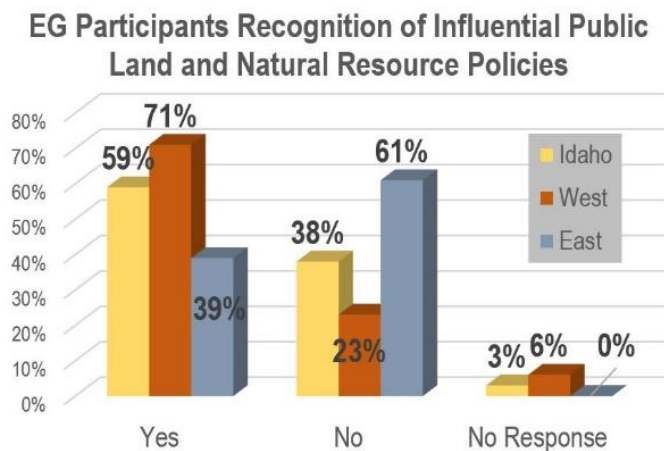


Figure 64 EG Participant Recognition of Influential Policies or bills relating to public land and natural resource sphere.

Similarly, to the LC case-study survey, I asked participants if they could recall any public land or natural resource policy that impacted them directly. In response, a greater percentage of Idaho (59%) and Western (71%) participants reported positively, than did Eastern participants (39%).

Approximately 65% of participants provided comments to explain their ‘yes’ responses<sup>17</sup>.

Recognition of influential policies by Idaho and western participants was comparable to recognition among LC participants (68%) as well as how many provided comments (63%).

As a means of measuring participants attitudes regarding general stakeholder awareness, I asked participants if they felt that *the general public (outside the sphere of conservation efforts) is aware and educated about public land issues*. All three groups primarily disagreed with this statement: total disagreement accounted for 84% of Idaho participants, 88% of western participants, and 86% of eastern participants. This revealed poor perceptions of the general public in terms of knowledge and education regarding public land issues.

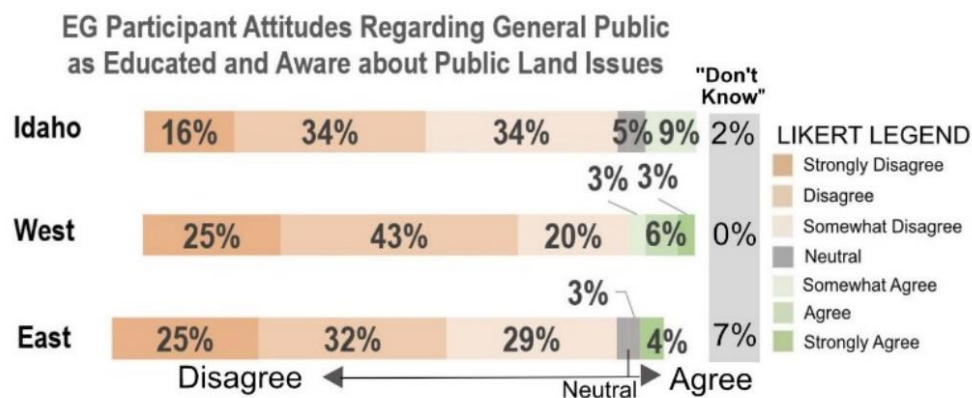
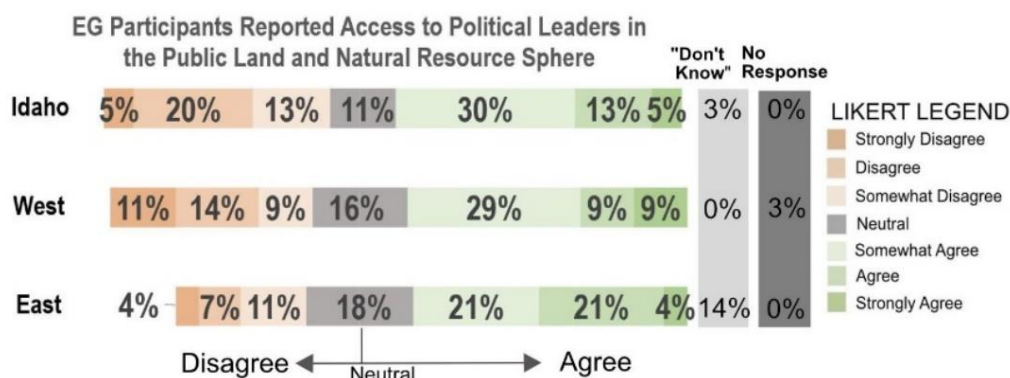


Figure 65 EG Participant Attitudes Regarding Educated and Aware Public

In the LC case-study survey, I asked participants if they had access to community political leaders who they could talk to about issues in the community and surrounding area. Similarly, I included a Likert statement which aimed to capture a general picture of stakeholder access to leaders in public land and natural resource management. The specific statement was: *I have access to leaders in the public land and natural resource management and/or policy sphere and feel that I can have my voice heard and my concerns addressed*. Total agreement was

<sup>17</sup> Participant comments in response to this question (influential policies) are listed in Appendix XVIII. Similar data is also included.

highest among participants in each group, with 48% in Idaho, 47% in the western group, and 46% in the eastern groups. The large majority of Idaho and western participants somewhat agreed and agreed to the statement and an equal percentage of eastern participants somewhat agreed and agreed. A similar statement among LC participants, assessing access to leaders in the community, generated greater support (60%) than did EG groups.



*Figure 66 EG Participants Access to Political Leaders that are within the public land and natural resource sphere who will listen to and address concerns*

As an additional means of gauging participants access to information about public land and natural resource issues and policy changes, the survey included the following statement: *when reading proposed policies and bill about changes in the public land and natural resource domain, I find the language easy to understand and the information accessible.* Idaho and western participants primarily somewhat disagreed with this statement, accounting for 28% and 20% respectively. Total disagreement was highest among Idaho participants (46%), and western participants (48%), and slightly less frequent in the eastern group (32%) than total agreement (36%). Eastern participants also had the highest percentage of neutral (18%), and don't know (14%) responses (Figure 67).

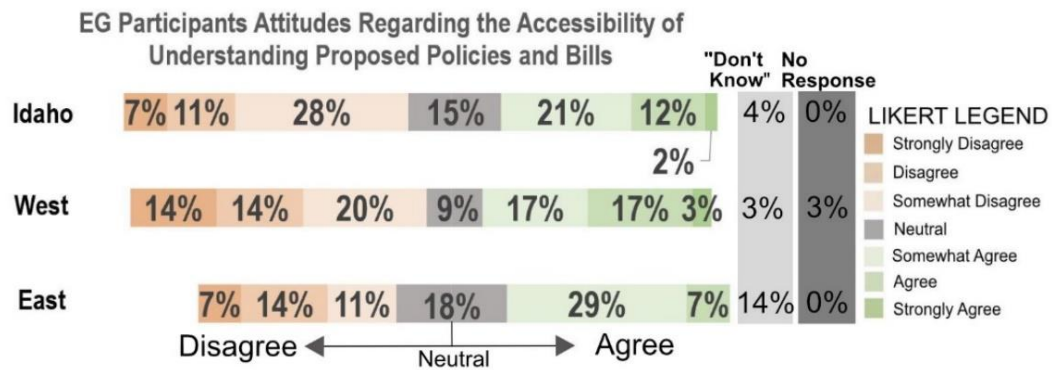


Figure 67 EG Participants Access to Information in Proposed Policies

## **CHAPTER SIX**

### **DISCUSSION**

The purpose of this chapter is to draw insight towards answering the stated research questions and hypotheses. In order to understand how society values and utilizes the federal public land domain in addition to the inherent natural resources, it is key to evaluate and integrate what has been presented throughout the proceeding chapters. In line with the cultural ecology approach, this chapter aims to assess the characteristics of the socio-ecological system between stakeholders and the public land domain. Not only does this thesis explore relations between rural communities and the public ecosystem, but also within a broader US context which supports a comparison of value, uses, and attitudes across geographic spaces. The underlying political ecology is also examined in order to evaluate the legal and guiding superstructure that directs and influences in many ways the socio-ecological system (SES). In addition, this section aims to draw insight into the range of participant awareness about public land related topics and their level of access to leaders with whom they can voice their concerns.

A base assumption of this research was that people would participate in the survey because they value public land and natural resources. While verifying the range or level of participant values is difficult to tangibly substantiate, this research revealed an underlying pattern regarding participant viewpoints. All participants identified at least one area in which they reported valuing public lands, however, these values proved to be complex, multi-faceted, and varied across individuals and groups. These differences in the range of value types can ultimately contribute to dissention between stakeholders regarding the best-suited use of public land and natural resources. Ideological discrepancies about the future of the public land ecosystem, particularly in how it relates to societal well-being or community resiliency, can produce a

stalemate for current use and development of the public land domain or result in disparate use and access.

These conflicting values or interests lend insight into stakeholder relations among numerous factions including rural community residents, governmental agencies and employees, non-profit and commercial sectors, and stakeholders (members of the general public). The result highlights inherent differences in stakeholder connotations of “wise-use”, or more generally their preferences for management and use of public lands and natural resources which can generate significant complexities in developing and adapting management strategies. In line evaluating the SES, these human-human relations must be examined in tandem with the human-environment relations – in this case towards understanding the cultural ecology of people and the public ecosystem.

## **Evaluating the Cultural Ecology of Rural Residents and the Public Land Ecosystem**

### **General Findings Related to Community Values and Uses**

Findings from the LC survey, in tandem with other data presented in this thesis, suggest that residents in this rural Idaho county value public lands to a significant degree. Relations between locals and the surrounding public land ecosystem have characterized and facilitated a continued dependency on available resources, whether naturally occurring like timber and wild harvestable species, or socially derived like recreation and tourism. In the case of Lemhi County, participants ranked substantial access to public land and natural resources highest among other value categories presented (42%), followed by the rural environment (22%), and the Salmon River (17%). Employment, presented as a possible alternative, was not selected by any participants, revealing that while there is potential for natural resource labor in the area, these opportunities have not yet manifested to the point that the community derives any noticeable

benefit, particularly in the long-term. The lack of participant ranks regarding employment reveal in some ways, the communities perceived standard of living in Lemhi County; as succinctly stated by one participant: Lemhi County is a “marvelous place to live, but not necessarily an easy place to live”. As findings from the LC survey revealed, 65% of participants reported that a primary reason for living in Idaho is the high percentage of public land; this percentage is composed of 30% who strongly agreed to the statement, and 30% who generally agreed.

In line with participants perceptions of the most beneficial stakeholder group in LC, the most-frequently selected options were recreation users (32%) and the grazing industry (25%). The third most frequent selection was ‘locals’ which accounted for only 10% of survey responses. Mining and timber industries ranked lowest among participants with 3% and 2% respectively. By use, the majority of participants in LC reported practicing some form of subsistence activities on public land, whether for game, fish, or wild plants/berries; the majority of these activities take place on public land, or on a combination of public and private land. Recreation, on both public land and water, also ranked significantly, with reported uses by 97% and 78% respectively, uses include recreation-oriented wild resource harvests in addition to many other activities. LC participants reported a high frequency of using public lands daily (21%) or weekly (47%), revealing an underlying high-level of interaction between residents and the public land ecosystem.

General consensus among participating community members points to the perceived importance of non-resident recreation and tourism to the community, the local economy, and public land in general. While locals value access to the public land ecosystem (both in land and resources), they also inevitably acknowledged the value of tourism and non-local recreation, which “gets us through the winter months” and “keeps access open for all.” As expressed by



many participating community members, the well-being of the community is directly associated to the influx of natural-resource based tourism and other non-resident uses. This dependency on the industry of tourism, including non-resident sportsmen, river rats, and backcountry trekkers for example, is a byproduct of the inconsistent movement of ‘hard’ industries like mining and timber. As noted in the LC findings, more LC participants reported prior experience in the timber industry than did those that currently work in the industry (participation in the mining industry revealed almost equal portions of prior and current involvement).

### **Community Reflections on Hard Natural Resource Industries**

There is little debate among surveyed and interviewed community members that revenue from mining and timber could yield significant impacts on the community, many of these impacts were positively perceived. While the trajectory of mining has greatly fluctuated, community benefit is markedly noticed by residents when a piece of the vast mineral estate gains interest alongside a worthwhile market value. While the wealth of mineral deposits in Lemhi County is in many instances unmatched throughout the US, the Idaho Cobalt Belt for example, the mining industry has failed to yet fully materialize in this area. This is based on a number of factors like continually evolving environmental regulations, anti-mining litigation, ideological constructions, as well as vicissitudes in market demands for raw and processed products; mining has had a tumultuous relationship with Lemhi County. As residents reflected in numerous interviews, the community’s relationship with mining is ‘on- again, off-again’; while residents are eager to see additional economic input, they understand the potential of a mine closing before it ever really opens. It appears as though they choose not to get their hopes up about development and follow-through of mining projects, yet remain optimistic that someday market demand will generate increased community benefit and stimulate the local economy.

When mining operations are developing in the area (including planning, obtaining approval, preparing site, taking samples, etc.) there is a notable impact to the community. One business that I interviewed reported that a mining company submitted a special-order request valued at thousands of dollars for equipment and supplies not currently available in-store (F.S. Personal Interview, 2019). This allowed the local business to expand their in-store products as well as connect with new distributors for items like survival gear, sleeping bags, cots, and first aid kits. This type of support can have significant and positive impacts on local businesses and the local economy in general, particularly if these companies have a ‘buy local first’ policy as some do. According to this interviewee, the problem is that all proposed mining projects in the area have to be taken with a ‘grain of salt because it is either boom or bust,’ or active and then closed (F.S. Personal Interview, 2019). In other words, locals cannot readily depend on generating consistent economic revenue from these hard industries. While mining operations via eCobalt were developing in Lemhi County during the LC survey field research period, the project halted, at least temporarily due to changes in the global market for cobalt. This fruition of this project, which was reported to have a life span extending beyond 12 years, now faces new challenges to re-initiate. According to the Idaho Mining Association literature, this region has not seen modern production since the 1960’s, reporting that fact is about to change with this project (Grant, 2019). These narratives showcase the vulnerability of mining industries and market values, which presents challenges for rural communities who could benefit from this increased revenue.

While some benefits of having active mining industry in the county are direct-- such as increased revenue in local businesses, or community donations like a previous mining company’s pledge to pay all outstanding student lunch fees at the end of the winter, or their

sponsorship of hotel rooms for HS wrestling athletes at State-- other benefits have more indirect impacts (D.S. Personal Interview, 2020). Active mining operations also generate extra revenue indirectly in the county, thereby adding tax value to the community as explained by the local school district superintendent. This indirect benefit emerged when discussing the success rate of bonds in the county to construct a new school building, which has maintained a 100% failure rate over the past two decades (ten out of ten having failed). He suggested that if mining were active in LC, and for a consistent period of time, passing a bond for a new school would be more likely because community members would be more willing to contribute additional tax dollars.

Without this type of additional county revenue, it is feasible to consider that a school bond will not succeed, despite the continually pressing community need. These difficulties in passing a bond reveal the consequences of an increasing population of retirees, as well as the inherent well-being of the community reflected in participants response to evaluating their standard of living. A general trend in rural communities is that young residents leave for secondary and skilled education but cannot find suitable careers back home and move to larger cities to build careers and livelihoods. This is a growing issue in supporting the development of rural communities and economies.

Although logging was a primary source of revenue in the county until approximately the late 1980's, today, logging at any noticeable scale has halted in Lemhi County. The majority use of timber in the area is through USFS personal-use permits (i.e. firewood, posts and poles, etcetera). As with mining, an influx of logging can have significant impacts for rural communities like the case-study. The timber industry in the area, or the lack thereof, remains a topic of contention among locals. This was prevalent in the negative attitudes regarding forest management strategies, or generally the effectiveness of the USFS in four of five categories as

well as within the comments provided in the LC survey and interviews. The theme of forest management, or more broadly the SCNF, is present in almost each weekly publication of the local newspaper editor whether from USFS employees or members of the public. While exact dates and the number of facilities was not verified, many community members (both in interviews and through the survey comments) expressed a memorable shift in the community when the timber industry started to wane, and local timber mills that processed locally-harvested timber began closing their doors. Today, only one timber mill remains in business; established in the 1940's, this mill has a working capacity of 70 employees yet only the owner remains (F.P. Personal Interview, 2018). In an interview, the mill owner reflected that he was the last holdout in the area after a fellow mill owner a few hours north, of similar age and situation, had closed his mill because he couldn't take it [the bureaucracy or hardship] any longer (F.P. Personal Interview, 2018). As stated by the interviewee, timber has to be worthwhile to make harvesting, processing, and distributing of any value for locals. The current management and administration, he suggested, make securing and sustaining a livelihood difficult, which is why so few remain in the industry. He reported that he harvests between 500-600 cords of firewood per year for the local market, but reported that he could process thousands in his mill; the market is just not there and the cost of permits and associated policies (where to harvest, what type of trees, etcetera) limit what locals can do (F.P. Personal Interview, 2018). This sentiment was reflected by a secondary interviewee who explained that while they have the ability and desire to harvest and process timber current policies like these are not conducive for any substantial logging projects, in his case, beyond the limits of personal-use permits (B.V. Personal Interview, 2018). In this second case, these limits have a direct and negative impact on his ability to provide for his family.

## **Reflections on Grazing and Ranching in Lemhi County**

With the limited private land in Lemhi County the use of land for agricultural purposes is not substantial. Ranching, on the other hand, is far more common in the county as federal land offers opportunities for grazing livestock. In general, local perceptions about the state of public land grazing in LC were primarily positive; the majority of participants reported that public land grazing was sustainable (66%) (as well as 20% who reported that it was at least ‘somewhat’ responsible). Some comments justified these responses by stating that responsible ranchers lead to responsible grazing use; while not all ranchers are responsible in their use of public lands for grazing, for many, it is in their best interest to use these lands responsibly as their livelihoods depend on these lands.

Having low participant numbers from ranchers, I recruited a number of local ranchers to interview after the field research to further investigate rancher relations with public land, government agencies, and other users. There were two primary interviewees from whom to draw insight: a rancher who has a grazing lease with the BLM and USFS, and a second that depends on their own private ranch land to graze their livestock. While this distinction was unintended in seeking key informants, it provided a means to understand rancher relations with the range (whether federal or private), and relations with agency employees as well. Among ranchers and informed members of the public there is little debate that ranching can be a difficult and arduous lifestyle, as yearly fluctuations (whether in the health of the herd, market value of product, or changes in the socio-ecological landscape for example) can create new circumstances each year that ranchers must adapt to. The first rancher reflected that the procedural framework for grazing is no longer sufficient as the inherent natural elements have changed and ‘we can’t adapt with it’ [i.e. the legal framework] (O.G. Personal Interview, 2019). He also suggested that the challenges

that ranchers face are not the same that they dealt with in previous years: for example, changing patterns in social behavior whereas 20 years ago they had to deal with juveniles shooting holes in their stock watering tanks, and now, conflicting uses between recreation and grazing are more tangible. According to this rancher, one of their biggest challenges stems from an annual community-based multi-day ATV/UTV event which results in scattered and stressed livestock on the range, and in some cases, the livestock returning home long before they were supposed to. In addition, they reported finding non-residents camping nearby a neighbor's stock watering tank, while the people were not there, five dogs were running around which limits the ability of stock to get water. "We deal with new problems like this on a regular basis and we will adjust but the disconnect between the general public and the agriculture community is getting wider and wider...the old adage 'leave a gate how you found it' needs to be taught in schools (O.G. Personal Interview, 2020). He explained that twice this range season, he has been reprimanded by BLM employees for cattle getting out after someone else left a gate open which required extra time to gather and move cattle back to the appropriate area (O.G. Personal Interview, 2020). This rancher reflected on these conflicts of uses and stated simply "we pay a grazing fee; many others do not pay" to use public lands<sup>18</sup>. In this instance, where recreation-uses compete with and present situations of conflicting use, stakeholder groups find disparate access and solutions to continue traditional, and generally responsible, uses.

The rancher with federal grazing allotments also noted that while using the land is a benefit, working with government agencies has a number of drawbacks. He recalls a notable instance in their effort to conduct range improvements, his family has proposed over the years to

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<sup>18</sup> Interviewee noted that cost not only includes permit fees but also manual labor for maintenance, improvements, and cleaning up trash left by others.

improve a water enclosure on their allotment. This rancher noted that when they reach out to government employees regarding this project the response received is ‘we don’t have NEPA on that’ which has resulted in no improvements over the past eight years and little hope for any future improvements due to bureaucratic red tape (O.G. Personal Interview, 2019). The rancher reported that BLM employees continue to put off this pipeline project, despite the need, and this has occurred multiple times over the past decade. He noted that there are too many people in the office who have limited skills for conducting these projects, and only one BLM project crew which serves a great portion of Eastern Idaho resulting in significant lags in time and resources for new projects (O.G. Personal Interview, 2020). In contrast, the rancher that reported using their own private land for ranching reflected that not using BLM lands to graze is ‘kind of nice... [because we] don’t have to deal with [the] government issue...or people coming through the area’ (M.T. Personal Interview, 2019). This rancher did note an issue they have with fencing. Generally adjoining landowners will split the cost of a fence; however, this rancher reported that they receive little to no help with fencing costs despite the ranch’s bordering BLM land. While there are benefits to grazing livestock on private land (excluding use of federal grazing allotments) such as having the executive power to make decisions about land use choices, ultimately, he reported that it is more expensive to raise livestock on private land. In his opinion, because they use their own land, they are able to be better stewards of it: ‘we do better because we do what is best for producing the most livestock on our property, and allow no excess grazing’ (M.T. Personal Interview, 2019).

Both ranchers discussed the impact of the wolf reintroduction as well, one of which had personal livestock losses from wolf predation, and the second who reported that while he has not experienced personal losses, his neighbor lost three calves in the proceeding spring to wolves.

While livestock predation is a real issue faced by many ranchers, unintended consequences, such as changing patterns in big game also impact ranchers. Both interviewed ranchers reflected that with the increase in wolves, elk and deer move further down onto private land, which inherently creates a problem for ranchers because the game eats forage growing for winter livestock feed. As reported by the second rancher, “they always come down...and it’s worse in the last 10 years” (M.T. Personal Interview, 2020). In the last two years the family has grown 80 acres of alfalfa on their property, which is cleaned out over a three-day span by 500 head of elk, and their enclosures are destabilized in the process (M.T. Personal Interview, 2020). While some consequences of management policies and strategies are unintended, they can have real implications for ranchers and other public land users. Mediating conflicting uses and ensuring responsible stewardship of the land and resources is of the utmost importance if users, especially long-term users like many ranchers, want to continue using public lands and maintain their livelihoods in these diverse ways.

### **Stakeholder Relations in Lemhi County in Consideration of the SES**

In the case of Lemhi County, human-human relations between residents and locally-based government agency employees were generally more amicable than had initially appeared. For example, although numerous LC participants noted an impact on the community stemming from the reintroduction of the Gray Wolf (or more broadly the EPA and ESA) when asked to reflect on the effectiveness of the Fish and Wildlife Service (FWS) in managing threatened and Endangered Species, over half of survey participants agreed in varying degrees (56%). Perhaps some of this agreement stems from an interpretation of the question like the following: ‘sure they do an effective job, have you seen how many wolves we have now?’ however, this interpretation is difficult to substantiate. One participant reflected that they are effective but noted that once a



species is listed it is difficult to get them removed even after the population is established or rehabilitated, and that conservationists seem to rule [influence] how these efforts are directed. Another noted that there is too much influence by non-residents. Despite some similar justifications, community perceptions were generally positive regarding the FWS and their efforts to manage endangered and threatened species.

Participants were generally approving of efforts by the BLM and the IDFG across categories, whereas more participants reported either that they did not know or did not provide a response regarding efforts by the EPA and the IDEQ. Participant level of agreement or disagreement fluctuated at a greater rate when reflecting on the effectiveness of the USFS across categories. Generally, this can be attributed to two leading causes: 1) the ongoing Forest Plan revision for the Salmon NF and the Challis NF, and 2) both the actual and perceived state of these forested ecosystems, which are often critiqued as under-managed. Discussions of forest management inevitably lead to critiques regarding the prevalence of wildfires due to high fuel loads in under-managed, or perhaps, unsustainably managed forest areas. When evaluating these forested landscapes, there are significant patches of dead timber stands resulting from either wildfire or invasive species like the pine beetle which have had significant impacts on forest composition and health overall. These seemingly negative perceptions of under-management are a likely cause of local opposition to wilderness, which would lead to more forested lands receiving less direct management and exclude local or corporate extraction of inherent resources. This local use is perceived by some to be the only form of management that occurs on much of these forested lands. Considering that the majority of federal land in Lemhi County is National Forest, management strategies have a direct impact on other factors such as water and air quality, wildlife habitat, and the severity of wildfires due to high fuel loads.

While the critiques of management efficiency are justified in many ways. Some reasoning for these critiques emerged from retired (and/or forthcoming) federal employees who reflected on the rigid bureaucracy of the system, which approves some actions over others and requires a standard process that all decisions regarding public land use must go through. This reality results in lengthy processes and approval time for time-sensitive issues among public land users and members of the general public; inevitably, some of these proposed projects fail to produce any tangible outcomes through this process. This overarching system, at times appearing to apply either archaic or impractical processes in management decisions and policy developments, is often a reason for tension between land and resource managers and members of the general public. In Lemhi County these tensions are almost tangible. While the findings of the LC survey show relative agreement with the BLM and the IDFG, further investigation into ethnographic narratives reveal discrepancies and complexities in relations between agency employees and community members, as well as with outsiders.

### **Case-Study Examination of Relations between Sportsmen**

Resident relations with non-residents in the area regarding the use of public lands are also multi-faceted. While positive sentiments towards tourism abound, the fact is that conflicting values and uses can add complexity to this necessary form of community revenue. Hunting and fishing in Idaho has always had a certain draw to outsiders. It is in this realm one can find a particularly prevalent and pressing issue among rural communities. As shown in the Lemhi County survey findings, over half of the surveyed community members reported practicing hunting, fishing, and plant/berry picking suggesting that these activities are important to the community. In the case of hunting, 51% hunted, 71% of whom had done so in the past year; and of all harvesting categories, hunting had the highest percentage of users with the reported

purpose of subsistence, as well as users who hunt on public land. In this instance, hunting practices have been under increased pressure from growing non-resident use as well as continued and likely growing use from area residents. While some non-resident sportsmen generate revenue for local outfitters and guides, in addition to supporting local businesses in varying degrees, they all pay significantly more for hunting licenses and tags than residents do<sup>19</sup>. This increased pressure from a growing hunter demographic alongside ecological changes such as the reintroduction of wolves ultimately impacts the traditional use of hunting by residents in the rural area.

An interview with a resident hunter revealed that relations between sportsmen, both resident and non-resident, and the IDFG are at times frustrating; he reported that decisions regarding disputes or abuses fall under the discretion of agency officers rather than adherence to current laws (S.L. Personal Interview, 2020). This hunter recounted a previous experience in which tensions between residents, non-residents and local enforcement officers were particularly visible. The story takes place on opening day of rifle season for elk where a father and three youth began trying to harvest a bull that they had been watching forage in their pasture over the summer. One of the youth hunters took a number of shots at the elk in the attempt to harvest, and after these hits, the bull started to wander towards the ridgeline where they assumed, he would lie down and die. Once the bull reached the skyline, the father told the youth not to shoot, and then heard another shot fired in the vicinity, towards the skyline<sup>20</sup>. Upon reaching the downed elk, the local group of hunters (residents) were harangued by the second group of hunters (non-residents) approaching who accused them of stealing their bull. With complete disregard for the previous

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<sup>19</sup> Resident hunting license cost is \$15.75 and elk tag costs \$36.75, whereas non-resident hunting license cost is \$154.75 and an elk tag costs \$416.75 (IDFG, accessed 2020).

<sup>20</sup> Based on hunter education/safety guidelines.

bullet wounds or the appearance of a ‘dead-standing’ bull, the non-resident claimed that his single shot, and final shot taken<sup>21</sup>, was responsible for the kill and therefore the elk belonged to him. After some disagreement between sides, the resident hunter called the local IDFG enforcement officer so he could settle the dispute under lawful terms.

Once the local officer arrived, he spoke briefly with the residents and then proceeded to engage with the non-resident hunters; after about 15 minutes the officer returned with his decision to let the non-residents claim the bull. Frustrated, the resident hunter asked what law was being used to determine this outcome to which the officer responded the decision was under his discretion, and cited his justification as the fact that non-residents pay more money to hunt (S.L. Personal Interview, 2020). Not only did the resident hunters lose the bull they had watched for months leading up to that day<sup>22</sup>, they were not able to donate the wild game, as they always do, to a meat ministry facilitated by a local church that distributes donated meat to people in need throughout the community. This story highlights some conflicts inherent in mediating resource use between groups (in this case: residents and non-residents), fostered to some degree by the practice of local enforcement officers’ discretionary case-by-case ruling strategy.

While other instances that evidence this claim were provided by the key informant, and many more reportedly could have been told, in consideration of space these additional cases will

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<sup>21</sup> Bull had been shot a total of 7 times, 6 by the youth hunter, and once by the non-resident hunter.

<sup>22</sup> The different level of invested resources in harvesting that bull is worth noting as it compares effort spent and cost incurred for both groups: 1) for the non-residents this was money spent on license/tag, transportation, and less than ten hours opening morning to locate a bull and get in position, 2) for the residents, the cost of license and tag were much lower, however, time and resources invested were much greater: including the cost of losing private forage to herd grazing, the cost of fence repairs, as well as time spent observing the patterns of the herd, especially harvestable bulls, in preparation for hunting season.

not be detailed here. What remains are the consequences of mediating disputes among sportsmen in this manner. As positioned by the interviewed hunter “it’s lawlessness, so what’s the point of laws?” (S.L. Personal Interview, 2020). It should be noted that the group of non-resident hunters were using a vehicle with fraudulent plates, Idaho plates having been illegally placed over its legal California plates. While this act is liable for serious prosecution no tickets were issued for this illegal activity and rather than receiving charges, hunters were rewarded with a bull. This blatant misuse of officer discretion in settling disputes acts to further erode community trust in this agency, as well as others, and could ultimately lead to increasing tension among user groups.

Conflicts between residents, non-residents, and agency employees are increasingly palpable in Lemhi County; many more stories could be told that would continue to characterize discrepancies regarding public land uses and user rights. It is feasible to consider that any in-depth investigation aimed towards understanding the intricacies that comprise both the socio-ecological system as well as stakeholder relations would be likely to yield enough information to develop secondary or tertiary theses. The purpose of presenting these brief and varied stakeholder narratives is to add depth to the LC survey findings (and to the broader findings), working towards a more holistic evaluation of the cultural as well as political ecology of this rural community. While public land and natural resources are frequently used and reportedly valued, differences in values and uses are cause for tension and conflict among stakeholder groups; these discrepancies characterize residents’ relations not only with agency employees but also with non-resident users.

### **Framing Conflict and Consequences of Differing Stakeholder Values**

As presented throughout this thesis, there are many challenges in land and resource management including a vast backlog of projects, budgetary restraints, outdated and/or rapidly

evolving guiding policies, and a momentous task in stewarding vast landscapes and resources. These challenges become more complex when combined with the task of mediating diverse stakeholder uses, values, and attitudes with these management decisions. As in the case of Lemhi County, the complexity of both human-human and human-environment relations are, in many instances, cause for continued conflict among user groups and those in charge of stewarding the land and resources. The difficulty of these decisions increases when broader interests are also at play, including special interest groups and conservation organizations as well as a diverse voting public that give preference for some uses over others, perhaps with little consideration of resulting impacts on communities that live near and depend on access to these shared lands and resources.

### **Themes of Forest and Wilderness**

Forest health and general management were particularly tense themes among LC participants and community members, so I was interested in seeing the distribution of attitudes regarding forest health among EG survey participants to compare attitudes. In this instance, both Idaho and Western participants reflected similar sentiment in that the majority disagreed (40% and 60% respectively) with the statement that current forest management supports a healthy forest ecosystem; participants in the East, however, were more likely to agree (41%) than disagree (34%). This difference in opinion could be attributed to the different forested ecosystems these geographically distinct groups have ready access to. In the case of the East, the majority of public land is forest and the distribution of forested areas is potentially more easily managed than the vast, and in some cases untouched forested areas in the West. Although only considered and not researched, budget and general resources for eastern-based agencies might be more consistent in supporting proper stewardship of these areas. One possible consequence of

these disparate perceptions is the application of ‘one-size-fits-all’ bills by policy makers residing in the East whose decisions might not fully-consider or understand the complexities of these western issues and attitudes.

The topic of wilderness designation exemplifies the growing complexity of decisions regarding management strategies as well as conflicting values between stakeholder groups. The foundational principle of wilderness in the U.S. is that “man himself is only a visitor who does not remain” (Wilderness Act 1964). While this concept is particularly valued by conservation organizations, this designation precludes any non-traditional and motorized uses of the area. For example, trail reclamation or restoration projects within wilderness areas must be conducted using cross-cut saws and other non-motorized tools and motorized travel is severely limited, these tools are transported either by foot or with packing stock. These guiding principles significantly limit both local and special-interest uses in the area (including any mining or logging). Local opposition to the designation of any additional wilderness areas within the Salmon-Challis National Forest is seemingly overwhelming – including formal letters submitted by LC county commissioners as well as the Idaho Lt. Governor – and much of this opposition critiques the designation as reducing access and thwarting the principles of multiple-use that the county proudly adheres to.

In an interview with a retired forester in Lemhi County, the topic of wilderness emerged while discussing current forest management strategies. He reflected that current community sentiment was nearly identical to when the Frank Church - River of No Return Wilderness area was first proposed back in the 1970’s. He suggested that if the decision been up to the locals, it never would have happened; however, when the decision was up for discussion at a local public meeting, a number of busses showed up with outsiders from larger cities in Idaho who

outnumbered participating locals and therefore influenced the vote in support of the new wilderness area (F.R. Personal Interview, 2018). The contention he--like many other community members-- spoke of lies in the fact that once a wilderness is designated multiple-use principles are no longer valid, access is reduced, and management directives encourage a 'leave-it-alone' policy, precluding any substantive management efforts or responsible use of resources in the area. While I was not aware of it at the time this key informant knew, at least to some extent, Senator Frank Church; he reflected that if Frank Church could see what his wilderness area turned into, he would roll over in his grave. Unintended consequences and unconsidered outcomes of blanket policies, designations, and management strategies have resulted in disparate levels of access as well as severely limiting the use of resources and ultimately the health of these resources. These uses are precluded whether they are responsibly carried out and technologically innovative or irresponsible and archaic.

When analyzing the resulting data from the EG survey, I was surprised to see that the majority of participants regarded wilderness as an effective and desirable approach to protecting wild spaces and natural resources; especially considering the staunch opinions of many LC locals who remain on the other side of this debate. The perceived value of wilderness was reflected in the results to the question of the most valuable resource on public land whereas wilderness was either the most frequent selection (25% in the East), or tied for most frequent (26% in Idaho – which tied with public access and 29% in the West – which tied with water). Reconciling differences in the attitudes of rural residents in the case-study with attitudes of the larger surveyed population are somewhat difficult to evidence based on the limited data available and only conjectures can be formed. While I expected some support from eastern and western participants in response to this statement, I assumed, incorrectly, that attitudes among Idaho



participants would reflect those in Lemhi County. One causal explanation relates to the demographic composition of the Idaho EG survey group, which had a large boost in participation after being shared along the Idaho Trail's Association (ITA) network. A large portion of these ITA recruited participants were either from Boise and the surrounding areas or McCall; two areas that are experiencing differing levels of urban sprawl and an evolving ideological composition. A second conjecture regarding the overwhelmingly positive responses supporting wilderness is that the question was not framed succinctly to capture variances in attitudes about wilderness designations. Further research in this area could yield valuable insight considering the apparent perceptual disconnect between rural residents and the broader public and perhaps highlight a potentially growing issue of mediating the growing rural-urban divide in Idaho.

### **Natural Industry Leases, Tourism, Recreation, Grazing**

While forest health and wilderness designations appear to present unique challenges in management efforts, another area worth noting are the findings related to the social perceptions of natural resource leases. General disagreement among EG survey groups far outranked total agreement in response to the statement that mineral leases, including oil and gas, are responsibly carried out, with appropriate consideration of environmental and social impacts. Among participants in the western and Idaho groups, disagreement accounted for 77%, and disagreement in the East accounted for 67% of the survey population. The stark levels of disagreement among EG participants suggest an underlying opposition to mining and the oil and gas industries. Ultimately, these findings could have been better represented if the topics of mineral leases/mining and oil and gas were divided into separate questions to evaluate. Presented as a single topic for ranking attitudes, blanket disagreement among participating groups reveal some

contention among members of the public against these industries and therefore begs the question of how these industries will move forward in this form of resource use.

After interviewing a key informant from the mining industry and attending a presentation by the Idaho Mining Association, this range of negative response evident in the EG survey results was made clearer. Both key informants reported that one of the greatest challenges of mining relates to the negative social perceptions about the industry which create difficulty in gaining support for projects—whether by local communities or the broader U.S. public. Lack of education, or piece-meal knowledge has ultimately contributed to the development of educational campaigns by different mining companies and associations in order to re-educate the public from former archaic perceptions of mining strategies to the innovations of mining in the 21<sup>st</sup> century. As stated by both key informants, without public support these projects will continue to face opposition despite new strategies that mediate previous shortcomings in the industry. This dissension ultimately contributes to difficulty and complexity in developing these industries into socially acceptable and environmentally responsible strategies. As with attitudes regarding wilderness designations, social perceptions of mining and the oil and gas industry warrant additional research to more completely understand what steps to take in mediating different values and uses.

The use of public lands for grazing received less approval or support from the extended geographic study than from Lemhi County participants, specifically regarding perceptions about the responsibility and sustainability of current grazing use. Disagreement regarding the responsible and sustainable use of public lands for grazing was consistently higher than agreement for all three groups; in Idaho 50% disagreement versus 31% agreement, 57% versus 18% among participants in the west, and 39% versus 25% in the East. Many of the justifications

given reflected dissatisfaction with the negative consequences for the landscape such as overgrazing and disturbances to riparian areas, or critiques that grazing fees are too nominal for the level of impact that occurs as a result. One participant who selected ‘disagree’ explained they “don’t know enough to provide an informed response, but I lean towards disagreement.” Perhaps this participant response alludes to the subconscious ideologies that while not based in scientific understanding, contribute to the dissention between stakeholder groups and the complexities of continued management.

While many discrepancies in values and uses are presented by comparing the LC and EG survey results, one area that received general consensus among participants was the overall benefit of tourism, especially its importance as it relates to the maintenance of public land access. General agreement accounted for the vast majority of participants including 89% in Idaho, 88% in the west, and 89% in the east. Among LC participants, 92% reported that tourism was beneficial to the community, and 81% reported tourism was also beneficial to public land. The high value placed on tourism among the EG participants in light of the reported importance of public land tourism to community well-being in Lemhi County suggests that tourism is a burgeoning industry among the broader public and has significant and primarily positive results for rural communities like Lemhi County. Tourism, and other non-resident uses, do foster some inherent conflicts between stakeholders and ultimately consequences for the public land ecosystem. While continuing to support and develop this industry, it is vitally important to assess these relations and explore complementary methods that include, rather than preclude other uses as well as reducing competition of uses between stakeholders, particularly resident and non-resident uses.

## **Reflections on Stakeholder Access and Awareness**

The primary goal of this research was to evaluate the socio-ecological interconnectedness of people and public land; a secondary goal attempted to gauge the level of public awareness about public land related topics and their level of access to leaders involved with public land issues. The underlying assumption is that greater awareness and access lead to a greater ability to participate in discussions and decisions regarding public land and natural resources. As shown in the results and analysis chapters, participant levels of awareness as well as measures of access are varied and often limited based on personal experience and/or situation. Over 80% of each EG group reported disagreement in response to the statement that the general public is aware and educated about public land issues; this response alone shows the perceived, and perhaps actual need for public education involving public land topics. When reduced to knowledge of simple facts like the percentage of federal land: 66% of LC participants knew how much of their county was public land and 42% knew how much of Idaho was public land. Among EG participants, between 54% and 65% correctly identified the acreage of US federal land, whereas far fewer knew the acreage of subsurface mineral estate managed by the BLM (accuracy ranging between 9% and 19%). While the acreage of subsurface minerals is less known, and perhaps considered obscure, it is no less important to know when discussing the potential of public land and resources under management of the federal government. Awareness can also be reflected by the frequency of participants selection of both neutral and don't know, and in some instances abstaining from a question. The LC findings, for example revealed that participants were not particularly aware of how efficient management efforts by the EPA and the IDEQ were; the topic of grazing among EG participants yielded a broad spectrum of agreement, disagreement, neutral, and don't know. Results from both surveys reveal that generally, people were able to identify an

instance of cause and effect from overarching management policies, although often the effect was better understood than the cause. In the case of the EG survey, participants in Idaho and the west were far more likely to recall a public land or natural resource policy that directly impacted them (59% and 71%), than participants in the east (39%). This reveals some insight into the potential for ideological disconnects between eastern policy makers and western states with the majority of these lands.

Access to political leaders in public land and natural resource management was positively reported by the majority of each EG group (accounting for 47%-48%), although many other participants reported they were lacking this access to some degree. Among LC participants, 60% reported that they had some level of access to community leaders who could address their concerns (whether about the community or their surrounding area). Access to information can also provide a measure of participant ability to understand and participate in decisions involving public land and natural resources. While not examined in the LC survey, participants in the EG survey were asked to rank the statement relating to their ability to understand the language and therefore access information regarding proposed policies and bills. General disagreement was most frequent by Idaho and Western participants (45% and 48%, the majority of which were ‘somewhat disagree’) and eastern participants generally agreed (34%) slightly more than they disagreed (32%). These findings show that access, whether to leaders or information about proposed changes in public land and natural resource management, is also disparate, and almost half of the EG survey participants reported limited, if any access. Access to leaders was slightly higher in the rural case-study, although still somewhat limited; this could potentially correlate with how long the participant has lived in the county (reported new residents said they did not have access to leaders ‘yet’). These measures of awareness and access generally highlight

opportunities for improved education which could ultimately lead to a more informed public that is better equipped to participate in the decision-making process.

While public land and natural resources are valued across stakeholder groups, disparate values, uses, perceptions, and ultimately education, add complexity in discussions about future use and developments. In some areas, solutions as well as compromises are easier to address, as with social perceptions of tourism, and others are more difficult to navigate as may be the case with wilderness designations, forest management, natural resources leases, and grazing.

### **Looking for Solutions: Promising Cases of Responsible Resource Use and Development**

While there are many pressing issues to evaluate and solutions to explore in land and resource management and use, there are a few examples worth noting that have promise of moving towards a cooperative future among stakeholder groups and the local ecosystem. The two examples presented, one from each ranching and mining reveal that land and resource management along with continued use can generate positive results. These cases may reflect a new interpretation of wise-use, one that results in mutual benefit between stakeholder groups as well as developing innovative strategies to use land and resources responsibly and sustainably.

One prime example of positive stakeholder relations as well as the responsible and sustainable use of land and resources is Alderspring Ranch; the land sits in a semi-arid valley encompassed between the Pahsimeroi and Lost River mountain ranges and produces high-quality grass-fed organic beef. The landscape has supported traditional ranching with BLM and USFS grazing leases until a conservation organization purchased the land and grazing rights in the hopes that they could protect this area from further degradation. The first-generation ranching family, in search of an area that would allow them to certify their grass-fed beef as organic, proposed to the organization a plan to ranch the land in a manner that would not only restrict

further degradation but ultimately improve the landscape and available resources. Their plan adhered to regenerative principles, a growing trend in ranching and agriculture, in which decisions about use are calculated based on the needs of a given landscape. One example among practices at the Alderspring Ranch relates to their hands-on approach in influencing livestock grazing patterns. Traditionally, ranchers use cattle drives to move cattle to and from the range at the beginning and end of grazing season. At Alderspring Ranch, they practice inherding (or intensive and intentional herding), which requires a team of riders to move with the cattle throughout the entire range season. This method restricts the ability of livestock to impact some areas more than others, especially riparian zones, as they are continually herded along optimal routes and areas that would benefit from some degree of grazing impact. In this way, ranching at Alderspring regenerates the landscape and in turn produces a quality product and an increasingly healthy ecosystem to sustain the operation for generations to come. Alderspring Ranch highlights the potential of fostering positive stakeholder relations consisting of collaboration between ranchers, conservation organizations, as well as management agencies, while at the same time creating a positive impact on the landscape.

In the case of mining in Idaho, one project stands out as a particularly promising example of responsible use and mutual benefit. The Midas Gold Stibnite Project in Valley County, Idaho (Lemhi County's eastern neighbor) exemplifies innovation within the industry including the implementation of new and improved technology, alongside extensive proposed restoration and reclamation projects. Their project area lies in the historical Stibnite Mining District, initially developed in the 1800's which had been mined under little to no federal or state regulatory guidance up until the 1990s (Midas Gold, accessed 2020). Midas Gold, a Toronto based company, is interested in extracting remaining gold and antimony deposits and has proposed not

only to leverage improved mining techniques like a fully-lined tailing storage facility, but also to take more measures than are legally required in order to restore previous damage as well as remediate impacts from continued mining. In this way, they propose to leave the landscape better than they found it, including areas outside their planned operation zones. As stated by their Education Coordinator regarding a particularly damaged area, “this is not an area we plan to mine, but it’s something we can fix because we are here operating” (Midas Gold, accessed 2020). This mining company adheres to the guiding principle of ‘restore the site’ which showcases their intention of repairing previous disturbances and finding a way that mining projects and environmental health can be simultaneously achieved and perhaps mutually beneficial.

Not only is Midas Gold proposing substantial efforts to making mining and environmental health complementary, they also put an emphasis on promoting economic prosperity and community well-being in Idaho, and Valley County especially. According to a press release, in 2019, the company spent \$228,000 in community sponsorships, donations, and scholarships; over 90% of this giving was directed towards communities in Valley County. These contributions provide support for local schools as well as scholarships for continuing education credits among local teachers; other projects included funding a new base-ball field and sponsoring events in the area which is where the majority of giving is allocated (H. R. Personal Interview, 2020). According to their 2014 pre-feasibility report, Midas Gold states that the Stibnite project will generate: “500 direct jobs...[an] average salary [of] \$80,000 per year, \$150 million in state and local tax revenues..., \$300,000 annually from property taxes, and \$110 million in direct, indirect and induced benefits from labor during construction” (Midas Gold, accessed 2020). While the Stibnite project appears to have promise, only time will tell if this



project sets a new precedence of mining in Idaho as well as positively influencing social attitudes about the industry. As stated in an interview with the sites Education Coordinator, there are two primary roadblocks for conducting mining operations, one of which relates to the issue of education and piece-meal knowledge base among the public, and the second relates to outdated mining laws at the federal and state level. This key informant noted that with the backlog of reclamation projects on public land combined with federal and state budgetary restrictions, the mining industry can step up and restore the landscape: “If not mining, then who?” (H.R. Personal Interview, 2020). With operating plans like these, corporate interests can benefit both rural communities and the state, as well as the nation by securing domestically-sourced critical minerals. Accordingly, state and federal laws should be updated to support a higher standard of mining, as well as increased accountability and transparency from corporations, and measures to promote the well-being and prosperity of the communities directly associated to the project areas.

## **CHAPTER SEVEN**

### **CONCLUSIONS AND FUTURE**

This thesis serves to explore the complexities in the socio-ecological system constituting relations between people and the public land in the U.S. Its primary focus was directed towards evaluating these relations within a rural Idaho county where uses and dependencies remain integral for community well-being. As shown in it proceeding chapters, rural relations with local public land and natural resources are intertwined within a web of traditional uses, community ideologies, evolving management policies, and an increasing use of public land by locals and outsiders. Many factors influence these relations whether these are between stakeholders (including government agency employees) or between stakeholders and the public land ecosystem. The primary focus of this thesis was complemented by the secondary survey of an extended geographic and demographic study which revealed greater complexity in mediating diverse social perceptions of and relations with stakeholders and the public land ecosystem. These complexities are aided by differing values, uses, and attitudes among individuals as well as communities whether these communities are natural as in the rural Idaho county or intentional such as within special-interest groups.

The findings of this thesis point to the inherent connection of anthropological studies in cultural ecology and political ecology, where at least in this instance, relations between people and their environment are a product of or an adaption to a greater bureaucratic system that directs how these relations can manifest. In rural areas like Lemhi County influence by government and ultimately special-interest groups can result in disparate access to traditionally utilized lands and resources. Findings in this study cannot be deemed definitive particularly due to the limited sample size and perhaps the arguably non-random survey pool, however, this study reveals a

certain potential of conducting research that contributes towards understanding the complexity of social perspectives regarding public land in the U.S. Throughout this research there was apparent interest among Lemhi County community members and the wider public regarding the need for research like this and the potential value of the resulting data. Conducting research like this generates more knowledge which can contribute to a better-informed discussion about the future of public land and natural resources. Debate among stakeholders, including special interest groups and policy makers, will likely evolve into greater complexity as the public (whether national or global) gains more interest in the future of public land enmeshed within a diversifying ideological framework and as the value of finite resources increases over time. Ideally, research like this can support data-driven decisions that are not based solely on economic, political, or environmental factors, but in conjunction with social and cultural factors, working towards successful co-management strategies, or supporting developments of place-based management strategies.

For residents of Lemhi County this research provided an opportunity to reflect on the importance of public land to them as individuals and as a rural community that is largely surrounded by public land. I had multiple participants comment that they enjoyed the survey because they felt that they could be honest and that maybe, just maybe, their voices would be heard. Revealing a shared sentiment that although there are public comment periods for a variety of decisions, locals perceive that their voices are not heard and that their opinions do not matter in the grand scheme of things. One particularly encouraging response was the reflection that taking the EG survey made the participant think and inspired them to do a little research of their own on unfamiliar public land topics. These responses, and others throughout, made conducting this, at times arduous and seemingly monumental research endeavor worthwhile.

As the debate encompassing the future of public land and natural resources in the U.S. continues, it is vitally important to include the diversity of factors that contribute to the socio-ecological system, whether focused locally, nationally, or globally. These decisions cannot continue predicated solely on political, economic, and/or environmental factors but require innovative strategies to mediate an increasing diversity and intensity of stakeholder relations (whether human-human or human-environment). The future of public land and natural resources should be supported through data-driven decisions across these inherently interrelated spectrums and include collaboration among policy makers, governmental departments and agencies, special-interest groups, and members of the general public. Data that can support more informed management is enriched through a continual flow of dialogue – where differing interests, ideas, critiques, and solutions can be incorporated into the decision-making process. These dialogues cannot be one-way, rather they must be multi-directional accepting input from the diversity of cultural-ecology narratives. In order to support this, members of the public have a responsibility to be informed and participatory in public land related topics and decisions and overseeing management agencies have a responsibility to effectively incorporate stakeholder input in land and resource decisions. I would add that special-interest groups (including corporations) also have a responsibility in providing transparency and education, not only about their own interests, but also with consideration of the socio-ecological system as a whole.

In moving forward, data-driven decisions can be supported by the inclusion of community-based and/or socially-oriented research, similar to the research presented in this thesis. This type of anthropological investigation can inform the underlying values of public land and natural resources to the American public and perhaps foster more knowledge regarding inherent relations, whether socio-ecological or between stakeholders. This data in real-time, and

continually flowing can aid in understanding the complexity of human-environment relations between stakeholders and the public land domain. The collaboration of multiple disciplines facilitates a comprehensive investigation spanning historical, political, economic, environmental, and social framework. The integration of GIS maintains inherent potential for increased efficiency in the collection, analysis, and visualization of data which can yield actionable information. Anthropology, specifically cultural ecology and political ecology can benefit from leveraging these tools to deliver research instruments and recruit participants spanning ideologies and geographies. An anthropology methodology that places the observer within the observed population combined with a research goal to assess problems and potential solutions fosters a participatory action-oriented research paradigm. This can ultimately lead to improved findings and results.

In closing, one thing that this research suggests is an inherent value of public lands to rural counties and communities; these values and uses are sometimes contested by larger and differing segments of the population. This thesis points to the need, as well as the opportunity, for mutual education between rural community residents and the external government-industry-public interests, thereby fostering improved relations within the webs of complex socio-ecological systems. These improved relations are possible, perhaps even enthusiastically and optimistically welcomed, however, they require innovation and science-based strategies to co-manage for the environment and for people.

### **Further Research**

While this research resulted in an exploration of the socio-ecological systems comprising stakeholders and the public land ecosystem, neither the case-study nor the extended geographic study yielded any definitive results. Further studies in this realm are necessary to better represent

diverse stakeholder perspectives and interrelations. Perhaps what this research and thesis highlight is the possibility of conducting studies of this magnitude and relevance by leveraging technology and fostering participatory research. In continuing this research, it would be beneficial to explore deeper connections within the survey groups through multi-criteria analysis. For example, I could have investigated ideological discrepancies in management agency effectiveness based on participants reported experience working with one of these agencies. These types of analyses could result in a greater understanding of the social constructions that encompass the socio-ecological system. Another extension could leverage the inherent spatial component to evaluate factors like urban versus rural ideologies, which would have been particularly insightful in the EG Idaho group.

Further research is certainly necessary to evaluate discrepancies and intricacies of cultural and political ecologies prevalent. Higher participation numbers, for example, would facilitate more comprehensive and representative findings than are presented in this thesis. As is, this thesis only captures the tip of the iceberg, and reveals an inherent diversity and complexity in the range of ideological possibilities constructing the socio-ecological interrelatedness of people and public land. In moving forward, these research efforts would benefit greatly from dedicated resources of additional researchers and allocated funding. The support of which could significantly improve the continued development, implementation, and application.

## EPILOGUE STATEMENT

This thesis showcases one of the inherent truths of Anthropology, which is that culture is not static, rather it is dynamic – free flowing and continually evolving. As individual and national ideologies shift, the story told here will shift too. This thesis captures the cultural and political ecology of the socio-ecological system within a certain time frame, but this will continue to change. For example, the Corona Virus, has shifted typical patterns of public land use –including closures of forest roads and developed campsites, temporarily halting sale of out-of-state hunting licenses, among other things. Currently camping is discouraged, among other public land uses, but this is only temporary. What appears as a result is an influx of people to rural areas from the cities, resulting in an increased market value for homes and property in the area and a shifting voter demographic. The associated trend of limiting foreign imports may cause government entities and the general populace to reconsider resource dependencies from foreign countries while supporting the development of these supplies domestically. As shown throughout this thesis, new policies and bills are continually proposed and debated and this change occurs with each administration and even within administrations. As it stands, it is difficult to calculate how these impacts will manifest in places like Lemhi County. What remains is a need for responsible and sustainable development with consideration of social dependencies in the area.

The ultimate purpose of this research was to highlight a multi-disciplinary application of social sciences with hard sciences like GIS. When I began my graduate studies in Anthropology, I took a number of GIS classes to gain a better understanding of the tools uses to make decisions in the 21<sup>st</sup> century. I was genuinely surprised by the lack of data that represented the human side of things, moreover, the lack of interest in incorporating social data into a GIS framework as a

decision-making tool. GIS provided an opportunity to collect and analyze large datasets as well as representing social aspects of public land in maps – which have been used for centuries as a form of information to make decisions. Without social data, the human side is under-represented in many of these decisions, therefore it is beneficial to develop strategies for collecting and incorporating socially-derived data within a GIS framework so as to produce actionable information for continued discussions about the future of public land in the United States. As this thesis has attempted to show, data, or knowledge, is power and good data is beneficial for government entities, policy makers, special-interest groups, and the general public because it can lead to more informed decisions and therefore contribute towards mediating complexities in values, uses, and perceptions of public land as it relates to individual and group livelihoods. While this thesis report is nearly finished – new stakeholders continue to participate in the EG survey online; this highlights the perceived value of research as presented in this thesis and suggests that this work should continue if it is to remain relevant.



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## Appendix I

### Lemhi County Survey Questions and Setup

**Lemhi County Survey digital link:** <https://arcg.is/0f41b4>

\*Note – please use this link for reference only. As noted in the preceding text, this is a smart survey platform, so response selections will alter the content that is visible to a user. Feel free to ‘play around’ but please do not hit ‘submit’ at the end of the survey.

**For those that want to see the questions and design in a table form rather than the digital form – see below.**

The following table shows the set-up of the survey in the form design stage.

‘type’ references the format of the display information (*note* provides information to participants, *select\_one* or *select\_multiple* requires a user to select one or more options from a provided list (see EG Response Selections directly after), *integer* allows number inputs, *text* permits users to respond in free-form written answers, *group* defines a set of related questions, and the addition of ‘or other’ at the end of a type selection is used to provide an ‘other’ option to the list of available responses).

‘name’ refers to the name of the resulting fields (columns) in the exported database.

‘label’ refers to the input that users see in the form template. In this instance, they represent the questions asked or information given throughout the survey.

‘relevant’ provides additional information about the survey. Put simply, relevant stores information about if or when a question on the survey should be visible to users. In the first example below, I asked if people were willing to provide their zip code, if they answered yes (or ‘1’ as coded in the Selection Choices document), they were provided a question space to enter their zip code, if they responded no (‘0’), they were asked to provide an alternative form of location to represent their data.

type	name	label	relevant
note	intro	Thank you for your interest in taking this survey. It has been created with great care and with you in mind. Please remember, answer only what questions you feel comfortable answering. The only required question on this survey is the consent to participate question at the very beginning. Also remember that this survey is designed in a way that will keep you	

		<b>anonymous, your name will not be associated with this data.</b>	
select_one consent	consent	Do you consent to participating in this survey?	
note	noconsent	If you do not consent, you should not continue.	\${consent} = "no"
select_one lemhiresident	lemhiresident	Are you a resident of Lemhi County?	
select_one type	type	Would you like to answer these questions for yourself or your household?	
integer	hhmembers	How many people live in your household?	\${type} = "hh"
integer	idres	How many years have you been an Idaho resident?	
text	hhidres	How many years have the other members of your household lived in Idaho?	\${type} = "hh"
integer	lemhires	How many years have you lived in Lemhi County?	
text	hhlemhires	Is it the same for the others in your household?	\${type} = "hh"
<b>begin group</b>	situation	Questions About You	
<b>note</b>	youdisclaim	These questions are included because they help provide a full picture of what types of people are taking this survey. It allows me to consider my survey population demographics which is very important for national comparison.	
select_one situating	situating	Are you willing to answer questions about your work, education, and home?	
text	education	What is the last grade of school you completed?	\${situating} = "yes"
text	hheducation	What about the others in your household?	\${situating} = "yes" and \${type} = "hh"
text	employment	What is your current job title?	\${situating} = "yes"
select_one income	income	Can you estimate your (or household) average gross income?	\${situating} = "yes"
text	hhemployment	Does anyone else in the household work?	\${situating} = "yes" and \${type} = "hh"
select_one fedstemploy	fedstemployment	Have you ever worked for a federal or state	\${situating} = "yes"

land/resource management agency?			
select_one hhfedstemploy	hhfedstemployment	Has anyone in your household worked for a federal or state land/resource management agency?	\${situating} = "yes" and \${type} = "hh"
text	otherincome	Do you receive any other form of income? (i.e. State or Federal assistance)	\${situating} = "yes"
select_multiple heatpower or other	heatpower	How do you heat and/or power your home?	\${situating} = "yes"
select_one farmer	farmer	Do you consider yourself a farmer?	
select_one pastfarm	pastfarm	Have you ever farmed?	\${farmer} = "no"
note	sortofexpfarm	If you have farmed in some way, please explain.	\${farmer} = "no" and \${pastfarm} = "sort of"
select_one famfarm	famfarm	Has your family farmed previously?	
select_one rancher	rancher	Do you consider yourself a rancher?	
select_one pastranch	pastranch	Have you ever ranched?	\${rancher} = "no"
note	sortofexp ranch	If you have ranched in some way, please explain.	\${farmer} = "no" and \${pastranch} = "sort of"
select_one famranch	famranch	Has your family ranched previously?	
<b>end group</b>			
<b>begin group</b>	situation2	Questions About Your Land	
	disclaimland	This section addresses what your situation is in the world. It is useful for comparison data with others in the world.	
select_one borderland	borderland	Do you own land that borders public land? (i.e. BLM or National Forest)	
select_one distancefrom	distancefrom	Can you estimate how far from public land boundaries you live?	\${borderland} = "no"
select_one landquestions	landquestions	Are you willing to answer a few questions about your land?	
integer	acreage	How many acres do you own?	\${landquestions} = "yes"
select_one propertyowner	propertyowner	Was your property purchased by you or inherited from someone else?	\${landquestions} = "yes"

integer	landpurchased	Approximately what percentage of your land was purchased by you?	\${landquestions} = "yes" and \${propertyowner} = "both"
integer	landinherited	Approximately what percentage of your land was inherited from someone else?	\${landquestions} = "yes" and \${propertyowner} = "both"
integer	ownerduration	How many years have you owned your property?	\${landquestions} = "yes"
select_multiple sportsmenaccess	sportsmenaccess	Do you allow any sportsmen access to your property for hunting, fishing, trapping, or harvesting other food related items?	\${landquestions} = "yes"
select_one poachingincident	poachingincident	Have any incidents of poaching ever occurred on your property?	\${landquestions} = "yes"
select_one poachresponse	poachresponse	How did you respond to this incident?	\${landquestions} = "yes" and \${poachingincident} = "yes"
text	poachresother	If other, please explain	\${landquestions} = "yes" and \${poachingincident} = "yes" and \${poachresponse} = "other"
<b>end group</b>			
<b>begin group</b>	subsistence2	Questions About Hunting, Fishing, Plant/Berry Harvesting, and Gardening	
<b>note</b>	disclaimsubsist	This section is very important. If you use public lands to feed yourself or your family, or garden, please contribute your responses.	
select_one hunt	hunt	Do you hunt any game animals?	
select_one huntpastyear	huntpastyear	Have you hunted in the past year?	\${hunt} = "yes"
text	hunttrend	Would you say that you hunt more, less, or the same as you have in previous years? Please provide a brief explanation of why.	\${hunt} = "yes"
select_multiple huntspecies	huntspecies		
select_multiple deer	deer	What species of deer do you target?	\${hunt} = "yes" and selected(\${huntspecies}, "deer")
select_multiple rabbit	rabbit	What species of rabbit do you target?	\${hunt} = "yes" and selected(\${huntspecies}, "rabbit")
select_multiple migratory	migratorybirds		
select_multiple upland	upland		
select_multiple furbearer	furbearer	What types of furbearers do you target?	\${hunt} = "yes" and selected(\${huntspecies}, "furbearer")

select_multiple huntpurpose or other	huntpurpose	What is the purpose of hunting for you?	\${hunt} = "yes"
select_one huntarea	huntarea	Do you generally hunt on private land, public land, or a combination?	\${hunt} = "yes"
select_one hhhunting	hhhunting	Does anyone else in your household hunt?	\${type} = "hh"
select_one fish	fish	Do you fish?	
select_one fishpastyear	fishpastyear	Have you fished in the past year?	\${fish} = "yes"
text	fishtrend	Would you say that you fish more, less, or the same as you have in previous years? Please provide a brief explanation of why.	\${fish} = "yes"
text	fishspeciestxt	Do you target any fish in particular? If so, why?	\${fish} = "yes"
select_multiple fishpurpose or other	fishpurpose	What is the purpose of fishing for you?	\${fish} = "yes"
select_multiple fisharea	fisharea	Do you generally fish on private land, public land, or a combination?	\${fish} = "yes"
select_one hhfishing	hhfishing	Does anyone else in your household fish?	\${type} = "hh"
select_one selfprocessgame	selfprocessgame	Do you process your own wild game?	\${hunt} = "yes"
select_one harvestwildveg	harvestwildveg	Do you harvest any wild berries or plants?	
select_one veglastyear	veglastyear	Did you harvest any wild plants or berries in the past year?	\${harvestwildveg} = "yes"
text	vegtrend	Would you say that you harvested more, less, or the same as you have in previous years? Please provide a brief explanation of why.	\${harvestwildveg} = "yes"
text	wildplantsberries	What species do you generally target?	\${harvestwildveg} = "yes"
select_multiple vegpurpose or other	vegpurpose	What is the purpose of harvesting wild berries or plants to you?	\${harvestwildveg} = "yes"
select_one wildpreserve	wildpreserve	Do you preserve any wild plants or berries?	\${harvestwildveg} = "yes"
select_one growownfood	growownfood	Do you or your household grow any of your own food?	
select_one growamount	growamount	How much of your own food do you grow?	\${growownfood} = "yes"
select_one growseason	growseason	Do you grow seasonally or year-round?	\${growownfood} = "yes"

select_one growpreserve	growpreserve	Do you preserve any homegrown foods?	\${growownfood} = "yes"
select_multiple shareharvests	shareharvest	Do you share any harvests with people in the community?	
select_multiple sharedharvests	sharedharvests	Do people in the community share any harvests with you?	
<b>end group</b>			
<b>begin group</b>	publanduse	Questions About How You Use and Value Public Lands	
<b>note</b>	disclaimuse	These questions may be some of the most important ones on this survey. This data is important to talk about your dependence on public lands and natural resources in your area.	
select_one publiclanduses	publiclanduses		
select_one recreationuse	recreationuse	Do you use public lands for recreation purposes?	\${publiclanduses} = "yes"
select_one recfrequency	recfrequency	How often do you use public lands for recreation purposes?	\${recreationuse} = "yes"
select_multiple recactivities or other	recactivities	What types of recreation activities do you do?	\${recreationuse} = "yes"
select_one recactwater	recactwater	Do you use waterways for recreation purposes?	\${recreationuse} = "yes"
select_multiple recwater or other	recwater		
select_one tourism	tourism	Do you feel that tourism in Lemhi County is beneficial to the community? Please explain.	
note	tourismnote	Use this space to explain your answer.	
select_one tourismpublands	tourismpublands		
note	tourismpublandsnote	Use this space to explain your answer.	
select_one tourismbenefit	tourismbenefit	Do you directly benefit from tourism in Lemhi County or Idaho in general?	\${publiclanduses} = "yes"
select_multiple howbenefit or other	howbenefit	How do you benefit from tourism?	\${tourismbenefit} = "yes"

select_one publandgrazing	publandgrazing	Do you feel that public land grazing in Lemhi County (or Idaho) is responsible and/or sustainable?	
select_one grazingrights	grazingrights	Do you have public land grazing rights?	\${publiclanduses} = "yes"
select_one grazingquestions	grazingquestions	Are you willing to answer a few questions about your grazing use?	\${grazingrights} = "yes" or \${grazingrights} = "usedto"
select_one grazingallot	grazingallot	Do you have grazing rights for State or Federal allotments, or both?	\${grazingquestions} = "yes"
select_one grazingarea	grazingarea	Are your grazing allotments in Lemhi County?	\${grazingquestions} = "yes"
select_one grazinguse	grazinguse	Do you use your grazing allotments for your own use or do you lease them to others?	\${grazingquestions} = "yes"
integer	grazinglease	What percentage of your grazing rights do you lease?	\${grazingquestions} = "yes" and \${grazinguse} = "other" or \${grazinguse} = "both"
select_one grazingproximity	grazingproximity	Are your grazing rights directly connected to your property or do you have to transport your stock?	\${grazingquestions} = "yes"
select_one timber	timber	Do you participate in the timber industry?	\${publiclanduses} = "yes"
text	timberindust	If yes or used to, how?	\${timber} = "yes" or \${timber} = "usedto"
select_one firewood	firewood	Do you use Forest Service firewood permits?	\${publiclanduses} = "yes"
select_multiple timberpurpose or other	timberpurpose	If you have harvested timber what was the purpose for you?	\${publiclanduses} = "yes"
select_one firewoodarea	firewoodarea	Do you harvest firewood in Lemhi County?	\${firewood} = "yes" or \${firewood} = "usedto"
select_one wildfire	wildfire	Have you or your household ever been in close contact with a wildfire?	
select_multiple wildfirecontact	wildfirecontact	Have you or your household ever lost a home or experienced other property damage due to a wildfire?	\${wildfire} = "yes"
select_multiple wildfireimpact or other	wildfireimpact	Have burn years affected your lifestyle?	
text	impactlevel		
select_one minesight	minesight	Have you personally seen any of the mines in Lemhi County?	



select_multiple minestatus or other	minestatus	What was the status of the mine(s) you saw?	\${minesight} = "yes"
text	mine	Do you recall which mine(s) you saw or where they were in Lemhi County?	\${minesight} = "yes"
select_one mineparticipate	mineparticipate	Do you participate in the mining industry?	\${publiclanduses} = "yes"
text	minehow	Can you provide a brief explanation of how you are or were involved with the mining industry?	\${mineparticipate} = "yes" or \${mineparticipate} = "usedto"
text	mineyears	Can you estimate how many years you spent in the mining industry?	\${mineparticipate} = "yes" or \${mineparticipate} = "usedto"
select_one hhmining	hhmining	Does anyone in your household participate in the mining industry?	\${type} = "hh"
text	hhminehow	Can you provide a brief explanation of how they are or were involved with the mining industry?	\${hhmining} = "yes" or \${hhmining} = "usedto"
text	hhmineyears	Can you estimate how many years they spent in the mining industry?	\${hhmining} = "yes" or \${hhmining} = "usedto"
text	minerals	Can you name any minerals currently or historically mined in Lemhi County?	
text	mineralsglobe	Can you name any minerals mined in Lemhi County that have global significance?	
<b>end group</b>			
<b>begin group</b>	community	Questions About Your Community	
<b>note</b>	commdis	The reason I have included these questions is to understand the bigger picture about your community's involvement with each other and with public lands.	
select_one commquestions	commquestions		
text	commdefine	How do you define your community? (i.e. county, township, selected family and/or friends, etc)	
select_one commsurplusnet	commsurplusnet	Have you ever received a surplus of goods from local farmers, ranchers, sportsmen, or food growers?	
text	commnetwork	What types of goods did you receive?	\${commsurplusnet} = "yes" or \${commsurplusnet} = "usedto"

select_one commgarden	commgarden	Do you participate in community gardening?	
select_one gardenpresent	gardenpresent	Is there a community garden in your area?	\${commgarden} = "no"
select_one gardenpartic	gardenpartic	Could you participate if you wanted to?	\${gardenpresent} = "yes"
select_one ctyemploy	ctyemploy	Have you ever had to leave Lemhi County or Idaho for work?	
select_multiple employreason or other	employreason	Why did you seek employment elsewhere?	\${ctyemploy} = "yes"
select_one employquestion	employquestion	Are you willing to answer a few questions about the type of work and where?	\${ctyemploy} = "yes"
text	employtype	What type of employment did you find? (i.e. industry, service, healthcare, etc)	\${employquestion} = "yes"
text	employloc	What state or other Idaho county did you find employment in?	\${employquestion} = "yes"
select_one commmembers	commmembers	Are there members of the community that you feel you can go to for advice or assistance?	
select_one commleaders	commleaders	Are they considered leaders of the community?	\${commmembers} = "yes"
END OF RELEVANT COLUMN			
select_one envirpolicies	envirpolicies	Can you recall any environmental policies put in place that directly impacted you, Lemhi County or Idaho in general?	
text	whatpolicies	If yes, please explain.	
select_one standliving	standliving	Do you feel the standard of living in Lemhi county is below average, average, or above average?	
text	livingexp	Please briefly explain why.	
text	pubbeneficiaries	Who do you think benefits the most from Lemhi county public lands? (i.e. miners, sportsmen, timber industry, recreationists, locals, etc)	
text	beneexp	Please briefly explain why.	
end group			
begin group	commopin	Community Opinion	
note	disclaimcomm	I am asking these questions because I want to understand how you view your community, and your interaction with public lands and natural resources.	
select_one ctypublands	ctypublands	Do you know approximately how much of Lemhi County is owned by the Federal government?	
select_one idpublands	idpublands	Do you know approximately how much of Idaho is owned by the Federal government?	
select_multiple idagencies	idagencies	Do you know which Federal or State resource management agencies work within Lemhi county or Idaho in general?	
text	natresimport		

select_one commresources	commresources	What do you consider Lemhi County's greatest community resource?
text	commresexp	Please use this space to explain your answer. If you cannot select only one, please reorder according to your value of the various resources with the assigned numbers.
select_one envirchange	envirchange	Have you noticed any changes in the environment present in Lemhi County?
text	envichangeexp	Please explain
select_one specieschange	specieschange	Have you noticed any changes regarding species present in Lemhi County? (i.e. game, predators, fish, insects, plants, etc)
text	specieschangeexp	Please explain
select_one concerns	concerns	Do you have any concerns about the future of your surrounding environment and/or community?
text	concernsexp	Please explain
<b>end group</b>		

<b>begin group</b>	publandopin	Public Land Management Opinions
<b>note</b>	disclaim	
select_one lrpublanduse	lrpublanduse	The use of our public lands and natural resources in Lemhi County is responsible and sustainable
select_one fwsone	fwsone	The Fish and Wildlife Service does an effective job managing threatened and endangered species.
select_one fwstwo	fwstwo	The Fish and Wildlife Service does an effective job providing employment.
select_one ifgone	ifgone	The Idaho Fish and Game does an effective job managing healthy species populations in your area.
select_one ifgtwo	ifgtwo	The Idaho Fish and Game does an effective job setting regulations and policies pertaining to the harvest of game species.
select_one ifgthree	ifgthree	The Idaho Fish and Game does an effective job protecting important wildlife habitat.
select_one ifgfour	ifgfour	The Idaho Fish and Game does an effective job enforcing the responsible use of habitat and species.
select_one ifgfive	ifgfive	The Idaho Fish and Game does an effective job providing employment.
select_one blmone	blmone	The Bureau of Land Management does an effective job managing public lands with respect to grazing.
select_one blmtwo	blmtwo	The Bureau of Land Management does an effective job managing public lands with respect to wildfire management.
select_one blmthree	blmthree	The Bureau of Land Management does an effective job managing public lands with respect to mine leases and abatement.
select_one blmfour	blmfour	The Bureau of Land Management does an effective job managing public lands with respect to recreation opportunities.
select_one blmfive	blmfive	The Bureau of Land Management does an effective job managing public lands with respect to species and habitat management.
select_one blmsix	blmsix	The Bureau of Land Management does an effective job managing public lands with respect to creating productive research for public land health in general.
select_one blmseven	blmseven	The Bureau of Land Management does an effective job providing employment in the public lands sector.
select_one usfsone	usfsone	The Forest Service does an effective job managing the forest within and around Lemhi County with respect to wildfire prevention.
select_one usfstwo	usfstwo	The Forest Service does an effective job managing the forest within and around Lemhi County with respect to wildfire abatement/ restoration efforts
select_one usfstthree	usfstthree	The Forest Service does an effective job managing the forest within and around Lemhi County with respect to timber harvests.

select_one usfsfour	usfsfour	The Forest Service does an effective job managing the forest within and around Lemhi County providing employment.
select_one usfsfive	usfsfive	The Forest Service does an effective job managing the forest within and around Lemhi County with respect to managing wilderness areas.
select_one npsone	npsone	The National Park Service is a valuable resource in our county for maintaining pristine areas and viewing access.
select_one npstwo	npstwo	The National Park Service is a valuable resource in our county for maintaining cultural areas and historical sites.
select_one npsthree	npsthree	The National Park Service is a valuable resource in our county for providing employment.
select_one envrone	envrone	Environmental agencies like the Environmental Protection Agency and the Department of Environmental Quality consider the community when making decisions.
select_one epaone	epaone	The Environmental Protection Agency does an effective job protecting water quality.
select_one epatwo	epatwo	The Environmental Protection Agency does an effective job protecting air quality.
select_one epathree	epathree	The Environmental Protection Agency does an effective job protecting soil quality.
select_one ideqone	ideqone	The Idaho Department of Environmental Quality does an effective job protecting healthy streams.
select_one ideqtwo	ideqtwo	The Idaho Department of Environmental Quality does an effective job remediating unhealthy streams.
select_one ideqthree	ideqthree	The Idaho Department of Environmental Quality does an effective job protecting the health of fish and other aquatic species.
select_one ideqfour	ideqfour	The Idaho Department of Environmental Quality does an effective job remediating and regulating mining operations (past and current).
select_one ideqfive	ideqfive	The Idaho Department of Environmental Quality does an effective job regulating environmental pollutants in water, air, and soil.
select_one fedoversight	fedoversight	Federal oversight in land and resource management including the BLM, the FWS, and USFS, and the EPA is beneficial to Lemhi County and Idaho in general.
select_one polaccess	polaccess	I have access to the community political leaders and feel that I can talk with them about issues within the community and our surrounding area.
select_one publandid	publandid	The high percentage of public land in Idaho is a primary reason for living in this state.
<b>end group</b>		
<b>begin group</b>	final	Final Questions
<b>note</b>	whylocation	The reason I am asking about your zipcode is so that I can see how representative my survey population is throughout the county. If you feel uncomfortable answering this question, please remember your response is not required.
select_one zct	zipcode	What Lemhi County Zipcode do you use?
<b>end group</b>		
note	closing	

## Appendix II

### Extended Geographic Survey Questions and Setup

Extended Geographic Survey digital link: <https://arcg.is/80PDP>

**For those that want to see the questions and design in a table form rather than the digital form – see below.**

The following table shows the set-up of the survey in the form design stage.

‘type’ references the format of the display information (*note* provides information to participants, *select\_one* or *select\_multiple* requires a user to select one or more options from a provided list (see EG Response Selections directly after), *integer* allows number inputs, *text* permits users to respond in free-form written answers, *group* defines a set of related questions, and the addition of ‘or other’ at the end of a type selection is used to provide an ‘other’ option to the list of available responses).

‘name’ refers to the name of the resulting fields (columns) in the exported database.

‘label’ refers to the input that users see in the form template. In this instance, they represent the questions asked or information given throughout the survey.

‘relevant’ provides additional information about the survey. Put simply, relevant stores information about if or when a question on the survey should be visible to users. In the first example below, I asked if people were willing to provide their zip code, if they answered yes (or ‘1’ as coded in the Selection Choices document), they were provided a question space to enter their zip code, if they responded no (‘0’), they were asked to provide an alternative form of location to represent their data.

Note: Numerical Key: (for relevant column) 1 = yes, 0 = no. See following section: “Extended Geographic Survey Response Selections” for more detailed key.

type	name	questions	relevant
note	welcome	Thank you for taking the time to participate in this questionnaire! By submitting the form at the end, you consent that this data can be used for research and educational purposes. You can find out more about this research project at <a href="http://howdoyoupublicland.net">howdoyoupublicland.net</a> No responses are required, feel free to pick and choose the questions that you want to answer.	
select_one yes_no	zipprompt	Are you willing to provide your zipcode for the purposes of mapping this data?	
integer	zip	Please enter your 5-digit zipcode.	(\${zipprompt} = '1')
text	state	For this data and the overall purpose of the research is it incredibly useful to locate your responses in space so as to map the data. Will you provide an alternative location to represent where you live?	(\${zipprompt} = '0')

select_multiple position or other	position	How would you describe your role or interaction with public lands? (Select as many as apply.)	
select_one proximity	proximity	How far from public land boundaries do you live?	
select_one frequency or other	frequency	In general, how often do you use public lands?	
select_one lsm	genuse_lsm	Do you use public lands less, the same, or more than in comparison to the previous five years?	
text	onetract	For mapping purposes, will you identify a piece of public land that you visited within the last year? (i.e. Yellowstone National Park, Cascade National Forest, Kiowa National Grassland, or any other Federally managed public land tract). This is not to identify your location, but rather to understand what public land areas are particularly valued or utilized.	
integer	huntpublic	Often hunters use a combination of public land and private land for hunting. If this applies to you, can you estimate the percentage of time you generally spend hunting on public lands (i.e. 2 days on private and 8 days on public would yield '80' for the percentage response)	selected(\${position}, '5')
select_one subpurpose or other	huntpurpose	What is the purpose of hunting to you?	selected(\${position}, '5')
integer	huntsubperc	Approximately what percentage of your hunting activity is for subsistence purposes?	selected(\${position}, '5') and selected(\${huntpurpose}, '3')
integer	fishpublic	What percentage of your fishing outings are made possible with public access areas?	selected(\${position}, '6')
select_one subpurpose or other	fishpurpose	What is the purpose of fishing to you?	selected(\${position}, '6')
integer	fishsubperc	Approximately what percentage of your fishing activity is for subsistence purposes?	selected(\${position}, '6') and selected(\${fishpurpose}, '3')
select_one frequency or other	recfreq	How often do you use public lands for recreation purposes?	selected(\${position}, '8')
select_multiple recactivities or other	recactivities	What types of recreation activities do you do?	selected(\${position}, '8')
select_one ynu	graz_status		
select_multiple graz_situ	graz_situation	Which statement represents your situation with grazing on public lands? (Select as many as apply.)	selected(\${position}, '7') and selected(\${graz_status}, '1')
integer	graz_leases	What percentage of your grazing rights do you lease to someone else?	selected(\${position}, '7') and

			selected(\${graz_situation}), '5')
select_multiple interests or other	conservation_interest	As someone who is involved with public land conservation, what particular interests are you concerned with on public lands? (Select as many as apply.)	selected(\${position}), '2')
select_multiple industries or other	industries	Which industry are you involved with? (Select as many as apply.)	selected(\${position}), '4')
begin group	likert	I would like to gauge your level of agreement or disagreement on a few statements. Please read each statement carefully before selecting a response. Feel free to add a brief comment if you would like to explain any answer.	
select_one likert	polaccess1	I have access to leaders in the public land and natural resource management and/or policy sphere and feel that I can have my voice heard and concerns addressed.	
text	polaccessexp	If you would like to briefly explain your response, please note the character limit is 255.	
select_one likert	policylang1	When reading proposed policies or bills about changes in the public land and natural resource domain, I find the language easy to understand and the information accessible.	
text	policylangexp	If you would like to briefly explain your response, please note the character limit is 255.	
select_one likert	conserv_dis1	It is relatively easy to engage with others about conservation topics even when they may have differing opinions.	
text	conserv_dislexp	If you would like to briefly explain your response, please note the character limit is 255.	
select_one likert	cons_contribution1	I feel that the current strategies of conservation organizations positively contribute to the future of public lands.	
text	cons_contribution	If you would like to briefly explain your response, please note the character limit is 255.	
select_one likert	educatedpublic1	The general public (outside the sphere of conservation efforts) is aware and educated about public land issues.	
text	educatedpublicexp	If you would like to briefly explain your response, please note the character limit is 255.	
select_one likert	management1	The current management of public lands and natural resources will ensure future generations similar benefits.	
text	managementexp	If you would like to briefly explain your response, please note the character limit is 255.	
select_one likert	graze1	The current use of public lands for grazing purposes is responsible and sustainable.	
text	grazeexp	If you would like to briefly explain your response, please note the character limit is 255.	
select_one likert	forests1	The current state of forest management is effective in supporting a healthy forest ecosystem.	
text	forestsexp	If you would like to briefly explain your response, please note the character limit is 255.	

select_one likert	wilderness1	In general, creating additional wilderness areas is a desirable approach to protecting wild spaces and natural resources.	
text	wildernessexp	If you would like to briefly explain your response, please note the character limit is 255.	
select_one likert	wildlife1	Wildlife management, both in protecting sensitive species and balancing healthy fish and game populations is effective.	
text	wildlifeexp	If you would like to briefly explain your response, please note the character limit is 255.	
select_one likert	minerals1	Mineral leases, including oil and gas, are responsibly carried out, with appropriate consideration of environmental and social impacts.	
text	mineralsexp	If you would like to briefly explain your response, please note the character limit is 255.	
select_one likert	water1	Waterways (I.e. lakes, streams, or rivers) throughout the public land domain are generally healthy and support native species.	
text	waterexp	If you would like to briefly explain your response, please note the character limit is 255.	
select_one likert	tourism1	Tourism is an important aspect of maintaining public land access.	
text	tourismexp	If you would like to briefly explain your response, please note the character limit is 255.	
end_group	likertend	Likert	
select_one yes_no	soc_media	Do you use social media as a platform to discuss or learn about public land related issues?	
select_multiple socmed_purpose or other	socmed_purpose	What types of engagements do you use social media for? (Select as many as apply.)	\${soc_media} = "1"
select_one likert	socmed_engage1	Social media (in general) is a useful and productive platform for engaging with others about public land and conservation topics.	\${soc_media} = "1"
text	socmed_engageexp	If you would like to briefly explain your response, please note the character limit is 255.	\${soc_media} = "1"
select_one likert	socmed_open1	When posting public land uses or conservation efforts to social media, I sometimes consider negative repercussions that might stem from others.	\${soc_media} = "1"
text	socmed_openexp	If you would like to briefly explain your response, please note the character limit is 255.	\${soc_media} = "1"
select_one yes_no	socmed_incident1	Have high-profile incidents of backlash affected the way you utilize social media for conservation efforts?	\${soc_media} = "1"
text	socmed_incidentexp	If you would like to briefly explain your response, please note the character limit is 255.	\${soc_media} = "1" and \${socmed_incident1} = "1"
select_one yes_no	envirpolicy1	Can you recall any public land or natural resource policy that impacted you directly?	
text	env_polexp	Please briefly note the policy and the impacts you experienced.	\${envirpolicy1} = '1'



select_one yes_no	s47bill	The Natural Resource Management Act (S.47) was recently introduced and passed by the Senate, the summary states that the bill "sets forth provisions regarding various programs, projects, activities, and studies for the management and conservation of natural resources on federal lands." Have you heard of this bill?	
select_one yes_no	s47billyes1	Can you recall any significant aspects about the proposed bill?	\${s47bill} = '1'
text	s47billyesexp	Please describe a significant detail that you recall.	\${s47billyes1} = '1'
select_one acreage	pubdomain	Approximately how many acres comprise the U.S. public land domain?	
select_one subsurf	subsurfacre	The Bureau of Land Management (BLM) administers roughly 248 million acres of land in the U.S. Approximately how many acres of subsurface mineral estate do they also administer?	
select_one predpolicy or other	predpolicy	Considering the way things are currently going, in ten years, which stakeholder group do you think will benefit the most from public lands?	
select_one valuedresource or other	valuedresource	What do you consider to be the most valuable resource on public lands?	
select_one concerns or other	concerns	In your opinion, what is the biggest issue facing the future of our public lands?	
select_one yes_no	addinfo1	Was there anything that you wished to discuss that was not covered in this survey? Or any comments you would like to make about the survey content?	
text	addinfoexp	Please briefly describe what you would have liked to cover.	\${addinfo1} = '1'
note	endsurv	You have reached the end. Thank you for taking the time to answer these questions. Your participation is valued. If you have any questions, comments, or would like to find out more about this research, contact us by email: hdypublicland@gmail.com We would love to hear from you.	

### Extended Geographic Survey Response Selections

To find the response options available for any of the select\_one or select\_multiple type questions listed in Question Set document refer to list below.

‘list\_name’ references the assigned group of responses named after the question type in ‘type’ column in Question Set document.

‘name’ refers to the value the answer will be assigned as in the resulting database.

‘label’ refers to what the survey participant sees in the survey form (list of possible selections for various questions)

list_name	name	label
yes_no	1	Yes
yes_no	0	No
ynu	1	Yes
ynu	0	No
ynu	2	Used to
lsm	1	Less
lsm	2	Same
lsm	3	More
position	1	General User / Stakeholder
position	2	Conservation
position	3	Lobbying
position	4	Industry (Natural Resource)
position	5	Hunter
position	6	Fisherman/Woman
position	7	Rancher
position	8	Recreation User
position	10	Outdoor Industry
position	11	Philanthropist
position	12	Entrepreneur
proximity	1	Bordering Public Land
proximity	2	Less than 10 miles
proximity	3	Less than 50 miles
proximity	4	Less than 100 miles
proximity	5	More than 100 miles
frequency	1	Daily
frequency	2	Weekly
frequency	3	Monthly
frequency	4	Seasonally
subpurpose	1	Subsistence
subpurpose	2	Recreation
subpurpose	3	Combination
reactivities	1	Hiking
reactivities	2	Biking
reactivities	3	Camping
reactivities	4	Wildlife Viewing
reactivities	5	Backcountry Trips

reactivities	6	Water activities (rafting, canoeing, swimming, etc.)
reactivities	7	Winter Sports (downhill skiing, snowboarding, telemark, cross-country skiing, etc.)
reactivities	8	Motor Sports (4-wheeling, motorbiking, snowmobiling, UTV-ing, etc.)
graz_situ	1	Leased directly from Federal Government
graz_situ	2	Leased directly from State
graz_situ	3	Leased from someone who has a Federal lease
graz_situ	4	Leased from someone who has a State lease
graz_situ	5	Leased to someone else
interests	1	Wildlife and Habitat
interests	2	Wilderness Preservation
interests	3	Waterways and/or Watersheds
interests	4	Plant Biodiversity
interests	5	Public Use and Access of Public Lands
interests	6	Forest Health
interests	7	Mining
interests	8	Oil and Gas
interests	10	Grazing and ranching
interests	11	Wildfire Management
industries	1	Oil and Gas
industries	2	Forestry / Timber
industries	3	Mineral exploration or extraction
industries	4	Energy
industries	5	Green energy
industries	6	Rare Earth minerals
industries	7	Technology
industries	8	Grazing
likert	10	Abstain
likert	1	Strongly Agree
likert	2	Agree
likert	3	Somewhat Agree
likert	4	Neutral
likert	5	Somewhat Disagree
likert	6	Disagree
likert	7	Strongly Disagree
likert	8	Don't Know
acreage	1	150 million acres
acreage	2	370 million acres
acreage	3	490 million acres
acreage	4	640 million acres
acreage	5	820 million acres
subsurf	1	100 million acres

subsurf	2	248 million acres
subsurf	3	500 million acres
subsurf	4	700 million acres
predpolicy	1	Oil and Gas Industry
predpolicy	2	Timber / Forestry
predpolicy	3	Mining industry
predpolicy	4	Sportsmen and women
predpolicy	5	Habitat and species conservation
predpolicy	6	Foreign investors
predpolicy	7	The general public
valuedresource	1	Forests
valuedresource	2	Wilderness
valuedresource	3	National Parks
valuedresource	4	Mineral Estate
valuedresource	5	Public Access
valuedresource	6	Grazing allotments
valuedresource	7	Oil and Gas
valuedresource	8	Water
valuedresource	10	Conservation areas
concerns	1	General Access and Use
concerns	2	Diminishing Environmental Regulations
concerns	3	Increasing Environmental Regulations
concerns	4	Selling (Disposition) of Public Lands
concerns	5	Leasing of public lands for natural resource extraction.
concerns	6	Wildfires
concerns	7	Pollution
socmed_purpose	1	Raising awareness about public land issues
socmed_purpose	2	Raising awareness about conservation efforts
socmed_purpose	3	Reaching out to advocates or leaders in the public land/natural resource sphere
socmed_purpose	4	Collaborating with others to work towards solutions for the public land domain
socmed_purpose	5	Gathering information about changes in public land uses and policies

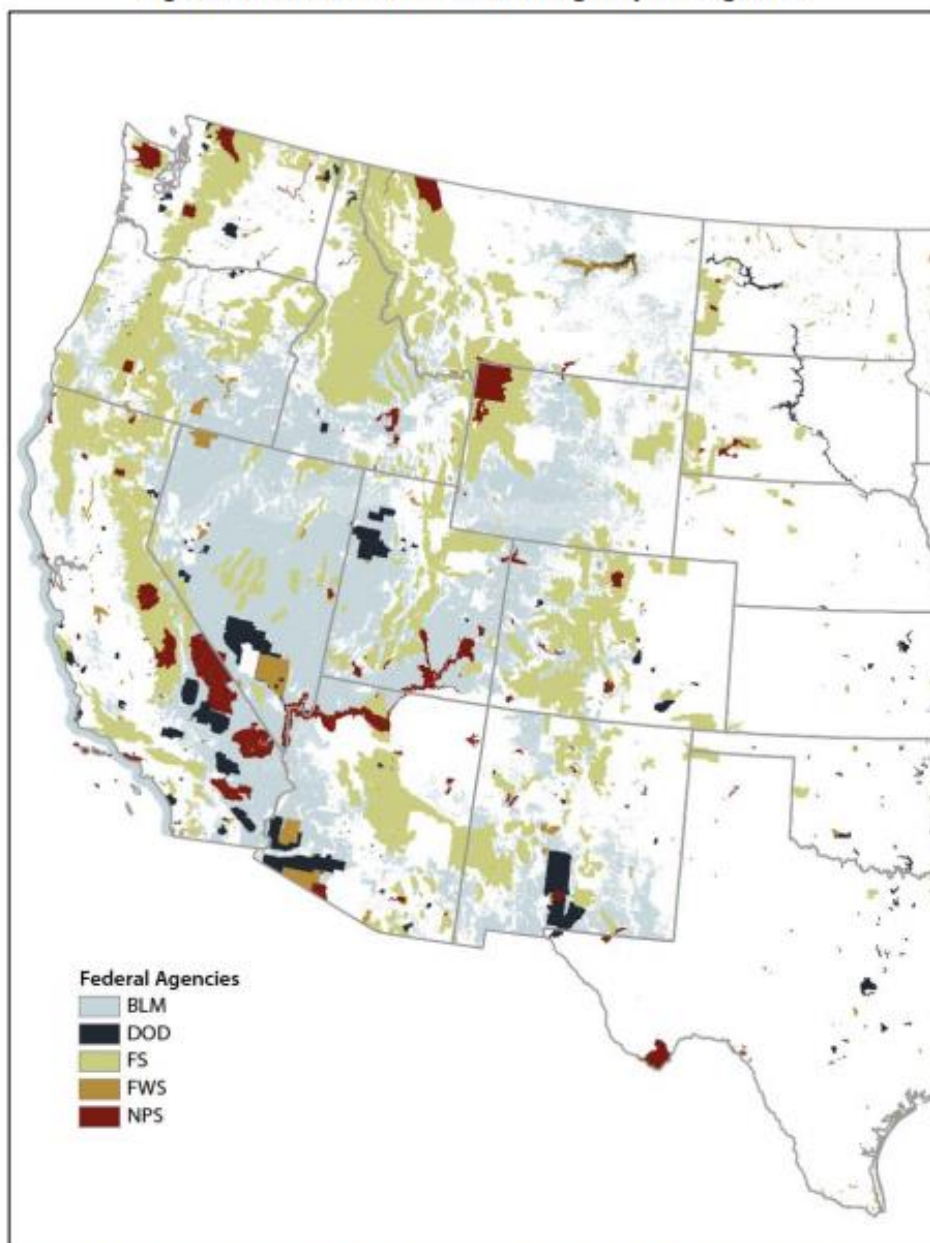
## **Appendix III**

### **Federal Land Ownership**

Federal land ownership throughout the Western states (Figure 1), Eastern states (Figure 2), and Hawaii and Alaska (Figure 3): managed by five major management agencies.

Source: Vincent et al, 2020 – Congressional Research Service

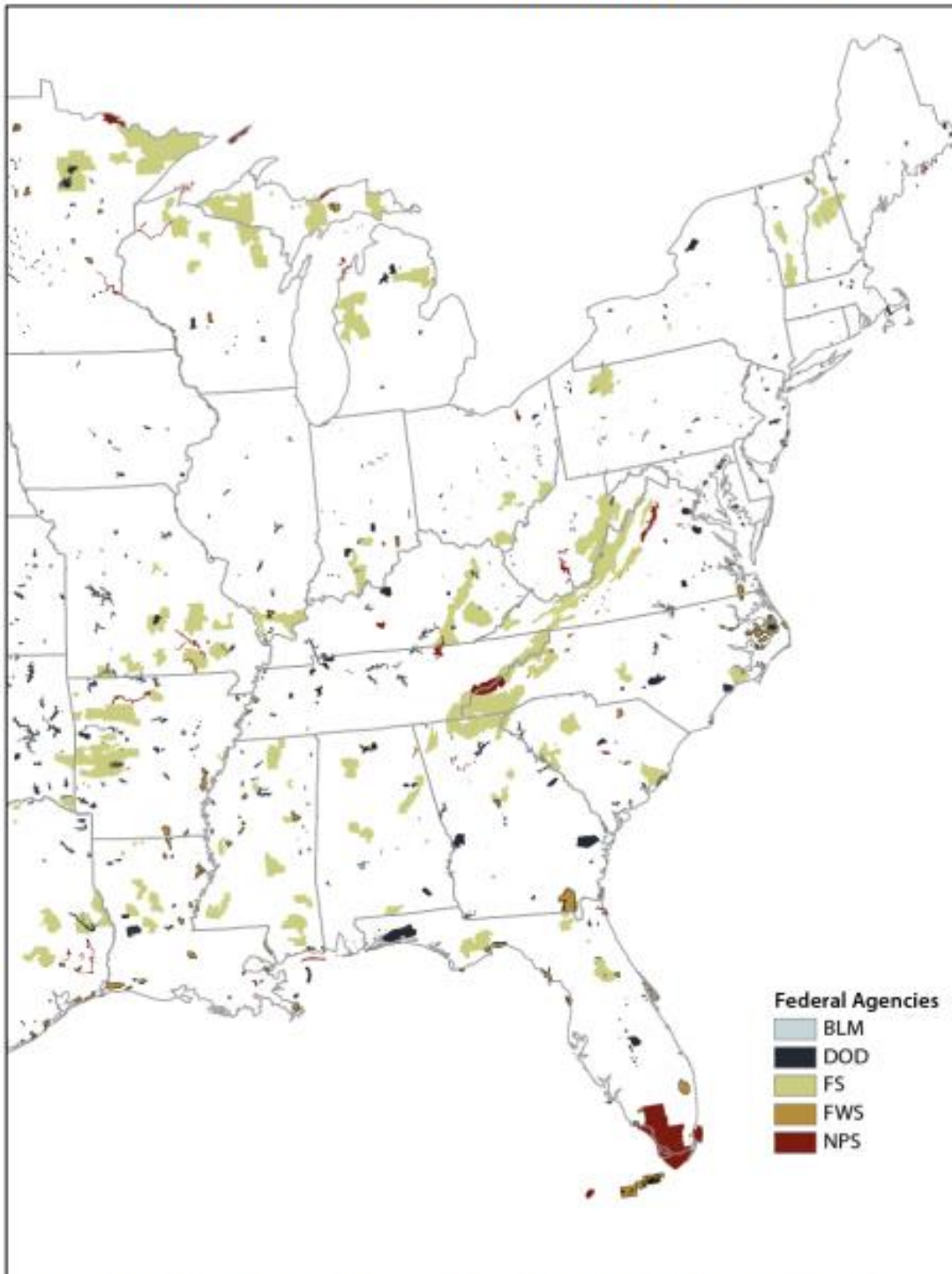
**Figure 1. Western Federal Lands Managed by Five Agencies**



**Source:** Map boundaries and information generated by CRS using federal lands GIS data from the National Atlas, 2005, and an ESRI USA Base Map.

**Notes:** Scale 1:11,283,485. The line along the coast of California indicates BLM administration of numerous small islands. Also, the map may reflect a broader definition of DOD land than shown in the data in **Table 2**.

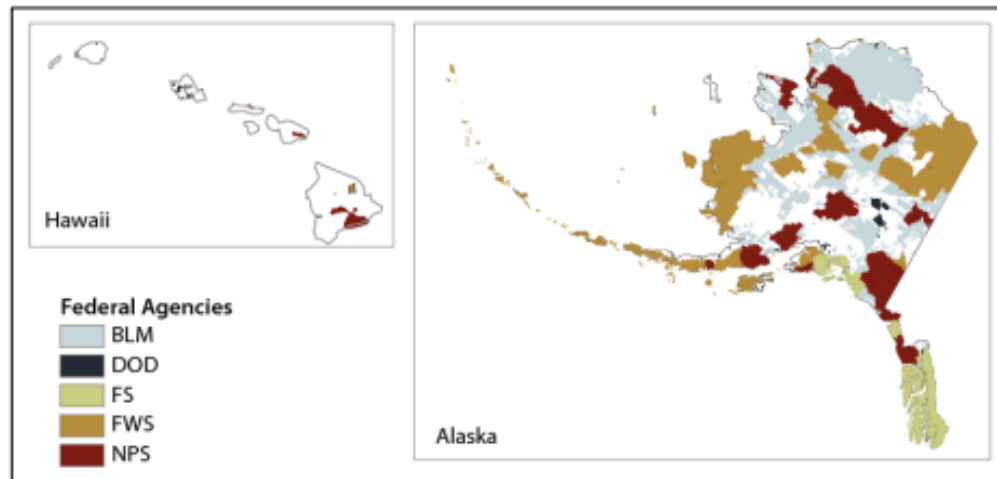
**Figure 2. Eastern Federal Lands Managed by Five Agencies**



**Source:** Map boundaries and information generated by CRS using federal lands GIS data from the National Atlas, 2005, and an ESRI USA Base Map.

**Note:** Scale 1:13,293,047. Also, the map may reflect a broader definition of DOD land than shown in the data in Table 2.

**Figure 3. Federal Lands in Alaska and Hawaii Managed by Five Agencies**



**Source:** Map boundaries and information generated by CRS using federal lands GIS data from the National Atlas, 2005, and an ESRI USA Base Map.

**Note:** Hawaii scale 1:8,000,000. Alaska scale 1:20,000,000. Also, the map may reflect a broader definition of DOD land than shown in the data in Table 2.



## **Appendix IV**

### **Brief summary of Executive Order (EO) 13817**

*According to the Executive Order (EO 13817): “A Federal Strategy to ensure secure and reliable supplies of critical minerals.”*

*“Despite the presence of significant deposits of some of these minerals across the United States, our miners and producers are currently limited by a lack of comprehensive, machine-readable data concerning topographical, geological, and geophysical surveys; permitting delays; and the potential for protracted litigation regarding permits that are issued” (Federal Register, 2017).*

## **Appendix V**

### **Brief Summary of the Natural Resource Management Act**

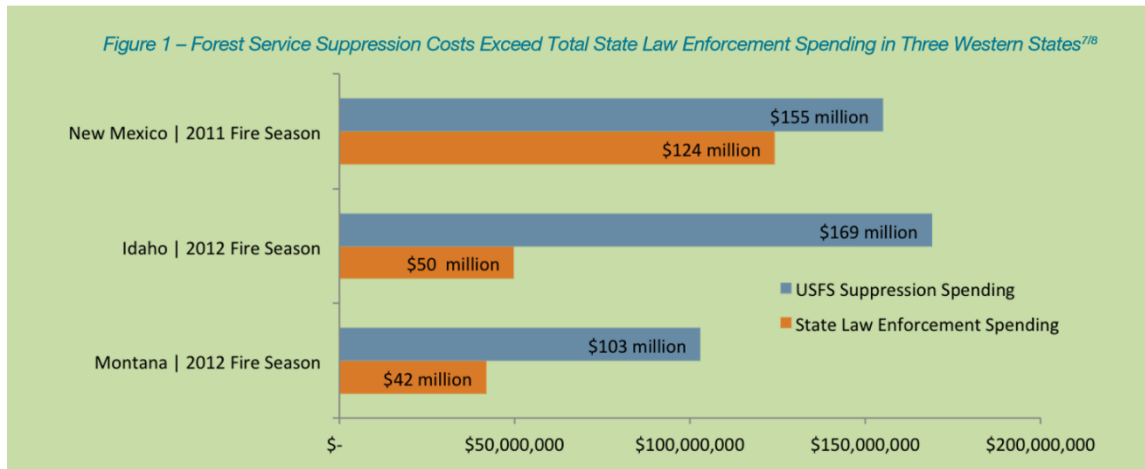
According to the Senate’s executive summary regarding the Natural Resource Management Act of 2019 (John D. Dingell, Jr. Conservation Management, and Recreation Act):

“The bill contains program and project authorizations, land conveyances and exchanges, special land designations, boundary modifications, and new management direction affecting public lands and waters around the country. The single largest authorization generating significant interest is a permanent authorization of the deposit provisions of the Land and Water Conservation Fund, which primarily funds and supports acquisition of land by the federal government and a matching grant program to assist states in planning, acquiring lands, and developing facilities for outdoor recreation. Most LWCF funding comes from revenues generated from oil and gas leasing on the Outer Continental Shelf” (U.S. Senate, 2019).

## Appendix VI

### Comparison of USFS Fire Suppression Funds Versus State Law Enforcement Spending

Western Priorities depiction of funds spent on USFS wildfire suppression compared to three western states annual spending on law enforcement (Figure 1).



Source: Western Priorities, 2014

## **Appendix VII**

### **The Reintroduction of Wolves in Idaho interactions of people and nature resulting from the EPA and the Endangered Species Act (ESA)**

In order to briefly showcase instances of effect between the ESA and human-nature ecosystems, for example, the reintroduction of the Gray Wolf (*Canis lupus*) is one of the most controversial and widely-discussed topics to date. The story began with the listing of the Gray wolf in 1974 and resulted in the identification of the Northern Rocky Mountain recovery zone (including Idaho, Montana, and Wyoming) to restore the ‘critical and impaired’ species population. The history and development of wolf conservation and management is rife with shifting power dichotomies between federal, state, and tribal governments and agencies, which related to the iterative reclassification of the species based on population fluctuations, between ‘endangered,’ (1974, 1978, 2005, lawsuit in 2008, 2010), ‘threatened’ (2003), and delisted (proposed for end of January 2007, discussion in 2008, 2009, 2011) (IDFG, accessed 2020). These shifting politics were largely due to vast ideological polarization among stakeholders including special-interest groups, activists and/or environmentalists, conservationists, and natural resource industries, as well as recovery-zone locals who still feel the effects to this day. To initiate the recovery plan, 35 wolves were released in central Idaho between 1995 and 1996; by 1998, 21 of the original wolves were alive and monitored and the estimated population in Idaho was 115 wolves (IDFG, accessed 2020).

By 2007, the state commission of species management requested legislation that authorized wolf hunting, while the delisting was approved in March of 2008, 12 conservation and animal rights groups filed lawsuits against the federal government for delisting, which put a halt on any hunting until August 2009 (IDFG, accessed 2020). At the end of 2009, it was estimated that Idaho had at least 843 grey wolves in 94 packs, including 49 packs that were considered breeding pairs, however, 2010 brought about another shift where the wolves were re-listed and the federal government regained control of wolf management. This shift instantiated a proposal from the IDFG which requested ability to reduce the wolf population in two wolf management zones “to address unacceptable impacts of wolf predation” (IDFG, accessed 2020), in addition to a formal letter from then Idaho governor Otter to DOI secretary Salazar in which he ceded control of wolf management to the federal government and stated that the state of Idaho

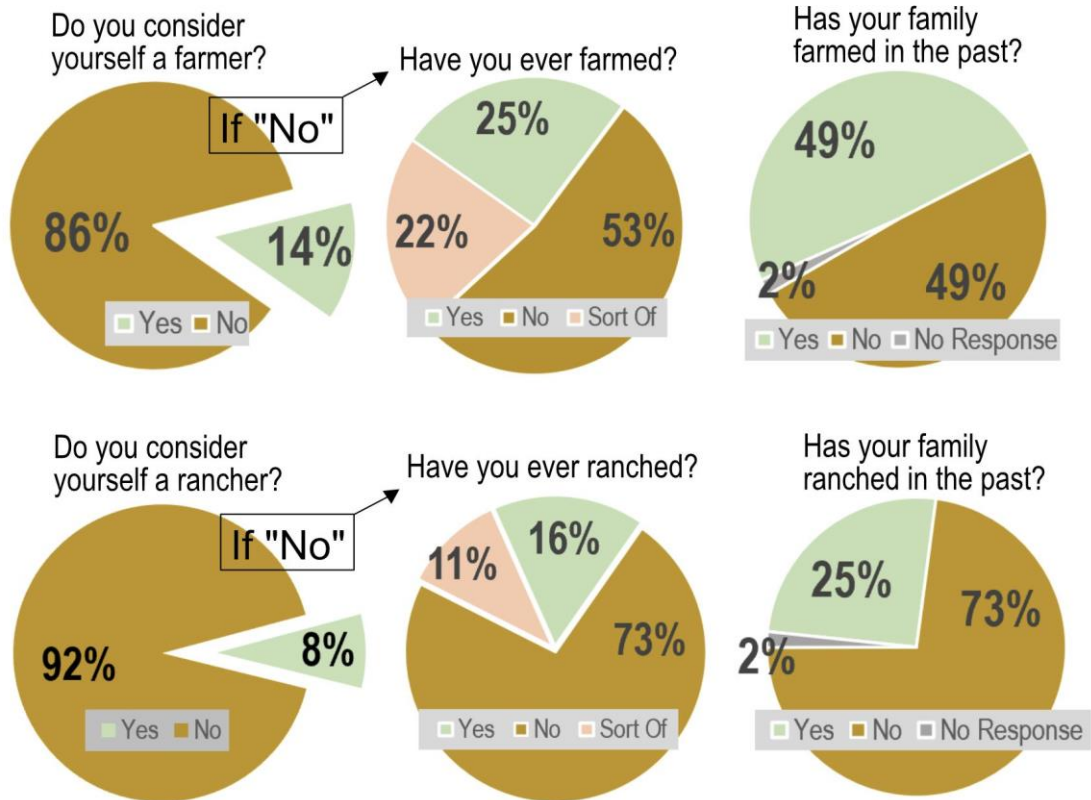
will no longer cooperate with federal directions of continued protection and instead shift their management focus on improving ungulate populations until wolves were federally delisted and the state could again take control (Otter, 2010, accessed 2020). According to the Governor's letter in 2010: 'wolves were forced on Idaho in 1994 with no regard for the impacts the species would have on our people, wildlife and livestock. While some herald the introduction of wolves and the current population as a biological triumph, history will show that this program was a tragic example of oppressive, ham-handed 'conservation' at its worst" (Otter, 2010). Even today, the controversy and contention regarding wolf reintroduction and management in Idaho is tense and while the state is able to manage the now delisted species, including hunting and trapping seasons, there remains public outcry from conservation and special-interest groups which complicates the issue.

In addition to the reintroduction of wolves, there has been discussion of importing grizzly bears in central Idaho and the Bitterroot range since 1995, which has fallen under similar scrutiny from state management officials, and some state residents (IDFG, 2000) while gaining support from conservation groups throughout the US. These discussions continue today, however, residents in Lemhi County and the surrounding areas have reported sightings of grizzlies, likely having migrated from Yellowstone National Park and areas north of Lemhi County. What these examples showcase is the prevalence of national conservation or management goals in impacting local ecosystems and livelihoods to a significant degree.

## Appendix VIII

### Additional Data Regarding LC Participant's Experience in Farming and Ranching

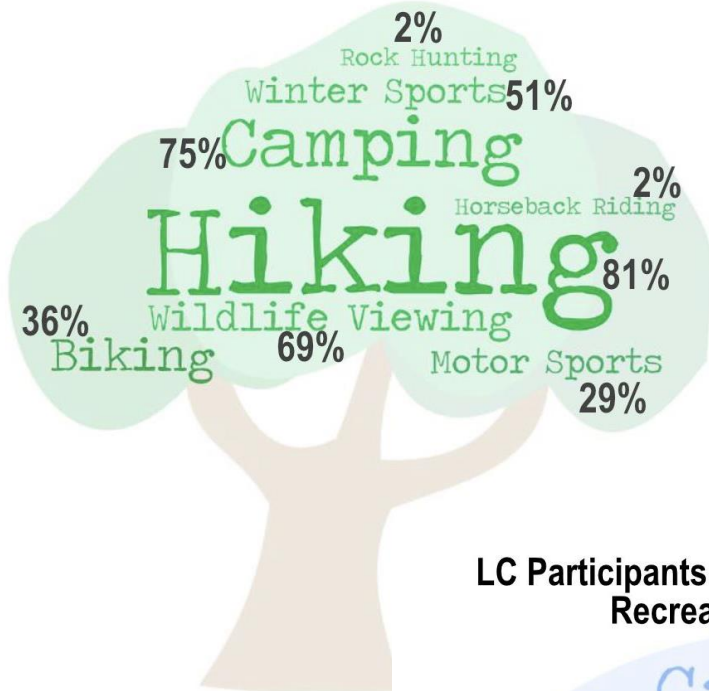
#### LC Participants Farming and Ranching Experience



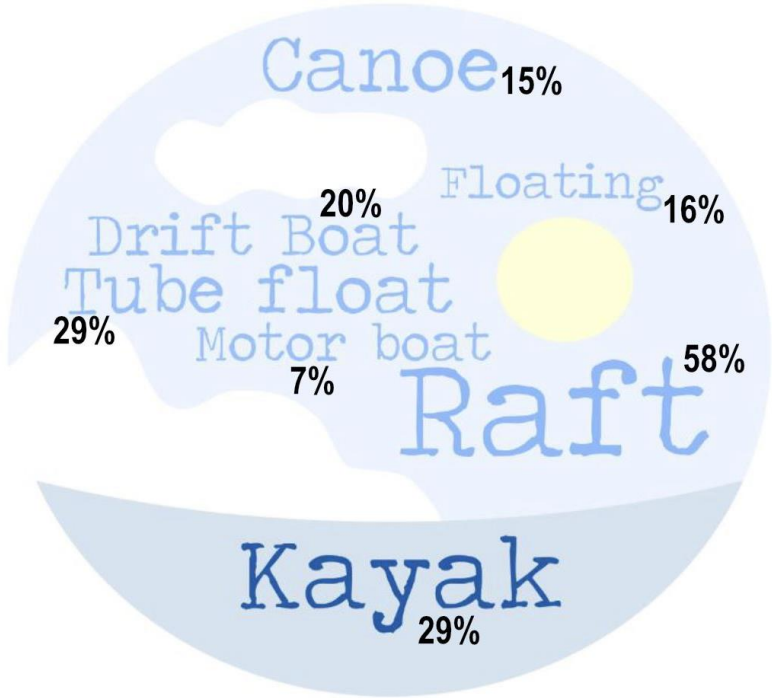
Appendix IX

Reported Recreation Activities on Public Lands and Waters by LC Survey Participants

LC Participants Reported Land-Based Recreation Activities



LC Participants Reported Water-Based Recreation Activities



## Appendix X

### Comments given by LC Participants in Response to Standard of Living Question

*“Do you feel that the standard of living in Lemhi County is below average, average, or above average?”*

ObjectID	Participant Response	Comments provided
2S	below	Personally, I feel gratitude that my husband and I have the jobs we do. We are the lucky ones, I work with several that struggle, single moms with 2-3 jobs at minimum wages, it's very sad. Although, given the remoteness, I understand how business cannot afford to pay much more, other than the only grocery store.
1L	below	It's expensive to live here with few jobs and most that don't pay well.
2L	below	smaller not wealthy community not tons of jobs or people.
3L	average	It all depends on what you consider a good standard of living. I personally like the pace of life here. The way people interact and help each other. I feel safe here and feel it is a great place to raise kids. We may not have a lot of money, but money can't buy a lot of the things I care about most.
62	average	There are poor and there are very wealthy folks, but most are middle or upper middle class.
61	below	No jobs for one. There are some but people aren't willing to take them. A lot of people refuse to work here.
59	average	we're poor in money but rich in nature
60	below	low income and few job opportunities
2	average	lots of poor people. Lots of rich out of town retirees, so it evens out.
6	above	quality of life
8	below	the whole community was shut down in the 19th with heavy government regulations.
9	below	few jobs.
10		marvelous place to live but not necessarily an easy place to live. 50% of county is at risk.
11	below	evidence of poverty
13	below	Government jobs only.
14	below	I believe that the majority of the population has limited knowledge and understanding of resources, with that there is room for growth with how abundant the possibilities really are!
16	average	live in generation of cultural poverty. difficult for young families- without having multiple jobs. happened with shut down of mines, timber industry, logging mills.



17	below	Many people struggle to get by, in spite of the influx of wealthy retirees from CA, other high-priced areas
18	average	below because of wages and opportunity, above because of opportunity, openness, recreation opportunity, and beauty.
19	below	our standard of living based on only income is below average but our true standard of living is very high based on low traffic, low crime, low stress, beauty, etc.
20	above	low stress, lots if opportunity, close community ties, easy or be a "big fish in a small bowl" for certain people. low crime.
21		low salaries, few educational opportunities, cultural opposition to change
22	below	the data supports this
23	below	lack of opportunity for higher paying jobs. beautiful county people sacrifice to stay here.
24	below	the Lemhi county family income (median) is below the national median
26	above	Financially I would say the standard of living is below average as there is a lot of poverty and unemployment as well as substance abuse. However, the area for the right person offers a great quality of life and opportunity for outdoor rec.
27	below	minimum wage jobs not many job opportunities generational poverty
28	average	people can live more simply here, but the quality is not diminished because of the simplicity
29	below	more people live below poverty line than do above.
30		don't know. personally, I think it's perfect!
32	below	many low incomes and unemployed people
33		many people live below poverty line, many live above.
34	above	couldn't do what I do many other places.
35	below	Question is too subjective to explain. I wouldn't live anywhere else but there are significant drawbacks to that choice.
36		People keep saying below, high salaries in federal contingency, medical fields, influx of mining.
37	below	given a choice of this or the city we take here.
39	below	limited options
41	below	the city and lceda are doing nothing to bring in good paying sustainable jobs and doing what they can to be sure that the rich stay rich and the or stay poor
43	below	all our industries have been shut down we were self-sustainable. Logging, mills, dairies cheese factory
44	below	lots of generational poverty
45	above	below average incomes and above average rates of food insecurity

46	above	look around at the beauty we live in
48	below	inadequate education
49	below	lots of poverty, poor interest in education, little resources for low income
50	below	poor people, lack of jobs
53	average	I love living in Lemhi County for recreation. The economy isn't the greatest

## Appendix XI

### Comments given by LC Participants in Response to the Future Concerns Question

*“Do you have any concerns about the future of your  
surrounding environment and/or community?”*

ObjectID	Participant Response	Comments provided
7	yes	air and water quality
48	yes	air quality in winter, mine bringing in bad people, more ATV's
23	yes	big fire in watershed that will ruin or water. addressing now but might be too late.
52	yes	climate change
59	yes	climate change! holy s***!
36	yes	Concern is losing access.
29	no	concerned but tend to discount.
16	yes	concerns about lack of forest management. FS revision plan - did not include adequate time or opportunity for public comment. had not followed the previous plan, how do we know they will follow through.
61	yes	Development, out near house. In neighborhood.
21	yes	environmental impact of mining, forestry, dumping, general underfunded agencies
6	yes	everyday. too much pop growth. fire and fuel management. like to see more wild salmon.
2S	yes	Fish and Game purchased property across the road from us and have public access, despite our concerns of the public accessing our property to gain access to the Lemhi river. They do not maintain the property, pick up trash or respond to calls of to abuse, extended stays, trash, and invading adjacent properties
34	yes	going to have to figure out wildfire issue. fish that are important to community, hanging on by a thread. and noxious weeds.
41	yes	government is taking over more and more. the feds need to be <i>your the cost I titian</i> and let Idaho govern Idaho
14	yes	I believed that land management can evolve into a more efficient entity as well as the people living here can work together as a whole to find a well knowledgeable existence to further groom the interactions with each other and the land
2L	dk	I don't know about the future.
3L	yes	I have concerns about the world. We aren't living in a vacuum. The worse it gets out there the more people will be moving here. More people will cause irreversibly changes in this county. Some good, some bad.

17	yes	I understand we're very vulnerable to direct big wildfire problems, even some of the water supply, not to mention the town itself. I think the forest managers are not paying attention to the literature on fire prevention and could thereby harm many people
9	yes	lot of out of towners moving in. they might not have same values. not view wildlife the same.
49	yes	motorized vehicle use taking over
32	yes	need to maintain economic diversity and stop preservationists trend
25	yes	need wise policy that limit our growth yet grow our financial
13	no	new
10	yes	our community exists because of our natural resources and if they are closed off our community will cease to exist.
33	yes	population increase will impact city and county. many people born every day and many California's moving here. will impact future. don't worry too much.
30	yes	prays that working together in the community will continue. FS and BLM have to work together and so does the community.
27	yes	residents denying climate change realities water availability will limit growth and some activities
42	yes	responsible growth and extraction
8		some regulations are good but most are subject to an agenda.
60	yes	the future of the cobalt mine and its probable environmental impacts
24	yes	The USFS is ruining both our forests and access to them for citizens by its autocratic and short-sighted decision making. the USFS is encouraging wildfires by not clearing fuels and dead trees and by allowing fires to burn unchecked.
50	yes	too much govt, not enough action
2	yes	Uneducated people who blame federal agencies for the effects of mining and grazing.
22	yes	unregulated growth, not enough non-republicans, lack of forestry,
54	yes	Water and the education system
45	yes	water supplies for growing food & people with climate change; resistance to changes in grazing with climate change; aging community: medical care needs; barriers to young families: limited affordable housing, limited career opportunities.
18	yes	we as locals should have more to say about how we use and participate in our county than people outside of our county who have only seen maps.
57	yes	We don't know what drought might happen here in years come with the effects of climate change
1	yes	We need to recycle and depend less on dumps

39	yes	we want to be able to continue to live simply here - requires public land use
62	yes	We want to maintain our quality of life but 1) fires/smoke during summer months are a big concern. 2) so many new folks have been coming here from Calif. E.g. to get away to calmer places.
35	yes	Without local control mismanagement will continue
20	yes	worry that it will fall under federal protection to the point that it will not be accessible. Also concerned that zoning laws within city and county are not being properly developed and a mess of sprawl will compromise groundwater in outlying areas.
19	yes	yes, bring back common-sense science and harvest timber,
37	no	young people are doing a good job. it's not my time anymore

## Appendix XII

### LC Survey Participants Comments Regarding the Recognition of Ecosystem Changes

Comments given regarding responses to the following question:

*“Have you noticed any changes in the environment present in Lemhi County?”*

ObjectID	Participant	Comments provided
	Response	
29	yes	air quality caused from global warming.
33	yes	air quality from global warming.
3	yes	algae in the river this year!
8	no	as long as the Government wants it it's OK but not so much the people
16	yes	attracting young people who are committed to sustainable lifestyle. community is more accepting of this than used to be. local grocery store brings in organic options. school garden project!! 3 acres of land leased by program k-12, students, teachers, class
11	yes	becoming less redneck
56	yes	Burn effects
18	yes	changes are related to access. curtailed access. restricted use - closed access-
39	yes	constant threat of wildfires
57	yes	Degradation of streams due to livestock, decline of Aspen due to overgrazing and disruption of fire cycles due to human activity
41	yes	due to a lack of forest management by the USFS. the forest is dying or diseased and 1 large rider box ready to flash
60	yes	fire damage, grazing damage, know of invasive species impacts
45	no	I haven't lived here long enough to see change.
49	yes	increased motorized vehicle use
27	yes	invasive species taking over public lands
35	yes	Lack of forest management has aggravated the fire seasons.
25	yes	lack of use, beetles and fires create dramatic change in last 40 years
23	yes	lot more houses and people. lot more federal, state, and county regulations.
20	yes	more homes being built. Lemhi River is now protected by fences within private ranch grazing land. The river banks seem more stable.
6	yes	more people than we used to
17	yes	More profound air quality problems during wildfire season

37	yes	more wildfires, lots of smoke.
50	yes	no logging is causing fire problems
36	yes	Not being able to log. 1984 there were 4 saw mills in town.
3L	yes	people are more aware of what they are doing. They take the time to be careful with things that used to be taken for granted.
46	yes	People moving in
48	yes	resource damage by ATVs.
10	yes	rest of the world is on fire we aren't for some reason. type of wildfire has changed. mismanagement, extended drought (beetles!)
62	yes	River damaging our river banks and we are having a hard time finding help to replace jetties, barbs, etc, that were there three years ago.
26	yes	Seasons seem to be changing a bit as far as when they begin i.e. spring came on sooner, fall seems to be coming in sooner, winter was milder in 2017/18
21	yes	shorter winters, hotter summers, more beetle kill, more fires
59	yes	the river is super warm this year
22	yes	there's always change
19	yes	too many wildfires
32	yes	unhealthy forest conditions and extreme wildfire risk
9	yes	weather - more unpredictable. more humid. weird warm winter. not much snow.
34	yes	wildfires are more frequent and bigger, substantial impacts from smoke

Comments given regarding responses to the following question:

*“Have you noticed any changes regarding species present in Lemhi County?”*

ObjectID	Participant	Comments provided
	<b>Response</b>	
37	yes	30 deer in yard during winter. wasn't this way before wolves. first generation born down here.
57	yes	Aspen answer above [ <i>See above answer relating to Aspen</i> ]
33	yes	changes in big game behavior. wolves. fish population increasing.
29	yes	changes in big game use, and where they are. wolves have some effect. changed behavior patterns of big game summer and winter habitat. maybe some improvement in fish resources.
2S	yes	Deer and elk have decreased

36	yes	Deer coming to town. 1984 Senator McClure introduced wolves. Dropped off where not supposed to be because weather. Deer all over town after.
18	yes	elk population decimated in areas because of introduction of Canadian wolf.
10	yes	elk population has changed since reintroduction of wolves, primarily behavior. some reduced hunts.
30	yes	first moved here antelope, disappeared for a while, now back in big flat area. panther creek bighorn sheep. lots of variation. two grizzlies here in his whole life panther creek above cobalt, area above carmen. ten years ago, maybe
56	dk	Have not lived here long
45	no	I haven't lived here long enough to see change.
59	yes	I heard grizzlies are returning
34	yes	in wilderness- cheat grass is becoming a real issue. salmon and steelhead - not great fishery for last 3 years.
60	yes	knowledge of invasive species, heard of grizzly bears, family impacts due to wolf reintroduction
50	yes	less big game
39	yes	less wild game due to wolves
49	dk	lots of invasive weeds
26	yes	More animals at lower elevations
17	yes	More awareness of noxious weeds. Not sure there are more. Of course, deer in town.
22	yes	more birds that were adversely affected by ddt. reintroduced wolves. more non-native plants and noxious weeds.
62	yes	More wolves close to inhabitants in outlying areas. Deer are residents close to houses in and out of town. Half population think it is okay, half don't.
13	no	new
9	yes	not many insects this year. lot of deer in field behind apartment, and pheasants too!
48	yes	noxious weeds
16	no	overridden by noxious and invasive plant species. bindweed, thistle, cheat grass, adversely impacted pasture lands. lupine- deadly to livestock.
25	yes	predators, wolves struggle to keep salmon and steelhead
1	yes	predators. Wolves
32	yes	reduced deer and elk populations after wolf introductions. declining salmon and steel head trout despite improved habitat ... the problem is the dams not local habitat



61	yes	Sage grouse aren't being protected. Still hunted.
3L	yes	Thanks so much to those who reintroduced the wolves. That single act has changed the big game distribution here more than anything else. Way to go.
41	yes	the deer and elk herd locally are about 1/10th their size 25 years ago when I located here
3	yes	the night hawks are declining!
27	yes	too much year-round hunting pressure low warm water Temps affecting fish. Disturbed areas in forest allow for cheat grass and other weeds to take hold then tax dollars are spent on weed control. Warmer Temps causing some species decline like Pikas,
19	yes	way more deer down low cougars in our yard due to wolves up high hunt the wolves!
6	yes	whitetails up NF
8	yes	Wolf population is out of control
2L	yes	Wolves being introduced. I noticed less elk deer and especially moose I do not hunt
46	yes	wolves run the game closer to houses
23	yes	wolves- we weren't asked. managing now but way they went about it was upsetting.

Note: 'dk' = don't know.

## Appendix XIII

### LC Participant Comments Regarding General Land/Resource Management Likert Statement

*“The use of our public lands and natural resources in Lemhi County  
is responsible and sustainable”*

Key: sa = strongly agree, a = agree, wa = somewhat agree, n = neutral, wd = somewhat disagree, d = disagree, sd = strongly disagree, dk = don't know.

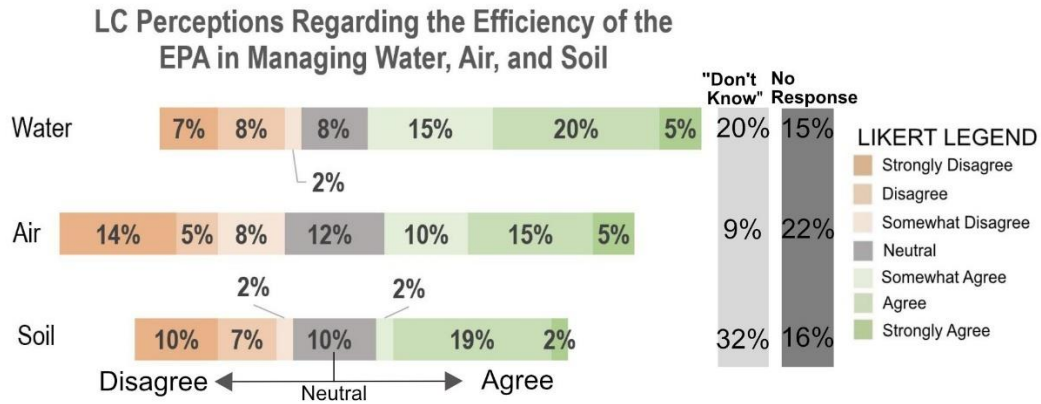
ObjectID	Likert Ranking	Comments Given
19	sd	Poor management
2S	d	BLM takes care of what is theirs, F&G does not
48	sa	FS and BLM care about our public lands
		government has a wasteful way to use its resources, if all services are based upon how much can be spent/made much then the true root of the service has no pride or reasonable way of completing its job
14	wd	Grazing and mining is not sustainable by definition.
2	wd	I do not doubt the sincerity of the people working on our public lands. I do however question their knowledge of what they are doing. Too many fresh out of college kids with no life experience poopoo what the people who live here know about the place. There are a lot of very intelligent and well-educated people living here and a lot of them are treated like backwoods Bumpkins by the eastern book smart children that come here to show us how it should be done.
3L	wa	I see special interests succeeding when big \$\$ is behind the opinion. The regular "Joe citizen" will be edged out and unable to afford hunting fishing and recreating inland is closed off or privatized. Federal ownership protects from private.
20	wa	I think using timber resources could change. Timber, particularly downed timber can be harvested responsibly.
26	wa	I think everyone who uses our public land needs to care for how it is treated in order for it to be responsible and sustainable
53	wa	I would hope so.
9	dk	in general oversight is as good as budgets allow
27	sa	In my view, the management is much too top heavy and theoretical. The resources are given by God to be judiciously used. Users are harassed and regulations are ill-suited to sustain human endeavor. Public monies are used to finance frivolous lawsuits irresponsible use of atv, wear down land and roads. opens up problems. run off, etc.
17	sd	impeded access.
16	wd	It seems to be moving towards a single use, that being recreation. Extraction is diminishing.
1L	wd	let us responsibly use our resources
41	sd	need logging
50	sd	Not as good as it should be.
36	wd	not following forest plan of the 8th is just a start limiting people access and permits
39	sd	Our local resources need to be managed by a local agency. Current management through neglect policies are hurting both the environment and the community
35	d	the use is sustainable but forest service managers and environmental groups have made irresponsible decisions that disrupted ecosystem processes and harmed our economy
32	sd	the USFS current policy hurts residents and turns the forest to a cinder.
24	sd	

57	wa	There are many people who graze and log in a sustainable manner, but then there are many that don't.
21	wa	there's not enough enforcement of laws pertaining to public lands
		Undeveloped places are not being protected enough; ATVs should have access to limited places so they don't trash land. grazing lands need to be reevaluated because
49	wa	private land has increased, pushing cattle up into little drainage and they trash.
13	a	We are a small part of the picture
		We have so much timber that is unmanaged and never will be. The right ideas of
2L	wa	conservation and responsibilities are out there but will not happen.

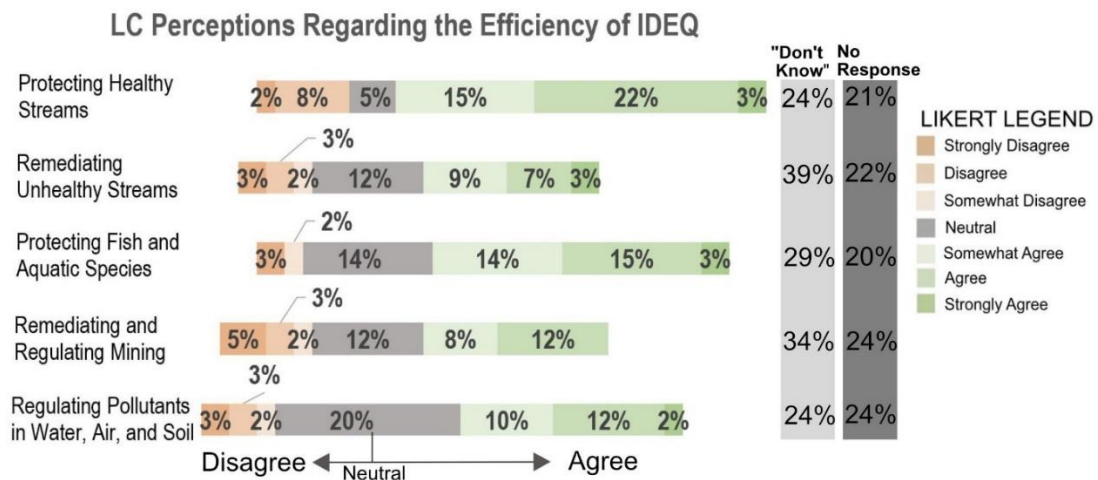
## Appendix XI

### LC Participant's Perceptions of the EPA and IDEQ

*“The Environmental Protection Agency does an effective job protecting...”*



*“The Idaho Department of Environmental Quality does an effective job...”*



## Appendix XV

### LC Participant Comments Regarding Federal Oversight Likert Statement

*“Federal oversight in land and resource management including the BLM, the FWS, and USFS, and the EPA is beneficial to Lemhi County and Idaho in general.”*

Key: sa = strongly agree, a = agree, wa = somewhat agree, n = neutral, wd = somewhat disagree, d = disagree, sd = strongly disagree, dk = don't know.

ObjectID	Likert Ranking	Comments Given
		As with all local. I believe local decision should be left to local agencies. The federal government needs to handle federal issues and let state and local government handle local affairs. They know the most about them and will do the best job. Federal issues and let state amend.
3L	wd	
9	wa	good as long as they don't over regulate where unnecessary.
		if what they work on is locally based. employees should be local not by people who have never seen our area
30	n	
36	a	In general.
10	a	it is beneficial, but it's not perfect. mismanagement.
		land should be under state management. politicians bring corruption. easier to eliminate corruption at a state level
24	sd	
62	a	Money is a problem. Still need to get mediation in mining operations, it will continue
49	sa	necessary!!
23	a	nice to have, wish we could be a little more independent of it.
		quiet until there is something to react to. should be talking to public. hear only after the fact
18	wd	
		skeptical. company answer: gov sold out to big pharma and big chemical; mass farming industry.
16	d	
		The only one I am familiar with is the USFS. It feels as though you have one hand tied behind your back. So much work needs to be done. Especially around residential areas.
2L	n	
		they are all part of the federal government preventing Idaho from self-rule and need to leave
41	sd	
		Tragedy of the commons. Locals would run amok with logging and mining for short term gain.
2	sa	
32	sd	we are over regulated and they waste tax dollars
		We need local oversight not federal. There is too much of a disconnect for effective communication or management
35	sd	

## Appendix XVI

### Detailed List of States, Counties, Cities/Towns represented in the Extended Geographic Survey

Entries listed by group scales.

<b>EG Participants in Idaho</b>			
<b>State</b>	<b>County</b>	<b>City/Town</b>	<b>Survey Count</b>
<b>Idaho</b>	Ada	Meridian	4
		Boise	29
		Eagle	1
		Star	1
	Bannock	Inkom	1
		McCammon	1
		Pocatello	8
	Bingham	Blackfoot	2
		Shelly	1
	Blaine	Hailey	2
		Ketchum	1
		Sun Valley	1
	Boise	Garden Valley	1
	Bonner	Hope	1
	Bonneville	Idaho Falls	2
	Caribou	Bancroft	1
	Custer	Stanley	2
		Challis	3
	Elmore	Mountain Home	1
	Franklin	Preston	1
	Idaho	Riggins	1
	Kootenai	Coeur D Alene	1
	Latah	Moscow	3
	Lemhi	Salmon	3
	Nez Perce	Lewiston	1
	Power	American Falls	1
	Valley	McCall	15
		Donnelly	2

<b>EG Participants in Western States</b>			
<b>State</b>	<b>County</b>	<b>City/Town</b>	<b>Survey Count</b>
<b>Arizona</b>	Maricopa	Buckeye	1
		Tempe	1
	Navajo	Hotevilla-Bacavi	1
	Tucson	Pima	1

<b>California</b>	Los Angeles	Manhattan Beach	1
		Los Angeles	2
	Sacramento	Sacramento	1
	San Bernardino	Joshua Tree	1
	Santa Cruz	Santa Cruz	1
<b>Colorado</b>	Adams	Denver	1
	Boulder	Boulder	1
	El Paso	Colorado Springs	1
	Penrose	Fremont	1
	Pueblo	Pueblo	1
<b>Montana</b>	Flathead	Bigfork	1
	Missoula	Missoula	2
<b>Nevada</b>	Clark	Las Vegas	1
	Washoe	Reno	1
	White Pine	Ely	1
<b>Oregon</b>	Crook	Prineville	1
	Lane	Eugene	1
<b>Utah</b>	Carbon	Price	1
	Midvale	Salt Lake City	1
	Utah	Mapleton	1
	Weber	Ogden	1
	NA	NA	1
<b>Washington</b>	Okanogan	Twisp	1
	Skagit	Anacortes	1
	Whitman	Pullman	1
<b>Wyoming</b>	Lincoln	Alpine	1
	Lincoln	Thayne	1
	Natrona	Hiland	1
	NA	NA	1

<b>EG Participants in Eastern and Central States</b>			
<b>State</b>	<b>County</b>	<b>City/Town</b>	<b>Survey Count</b>
<b>Georgia</b>	Dekalb	Atlanta	1
<b>Illinois</b>	Hamilton	McLeansboro	1
	Urbana	Champaign	2
	Saint Clair	O Fallon	1
	Winnebago	Rockton	1
<b>Indiana</b>	Lake	Crown Point	1
<b>Kansas</b>	Cowley	Winfield	1
	Douglas	Lawrence	1
<b>Louisiana</b>	Bienville	Gibbsland	1
	East Baton Rouge	Baton Rouge	1
<b>Maine</b>	Penobscot	Orono	2
<b>Maryland</b>	Montgomery	Bethesda	1

		Takoma Park	1
<b>Massachusetts</b>	Hampden	Springfield	1
<b>Michigan</b>	Newaygo	Grant	1
	Gladwin	Gladwin	1
<b>Minnesota</b>	Ramsey	St. Paul	1
	Hennepin	Minneapolis	1
<b>New Jersey</b>	West Orange	Batesville	1
<b>New York</b>	Kings	Brooklyn	1
<b>Ohio</b>	Hamilton	Cincinnati	1
<b>South Dakota</b>	Meade	Box Elder	1
	Day	Webster	1
<b>Texas</b>	Fannin	Ivanhoe	1
	Comal	New Braunfels	1
<b>Vermont</b>	Windham	West Townshend	1



## Appendix XVII

### Comments Regarding Forest Management Likert Statement in EG survey

*“The current state of forest management is effective  
in supporting a healthy forest ecosystem”*

Key: 1= strongly agree, 2 = agree, 3= somewhat agree, 4 = neutral, 5 = somewhat disagree, 6 = disagree, 7 = strongly disagree.

<b>Likert Ranking</b>	<b>Comments given by participants in Idaho group</b>
1	Logging in peripheral headwater streams is irresponsible. I feel it's getting better. They don't have the resources to effectively manage the forests. But I see things being done in the last couple of years that I haven't seen been before that.
2	USFS roads being improved and letting fires burn where they can.
2	In Idaho, yes.
3	It's getting better
4	Again, depends on the project, manager, etc. On the whole, there seems to be a good balance currently between sustainable use and wildfire management.
4	They do a good job, but policy is needed to remove more fuel.
5	I fear that logging interests have the biggest lobbies in congress and therefore they are allowed to take more than their share of the forests.
5	I think more could be done, but I realize it's a tough job
5	More prescribed burning is needed.
6	selective logging (not clear cutting) would go a long way to preventing dead undergrowth that makes forest fires hotter.
6	too much fire suppression in past years, too much built up fuel & devastating fires as a result
6	We aren't doing our best, policy and obstructionists from within the Federal Agency are blocking us from doing more.
6	We've neglected our forests for far too long
7	Log it in the name of forest health. We are losing Millions of acres of habitat because of the love of deforestation
7	Most logging policy currently is built around maximizing revenue, for instance, rather than selective sustainable processes that might work to limit fire danger without degrading forest health/clearcutting.
7	No. the admin has purposely underfunded land management to get to the point where forests are under tended & become a hazard so people will beg to sell them off. This is what the 1% wants, except for forests around their mansions. they would like those tended by gov
7	There are too few resources for the amount of land.

<b>Likert Ranking</b>	<b>Comments given by participants in West group</b>
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- 3 I think that there is still too much logging going on in some areas and it isn't sustainable  
3 nor healthy.
- 3 More active management could be done to promote forest health  
3 Prescribed burns seem to have made a positive impact in AZ. Time will tell if it is  
4 enough.
- 4 More proactive management is needed.  
Once again, wild horses are a major problem and are degrading ecosystems. Habitat  
5 fragmentation, wildfires, grazing, noxious weeds are all contributing to a declining forest  
5 ecosystem.
- 6 The system 20 years ago was better. Forest management managing. Now everyone is  
6 afraid to do anything because some special interest group will file suit.
- 7 Blow down areas are not being managed, or cleared. Burn areas are being kept off limits.  
7 Hiking trails are not maintained clear of down trees. San Isabel national forest does  
7 nothing to manage the forest except by closure of roads.
- 7 EPA has Forest service so afraid that they can't effectively manage the Forest  
7 Forest fires will lessen with better management measures
- 7 Sins and mistakes of the past take years to fully manifest. Agencies too underfunded,  
7 understaffed, politicized to make needed changes. Science is ignored in favor of political  
8 expediency
- 8 Hard to tell.

#### **Likert**

#### **Ranking Comments given by participants in East group**

- 5 California forest has fire almost every year.  
5 The have traditionally overharvested the mature oks around here contributing to a low  
5 mast crop that was significant in maintaining a wide variety of wildlife
- 5 This varies depending on where you are located. I have seen well managed forests as well  
5 as poorly managed forests on public land

## **Appendix XVIII**

### **EG Influential Policies: Comments and Related Data**

Comments given by EG participants regarding influential policies:

*“Can you recall any public land or natural resource policy  
that impacted you directly?”*

#### **Comments from Idaho participants**

2014 and 2018 farm bill.

Closed access to public lands

CLOSING OFF PUBLIC LANDS FOR PRIVATE INTERESTS.

Creation of the While Clouds wilderness areas.

Creation of White Clouds Wilderness

Dams on the Snake River have negatively impacted the salmon runs.

Designation of Boulder-White Clouds wilderness areas, designation (and revoking) of Grand Staircase-Escalante and Bears Ears national monuments.

Excessive use of NEPA and the Forest Service lack of working resources or labor to implement the study, when it actually needs to be implemented.

Federal administration's decision to reverse Escalante land as National Monument drove me to go visit it.

Forest health logging project eliminated the habitat and the wildlife is no longer in the area.

Forest planning

Forest travel management plans

I am most familiar recreating in MT and ID where virtually no trailheads are regulated. Various permit systems have affected my access in busier areas of the PNW and SW. I understand their need, but I would prefer to find out about them before I go to TH [trailhead]

I have been volunteering to restore Sage Grouse Habitat after the big Soda Fire in Owyhee County.

There was a massive management plan that involved multiple agencies. That, I believe, has been shredded. Breaks my heart that we step backwards

Idaho's trespass law has emboldened landowners to block access to public land and public roads across the state.

In general, hunting/fishing regulations. I liked Henry's Lake extended season.

I've seen numerous public lands closed to public use because of private concerns, because the monies of the few tend to matter more than public rights or sustainable use.

Loss of mountain bike trail access when Boulder-white clouds was designated wilderness

Major policy proposals for forest health and roadless areas.

mining messing up watersheds

Mountain biking restrictions

National Strategy for Sustainable Trails; fire funding fix; decline of Federal trail maintenance program

New Boulder White Cloud Wilderness established in Idaho

Overgrazing in chukar country. Cattle ruining stream banks

Permits to drill on BLM land.

Reauthorization of the Land and Water Conservation Fund or municipality levies to find open space acquisition

Recent change in Idaho's policy regarding the posting of private. Was the private land owners responsibility but now is the public land user's responsibility to know where the boundary is between public and private land.

Rich Texan is buying up land in Idaho that used to allow public access to public lands and closing those roads.

Road closures

Rolling back h2o protections will affect everyone. They are not so stupid as to do anything that has immediate bad impacts. They are playing the long game hoping you don't notice, until you do but then don't remember when it started.

The Boulder White Clouds Wilderness designation permanently protected the area.

The loss of protection for bears ears could cause some issues on future trips I had planned.

The reduction in size of the Bears Ears and Grand Staircase National Monuments was heartbreaking.

I have strong ties to both those places.

The US Bureau of Reclamation was directed to spill 1 million-acre feet of water in 1999 for salmon smelt migration augmentation. It resulted in an increase in adult returns over the next several seasons that greatly exceeded estimates.

The Wilderness Act and subsequent designations in Idaho and Montana.

Unable to use bikes in white clouds

We used to be able to hike certain trails and areas in Caribous National Forest. We cannot now because they are being leased for cattle grazing. There's either so many cows it's dangerous, or the area is so overrun with cow patties it's gross.

Wetland mitigation

Wilderness rules affect my job (trail work).

wolf introduction program/Owyhee snail program/ multiple unexplained road closures with no public notice/or input, washed out roads not being repaired without explanation

### **Comments from Western participants**

As a guide and a wilderness lover losing protections can be hard for businesses and as an atmosphere California water taken away from farmers to help smelt and salmon.

Closing access roads to public lands; failure to clear undergrowth from forests causing catastrophic fires

Closing of California abalone harvest

Drilling for gas and oil on public lands where I hunt. Motorized vehicle access on public lands

In Idaho the trespassing laws were altered making some lands that I used to recreate on inaccessible because right of ways were closed.

Lead bullet ban, MLPA closures, etc.

LWCF and access. I hunt LWCF AREAS INCLUDING NEW ONES.

Methow valley headwaters campaign

raising prices to enter national parks

Recently the state trust land in AZ was made available for sale to fund teacher raises. My wife and I voted against it and she got a 1 percent raise that was insignificant. Obviously, she is a teacher.

The 2003 old fire in San Bernardino mountains., illegal attempt by Then president George Bush to build on natural forest land.

The attempt to allow mineral exploration in Nevada's Ruby Mountains, and the attempt by the air force to take over part of the Desert National Wildlife Preserve. Both areas are loved by friends and family, and would suffer greatly if the plans go forward.

The reduction in Bears Ears National Monument size cut me to the core. I am sickened at how we continue to dishonor Tribes and that very special landscape.

The travel management plan for the local forest has led to a loss of road access to trailheads

Too numerous to mention, but solar development at Ivanpah Valley destroyed a piece of land that was sacred to me

Wilderness Designations closing access to mountain biking.

Wilderness designations in which I cannot complete vegetation treatments (i.e. pinyon and juniper encroachment into sagebrush habitats) because of use of prohibited tools in the wilderness.

With my job all of them.

### **Comments from Eastern participants**

Not sure if this is what you mean, but Missouri Governor Erik Greitens shut down 2 state parks in 2017 with zero explanation.

water bill here in SD changed everything!!!

Creating Bois D'arc Reservoir in Fannin County, Texas

Long term advanced permits required to backcountry camp in Zion National Park. All sold out ahead of time, walk up permits not granted for the direction I wanted to hike because advance permits in different direction sold out, many of them were no-shows.

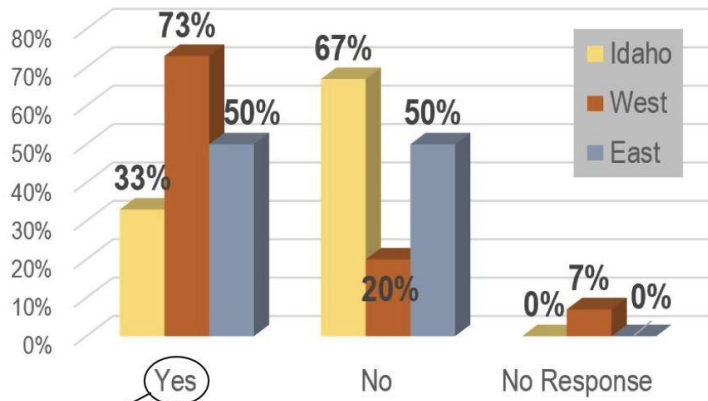
Over harvested some of our States very best squirrel woods

Reducing Bears Ears and Grand Staircase-Escalante protection

# EG Participant's Awareness of Current Policies

The Natural Resource Management Act (S.47) was recently introduced and passed by the Senate. The summary states that the bill "sets forth provisions regarding various programs, projects, activities, and studies for the management and conservation of natural resources on federal lands."

Have you heard of this bill?



If "Yes"

Can you recall any significant aspects about this bill?

