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Photovoice and Time Stories Reveal Desirable Coexistence Futures with Grizzly Bears in
Southwest Montana

by

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Committee Approval

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Photovoice and Time Stories Reveal Desirable Coexistence Futures with Grizzly Bears in
Southwest Montana

Thesis Abstract – Idaho State University (2023)

Stakeholders who live around the Beaverhead-Deerlodge National Forest (BDNF) are challenged with living on a shared landscape with grizzlies. Current definitions of coexistence are vague and often do not account for variance in the term's meaning among diverse stakeholders due to differences in their individual experiences. To explore how stakeholders conceptualize coexistence, I used photovoice to allow participants to actively explore the experiences that form their visions of a desirable future coexistence. Specifically, I used photovoice to examine stakeholders' time stories, which connect past and present experiences to ideas about what should happen in the future. Assessing time stories uncovered stakeholders' imaginaries of coexistence, which are an individual's moral vision of a desirable future. Through combining semi-structured interviews with photovoice, I explored how stakeholders' experiences form their visions of a desirable future coexistence with grizzlies. Doing so allowed me to identify four imaginaries of coexistence with grizzlies around the BDNF.

Key Words: Grizzly Bears, Stakeholders, Coexistence, Photovoice, Time Stories, Imaginaries

Chapter 1: Introduction

Stakeholders within the boundaries of the Beaverhead-Deerlodge National Forest (BDNF) are challenged with living on a shared landscape with grizzlies as the bears move out of their designated recovery ecosystems (Peck et al., 2017). Conflict between bears and stakeholders in the BDNF occurs in several ways, including livestock depredation, crop raiding, and fear when recreating, which results in the need for wildlife management that addresses the needs and safety of both humans and bears. To achieve coexistence between humans and grizzly bears, it is necessary for conflict to decrease through collaboration among multiple stakeholders who have individual knowledges and experiences.

Coexistence is a term broadly invoked in scientific literature and wildlife management to reframe discussion about living with grizzlies away from conflict toward a more positive framing. Its proponents argue that if we conceptualize and discuss sharing landscapes positively rather than negatively, human and grizzly conflicts will likely be resolved (Frank et al., 2019). Coexistence is generally defined by researchers as something that “takes place when the interests of humans and wildlife are both satisfied” (Frank, 2016). However, this definition is vague and fails to account for questions such as who gets to determine when humans and wildlife are satisfied or to what extent are stakeholders willing to tolerate living on a shared landscape with the bear. As such, a distinct and agreed upon definition of the term remains elusive because what coexistence is will likely vary among different stakeholders, such as ranchers, biologists, and hunters, due to differences in individual experiences through time that shape what coexistence means to them and what it should look like in the future (Pooley et al., 2020; Martin et al., 2021). Without incorporating the perspectives of those who live with and are most impacted by grizzlies into discussions of coexistence, stakeholders and wildlife managers may lack the ability to

engage in effective dialogue and progress toward management solutions that enable successfully sharing a landscape. As currently defined, stakeholders are not often able to see their visions of coexistence reflected in the concept, which has resulted in a call for bottom-up research to produce a more precise vision of future coexistence that is meaningful to all stakeholders (Carter & Linnell, 2016; Frank & Anthony, 2021).

Scholars have attempted to understand stakeholders' perspectives on current and future grizzly coexistence in western Montana but have found that stakeholders' visions of coexistence were often ineffable to themselves and others (Halm, 2020). To help combat this problem, I used the photovoice method in conjunction with the concepts of time stories and imaginaries to allow participants to actively explore the experiences and deeper meanings that form their visions of a desirable future coexistence (Latz & Mulvihill, 2017). In past research, photovoice provided a way to nurture self-reflection and awareness regarding environmental change, as well as deep reflexivity about personal values and lived experiences (Barone & Eisner, 2012). In this project, capturing and interpreting photographs allowed stakeholders to become aware of and reflect on the meanings and experiences that form their visions of coexistence so as to reduce the problem of ineffability.

Photovoice is both a participatory action and arts-based/informed research method. It asks of participants two things: to take a photograph and to interpret the narrative behind the photograph. Narratives are “simplified explanations about the world and how it works in relation to environmental and social causes and effects, [and] can help shape human understanding and guide policy, practice, and action” (Frank & Anthony, 2021). According to Margulies (2019), photovoice is different from traditional social science research methods because it does not just situate participants as research subjects in an interview. Instead, it allows participants to develop

a critical consciousness, to be actively engaged in the research, and assist the researcher in attaining knowledge throughout the study (Latz & Mulvihill, 2017).

In this study, I used photovoice to examine stakeholders' time stories, which connect an individual's past and present experiences to their ideas about what should be happening in the present, as well as what ought to happen in the future (Fincher et al., 2014). A time stories approach allowed me to understand not only how stakeholders have lived with and been affected by grizzly bears in the past, but also understand stakeholders' future imaginaries of coexistence with grizzlies. The concept of imaginaries calls attention to how an individual's vision for a desirable future is grounded in moral terms (Jasanoff & Kim, 2015). Thus, a stakeholder's imaginary for future coexistence is grounded in their ideas about "how the landscape ought to look, for who, and [for] what purpose" (Jenkins, 2018). The primary objective of my research was to identify the different imaginaries for living on a shared landscape with grizzly bears amongst my study participants. To gain a deeper understanding of the meanings and experiences that form an individual's current and future visions of coexistence, I explored the following question: What are the different imaginaries of coexistence with grizzly bears now and in the future among stakeholders around the Beaverhead-Deerlodge National Forest?

Chapter 2: Conceptual Framework

2.1 Coexistence

Coexistence is a concept that is broadly invoked in scientific literature and wildlife management to reshape discussion about living with grizzlies away from conflict and toward a more positive framing. However, the term is still poorly defined and highly contested among stakeholders (Martin et al., 2021; Carter & Linnell, 2016; Frank & Anthony, 2021; Gilkman et al., 2021; Pooley et al., 2020; Nesbitt et al., 2022). Coexistence is generally defined by scholars

as something that “takes place when the interests of humans and wildlife are both satisfied, or when a compromise is negotiated to allow the existence of both humans and wildlife” (Frank, 2016). Current interpretations of coexistence in the literature, such as this one, are vague and fail to account for questions such as to what extent is living with bears tolerable or who decides when humans and wildlife are satisfied? Without considering such things, the people who live, work, and recreate on the same landscape as grizzlies do not have a voice in creating and sustaining coexistence initiatives. Failing to incorporate the viewpoints of multiple stakeholders into definitions of or discussions about coexistence has resulted in the absence of distinct and agreed upon definitions of the term or visions of what it should look like. This is because what coexistence is will likely vary among stakeholders based on a multitude of their different life experiences and value orientations, as well as the social systems that support their lives and livelihoods (Frank & Anthony, 2021; Pooley et al., 2020; Martin et al., 2021). Stakeholders living with and around grizzly bears are likely the most essential people needed for coexistence and grizzly recovery, and such a blurred line and misunderstanding of the term inhibits stakeholders’ and grizzly bear managers’ ability to engage in effective dialogue and produce the steps needed toward forms of coexistence acceptable to all stakeholders (Nesbitt et al., 2022; Martin et al., 2021; Carter & Linnell, 2016).

Current research that uses the concept of coexistence to reframe discussion about sharing a landscape with grizzlies is often focused on conflict remediation and increasing tolerance between humans and wildlife (Redpath et al., 2015). More specifically, coexistence research focuses on how human perceptions, attitudes, and behavior, as well as human-human conflicts, influence an individual’s level of perceived or actual conflict or tolerance toward grizzly bears (Treves et al., 2006; Hudenko, 2012). This study assessed what experiences and other factors,

such as values and social relationships, influence an individual's perspective on and level of tolerance toward an increase in the grizzly population. Tolerance refers to the passive acceptance and weighing of risks and benefits involved in sharing a landscape with a wildlife population (Pooley et al., 2020; Brenner & Metcalf, 2019; Nesbitt et al., 2022). Looking through the lens of tolerance, coexistence does not imply there is an absence of risk when sharing a landscape with wildlife. Rather, "[coexistence] requires tolerance of risks and the management of risks such that they remain within tolerable limits," meaning that humans are able to share a landscape with grizzlies without detrimental effects to their livelihoods or ways of being (Pooley et al., 2020, p. 785). Bruskotter and Wilson (2014) found that behavioral factors, such as emotional reactions to a species, personal control over risks, and trust in agencies, are the best indicators of tolerance toward a species. The authors explained that individuals' levels of tolerance toward a species define that animal's distributions and densities, which consequently calls for the need to understand the psychological mechanisms that inhibit or promote tolerance in individuals. In my study, there is no foreseeable future where grizzly bears are removed from the landscape in which they are expanding. Therefore, understanding stakeholders' experiences and cultural systems is important in creating a scenario where humans and grizzlies can share the same landscape with an increase in tolerance and a decrease in conflict. In this study I conducted bottom-up research to explore stakeholders' experiences, values, and social structures to produce a more precise, inclusive vision of coexistence so that the concept is meaningful and reflective of different stakeholders' perspectives and experiences (Carter & Linnell, 2016; Frank & Anthony, 2021).

To build trust and effective grizzly conservation decision-making, directly researching the various life experiences, social systems, and value orientations that shape what coexistence

means and how it is imagined by different stakeholders is needed (Carter & Linnell, 2016; Pooley et al., 2020). Further, by identifying transparent and locally crafted visions of coexistence and attendant management strategies, grizzly bear managers and conservationists can help build shared responsibility for the governance over wildlife so that all stakeholder groups may have a positive relationship with grizzlies on their landscape (Frank & Anthony, 2021). For example, through their research, Glikman et al. (2021) found that when coexistence definitions are crafted by local stakeholders and biologists collectively, participants identify successful conservation that has a balance between costs and benefits associated with living on a shared landscape with wildlife. Successful conservation, in this case, means that neither humans nor wildlife inhibit the survival or sustained existence of the other species.

Identifying bottom-up visions of coexistence is needed because when collaboration among stakeholders is enacted, there are perceived reductions in conflict between humans and wildlife and humans among humans (Frank & Anthony, 2021; Carter & Linnell, 2016). Martin et al. (2021) specifically examined U.S. Forest Service managers' and land managers' experiences and perspectives on coexistence. They found that coexistence is multidimensional and often underspecified. Still, they found through their discussions that coexistence is an on-going process rather than an end goal, meaning that coexistence requires navigating tensions due to living on the same landscape as wildlife and reaching acceptable levels of loss that are appropriate for both stakeholders and wildlife advocates. Glikman et al. (2021) observed that their participants struggled with defining coexistence, mainly due to variation in the conservation context. However, their participants concluded that coexistence requires that the species and humans share the same landscape, and neither the species nor humans can inhibit the sustained existence of the other. The authors believe that coexistence is possible so long as stakeholders and

researchers continue to work toward deepening the understanding of the concept and its various interpretations through continued bottom-up research and collaborative conservation. While some scholars, like those mentioned, have ventured to understand stakeholders' perspectives on current and future grizzly coexistence in the Intermountain West, it remains that stakeholders' visions of coexistence are often ineffable to themselves and others, meaning too great to be expressed through discourse, which in part explains why visions of coexistence remain underspecified (Halm, 2020; Barone & Eisner, 2011). To resolve this issue, I used a bottom-up approach to identify stakeholders' visions of coexistence using the photovoice method in conjunction with the concepts of time stories and imaginaries. This was done to make stakeholders' invisible visions of coexistence visible. Doing so allowed stakeholders to actively explore the experiences and deeper meanings that form their visions of coexistence, as well as “bring research participants and the non-human agencies together as a means of observing the co-production of situated knowledges” (Latz & Mulvihill, 2017; Alam et al., 2017).

2.2 Photovoice

Photovoice is an arts-based/informed and participatory action research (PAR) method that allows for participants to both participate in the research and be co-producers of knowledge — to be “authors of their own experiences” (Latz & Mulvihill, 2017). It asks of participants two things: to take a photograph and to interpret the narrative behind their photograph. Narratives are “simplified explanations about the world and how it works in relation to environmental and social causes and effects, [which] can help shape human understanding and guide policy, practice, and action” (Frank & Anthony, 2021). In traditional qualitative social science reliant only on interviews, participants' narratives and meanings are often ineffable to them because they are often limited by the constraints of discursive communication (Barone & Eisner, 2011),

such as an individual's ability to effectively communicate the non-material costs (e.g. stress, admiration) associated with living on the same landscape as grizzly bears. Photovoice provides a solution to this issue because it encourages self-reflection and awareness of environmental changes, and it allows stakeholders to develop a critical consciousness to more deeply reflect on their narratives (Rivera Lopez et al., 2018; Latz & Mulvihill, 2017; Liebenberg, 2018). Critical consciousness refers to an individual's in-depth understanding of the world and understanding of social and political contradictions (Liebenberg, 2018).

Through self-reflection and an increased critical consciousness, photovoice does not merely situate interviewees as passive subjects in the research process, but instead it allows them to be actively engaged in and co-producers of the knowledge obtained throughout the study (Latz & Mulvihill, 2017; Liebenberg, 2018; Margulies, 2019; Rivera Lopez et al., 2018). Alam et al. (2017, p. 264) argues that “participatory photography does not only supplement traditional research inquiries by disrupting the dominant human gaze but also provides participants with a chance to recognize and appreciate the homely ecologies that are connected to their everyday socio-economic concerns and livability,” meaning that photovoice allows individuals to seriously reflect on and value the intimate inner workings of their lives. Through active participation by stakeholders in this research, I argued that photovoice would be an effective tool in solving the problem of ineffability by encouraging greater reflection and awareness of personal values, social systems, and experiences that form their individual visions of future coexistence.

Photovoice was originally labeled *photo novella* by Wang and Burris (1994) — the scholars who are recognized today as the founders of the method (Latz & Mulvihill, 2017; Liebenberg, 2018). To develop photovoice, they drew on Paulo Freire's concept and method of critical pedagogy (1970), in which he and others used and assessed the process of reflection,

introspection, and the discussion of images so that participants might achieve a critical consciousness to identify, represent, and enhance their community, ultimately “claim[ing] a right to be visible” (Liebenberg, 2018; Margulies, 2019; Baker et al., 2021). In my project, stakeholders were actively engaged in the research process by taking photographs in response to prompts, and then situated their photographs within their own narratives through an interview process. Because of photovoice’s powerful ability to involve, give voice to, and empower participants, it has grown to be a frequently used vehicle to enable participants to reach community awareness and/or policy in conservation research. For example, in one photovoice project conducted in Samburu (Beh et al., 2013), the authors and participants were able to identify seven broad themes regarding conservation, such as participants’ desire for wildlife training exercises and the local government to negotiate human-wildlife conflict alternatives. The themes were provided to policymakers through a gallery exhibition with the hope that the photos would prompt new forms of conservation action by NGO and other leaders who attended.

In this study, photovoice is specifically an arts-informed research method, rather than arts-based, because the photographs were not used as data. Rather, the photos served as data antecedents by eliciting responses from the interviewees in the form of narratives (Latz & Mulvihill, 2017). In this research, I used this photographic technique to allow stakeholders to create narratives around their values, connections to place, and past and present experiences with grizzlies that were then used as data. The use of photovoice as both a tool to remedy ineffability and a vehicle to conduct bottom-up research in this project is legitimated by Burawoy’s (2004) call for and definition of *organic public sociology*. Organic public sociology is a grass-roots form of public sociology that engages smaller, highly focused, intentionally selected groups. Its practitioners argue that “engagement is to be moral; it is to propose and challenge ethical

foundations of issues, debates, and decisions” (Turner, 2005). In organic public sociology, the sociologist works closely with a visible, thick, and *active* local public where mutual education is achieved between the sociologist and the public. This is done to craft project outcomes that are not only meaningful to the sociologist, but to the public as well. To validate the organic connections formed between the researcher and the public, and to procure meaningful outcomes in this project, the invisible was made visible through the creation and presentation of photographs.

Latz and Mulvihill (2017) identified *presentation* as a final piece in the photovoice method. The purpose of the presentation, or the public exhibition, is to use the photographs and narratives to give voice to those involved in the research process, and to spread awareness to the greater community. Wang (2003) explained that using exhibitions can “influence how a community’s public presence is redefined,” meaning that the exhibitions physically display how different moral frameworks and social concerns, such as coexistence with grizzly bears, are understood and responded to by policy makers and others locals (Pooley et al., 2020; Liebenberg, 2018). Understanding and implementing coexistence initiatives calls for a careful approach in which researchers, wildlife managers, and community members “listen carefully to and learn from others,” which is why I chose photovoice as my method (Pooley et al., 2020, p. 789; see also Glikman et al., 2021). In photovoice, exhibitions serve the purpose of enabling meaningful community engagement. The ultimate goal of hosting an exhibition at the conclusion of this project is to educate the local people around the BDNF on visions of future coexistence with grizzlies and to make them aware that their perspectives matter in grizzly bear management and future coexistence. The exhibition will be held in one of the rural communities within the study site in the spring of 2023.

Is photovoice an effective tool for studying the field of wildlife management? As I have observed and Margulies (2019) has identified, photovoice has been very minimally used in studies of wildlife management and, more specifically, studies of rural socioenvironmental relations that involve nonhuman life. Photovoice has proven to be a successful method in the co-production of knowledge, and it has allowed for participant deep reflexivity of values and lived experiences. Will such outcomes translate into this study? Margulies (2019) and Beh et al. (2013) noted that photovoice was indeed a promising method to become aware of the relations between humans and wildlife and produce positive conservation outcomes. Further, photovoice has allowed participants to develop a critical consciousness, or to have an in-depth understanding of the world and their perspectives, more intensely than a general study that situated participants simply as passive subjects. According to Carter and Linnell (2016, p. 577), participatory processes that use bottom-up representation and legitimization “have proven successful at negotiating outcomes that are viewed as acceptable.” This project will use the bottom-up approach of taking a photo and interpreting the narrative behind the photo to produce definitions of coexistence that are viewed as “acceptable” to *multiple* stakeholders around the BDNF. To better understand the narratives behind stakeholders’ photographs, this project will use the conceptual framework of time stories to connect an individual’s experiences to explain their perspectives.

2.3 Time Stories

In this study, I used photovoice to examine what Fincher et al. (2014) calls time stories, which are narratives that connect an individual’s past and present experiences to their ideas about what should be happening in the present, as well as what ought to happen in the future. Stakeholders’ experiences of the material, local, and environmental changes that have occurred

throughout their lives influence the way that they respond to information about their future. Time stories “fix time in places, and places in time,” meaning that the experiences an individual has in a place mold the meanings they associate with that place (Fincher et al., 2014, p. 202). For example, if a rancher was to experience a ranching landscape absent of grizzlies in their past, they may value a future ranching landscape that is also without the presence of the bear. Time stories include an individual’s assessment of what is just and fair and should happen in the future based on their past and current experiences. Lequieu (2017) and Brown et al. (2019) identified that, in the face of change, an individual’s past and present experiences shape the shifts they believe necessary for a desirable future.

For example, Corredor et al. (2021) explore the historically co-constructed landscape of the páramos around Bogotá, Colombia, and the “multispecies entanglements” between the working class and Andean bears (*Tremarctos ornatus*). They chronicle how human and bear interactions have been shaped through time by environmental and conservation institutions, public utilities, ranching and farming, political conflict, and scientific research. The authors’ narrative explains how the dynamics of exclusion and discord between stakeholders, with varying degrees of power over the páramos, have influenced local human and bear relationships over time. The Andean bear was once a part of the cultural identity that was embedded in the local communities, but it has become disconnected and now assumes the role of a “participant” in the displacement and prolongment of injustices against the rural working class. Disregarding such narratives, or time stories, may lead to simplification of human and wildlife interactions, which may consequently reproduce conflicts, perpetuate injustices, and diminish resiliency of conservation practices.

The goal of assessing a time story in this study was to understand how it shapes my interviewee’s preferred future in grizzly coexistence (Fincher et al., 2014). Stakeholders’ time

stories vary amongst each other due to their individual experiences, values, and social systems (Aastrup, 2020; Zinngrebe, 2016). Assessing time stories allows the ability to evaluate and compare multiple sources of knowledge and values because they allow for critical reflection and understanding of issues, such as grizzly expansion's different effects on stakeholders around the BDNF (Louder & Wyborn, 2020). Often, researchers' goals to address human and wildlife interactions lack thoughtful consideration of the plethora of different relationships and experiences between stakeholders and grizzlies and among different stakeholder groups (Frank & Anthony, 2021). To counter this, it is essential to broadly explore multiple stakeholders' different time stories so as not to misinterpret and misunderstand locals' livelihoods and values, and "hinder the development of conservation practices" (Frank & Anthony, 2021; König et al., 2020).

Each stakeholder's time story is a piece of a puzzle that explains how they imagine a desirable future coexistence with grizzlies. When each of those puzzle pieces are brought together, a clearer understanding of a desirable future coexistence can be pieced together to produce more collaborative and successful solutions to grizzly bear management. Very few projects, such as Martin et al. (2021) and Glikman (2021), have specifically focused on and included stakeholders' definitions of coexistence and how they imagine a future coexistence. In this project, a time stories approach allowed me to understand stakeholders' visions of coexistence based on how they have been affected by grizzlies in the past and present, and it enabled me to better understand stakeholders' future imaginaries of coexistence with grizzly bears.

2.4 Imaginaries

The social imaginary is a concept developed by Jasanoff and Kim (2015) that describes a

person's moral vision of their desirable future. Individuals and groups identify, assess, and pursue alternative possible and desirable futures in response to major sustainability challenges rather than blindly cede to unguided or forced change (Moore & Milkoreit, 2020). Through imaginaries, people construct and represent desirable futures, enable or restrict what actions are appropriate relative to a phenomenon, and produce our way of thinking about a possible world. Imaginaries ground an individual's beliefs on "how the landscape ought to look, for who, and [for] what purpose," based on their experiences, social systems, and values (Jenkins, 2018). Imaginaries are formed through lived experiences, values, and shared discourses among social groups that are established through formal structures and informal norms, and they affect an individual's and a group's collective practices (Archibald et al., 2020). As Molotch (1976) noted, every landowner or person who has interest in a piece of land has in mind a certain future that is linked in some way to their own well-being. As this literature suggests, stakeholders in this project imagined a desirable future with grizzlies based on what they morally deem as the best future for their and their cohort's livelihoods and well-being.

In the case of human and grizzly bear coexistence, stakeholder imaginaries will vary based on the future they foresee as a result of their position in social space, as well as by their perceptions of reality that are the result of their individual experiences and value orientations (Smith & Tidwell, 2016). For example, a hunter's imaginary may be that hunting permits should be allocated for grizzly bears. This imaginary could have been formed as the result of a physical encounter with a bear, because that individual's friends believe that grizzlies should be hunted, or because they morally believe that the grizzly population is too high, and therefore hunting permits should be allocated to hunt grizzlies. By using the photovoice method to assess stakeholders' time stories, this project uncovered different imaginaries of a future coexistence

with grizzly bears around the BDNF. This gave me the ability to expose what processes — material and non-material — form stakeholders’ imaginaries of a desirable future coexistence with grizzlies, thereby making stakeholders’ currently invisible visions of future coexistence visible so that multiple perspectives may be brought to the table in grizzly bear management.

Chapter 3: Methods

Grizzly bears (*Ursus arctos horribilis*) once roamed the land in most of the western United States. As settlers moved in and expanded across the Great Plains, human-wildlife conflict began to take form due to competition with the omnivore for resources and space. The conflict resulted in eradication efforts of the bear, which dwindled the once 50,000 head of grizzlies to under 1,000 individuals by 1975 (Montana Fish, Wildlife & Parks, n.d.). As a result, the government listed the grizzly as a threatened species under the Endangered Species Act, and consequently created six grizzly bear recovery ecosystems to aid their recovery. Due to their stable populations of grizzly bears, the two most prominent recovery ecosystems are the Greater Yellowstone Ecosystem (GYE) and the Northern Continental Divide Ecosystem (NCDE). The bear-less space between them, which consists of private and other public lands, is shrinking as corridors for grizzly movement between the two recovery zones are becoming increasingly occupied by bears (USFWS, 2021).

3.1 Study Site

The Beaverhead-Deerlodge National Forest (BDNF) in southwest Montana is one of the once bear-less areas situated between the GYE and the NCDE that is now experiencing an increase in grizzly presence. It encompasses over 3.3 million acres of wild land and lies within eight counties. The area around the BDNF is made up of several rural communities, private land, and other publicly owned land such as that owned by the Bureau of Land Management. The

grizzly is a generalist, meaning that it occurs and thrives in a wide variety of habitats and consumes a range of foods. Because of this, several confirmed sightings of grizzlies have shown their gradual movement into and establishment in the private and public land around the BDNF (Peck et al., 2017; USFWS Presentation, 2021). The grizzly's relatively new presence is affecting locals in those areas in several ways. Some of the negative impacts include current or foreseen livestock depredation, changes to livelihood operation, and through a fear of recreating on a landscape with this flagship species. Positive impacts from grizzly presence include the bear's influence on ecosystem health and feelings of admiration that are derived from seeing the charismatic megafauna on the landscape. Locals around the area that are experiencing this rise in grizzly presence can be referred to as stakeholders, and include ranchers and farmers, hunters, anglers, general recreationists, and those that work for the government, state, or non-governmental organizations (NGOs).

3.2 Data Collection

To identify photovoice participants, I used three forms of sampling: maximum variation sampling, key informant sampling, and snowball sampling. I used maximum variation sampling to identify the broadest degree of visions of future imaginaries of coexistence from different stakeholders, such as ranchers, hunters, and biologists. Maximum variation sampling is purposeful selection that researchers use to assess a broad range of participants who will represent the complex spectrum of the phenomenon that is being studied (Tracy, 2020; Luborsky & Rubinstein, 1995; Patton et al., 2011). An effective way to achieve maximum variation is to snowball sample, which allowed me to investigate marginalized and hidden actors within the site. Snowball sampling is when the researcher identifies several participants who fit the criteria of the study, and asks those participants to suggest another individual who also fits the study's

criteria (Tracy, 2020). For example, I asked an interviewee who they would suggest I interview next. However, it was important to actively maintain a level of diversity among those interviewed, as snowball sampling runs the risk of producing a homogeneous sample (Tracy, 2020). Some of the initial participants were individuals who I previously knew from past work experience, and I was able to use the snowball sampling method with them to identify additional participants. Also, I used a search engine to find stakeholder groups around the BDNF, such as NGOs, outfitters, and ranch operations. I was then able to reach out to the affiliates of those groups to request their participation. When those participants were established, I also used the snowball sample method with them to identify additional participants. Finally, I used key informant sampling for the purpose of “providing a relatively complete ethnographical description of the social and cultural patterns of their group” (Tremblay, 1957). Key informant interviews are conducted with a select group of experts who are most knowledgeable of the phenomena in the study (Lavrakas, 2008). This method was conducted with biologists who have knowledge on up-to-date information concerning the current presence of grizzly bears in the study area.

I asked each participant to take five pictures before their interview in response to five prompts that I provided to them ahead of time – one photograph per prompt. The five prompts were:

1. Take a photograph of a place that represents your connection to this landscape.
2. Take a photograph that represents how grizzly bears have changed your connection to the landscape.
3. Take a photograph of something you see in your everyday life that reminds you that grizzly bears are present on the landscape.

4. Take a photograph that represents how you imagine an expanded grizzly bear population will change your connection to the landscape.
5. Take a photograph that represents what successfully living on a landscape with bears looks like to you.

After the participants had captured their photographs, I conducted 17 semi-structured interviews with 19 interviewees. Thirteen of the interviews included photographs, and one of the interviewees provided game camera footage after the interview to illustrate his narratives. One section of the interview questions focused on time stories, and one focused on coexistence with grizzlies. In the time stories section, I chose to use a modified mnemonic PHOTO technique to form my questions in a way that would allow participants to reflect on the *past* and *present* material and non-material impacts of grizzlies using their photographs: Describe your **P**icture. What is **H**appening in your picture? Why did you take a picture **O**f this? What does this **T**ell us about your life? How can this picture provide **O**pportunities for us to improve life? (Latz & Mulvihill, 2017, p. 84). Additionally, I asked participants to provide their own title for their photographs. In the section focused on coexistence, the photos and corresponding narratives gained from the fourth and fifth prompts aided in the discussion about the interviewee's ideal *future* coexistence with grizzlies. Additionally, I had participants define coexistence to further lead into discussion of their thoughts about what coexistence may or should look like in the future. The answers to the two sections were evaluated jointly to uncover similarities and examine how interviewees' time story narratives shape their perspectives on a desirable future coexistence with grizzlies (Figure 1).

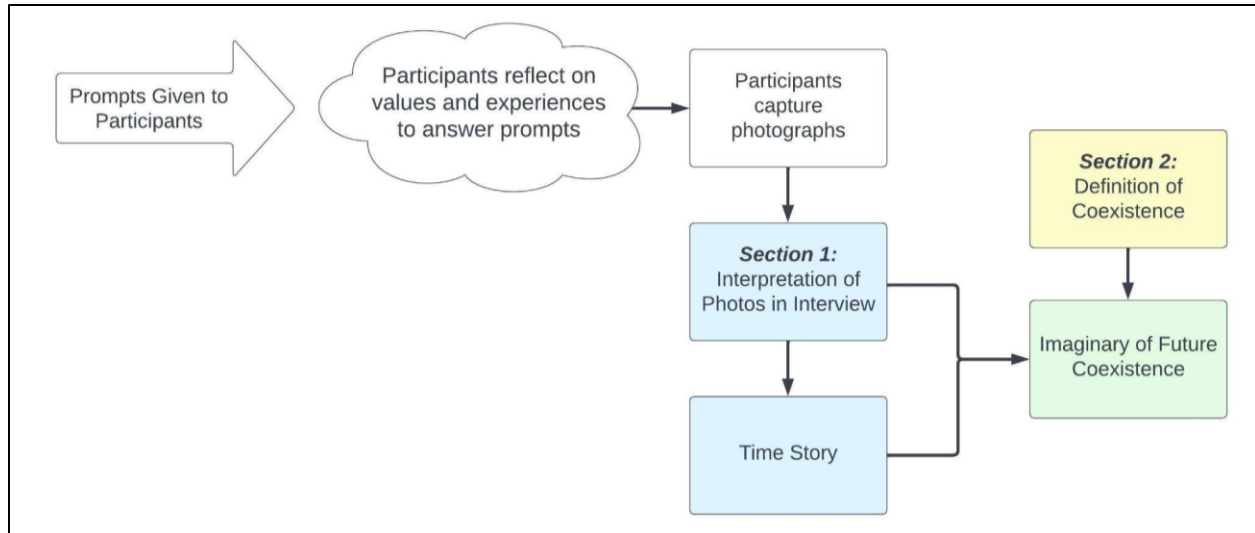


Figure 1. Formation of Imaginaries. Participants’ interpretations of their photos, time stories, and definitions of coexistence form their imaginaries of future coexistence.

3.3 Data Analysis

I audio-recorded the interviews, and when the interviews were complete, I transcribed the recordings by uploading the dialogues into a transcription software: OtterAi. The transcriptions were put into Atlas.ti, a qualitative data analysis software program. I coded deductively and inductively using Friese’s (2014) “Noticing, Collecting, Thinking” protocol. An initial read through the transcripts showed notable features that were labeled with descriptive codes within Atlas.ti (noticing). Then, I sorted those descriptive codes and their corresponding quotes, specifically those associated with time stories and imaginaries, into individual documents for each of the interviews. I created a document for the time story-related quotes of each interview, as well as a document composed of quotes focused on imaginaries for each interview. I then examined those documents to identify similarities between the concepts within them and created summaries of each interview’s time story and imaginary (collecting). Then the themes, or summaries, of each interview’s imaginary were arranged and compared to other interviews’ imaginaries to tell a larger narrative, answer the research questions, and ultimately to identify the

four coexistence imaginaries that were found in this study (thinking) (Frieze, 2014). The time stories I collected and analyzed from the noticing and collecting steps are used later in this document as explanatory factors as to why interviewees voiced their respective imaginary. The time stories were not grouped into broader themes as the imaginaries were because each individual's time story is unique and provides its own, distinct explanatory power for its respective imaginary.

In addition to the data collection and analysis methods described above, I must acknowledge my positionality within the breadth of this research and its influence on the design, conduct, and results of this study. Prior to undertaking this research, I lived in the study area for four years. While there, I pursued and attained a degree in wildlife ecology and worked for two seasons as a biological technician for a federal agency. I grew up in Montana and frequently recreated in habitats where grizzlies were both known to wander and where they were absent. Moreover, my family history is rooted in agriculture and rural landscapes. I remember watching my family brand their Herefords when I was little and tagging along to feed the cows deep within the pastures, and I will not soon forget the countless times as a teenager that I would ride my horse across the neighboring fields. Because of my history, I respect and highly value the charismatic grizzly bear because of its fundamental and ecological value, as well as greatly appreciate wildlife managers' advocacy and restoration of bear populations. I also treasure and hold great deference towards rural communities and natural resource based livelihoods for their significant role in ecosystem and wildlife stewardship.

Chapter 4: Results

In this section, I will describe what I have found to be the four most prevalent themes in future coexistence with grizzly bears around the BDNF as a result of the narratives and

subsequent discussions that I had with participants. In what follows, I will describe each thematic type of coexistence I identified and the time story of each individual that identified with the respective theme.

The first coexistence imaginary that resulted from the analysis is *Boundaries*, and it details the time stories of four stakeholders and their thoughts on where grizzly bears should be allowed geographically. It also notes the boundaries that should exist for bear behavior, meaning what actions by grizzlies can and cannot be tolerated in a moral vision of future coexistence. The next imaginary is titled *Preparation*, and it is centered on the importance of preparing for the increasing grizzly population for the purpose of living in an environment with less conflict between people and the bear. This imaginary had two focuses, with one centered on individual initiative to prepare for grizzlies, and the other focused on providing assistance to local people to reduce conflict. Four participants aligned with the *Respecting Working Lands* coexistence imaginary, which is focused on maintaining working landscapes while also ensuring the health of ecosystems in the BDNF. The point of this third imaginary is that the healthy ecosystems that are necessary for wildlife cannot exist without the simultaneous presence of agriculture. The last imaginary is titled *Strategic Management: Changing the Bear Scene*. This moral vision of a desirable future coexistence is made up of three similar, but separate, foci that all pivot around creating a system of mutual respect between people and grizzly bears through hunting, behavioral conditioning, and management (Table 1). Each individual that aligns with a specific coexistence imaginary may also closely align with another imaginary, but the one that they are identified with is the future where they placed their greatest emphasis.

Table 1. Four coexistence imaginaries.

Coexistence Imaginary	Stakeholder Groups who aligned with Imaginary	Description of Coexistence Imaginary
Boundaries	Rancher, NGO Member, Fly Fishing/Hunting Guide	The central moral component of future coexistence is that there is a boundary between where grizzly bears are allowed to be geographically, a boundary for bear behavior, and an element of respect that must be upheld when journeying into each other's space.
Preparation	NGO Employee, NGO Representative, Range Rider	Preparation is key to enabling a successful coexistence with grizzly bears, and people should take personal initiative to prepare, including taking the responsibility to secure attractants and recreate safely.
	Agency Biologist	Preparation is key to enabling a successful coexistence with grizzly bears, and institutions must provide assistance to local people to help them prepare for bears and reduce conflict. Local people must also accept that assistance and utilize preexisting resources, such as cost-share programs.
Respecting Working Lands	Rancher, NGO Member, NGO Employee, Agency Biologist	Future coexistence requires respecting and maintaining working lands for people and healthy ecosystems for grizzly bears; working landscapes are essential to sustaining the healthy habitat that wildlife require.
Strategic Management: Changing the Bear Scene	Rancher, NGO Member	Future coexistence requires managing grizzly bears in a way that removes or conditions the problem bears to create a grizzly population that is respectful of humans.
	Rancher	Future coexistence requires a population of respectful grizzlies, which can be achieved by managing the bear population to ensure that the grizzlies themselves are healthy so that they do not need to engage in competition with other bears or animals, which would consequently reduce their aggression towards humans and livestock.
	Fly Fishing Guide, NGO Employee	Successful future coexistence is centered on using hunting as a management tool for the benefit of grizzlies and people because it enables people to know where bears are and how many of them there are. This allows for a mutual flow of respect between people and grizzlies of each other's space, which consequently reduces conflict.

4.1 Imaginary One – Boundaries

The imaginary described in this section is one where grizzly bears have a place on the landscape in the future, but a place that comes with restrictions on where they ought to be and how they should act. Managing the mentality of grizzlies plays a large role in this imaginary because it influences the bear's perception of the areas that they are geographically allowed to occupy, as well as the actions that they must refrain from doing, such as depredating livestock. The four participants that align with this imaginary believe that coexistence is achieved by spatially delimiting where bears are allowed to be, in part by conditioning them through hunting or the use of conflict reduction tools. For them, a central moral component of coexistence is that there is a boundary between where grizzlies are allowed to be and where people are allowed to be, as well as an element of respect that must be upheld when meandering into each other's space.

What brings the following four stakeholders together is their belief that future coexistence will be achieved when grizzlies stay on public lands and do not come onto private

lands. This is because these stakeholders are aware of the dangers posed by grizzlies, and so maintaining a boundary creates an ideal coexistence with reduced worry and impacts to livelihoods. This position is exemplified by Eli, a third generation rancher in the study area. When I first walked into his home that was built by his grandpa and great uncle, I immediately noticed the wall that was covered from top to bottom in family photos, as well as the adjacent walls that displayed photos detailing the ranch's history. I start with this description because the centrality of family and ranch history in this photo montage is similar to the role these things play in the narratives that Eli shared with me throughout our interview. During our conversation, Eli's stories and language made it apparent how deeply he cares for the land and its history, specifically when he shared stories of his past as a boy and the present with his grandchildren. Throughout his life on his ranch, Eli has witnessed the progression of predator activity in the area, from when he was a young and helping his dad with the fall roundup, unconcerned about bears, to his current worries about safety when patrolling summer grazing areas. To illustrate these new worries, one of the photographs he took depicted his granddaughter with her hand placed next to a grizzly track that was quadruple the size of her own:

“When I was her age, there was nothing like that to worry about. There weren't wolves. There were black bears but that's kind of a non-issue. And so in her life, the possibility of something happening to you on the landscape has ratcheted up...

For her parents, the concern, making sure that she's safe.”

Mainly because of his concern for his family, Eli believes in the necessity of a boundary between humans and grizzlies, noting that “coexistence doesn't exist here” when he was speaking of grizzlies around his home and on his private land in the valley. However, for Eli, coexistence can exist on the public lands and in the mountains so long as bears refrain from affecting cattle and

people in physical and mental ways, such as through causing stress. An ideal vision of this scenario is portrayed in one of Eli's photographs of his cattle peacefully grazing in a summer allotment, unbothered by grizzlies (Figure 2). Although he and his family have needed to make adjustments to how they run their cattle on public land by carrying guns for defense, the moral component is that those same adjustments should not need to exist within their space on private land because of the dangers that bears present to his family and livelihood.



Figure 2. Cow Serenity. Eli, “The intent of this is these cattle are grazing peacefully out on the landscape, there’s no threat to them. To me, that would be successful if you can have that. There’s not a cow with her head up, looking for [or] wondering [about] a predator. They’re just going about their business. They just get to live, get to have this existence without stress. That’s what we’re hoping for. I know the wolves and the grizzly bears have caused stress on the animals. We deal with pregnancy rates and gain rates and some of those things. But that’s the setting that we would like if we have Utopia; those cows eat grass and the calves get bigger, the cows get a little flesh put on them for the wintertime, and they just get to have a summer vacation.”

Similar to Eli, Scott and Clare have watched grizzly presence on the landscape in and around the BDNF increase. Scott’s family history in the Big Hole area traces back to the 1870’s, followed by the establishment of their cattle operation in 1896 that has recently switched to a sheep operation due to water and pasture accessibility. While we sat and listened to the breeze outside through a nearby window, the couple shared with me that since they first sighted a grizzly bear on their ranch in 1982, they have increasingly witnessed bear activity and have felt

the need to make many cost and time consuming changes to the daily operation of their ranch to protect their livelihood. Those changes include the adoption of livestock guardian dogs, daily patrols of their land, and building an electrified enclosure for their livestock with help from a local NGO in preparation for any bears who break the boundary and travel onto their private land (Figure 3, Figure 4). The alterations they have made and the collaborations they are involved in are steps that they have taken for years, regardless of the constantly changing lexicon used to describe those actions such as coexistence, which to them is a buzzword:

“NGOs and agencies come up with a new word for everything. What they’re saying is they want us to get along with grizzly bears. What they’re really saying is you’re gonna have to get along with grizzly bears; we have to be able to manage and to deal and to move forward because the bears are coming, which is what they’re really saying, and it was something we’ve known.”

Regardless of the vocabulary used to describe sharing a landscape with grizzlies, Scott and Clare acknowledged the positive aspects of living with the bear. Ripple et al. (2014) noted that an important ecological role of large carnivores is to limit the presence of large herbivores. The couple echoed this thought by noting the effect that grizzlies have on keeping the local elk populations at a sustainable level in their allotments on public land. To Scott, bears that “keep their focus” in this helpful way are good management: “You got a good bear like that, he’s not eating cows and it’s eating elk, that’s a positive.” This bear behavior exemplifies the behavioral boundaries that the couple require of bears – depredating on elk rather than cattle which reduces competition for resources between the two, in addition to the bears staying on public land rather than down on private land and around Scott and Clare’s home.



Figure 3. Night Lot. Scott, “This fence is an electrified anti-grizzly fence that we put in with the help of [an NGO]. [The NGO employee] worked with us on this, and so if we have an issue with a bear, we’ve got this pasture we can put them in and keep them relatively safe until we’ve figured out what to do with that issue. We feel we can exclude the bear from this lot at the very least... We’re trying to get ahead of the bears actually making an appearance [down] here.”



Figure 4. Monitoring Kit. Clare, “This is all the tools we’re using to do all of this... We use a Spot trace tracker on each of the dogs. We use camera monitoring. So this is my camera bag and my notebook that I take to keep track [of] what we’re doing on all of our monitoring projects. This is just my bag that I take, and then in this kit we have flandry, there’s tape, there’s a radio, there’s Foxlight – all things to help deter predators.”

Another stakeholder who identified with this imaginary was Ben, a fly fishing outfitter and hunting guide who also commented on the bear’s effects on elk. Ben has witnessed the rise in grizzly presence like the producers, and explained that he has seen more elk down low in the valley on private lands than there used to be, likely because of the increase in predator presence: “For the ungulates it makes sense because this represents safety to them.” Similar to Clare, Scott, and Eli, Ben has needed to make adjustments to his daily life, ranging from refusing to recreate alone to packing a bear fence with him on his hunts. One of his photographs shows the first time that he had to put the fence around his backcountry camp in an attempt to create a temporary, physical boundary for safety reasons (Figure 5). He explained how this new boundary hinders his connection to the landscape:

“[It] kind of makes me sad. When I’m in nature, I want to feel a connection to

nature. I want to feel unencumbered when I'm out there. I want to move freely through this space. I just want to be able to move freely through wild places unencumbered, and this fence represents a lot of encumberment."

Ben does believe that people and bears can coexist in the same wildlands, but there is a behavioral boundary that the bear cannot cross, which is exemplified in the bear attacks on humans that multiply in the study area each year. Any fear that Ben has felt while camping stems from these attacks and are what led him to erect the physical boundary of the fence around his campsite, creating the sense of encumberment he felt during his trip. Ben went on to explain the boundary that ought to exist for where the grizzly can and cannot be, explaining coexistence is possible if grizzlies stay on public lands and out of people's backyards:

"Can we coexist with grizzlies that live in the Gravellys? Of course. Unless they start coming down and getting into our trash can, to getting into our backyards. Now we have a whole other problem."

While Ben, Eli, Clare, and Scott respect grizzlies and their space, they have needed to make adjustments to their lives because of what they see as the bear's lack of respect for boundaries. An ideal future coexistence to these three producers and the outfitter is predicated on developing bounds to bear behavior and geographical presence, with the latter summarized as the line that separates public and private lands. For them, these boundaries ought to be in place for the purpose of minimal livestock loss, a decrease in feelings of encumberment, and generally, a reduction of the impacts to stakeholder's livelihoods.



Figure 5. Changing Times. Ben, “[The fence] kind of makes me sad. When I’m in nature, I want to feel a connection to nature. I want to feel unencumbered when I’m out there. I want to move freely through this space. I just want to be able to move freely through wild places unencumbered, and this fence represents a lot of encumbrment... It’s extra weight, extra time. I enjoy the possibility of sleeping out under the stars. With the new population of grizzly in the Gravelly Range, I no longer feel comfortable sleeping under the stars.”

4.2 Imaginary Two – Preparation

The coexistence imaginary I describe in this section is focused on interviewee’s thoughts on how preparing for the increasing grizzly bear population around the BDNF will allow people and bears to live together in balance. As my participants explained, preparing for the increasing population would allow people to live in a safer and less stressful environment with minimal impacts to their livelihoods. For them, preparation is key to enabling individuals to successfully share a landscape with grizzlies, and a central moral aspect of their vision for coexistence is that humans must take responsibility for their own actions and take the necessary precautions and steps needed to mitigate the impacts of living on the landscape with grizzlies. The five participants who held a preparation imaginary described two similar, but slightly diverging, preparatory focuses. The first is centered on what people should personally do to prepare for grizzly bears, including taking responsibility to secure attractants and recreate safely. The second focus centered on institutions, specifically governmental agencies and NGOs, providing

assistance to local people to prepare for grizzlies and reduce conflict, and also noted the barriers that currently exist in that process.

4.2.1 Focus One – Personal Initiative

Marv, Laura, and Ernest identified with the first focus of this imaginary, which involves taking personal initiative to use currently available resources to prepare for a future with more grizzlies on the landscape. Marv and Laura are frequent recreators that both moved to the BDNF area within the past decade. Their admiration of the outdoors is exemplified in their daily lives, as Laura works for an NGO focused on mitigating water quality issues and Marv represents a conservation organization focused on preserving the region's hunting and fishing heritage. Neither of these participants' livelihoods are directly affected by grizzlies, and they shared that the term coexistence has positive connotations to them. For Marv the term's meaning depends on individual perspectives and experiences:

“I don't have anything vested financially to lose, so coexistence with me and bears is [that I] just enjoy the fact that we have them.”

Marv is not impacted by grizzlies in his job, and has taken the necessary steps to reduce the probability of conflicts with the bear when recreating. Because he is not negatively impacted emotionally or financially by grizzlies, he has a positive outlook on coexistence. Still, after moving to Montana and learning that recreating around grizzlies requires preparedness, both Marv and Laura have gained a new awareness on how to recreate safely and have increased their own use of conflict prevention tools. It is partially through their learning to use these tools on their own through which their preparation imaginary took shape. They both shared stories about how they have taken on the personal responsibility to prepare, as can be seen in Laura's photograph that details the importance of recreating in groups and Marv's photograph that shows

informative signs on public lands that notify people of grizzlies (Figure 6, Figure 7).



Figure 6. Fan, Friends, and Family. Laura, “There’s definitely more precautions I need to take. It’s a change just because there’s all of a sudden this big threat that didn’t exist before. [This picture] demonstrates the importance of being in group settings. I think the chances of a bear mauling with a group of three or greater is significantly reduced. And then the bear spray... I’m a big supporter of bear spray.”



Figure 7. Education. Marv, “My point to this is education and awareness. I think that’s going to help us live together on the landscape. If people are educated, they’re aware. ‘Hey, there’s a bear around here,’ ya know, maybe don’t go around here right now. Or, here’s your food storage, put your food in there. I think the education and awareness together is what’s going to help us live together successfully.”

Ernest, the third person that identified with this preparatory focus, is a range rider for a local NGO who has a wealth of knowledge about the ecosystems in the BDNF as a consequence of having patrolled them for years. He also identified with this preparatory focus as a result of the changes he has implemented in his life to remain safe while working in response to the growing grizzly population. To illustrate why he has taken the new precautions that he has, he shared a story of a time when he was unknowingly near a grizzly bear until he had later checked nearby game camera footage. Reflecting on the incident, he remarked:

“It was probably him down there diggin’ in the creek bank. That’s when things changed for me. I started thinking real hard about what I was doing and, it was hard

to totally rearrange something I've been doing for 8-9 years, have to just totally rearrange how you think. For a while it was just nature, I'd jump off and head through the swamp, and [now] jeez, I can't be doing this stuff anymore."

Because of this moment for Ernest, and due to Marv's and Laura's new awareness from moving to an area with an increasing amount of grizzly bears, these stakeholders have themselves taken personal initiative to increase their awareness and implement new tools when out on the job or when recreating in the BDNF to reduce any possible conflict with the bear, and they believe that others should, too. Ernest, Marv, and Laura enjoy being in the BDNF area regardless of the presence of grizzlies, a thought well put by Ernest: "I ain't going nowhere. Line the bears up outside, I ain't going nowhere." As a result of their experiences they argue that if people decide to live and coexist in a place with grizzlies, it is important for them to take personal responsibility to secure attractants, maintain awareness, and take the proper steps to recreate safely.

4.2.2 Focus Two – Institutional Assistance

Mari and Torie talked about a similar focus as the one discussed above, but instead of personal responsibility stressed the need for the government and non-governmental organizations to provide assistance to people to ensure conflict reduction involvement and described the barriers that impede such assistance. Both of these participants are federal wildlife biologists that recreate frequently, and they have made efforts to do so safely in bear country, as can be seen in one of Mari's photographs that shows a bear proof cooler that is a simple and effective tool used to recreate safely and reduce conflict (Figure 8). Both Torie and Mari emphasized that there is a balance needed to coexist, meaning that neither people nor bears get to do whatever they want. Mari explained coexistence in this way:

“It means sustainability. It means respecting the ecosystem [and] doing the right thing. I remember coexistence being like you have to figure out how to deal with something you don’t want to deal with, but that’s not how it is anymore. I think from an ecosystem perspective, it’s about balance. It’s about give and take.”

During their interviews, these biologists shared information about bear ecology, such as the current presence of grizzlies in the BDNF area and the bear’s importance in maintaining healthy ecosystems, but they also described the struggles that exist for local people that live and recreate on the landscape. For example, finances are an issue when it comes to conflict reduction involvement – not everyone can afford conflict reduction tools, such as electric fencing and livestock guardian dogs. Torie explained that while institutions put as many resources as they can into education and prevention, it is not always enough to adequately prepare people and reduce conflict due to both the rate of grizzly expansion and increasing number of people moving to the area. Nonetheless, both explained that there are currently various resources that people should take advantage of to enable coexistence, such as cost-share programs that provide funding to mitigate the financial burden of conflict reduction tools or assistance in putting up electric fences. The latter is a resource that Torie’s family has personally taken advantage of, as can be seen in one of the photographs that she provided for the project (Figure 9). In addition to the struggles that local people face in coexisting with grizzlies, Torie and Mari also explained that there are cognitive barriers that impede the assistance that institutions can provide. The main barrier that they spoke of is that people develop complacencies that cause them to refrain from adopting conflict reduction tools because humans are naturally habitual, as can be understood in the common saying that Mari mentioned, “old habits die hard.” During part of our conversation, Torie explained that adopting conflict reduction habits and becoming aware of the real dangers

of all bear species does not need to be challenging:

“A lot of people seem to think that it’s difficult. But if you don’t have attractants out, [bears] are smart. Like you know, you don’t have attractants out and you make a lot of noise, they don’t want to be there. So it’s easy to say ‘hey, this isn’t your place, go away!’ And they do that successfully in a lot of places.”

Despite these barriers to providing assistance to help people prepare for the increasing grizzly bear presence, Torie noted her thoughts on new tool development and assistance to people. She explained that while there are several conflict reduction tools currently available to people, it does not mean that institutions should refrain from creating easier to access and cheaper tools that are more accessible to individuals with varying livelihoods, as well as financial aid to assist in conflict reduction tool implementation:

“We have a lot of good tools – bear spray, we have electric fence. But that doesn’t mean we can’t come up with better tools or easier tools or tools people are more willing to use, portable tools. So I think we have a lot of really good tools, but I don’t think we can just stop and not continue trying to look for new tools, particularly when we have bears doing new things... I think the key is going to be having more resources available to help people. I would hope that everybody who lived in grizzly bear habitat would be willing to implement tools to prevent conflicts, but that the resources would be there so that it’s not coming out of people’s own pockets to do that... and there’s a variety of options, so it doesn’t look the same for everybody.”

Similar to Ernest, Marv, and Laura, Torie and Mari spoke about people taking personal initiative to prepare, but they were more fixated on institutions providing assistance to help locals be

successful in bear country, as well as overcoming the barriers that exist in that process. The moral focus within the preparation imaginary is that institutions must continue to and progress in helping people gain an increased awareness and preparedness to live safely and lessen conflict when sharing a landscape with grizzlies, and individuals must accept that assistance.



Figure 8. No Fed Bear. Mari, “Anytime we go out we bear safe our stuff. So with an expanding grizzly bear population, I think it’s just more important than ever to make sure you’re taking the precautions that you need to take when you’re out there.”



Figure 9. Living Successfully in Bear Country. Torie, “That’s what I see [as] successfully living on the landscape. You don’t want bears to feel comfortable coming to your house because they’re getting food. I don’t think people realize how many resources there are... just bringing the awareness to people that there are resources to help you live safely... there’s help. [If] you don’t have attractants out and you make a lot of noise, [bears] don’t want to be there. [People] do that successfully in a lot of places.”

4.3 Imaginary Three – Respecting Working Lands

The moral vision of future coexistence described through this imaginary is centered on respecting and maintaining working lands for people and healthy ecosystems for grizzly bears. Ripple et al. (2014) wrote that one of the leading causes of large carnivore population decline is habitat loss, and the overarching point of this imaginary is that working landscapes are essential to sustaining the healthy habitat that wildlife require. A key aspect of this imaginary focuses on

the idea that without ranches on the landscape to supply habitat for the grizzly, landscape and ecosystem fragmentation would ensue because the subdivisions that would likely replace them would remove any remaining habitat for the bear.

Henry and Brian are ranchers who spoke about the important role their operations play in preserving healthy habitat for grizzly bears. They are both heavily involved in conflict reduction efforts through collaborative work with local NGOs and government agencies, with the objective of achieving the goals of this imaginary. Brian's great grandfather came to the study area within five years of the Battle of the Big Hole, which occurred in 1877. Henry's family has ranched in the study area since the late nineteenth century, beginning with his great grandfather establishing an 1865 water right in a ditch he dug and registering their ranch brand in 1873. Henry's association with this imaginary is a result of his family history and admiration for the land, both of which were clearly depicted in a panoramic photograph that he captured to represent his connection to the landscape, with the ditch dug by his great grandfather stationed in the distance (Figure 10). Both ranchers have needed to make adjustments to their livelihoods to prepare for what they see as imminent grizzly bear population increases, and spoke in-depth about the progression of predator presence in their respective areas. They also spoke about the effects that new infrastructure and fragmentation would have on their operations, and it seemed apparent in their interviews that while grizzlies present challenges to their lives in the form of danger or financial costs, living with bears on the landscape is superior to not living on the landscape at all, which would be a consequence of the formerly noted new infrastructure and fragmentation. To combat the threat of ecosystem fragmentation and for producers to remain on the landscape, Henry shared his thoughts on the term *coexistence* and how its current meaning, which indicates mere tolerance, should be reframed to reflect mutually beneficial relationship between people

and grizzlies where the two help in sustaining one another:

“Do you want to coexist with your neighbor, or do you want to have more than a coexistence? But we’re neighbors. We share a fence. We have to coexist. I would like more than coexistence with my neighbors. You’d like to have mutually beneficial relationships. I want to do more than coexist. I want to have an impact [and] make a difference. Can we aspire to more than coexistence? Can we aspire to a relational existence?”

Here, Henry shared that an ideal coexistence would involve a mutually beneficial relationship between people and the grizzly where they both respect the space of the other and share the landscape equitably rather than forcibly tolerating one another. Brian described his interpretation of the term in a similar way as Henry, explaining that future coexistence requires working through solutions to have a landscape where the local people and grizzlies are present, and where there is a balance between the give and take of the producers and the grizzlies:

“Coexist doesn’t mean I change everything I do just to appease the bear. It just means, how do we all get along? And I don’t have a problem with the word... it means [something] different to everybody. But to truly coexist means you’re not losing the species or losing the people, especially the native people that were native to the land... It means I remain here, and he is here too in his environment, near my environment, and we coexist. We find a way to live together between the two of us.”

In short, the two quotes above shed light on the moral component of this imaginary, that a mutually beneficial relationship between people and grizzly bears is required for an ideal future coexistence. If such a relationship is not achieved, it could be detrimental to the local people

whose livelihoods depend on the valleys, as well as the bears who depend on the working landscapes for unfragmented and healthy habitat.

Two additional stakeholders echoed Henry's and Brian's attitudes on the importance of maintaining working landscapes in providing habitat for wildlife and the ranching way of life. Logan has worked as a federal biologist in the BDNF for decades, and collaborates with landowners to conserve fish and wildlife because he feels strongly that producers and working lands are essential components of a healthy ecosystem. Mae, who is employed by an NGO in the Big Hole, noted that when she first took on her current job role, the focus of her conservation work was wolves. Since then, grizzly presence has grown in the valley, and so have her and the NGO's efforts to increase conflict reduction efforts, such as implementing a carcass compost site for producers. Also describing the rise in grizzly presence, Logan noted that twenty years ago he would not have thought that there would ever be grizzlies in the valley due to lack of acceptance. He went on to say that changes in management and conflict reduction, such as the efforts exhibited by Mae and her organization, have allowed the bear to spread. When we talked about an expanding grizzly bear presence in the area, Logan shared a captivating narrative and corresponding photo that illustrates the moral aspects of his imaginary (Figure 11). The photo depicts perished salmon on a riverbank in Alaska, with a mountain range extending across the horizon in the background. A casual observer might not fully understand the message of the photograph, but after listening to Logan's narrative, it was simple to comprehend the importance that Logan assigns to healthy habitat and unfragmented land for the benefit of grizzly bears and other wildlife species, similar to the part that perished salmon play in sustaining a healthy ecosystem:

"We need to keep protecting those open, big spaces and not fragmenting... How

do we make it so it doesn't become too popular or it doesn't become overgrown or we don't start developing these rich resources in a bad way? How can we maintain what we have? ... [Coexistence] is being able to protect habitat and land so that we can have stable populations, but still have working landscapes that support that economy."

Similar to Logan's quote above, Mae explained the important part working landscapes play in creating suitable habitat for grizzlies. When Mae spoke about the local producers and other people that live in the valley, she noted that the Big Hole is not an easy place to live, and that "we all live out here because we love it here," a phrase well captured in a photo she provided for the project (Figure 12). Mae frequently shared that people that live in the area are committed to and passionate about conserving the land and wildlife there, which is a primary moral facet of this imaginary. When I asked Mae about coexistence, she mentioned that the Big Hole is a place where the grizzly should be because of the abundance of healthy habitat, and Mae, Logan, Brian, and Henry would all agree that the working landscapes are what enables the continued existence of this healthy habitat. For each of them, it is important to work with producers to maintain working landscapes, and one important way to accomplish this is to ensure producers sustain minimal losses from predators. This imaginary can be described well by a quote from Mae:

"We feel that ranching is really what makes the Big Hole what it is. All the open, sprawling, ranches that provide open land for a number of different wildlife species. They provide the beautiful scenery and the rustic feel and everything that makes the Big Hole what it is and so we just try to help them maintain their livelihoods in a place where they're having to deal with these predators. [A local rancher] likes to mention that it's the American people who've decided that they want wolves and

grizzlies on the landscape, but most of them are living in urban areas and they're not the ones that are dealing with it on a day to day basis. So, they need to recognize that if they want these animals in the landscape, then we need to find ways to make it manageable for the public land ranchers who are having to deal with it, and who are providing food for the nation and keeping the Big Hole the way that we like it. Because the alternative to ranching is subdivisions."



Figure 10. The Heart of the Ruby Valley. Henry, "This place where I'm standing was homesteaded by my great uncle who built that cabin in 1915. And then if I look over here, this land was purchased by his father – would be my great grandfather in 1909. His last name was Taylor, and this is Taylor Canyon and his wife's name was Hinch, and this is Hinch Creek. And this stuff down here is dredge tailings and my grandfather worked for the dredge company. It was his dad that registered the brand in 1873. So there's lots of connections. My mother's great grandfather homesteaded over here and the Boatman Ditch has an 1865 water right. So in 1865 he dug that ditch."



Figure 11. Ecosystem Health. Logan, “I was thinking about what bears need and where they thrive. This is what it looks like after the sockeye salmon spawn and die. It’s amazing. Like it looks gross, right? But first the birds come and pick the eyeballs off, and then the bears come. And then all those nutrients go into the water and it [the fish] are totally feeding the whole system. And so I was thinking an expansive grizzly bear population to me means you’re expanding habitat and wild and food and things that bears need. So that’s a picture of me representing a really good thing for bears.”



Figure 12. Living Next to Public Land. Mae, “I don’t have close neighbors but I do have neighbors on either side, and there’s people all along this frontage road and people all over in the Big Hole that are living next to public land. I think it’s just something to be aware of, that as we, we all live out here because we love it here and we like to recreate here or we work here, and just being aware that the science is showing that we’re going to see more and more grizzly bears in our area. It would be better to be proactively prepared rather than have something like what happened in Ovando and then have to try and react.”

This statement from Mae captures the essence of this coexistence imaginary, in which there is a relational existence between working landscapes and grizzlies where producers are an essential part of the landscape because they support the economy and create the healthy habitat that is needed for grizzlies, and grizzly bears play a key role in the ecological pyramid and must respect producers so that they can maintain their ranching operations. Each of the participants mentioned in this section had detailed suggestions for how this future coexistence may become a reality, from Henry’ thoughts on protecting existing land with conservation easements to Mae’s suggestions of new and creative education efforts for local people to encourage their

participation in conflict reduction efforts. Concerning one of her photos that shows locals participating in a bear spray training, Mae commented, “All these folks, they’ve lived around here for their entire lives, but they’re still open to learning. That’s important.” In summary, this imaginary explores the question that if the hayfields and pastures are replaced by housing developments or other infrastructure, where will the wildlife go? Henry, Brian, Mae, and Logan all described that helping local producers in sustaining their livelihoods is crucial in an ideal future coexistence, as well as cooperation from every stakeholder. Maintaining working landscapes and healthy ecosystems is what is most important for grizzlies in the future because healthy habitats cannot exist without the simultaneous existence of producers. Further, respecting working lands not only protects the land’s history, but it also confirms the future of the wildlife that depend on the land, a thought beautifully illustrated in one of Brian’s photographs that displays a healthy and unfragmented landscape that works for cattle and wildlife (Figure 13).



Figure 13. Sunset in the Big Hole. Brian, “That’s what I see every day. It’s beautiful and I want it to stay that way. I don’t want to see a house over here and a house over there, but I want to see them cattle out there too because that’s what makes that wide open space is those cattle.”

4.4 Imaginary Four – Strategic Management: Changing the Bear Scene

This coexistence imaginary has a moral component that is focused on creating a system of mutual respect between people and grizzly bears. Such a system would enable landscape

sharing wherein grizzlies refrain from impacting individuals in material and non-material ways, and where people respect bears as an apex predator that requires healthy habitat. Interviewees who expressed this imaginary identified three specific ways to manage the grizzly bear populations to establish mutual respect between people and bears, ultimately to reduce conflicts. To achieve a mutual flow of respect, my interviewees discussed identifying the commonly termed “problem bears” and conditioning or removing them, thinning the grizzly population to create a healthy and respectful bear population, and using hunting as a scientific tool to know geographically where and how many bears there are.

4.4.1 Focus One – Conditioning or Removing ‘Problem Bears’

The first idea that falls under this imaginary was proposed to me by four participants, and is summarized as managing grizzlies in a way that removes or conditions the problem bears to create a grizzly population that is respectful of humans. This would enable a landscape where there are reduced conflicts between people and the bear due to mutual respect of space that flows from both directions. Currently, the interviewees reported that they are doing what they can to share the landscape with bears, including adopting many conflict reduction tools. Grizzlies, on the other hand, depredate cattle, raid buildings, and create a dangerous atmosphere for anyone roaming the land. During our interview, Allie and Monte, a married couple who ranch outside of the northernmost section of the BDNF in the Blackfoot Watershed, both described this imaginary. Their ranch was established by Monte’s family in 1867, and when he was a boy, he would make forts in the river bottom and in the trees below the house to play. However, because of increased grizzly bear populations, he explained to me, “There ain’t no way in hell my kids will ever play in them. It’s not worth it.” This simple phrase encapsulates the lifestyle and landscape changes that Monte and Allie have experienced in their lives with the increasing

presence of grizzlies that, in their opinion, lack respect for humans and human spaces. To illustrate what they meant by respect, they shared several examples of when the value was absent from some grizzly bears, such as when they had come within feet of their home or when their young son needed to act as the lookout for his dad while farming. They believe that in these situations, grizzlies should not be impeding their livelihoods in such dangerous ways, and should instead remain in public lands or must know to flee when near humans. According to Allie and Monte, coexistence is forced on them by the people who manage the bear because of their focus on grizzly bear recovery:

“We never were asked how we would want, or if we would want, bears on our property or if we’d want to be dealing with them. We are getting forced to deal with the consequences of what they wanted. We were never asked how many grizzly bears do you think our valley could support. There’s been absolutely no feedback that’s been gained from the people who work the landscape as to what that would look like.”

To Allie and Monte, a desirable coexistence would implement the viewpoints and experiences of stakeholders who have needed to deal with the bears as they have. They aligned with this imaginary because their experiences with grizzlies and lack of say in their management has led them to believe that sharing the landscape with the bear requires that grizzlies be conditioned to respect people by staying away from them and their property, thus reducing conflict. Additionally, if conditioning does not solve the issue of mitigating the existence of problem bears, then Allie spoke about the need for those bears to be managed in a manner pertaining to more permanent removal from the landscape: “repeated offenders, the ones who are breaking into people’s homes [or] barns, those ones need to be taken care of properly. You can’t just keep

relocating them and expect them to change their behavior.” These thoughts were echoed by Theo, a ranch manager in the study area. As we sat overlooking a stream, he noted that there are specific bears that tend to respect humans and refrain from affecting livelihoods, whether that is through staying away from cattle or at a distance from homes. He has witnessed bears on game cameras wandering right outside of his house at night, and through these observations has come to believe that removing the problem bears, the ones who depredate cattle and ransack property, would create a future coexistence that works for everybody (Figure 14). For him and others who held this imaginary, conditioning grizzly bears to respect people and their property, and removing the bears that resist such conditioning, provides the moral basis to a successful coexistence and landscape sharing.



Figure 14. Game Camera Photo.

me: “Do these instance influence the way that you think about grizzly bears and the way that you manage the ranch?”

Theo: “Yeah, it does. Sometimes you wake up in the middle of the night thinking, you know? Kind of anxiety. Because you never know.”

Peter, a ranch manager in the study area, with grazing land along and within a mountain range well known for its rising grizzly presence, had similar ideas about how to create a landscape with mutual respect between people and grizzlies to achieve coexistence. Peter has

lived in the area long enough to experience both wolf and grizzly bear population increases, and he explained his thoughts on how conditioning or removing the bears that are prone to causing problems is necessary for a grizzly population that is respectful of the human and grizzly interface:

“Coexistence means that they can live and survive and we can survive. For that to happen, we need to be able to limit the number of cattle that are killed by bears. At the last bear meeting [I was at], there was a man who has decades of experience handling bears. The thing that stuck in my mind was that there are bears that like to kill cattle and will continue to kill cattle... When the bears that were causing the problems were taken out right away, there [would] be a lot less conflict. So if we had the ability to upfront identify those bears that are causing the problems and eliminate them quickly, it would help a lot.”

Like Allie, Monte, and Theo, Peter did not used to worry about entering a thicket of willows in search of cattle to retrieve. Now, because of the increased grizzly presence on the landscape, each of my interviewees that associated with this imaginary explained to me that they need to think twice about where they go when carrying out daily operations on the ranch and how to plan accordingly to ensure their safety. Importantly, none of these participants desire to entirely remove grizzlies from the landscape, as was noted by Peter:

“As a human race, we have a mandate from God to be stewards of the wild animals and the livestock and everything else. It says in the Bible to take care of everything, be stewards, which means we don’t just wipe the big grizzly bears out.”

While stewarding the land is vastly important to Peter, Theo, Allie, and Monte, during their interviews each explained some of the barriers that impede them from being able to do so

effectively. One of the barriers they shared is that agencies periodically approach producers with requests to identify problem bears, but those requests, once fulfilled by the ranchers, often result in a lack of action. That, in-turn, leads to a decrease in motivation by ranchers to continue making efforts because they give and then receive little in return. Ultimately, these four producers hope to see solutions where they, agencies, and other stakeholders work together to identify and condition or remove the problem bears and live with a population of respectful bears so that there are less impacts to their livelihoods. Peter explained that an increase in effective communication between diverse stakeholders can lead to more productive management of grizzlies:

“If we can make it at least a playing field where we’re able to work towards a solution, that would be good. And right now we’re not working towards a solution... If we can communicate on a genuine basis, I think we can do a lot better than if we just fight.”

Effective communication and increased collaboration among different stakeholders would allow for a moral vision of sharing the landscape that involves give and take, as well as mutual respect between stakeholders and grizzly bears, rather than the current coexistence scenario where some stakeholders feel as though all they do is give and where many grizzlies lack respect.

4.4.2 Focus Two – Managing for Healthy Grizzlies

While the last idea of changing the bear scene was focused on identifying and conditioning or removing problem bears as the mode for achieving a population of respectful grizzlies, Judy’s imaginary is focused on managing the bear population to ensure that the grizzlies themselves are healthy. The goal of prioritizing the bears’ well-being is so that they do not need to engage in competition with other bears or animals, which would consequently reduce

their aggression toward humans and livestock, thereby making them respectful of people and livelihoods. Judy is a rancher that has lived in the study area for nearly two decades, although she has worked with cattle for her entire life. Using her photographs that illustrate her passion for ranching and stewarding the land, she explained that managing the grizzly population for healthy and respectful bears that do not need to compete for resources is necessary to successfully share the landscape in the future. In the following quote, she explains that managing grizzlies in this way would enable bears to be more respectful in the way that it would enable them to refrain from depredating on cattle, humans, and pets, and it would allow people freedom from fear of the predator:

“If the bear population is kept at a manageable level, and when I say manageable I mean for the bears so that there’s enough wildlife food sources for them without eating domestic livestock or people or pets [and] they’re healthy and happy and there’s no pressure on them to eat domestic creatures... You’re going to have bears out there and they’re going to be living and they’re going to be happy. Coexistence is all of us existing together successfully. Successful for the bears to be healthy and strong and respectful of humans and domestic animals. And that humans can live out here and not be afraid of the bears, not have their cattle harassed or eaten by them.”

While Judy is concerned with the health of the grizzlies, a major component of her concern about bears respecting humans is rooted in fears she has about the effects that they have and will increasingly have on her livelihood. Sitting in her pickup with the mountains beyond, Judy described her struggle with using her summer grazing allotments on public land due to the amount of downed trees littered throughout the area, an experience that is captured in one of her

photographs (Figure 15). As she described these difficulties, Judy reflected on how if grizzlies frequent the area at a greater capacity in the future due to competition for resources, she is worried that there will be no place for her cattle to escape predators, declaring: “I’m not raising them to feed bears!” For her, a moral human-grizzly coexistence is achieved when the grizzly population is maintained at a level that is not only healthy for the livestock and the people so that they are not being physically harmed or mentally affected, but also for the grizzly population. To achieve this, the grizzlies must be managed in a way in which their population does not become oversaturated, conceivably through a hunting season because as Judy noted, “if someone is hunting you, you become more fearful of humans.”



Figure 15. Summer Ground. Judy, “My grazing land is being covered up by downfall because of the beetle kill and the Forest Service doesn’t want to allow people, wood cutters, into these areas to clean up all the fallen trees off the forest floor. So, I am losing grass every year and I’m losing the ability of my cattle to flow around their pastures to evenly utilize the grass. I’m not getting as much grass utilization out of the Forest Service lease as I did 10 years ago... [The downfall] does two things. It covers up the grass for the cattle, the elk, the deer, all the animals, and it also limits accessibility. It is fuel for fires. We call this the asbestos forest because there’s so much fuel down there. I probably won’t be up there in 10 years because I don’t think that it’s going to be worth my time to send cows up there. What will happen is if the grizzly bears do move into this area and [their] need for food increases, because there’s so much downfall [that] my cattle can’t run away, they’re gonna get trapped and they’re gonna get eaten. So I will stop going there when that happens because I’m not raising them to feed bears.”

4.4.3 Focus Three – Hunting as a Management Tool

Joseph posed another idea of how to strategically manage grizzlies focused on tracking bears to ensure that there is a healthy population. While he was similarly focused on managing grizzlies to ensure their health and success, Joseph’s association with this imaginary presents a

rival explanation for how this imaginary can be rooted in mutual respect that suggests it is people who need to respect bears rather than grizzlies that need to respect people. Joseph is a fly fishing guide and NGO employee who grew up in the study area. Although his life is centered on angling and recreating around the lodge that his father founded in 1984, a time when grizzlies were a rare thought, Joseph's family's history traces back to the Big Hole since the late 1800's. When I asked this angler what coexistence means, it was a struggle for him to conceptualize because he mentioned that people cannot figure out how to coexist with each other as humans:

“I struggle with that [word] because of how quickly we as a species are existing and refusing to coexist with anything else around us. It seems like we can't figure out how to coexist with each other. Unless there's some real top level management, [and] then forward thinking [to the] next generation, we're not going to have many of these species to exist with at all, co- or otherwise. They're just going to go away.”

His thoughts on people refusing to coexist were well captured in his interpretation of a seemingly simplistic photograph of a cow where he explained that the stubbornness of the cow depicted reflects the stubbornness of change in Montana (Figure 16). He spoke of many barriers to coexist, from the previously mentioned stubbornness of people to the threat of fragmentation that would both displace local people and remove suitable bear habitat. Still, he had interesting thoughts on what is necessary for future coexistence that consequently aligned him with this imaginary because using hunting as a management tool would allow for a future coexistence where people are aware of grizzly presence due to reporting the locations of legally killed bears. This would enable people to respect the grizzly's space due to having the knowledge of where they are located, thus reducing conflict. Should a hunting season be possible in the future, Joseph shared a strategic way for utilizing a hunting season to the bear's benefit:

“It would be totally managed. It would be very expensive hopefully to get the tag, just like the mountain lions. Mountain lions seem to be doing really well because of how stringently they’re managed in their hunting. If there are four lions in this area, and there are two permits, you have to go down and call within a certain number of hours that you’ve killed one of those. So that would give us a much better bead on where the grizzlies are and how they’re doing. So, for that reason, I’m for a season on them, because otherwise they’re just going to fall to nighttime baiting and hunting.”

Throughout our time speaking together on a porch bordered by nearby mountains and rivers, he placed importance on people having a healthy respect towards grizzlies and funding science to responsibly manage them. He noted:

“[People need] to be very respectful of grizzly bears. They’re an apex predator. Lewis and Clark helped develop all this land for what it is today, and they got charged by one [and] couldn’t bring it down. So since that story came back to St. Louis and Washington, I think we’ve all had a healthy respect for the bear. [In] my past experiences, you’ve got to go look really hard to find them. And like the bald eagle recovering, the Endangered Species Act seems to have worked, and maybe they can now come off that list. But how do we keep them in balance?”

Whether the end goal of implementing strategic management of grizzlies is for people to respect bears or for bears to respect people, my interviewees shared the moral vision that using conditioning, permanent removal of persistent problem bears, or hunting as management tools presents many avenues in achieving the mutual flow of respect between people and grizzlies that is necessary for future coexistence.

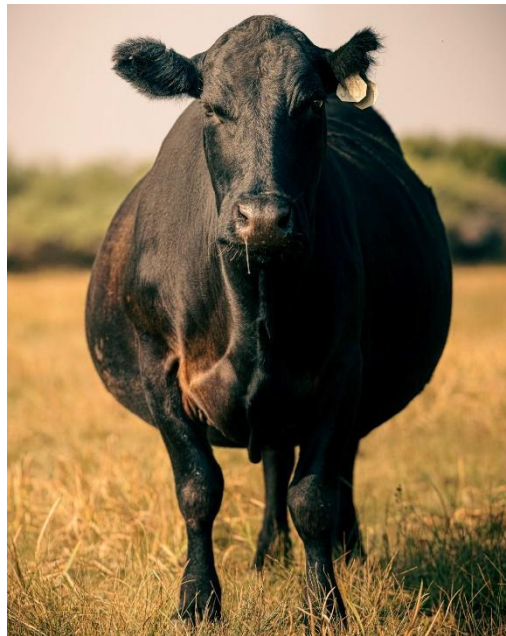


Figure 16. Stubbornness. Joseph, “This photo represents stubbornness. We’re eating beef tonight. [I’m] very tied to a ranch family. But the stubbornness of this cow reminds me of the stubbornness of change in Montana... Successful interaction with bears is teaching the next generation because the older generation is probably not going to be taught anything.”

Chapter 5: Discussion

Here I will describe what role the value of respect plays in developing facets of the coexistence imaginaries I identified, and I will elucidate the function of photovoice and time stories in solving the problem of ineffability and forming stakeholders’ imaginaries. One major moral component of many of the imaginaries was achieving mutual respect between stakeholders and grizzlies, and I will explain the basis of this respect and purpose my interviewees see it playing in future coexistence. I will also explain how photovoice aids in the problem of ineffability and

allows stakeholders to consider and elucidate on their experiences, values, and social systems that form their perspectives on future coexistence. Lastly, I will describe how time stories further assist in solving ineffability and contribute to understanding imaginaries due to having provided multiple sources of knowledge from individual experiences. Although quotes from interviewees are often reserved for the results section as empirical evidence, they will be included here as further evidence of the concepts being discussed.

5.1 The Morality of Respect

The morality of respect was discussed in the majority of the interviews, and it provides the foundation of the imaginaries in varying degrees. Each imaginary, whether apparent or not, has a motive of attaining mutual respect between people and grizzly bears, whether that motive was focused on people needing to have more respect for grizzlies or vice versa. For example, in the Boundaries Imaginary, my interviewees explained respect as needed from grizzlies through their learning to honor the lines that separate where they can and cannot be and how they can and cannot behave. Those who held the Preparation Imaginary touched on needing to respect the ecosystem, while interviewees who held the Respecting Working Lands Imaginary focused on the need to respect working lands because they provide the healthy habitat that wildlife require. Lastly, the Strategic Management Imaginary heavily focused on forming a mutual flow of respect between people and grizzlies, whether through behavioral conditioning, removal of problem bears, or from a hunting season. In what follows, I will discuss the role that respect plays in the relationships between the people and wildlife around the BDNF, as well as whether this respect is rooted in domination or mutualism ideals to provide insight into the moral basis of the mutual respect between people and grizzlies that is desired in each of the imaginaries. I will specifically focus on the form that respect takes in the Boundaries and Strategic Management

Imaginaries, each of which is heavily focused on people gaining respect from bears. A subject brought up in several of the interviews was my participants' hope to make grizzly bears respectful of human beings, primarily through a hunting season and behavioral conditioning, which is a cultural ideal seemingly rooted in domination values. The idea that grizzlies must respect people to achieve coexistence was at the center of the Boundaries and Strategic Management Imaginaries because the concepts discussed within those imaginaries, such as setting bounds to where grizzlies can exist and conditioning problem bears, exist for the purpose of achieving a future coexistence where people and bears respect each other's space and where there is a decrease in material and non-material impacts to people (i.e. infrastructure damage and worry). Domination values originated during the Protestant Reformation and are associated with Judeo-Christian religious traditions, and they can be defined as the view that wildlife exist to benefit humans (Pattberg, 2007; Manfredo, 2021). Manfredo et al. (2020) wrote that part of the domination ideal is that people and wildlife are drastically different, an idea rooted in the Cartesian view of animals that maintains that because animals are not able to speak, they also cannot think (Irvine, 2008). This line of thinking posits that animals are not conscious beings in the way humans are, and from this idea generally follows the logic that animals do not deserve human concern when we are considering the implications of our own actions (UConn Health, Cottingham, 1978). Consequently, it is this dualism that provides the basis for the idea that wildlife exist to benefit humans, and, in turn, the acceptance of animal treatment that would be seen as unthinkable were the same treatment given to people (Manfredo et al., 2009).

The opposite of domination is mutualism, which is the view that wildlife are part of a person's social network, possess several of the same characteristics as people, and are deserving of the same compassion and rights as humans are (Manfredo et al., 2020). Manfredo et al. (2016)

found that people with domination values tend to prioritize the economy and private property when it comes to questions of how wildlife should be managed and for what purpose, and mutualists typically emphasize habitat protection and the equal treatment of interest groups in conservation decisions. Further, the authors found that mutualists are more likely to support restricting human actions so as to benefit wildlife, such as hunting restrictions, while people with domination values tend to support lethal means of managing wildlife (Manfredo et al., 2021).

In his book *A Sand County Almanac*, Aldo Leopold (1949) proposed a shift away from a domination orientation over wildlife to one where people are more responsible stewards of the land (Manfredo et al., 2016). After considering past literature in unison with the narratives obtained from participants in this study, I found that stakeholders around the BDNF are exhibiting the shift toward stewardship that Leopold explained. Specifically, I propose that the imaginaries centered on the idea that grizzlies need to become more respectful of people to achieve coexistence is a combination of domination and mutualism ideals. In the past, researchers explored and wrote about these ideals as distinct and non-overlapping, suggesting that someone can exhibit one of the ideals but not both simultaneously. I argue that people can and do display both domination and mutualism ideals concurrently, and their interplay can be summarized as stewardship. That is because, as many participants explained, grizzly bears are a necessary part of the ecosystem that deserve respect, but they still need to be managed in a well informed and responsible manner for the benefit of every animal and person that lives on the landscape. Peter, the ranch manager, explained these thoughts on stewardship and the overlap that exists between domination and mutualism ideals around the BDNF:

“As a human race, we have a mandate from God to be stewards of the wild animals and the livestock and everything else. It says in the Bible to take care of everything,

be stewards, which means we don't just wipe the big grizzly bears out. That wouldn't be responsible. But we also need to use our brains to be managers of this deal."

The interview participants that spoke of using a hunting season as a tool to gain respect from grizzly bears were not focused on how the omnivore could be used to benefit them and did not fully associate solely with the domination or mutualism ideals. Rather, they prioritized reducing the bear's negative effects on their lives because of the seeming lack of respect that grizzlies show them through the damages the bears cause to their livelihoods and the dangers they pose to them when recreating. Ben, the hunting guide and fly fishing outfitter, shared a story that illustrates a confluence of domination and mutualism ideals due to the positive feelings that he holds towards the bear, while still suggesting that a hunting season is necessary to instill respect in the predator. He began by noting his respect for and admiration of grizzly bears and his willingness to make adjustments to his livelihood to avoid conflict with them, such as avoiding an area that is knowingly occupied by bears. Still, as Ben explained, grizzlies do present many challenges for recreating safely, and he mentioned that implementing a hunting season would allow for grizzly bears to show the same respect that humans allocate to them by avoiding their territory. His story detailed a time when he was hunting in Africa. When there, he noticed that the lions were not afraid of people when in a vehicle, but they were afraid when people were on foot. When Ben asked the guide he was with why that was, the guide responded that "man on foot represents danger." In a humble way, Ben explained to me that he does not know if there is truth to that idea, but it was a roundabout way for him to describe that if a scientifically determined amount of hunting tags were issued for the bear each year, it may "keep the population in check and infuse in their DNA for generations to come that man on foot equals

danger.” The participants who expressed a combination of domination and mutualism ideals frequently shared that they respect bears and know that they are dangerous, but as can be seen in the previous quote, they believe that grizzlies do not currently respect people in an equal form, leading to their desire for changes in bear management.

Like Ben, my interviewees who spoke about implementing a hunting season repeatedly acknowledged that the grizzly is an intelligent species, worthy of respect and capable of thought and learning, which aligns them with both domination and mutualism ideals. It was previously mentioned that Manfredo et al. (2016) found that individuals with domination values tend to prioritize the economy and private property, while those with mutualist values tend to focus on habitat protection and equity among interest groups in conservation decisions. I found that nearly all of my study participants who spoke about implementing hunting, as a tool to earn respect from grizzlies, prioritized the economy and private property, but also highly valued habitat protection and collaboration in conservation decisions. Examples of this interplay can especially be found in the *Respecting Working Lands* imaginary, where private property and habitat protection go hand-in-hand.

Participants who spoke of a hunting season and those who talked about conditioning or removing problem bears are searching for mutual respect from the grizzly and are willing to play their part in a peaceful future coexistence; they desire for the grizzly and its advocates to show the same respect and willingness to work toward a positive coexistence that works for every stakeholder around the BDNF. Nearly every participant involved in this study spoke of the need for give and take among stakeholders, suggesting that to achieve coexistence there must be a balance between people and animals. Perhaps the main reason why so many interviewees spoke of gaining respect from the bear through a hunting season is because they believe that they are

giving while the bear is taking, rather than that they are involved in a reciprocal relationship where there is an equal balance of give and take between people and grizzlies. It should be noted that the notion of give and take was seen from several different perspectives throughout the interviews, whether it was from the previously mentioned perspective that the grizzly must give to reduce material and non-material impacts to livelihoods, or through the alternative framing that people must give to the grizzly by accepting them on the landscape and doing all that they can to reduce conflict. Regardless of what perspective stakeholders hold in who should be giving more to achieve a balance of give and take, I suggest that future coexistence for the people around the BDNF ought to be a scenario where neither the people nor the grizzly bear dominates, but where there is mutual respect for each other's space and property and uniform give and take from both directions. This would be achieved through having honest and intentional conversations and collaboration efforts from all stakeholders across the spectrum.

5.2 Photovoice Provides a Solution to Ineffability

The purpose of this paper was not to evaluate photovoice as a research method, but rather to give the participants an unfamiliar tool to help them reflect on their perspectives and experiences more deeply and provide a solution to the problem of the ineffability of coexistence. Further, photovoice was used to visually show what sharing a landscape with grizzlies means currently and should look like through their eyes. Asking participants to take photographs enabled them to think deeply about their perspectives, as can be understood in this quote from one participant:

“I actually think it made me think a little harder about things, because you know, when you're providing a photo versus just verbally answering a question, I think you're in a different mind frame or a different perspective.”

Another participant spoke about the importance of sharing their experiences and communicating with others, and how photovoice is a tool that allows for that by visually displaying their perspectives through a photograph:

“It’s important that me, as a rancher, talks about my worries and my concerns and educates people from my perspective, whether it’s you or whether it’s the guy I was talking to about drying up the Beaverhead River. Every issue has two sides to that story. I need to listen to their side, they need to listen to my side.”

There were four participants from three interviews that refrained from partaking in photovoice, yet those individuals still provided the study with a breadth of local knowledge and important perspectives and experiences. However, the participants that did take photographs were able to combat the problem of ineffability by sharing stories that would likely not have been talked about without using the method. An example of this can be read from a quote that explains how taking the photographs was an exercise that allowed one participant to reflect on their perspectives more deeply:

“It’s hard at first blush. I thought about taking four photos of my face unchanged – like grizzly bears probably have always been here in my mind and them here now confirmed doesn’t change my opinion at all. But then it opened up this whole [thought of] ‘oh, how quickly *is* this landscape changing?’ and ‘will there now be a place for a return to some normalcy in the outdoors?’ And it became a very big project in my mind, which was really cool. I needed that mental exercise about my own backyard.”

According to Harper (2002), “verbal exchanges that involve interactions with images, or photographs, engage more of the brain’s capacity than reliance on language alone.” In my

research, photovoice provided a solution to ineffability by encouraging greater reflection and awareness of personal experiences and values, as can be seen in this statement from one of the interviewees:

“It helps with the memory of your questions. It helps you formulate why you do things. I never would have taken a picture of my ice chest with a bolt on it. Like that seems silly to me, but I was specifically looking for instances to answer your question. And so having that was like, ‘oh yeah I totally do that’ – my behavior is reflected in that picture. So that’s what was really helpful.”

Furthermore, it often made the conversations I had during my interviews feel relaxed for both myself and the interviewee. As Latz and Mulvihill (2017) posited, the photographs serve as data antecedents by eliciting responses from the interviewees in the form of narratives, thereby making the interview more relaxed because stories are a culturally valued and understood form of communication. This was true in my study because the participants were able to reflect on their perspectives when deciding what to photograph, and then were able to share rich narratives of their experiences and perspectives in the interview as a result of that initial reflection. It made the conversation simpler for me because it reduced my need to ask follow-up questions due to the participants’ abilities to explain their photos and perspectives so clearly and thoroughly as a result of the photovoice process. The thought that went into taking the photographs prepared each participant for their interview, and drew out their narratives of past, present, and future coexistence with grizzlies to a greater capacity than would have been possible without the photos, as can be understood in one of the participant’s remarks, “It was actually a good exercise to think through your questions here.” Participants’ reflections before taking their photographs gave them a tool in the interview to explain their perspectives and experiences in both a relaxed

and profound way because of their preparation, as can be seen from a comment made by one participant:

“It’s thought provoking. I think it makes the conversation a little easier. Like this is an easy conversation to have because you’re relating to things that you know about in those photographs. You might be getting a little more real feelings from people.”

Photovoice allowed my participants the opportunity to reflect on and share their experiences and perspectives through taking the photographs and using those photos as a tool in the interviews. While photovoice was an excellent tool for those participants who utilized it, it was also a very good tool for me as the researcher. For example, an open question for me at the beginning of my study was, how could I begin to truly understand someone’s connection to the landscape? Someone could just tell me about their connection to the landscape without a photograph to supplement their story, but I think that the photos allowed me to better understand their connection because I had a visual representation of it in front of me. Thinking back to Henry’s photo that illustrated his connection to the landscape, to a random person the photo is likely a mere landscape of grass with mountain ranges in the distance (Figure 9). Because of the narrative that Henry shared with me in his interview describing that photo and his connection to the landscape, as well as seeing the image in front of me, I was able to gain an in-depth understanding of Henry’s connection and the deep significance of the land to him and his family. During our interview, the photo was far from a decontextualized picture of a mundane landscape, but instead an image that encapsulates the century and a half history of a family and their dedication to the land, the ranching way of life, and the wildlife that reside there.

I have described why photovoice was an effective tool for the project’s participants and

myself, but I will also suggest the importance of incorporating this method, and similar creative methods, into complicated issues such as coexistence with grizzlies around the BDNF. My reasoning stems from the effects that photovoice had on me as a researcher. I would not have been able to understand participants' connections to the landscape and how grizzlies may be affecting that connection as profoundly without the photos. It is difficult for anyone to understand the context of another person's perspectives without having experienced the same time story. When speaking about his difficulty in conceptualizing the meaning of coexistence, Joseph noted "I struggle with that because of how quickly we as a species are existing and refusing to coexist with anything else around us. It seems like we can't figure out how to coexist with each other." Perhaps through incorporating new methods into communicating and relating with one another, such as photovoice, we can begin to truly understand the context of each other's perspectives in grizzly bear management and can establish honest and effective communication with each other moving forward.

5.3 Individual Knowledges Form Shared Imaginaries

As discussed earlier in this paper, current definitions of coexistence minimally reflect the perspectives of people who live on the same landscape as grizzlies. It is important to understand and incorporate their lived experiences and perspectives into future grizzly bear coexistence and management so as not to misunderstand their livelihoods and "hinder the development of conservation practices" (Frank & Anthony, 2021). Having conversations with stakeholders about their experiences is essential to gain a clearer understanding of what is necessary for a more collaborative and successful future in grizzly management. Further, incorporating creative methods into wildlife management, such as photovoice, function to solve the challenges stakeholders face in describing what coexistence should look like because it enables a deeper

understanding of the context that underlies their perspectives and desirable visions of future coexistence.

Different stakeholders' individual experiences through time shape what coexistence means to them and should look like in the future. As such, this study did not produce one distinct and agreed upon definition of the term coexistence. Coexistence, what it means and what it should look like in the future, is a concept that is left to the interpretation of an individual and is dependent on their own experiences, values, and social structures. Current definitions of coexistence in the literature fail to address the extent to which living with bears is tolerable or when humans and wildlife are satisfied. During my interviews, I received myriad different responses to both of those issues from the participants in this study, some of which focused on conditioning or removing problem bears while others were centered on conflict reduction tools and education. Importantly, the imaginaries I identified were not associated with a single stakeholder group. Instead, each of the imaginaries I described above were associated with stakeholders from a range of groups and backgrounds. For example, the *Respecting Working Lands* Imaginary included a biologist, anglers, NGO employees, and ranchers. An ideal future coexistence cannot be predicated exclusively on a stakeholder's job title. Rather, participants aligned with their respective coexistence imaginaries based off of their unique experiences through time.

Definitions of coexistence and imaginaries of future coexistence vary among people due to their individual experiences, values, and social structures. This was evident in the interviews when discussing coexistence because many participants said phrases similar to this one: "The way I interpret it, the way you interpret it, the way Jane Doe interprets it, is different." While participants were grouped into four imaginaries to reveal themes of a desirable future

coexistence around the BDNF, their specific definitions of the term coexistence were often different, suggesting that how a person defines coexistence and how they envision a desirable future coexistence with grizzly bears are not necessarily linked. For example, one participant noted that they view coexistence as a “buzzword,” but proceeded to share that a desirable future coexistence is possible if grizzlies adhere to geographical and behavioral boundaries.

This study evaluated and grouped stakeholders’ visions of a desirable future coexistence, but it has also reflected on individuals’ unique time stories and how those influence participants’ desirable futures. I found that biologists had similar ideas about future coexistence as ranchers, while hunters had coexistence imaginaries that aligned with those of NGO employees. While it is possible to draw some conclusions on why two people with different occupations have similar imaginaries based off of their time stories, there are always elements of individual time stories that vary from person to person. For instance, Brian the rancher has worked with biologists and NGO’s in his past, and Mae the NGO employee often works with ranchers and biologists. At the same time, Brian has lived in the Big Hole for his entire life, while Mae moved to the area about eight years ago. With their similarities and regardless of their differences, Brian and Mae both share the same coexistence imaginary. Stakeholders’ imaginaries of future coexistence cannot be determined superficially. Therefore, it is crucial to understand the rich context of their perspectives through a holistic approach of honest and effective communication.

Time stories are narratives that connect an individual’s past and present experiences to their ideas about what should be happening in the present, as well as what ought to happen in the future (Fincher et al. 2014). Reading through the participants’ stories above, one can begin to understand why someone is focused on a specific future coexistence scenario based on their past and present experiences. Assessing the participants’ time stories allowed for this study to

evaluate and compare multiple sources of knowledge to understand an issue. I found that time stories heavily influence an individual's ideal future coexistence with grizzlies. However, one individual's time story very minimally matches another's time story, even when participants aligned with the same coexistence imaginary, as can be seen in the correlation made previously between Mae and Brian. Combining individual stakeholders' different knowledge and experiences, in their time stories, allows you to understand the broader imaginary and what experiences through time create that desirable future coexistence. For example, Peter has increasingly experienced livestock depredation on the ranch he manages, so now he believes that we need to find solutions to properly manage and remove the problem grizzlies in the area. Joseph has seen the success of properly managing a hunting season for mountain lions, so a similar strategy for grizzlies may be warranted. Both of those individuals aligned with Imaginary Four, yet the knowledge they provided that influenced their shared imaginary was different, and they had rival moral components regarding whether the grizzly needs to be more respectful of people or vice versa. The ability to compare and contrast stakeholders' individual knowledge and experiences in this way allows the ability to better understand desirable futures in human and grizzly coexistence.

Chapter 6: Conclusion

Determining a path for a future coexistence with grizzly bears that everyone can agree on is no simple task, and I likely did not uncover every imaginary of future coexistence with grizzlies in this research. Still, what is important is that I received a base understanding of the different imaginaries of future coexistence with grizzlies because the ethos of coexistence is to maintain human well-being while also conserving wildlife, and this project presents new information on how those actions may be achieved around the BDNF (Nesbitt et al., 2022). How

do we support human well-being while also ensuring the success of the grizzly bear population? Ideally, the goal of coexistence is that each stakeholder experiences some level of acceptance towards sharing the landscape with the omnivore because recovery of this charismatic megafauna requires just that – public support and acceptance. However, that means that each stakeholder must believe that the grizzly management in place, numerical and geographical presence of the bear, and every other factor related to grizzly presence is appropriate or ideal in one way or another (Nesbitt et al., 2022). In other words, each stakeholder’s imaginary must become a reality, which therein lies the complicated nature of coexistence. While through this study I learned about many collaborations taking place amongst stakeholder groups, agencies, and NGOs, I also received several remarks about how some stakeholders are told that they have a voice, or a “seat at the table,” and yet nothing ever comes from sharing their voice or their help. Peter shared a story that displays this line of thinking. He explained that producers have been asked to help collect hair samples of problem bears in the past so that agencies “can help them” with those bears:

“Well, you’re not going to get a lot of ranchers to do that because all of the steps we’ve done before have been pointless and useless and ignored. I talked to a guy that runs sheep up there and he says, ‘yeah, probably not gonna go send a lot of hair samples in because as soon as we identify those they’ll change the rules again and [they] won’t be able to kill those bears anyways.’ So he’s like, been there done that. You’re talking about the career criminal as opposed to the guy that’s new; you might rehabilitate that new guy. But these ranchers that have been doing this for so many years, and you keep dangling a carrot, ‘maybe we’ll do this.’”

Whether a problem bear is a “career criminal” and needs to be permanently removed, or a “new

guy” that needs to be relocated, Peter explained that ranchers struggle in the present with assisting biologists in identifying such bears because of the phenomenon that he referred to as “dangling a carrot.” Essentially, people are told that they are being listened to and that their perspectives matter, and are even sometimes asked for help to identify problem bears like in Peter’s case, but still there are hardly ever changes in grizzly bear management to assist the people that rely on the landscape and who are negatively affected by the growing grizzly presence.

As mentioned earlier in this paper, each stakeholder’s time story is a piece of a puzzle that explains how they imagine a desirable future coexistence with grizzly bears. When all of those puzzle pieces are brought together, a clearer understanding of a desirable future coexistence can be pieced together to produce more collaborative and successful solutions to grizzly bear management. If I were to have refrained from assessing stakeholders’ time stories, I would have lacked the ability to understand what experiences, livelihood practices, and values have formed an individual’s perspectives on sharing a landscape with grizzlies in the future. Therefore, the purpose of this paper is not to inform what must be done in the future of bear management, but rather to suggest that all stakeholders consider the results of this paper and the benefits that would arise from true collaboration and action – not just “dangling a carrot.” Everyone has a unique time story and individual experiences to share; combining those stories and individual knowledges allows us to piece together broad themes of coexistence imaginaries that can act as a starting point for future grizzly bear management that allows every stakeholder to successfully coexist with the predator. Additionally, communication among stakeholder groups allows for critical reflection of the complex nature of this topic and a true understanding of another person’s livelihood and values. When people refrain from listening to and learning

from one another, it hampers the development of conservation practices and effective grizzly bear management that works for everyone. Only when people honestly and actively communicate and collaborate with one another can a future human-grizzly bear coexistence that works for every stakeholder become a reality.

References

- Aastrup, M. L. (2020). Conservation narratives and conflicts over protected areas in post-socialist Romania. *Journal of Political Ecology*, 27, 84–104.
- Alam, A., McGregor, A., & Houston, D. (2017). Photo-response: Approaching participatory photography as a more-than-human research method. *Royal Geographical Society*, 50, 256-265.
- Archibald, J. L., Anderson, C. B., Dicenta, M., Roulier, C., Slutz, K., & Nielsen, E. A. (2020). The relevance of social imaginaries to understand and manage biological invasions in southern Patagonia. *Biological Invasions*, 22(11), 3307-3323.
- Baker, T. T., Radel, C., Dale-Hallett, L., & Forge, C. (2021). Photovoice, claiming visibility, and women's farming identities in Australia. *Emotion, Space and Society*, 41, 100835.
- Barone, T., & Eisner, E. W. (2012). *Arts Based Research*. Sage.
- Beh, A., Bruyere, B. L., & Lolosoli, S. (2013). Legitimizing Local Perspectives in Conservation through Community-Based Research: A Photovoice Study in Samburu, Kenya. *Society & Natural Resources*, 26(12), 1390-1406.
- Brenner, L. J., & Metcalf, E. C. (2019). Beyond the tolerance/intolerance dichotomy: incorporating attitudes and acceptability into a robust definition of social tolerance of wildlife. *Human Dimensions of Wildlife*, 25, 259-267.
- Brown, K., Adger, W. N., Devine-Wright, P., Anderies, J. M., Barr, S., Bousquet, F., Butler, C., Evans, L., Marshall, N., & Quinn, T. (2019). Empathy, place and identity interactions for

- sustainability. *Global Environmental Change*, 56, 11-17.
- Bruskotter, J. T., & Wilson, R. S. (2013). Determining where the wild things will be: using psychological theory to find tolerance for large carnivores. *Conservation Letters*, 7(3), 158-165.
- Burawoy, M. (2005). For Public Sociology. *American Sociological Review*, 70, 4-28.
- Carter, N. H., & Linnell, J. D. C. (2016). Co-Adaptation Is Key to Coexisting with Large Carnivores. *Trends in Ecology & Evolution*, 31, 8.
- Corredor, G. A. M., Cottyn, H., Martínez-Medina, S., Wheatley, C. J., Sanchez, A., Kirshner, J., Cowie, H., Touza-Montero, J., & White, P. C. L. (2021). Oso, Osito ¿A Qué Venís? Andean bear conflict, conservation, and campesinos in the Colombian páramos. *Sustainability*, 13(19).
- Cottingham, J. (1978). A brute to the brutes? Descartes' treatment of animals. *Philosophy*, 53, 551-559.
- Fincher, R., Barnett, J., Graham, S., & Hurlimann, A. (2014). Time stories: Making sense of futures in anticipation of sea-level rise. *Geoforum*, 56, 201-210.
- Frank, B. (2016). Human-Wildlife Conflicts and the Need to include Tolerance and Coexistence: An Introductory Comment. *Society & Natural Resources*, 29(6), 738-743.
- Frank, B., Glikman, J. A., & Marchini, S. (2019). *Human-wildlife interactions: turning conflict into coexistence*. (Vol. 23). Cambridge University Press.
- Frank, B., & Anthony, B. P. (2021). Towards More Resilient Conservation Practices: Bridging

- the Past and Present of Human-Wildlife Interactions. *Sustainability*, 13(21), 12131.
- Freire, P. (1970). *Pedagogy of the Oppressed*. Bloomsbury publishing USA.
- Friese, S. (2019). *Qualitative Data Analysis with Atlas.ti*. Sage.
- Glikman, J. A., Frank, B., Ruppert, K. A., Knox, J., Sponarski, C. C., Metcalf, E. C., Metcalf, A. L., & Marchini, S. (2021). Coexisting with different human-wildlife coexistence perspectives. *Frontiers in Conservation Science*, 2, 703174.
- Halm, S. (2020). Grizzly bear impacts on rural resident well-being in northwest Montana. [Master's thesis, Idaho State University].
- Wieczorek Hudenko, H. (2012). Exploring the Influence of Emotion on Human Decision Making in Human-Wildlife Conflict. *Human Dimensions of Wildlife*, 17(1), 16-28.
- Irvine, L. (2008). Animals and Sociology. *Sociology Compass*, 2(6), 1954-1971.
- Jasanoff, S., & Kim, S. H. (2015). *Dreamscapes of Modernity: Sociotechnical imaginaries and the fabrication of power*. University of Chicago Press.
- Jenkin, J. (2018). A 'deep' aesthetics of contested landscapes: visions of land use as competing temporalities. *Geoforum*, 95, 35-45.
- König, H. J., Kiffner, C., Kramer-Schadt, S., Fürst, C., Keuling, O., & Ford, A. T. (2020). Human-wildlife coexistence in a changing world. *Conservation Biology*, 34(4), 786–794.
- Latz, A. O., & Mulvihill, T. M. (2017). *Photovoice research in education and beyond: A practical guide from theory to exhibition*. Taylor & Francis.

- Lavrakas, P. J. (2008). *Encyclopedia of survey research methods*. Sage publications.
- Leopold, A. (1949). *A Sand County almanac, and sketches here and there*. Oxford University Press, USA.
- Lequieu, A. M. (2017). “We made the choice to stick it out”: Negotiating a stable home in the rural, American Rust Belt. *Journal of Rural Studies*, 53, 202-213.
- Liebenberg, L. (2018). Thinking critically about photovoice: achieving empowerment and social change. *International Journal of Qualitative Methods*, 17, 1-9.
- Louder, E., & Wyborn, C. (2020). Biodiversity narratives: stories of the evolving conservation landscape. *Environmental Conservation*, 47(4), 251–259.
- Luborsky, M. R., Rubinstein, R. L. (1995). Sampling in qualitative research: Rationale, issues, and methods. *Research on aging*, 17(1), 89-113.
- Manfredo, M. J., Berl, R. E. W., Teel, T. L., & Bruskotter, J. T. (2021). Bringing social values to wildlife conservation decisions. *Frontiers in Ecology and the Environment*, 19(6), 355-362.
- Manfredo, M. J., Bruskotter, J. T., Teel, T. L., Fulton, D., Schwartz, S. H., Arlinghaus, R., Oishi, S., Uskul, A. K., Redford, K., Kitayama, S., & Sullivan, L. (2016). Why social values cannot be changed for the sake of conservation. *Conservation Biology*, 31(4), 772-780.
- Manfredo, M. J., Teel, T. L., Don Carlos, A. W., Sullivan, L., Bright, A. D., Dietsch, A. N., Bruskotter, J., & Fulton, D. (2020). The changing sociocultural context of wildlife conservation. *Conservation Biology*, 34(6), 1549-1559.

- Manfredo M. J., Teel T. L., & Henry K. L. (2009). Linking society and environment: a multilevel model of shifting wildlife value orientations in the western United States. *Social Science Quarterly*, 90, 407–27.
- Margulies, J. D. (2019). On coming into animal presence with photovoice. *Nature and Space*, 2(4), 850-873.
- Martin, J. V., Epstein, K., Anderson, R. M., & Charnley, S. (2021). Coexistence praxis: the role of resource managers in wolf-livestock interactions on federal lands. *Frontiers in Conservation Science*, 2, 707068.
- Molotch, H. (1976). The city as a growth machine: toward a political economy of place. *American Journal of Sociology*, 82(2), 309-332.
- Montana Fish, Wildlife & Parks. (n.d.). *All about bears: all about grizzlies*. Retrieved April 3, 2022, from <https://fwp.mt.gov/conservation/wildlife-management/bear/all-about-bears>
- Moore, M. L., & Milkoreit, M. (2020). Imagination and transformations to sustainable and just futures.” *Elementa: Science of the Anthropocene*, 8(1).
- Nesbitt, H. K., Metcalf, A. L., Metcalf, E. C., Costello, C. M., Roberts, L. L., Lewis, M. S., & Gude, J. A. (2022). Human dimensions of grizzly bear conservation: The social factors underlying satisfaction and coexistence beliefs in Montana, USA. *Conservation Science and Practice*, 5(3), e12885.
- Pattberg, P. (2007). Conquest, domination and control: Europe’s mastery of nature in historical perspective. *Journal of Political Ecology*, 14, 1-9.

- Patton, R. M., Beaver, J. M., & Potok, T. E. (2011, January). Classification of distributed data using topic modeling and maximum variation sampling. In *2011 44th Hawaii International Conference on System Sciences* (pp. 1-5). IEEE.
- Peck, C. P., Van Manen, F. T., Costello, C. M., Haroldson, M. A., Landenburger, L. A., Roberts, L. L., ... & Mace, R. D. (2017). Potential paths for male-mediated gene flow to and from an isolated grizzly bear population. *Ecosphere*, 8(10), e01969.
- Pooley, S., Bhatia, S., & Vasava, A. (2020). Rethinking the study of human-wildlife coexistence. *Conservation Biology*, 35, 3.
- Power, N. G., Norman, M. E., & Dupré, K. (2014). Rural youth and emotional geographies: How photovoice and words-alone methods tell different stories of place. *Journal of Youth Studies*, 17(8), 1114-1129.
- Redpath, S. M., Gutiérrez, R. J., Wood, K. A., & Young, J. C. (2015). *Conflicts in Conservation: navigating towards solutions*. Cambridge University Press.
- Ripple, W. J., Estes, J. A., Beschta, R. L., Wilmers, C. C., Ritchie, E. G., Hebblewhite, M., Berger, J., Elmhagen, B., Letnic, M., Nelson, M. P., Schmitz, O. J., Smith, D. W., Wallach, A. D., & Wirsing, A. J. (2014). Status and ecological effects of the world's largest carnivores. *Science*, 343, 1241484.
- Rivera Lopez, F., Wickson, F., & Hausner, V. H. (2018). Finding CreativeVoice: applying arts-based research in the context of biodiversity conservation. *Sustainability*, 10(6), 1778.
- Smith, J. M., & Tidwell, A. S. D. (2016). The everyday lives of energy transitions: Contested

- sociotechnical imaginaries in the American West. *Social Studies of Science*, 46(3), 327-350.
- Tracy, S. J. (2020). *Qualitative Research Methods: Collecting evidence, crafting analysis, communicating impact*. John Wiley & Sons.
- Tremblay, M. A. (1957). The key informant technique: A nonethnographic application. *American Anthropologist*, 59, 688-701.
- Treves, A., Wallace, R. B., Naughton-Treves, L., & Morales, A. (2006). Co-managing human-wildlife conflicts: a review. *Human Dimensions of Wildlife*, 11, 383-396.
- Turner, J. H. (2005). Is public sociology such a good idea? *The American Sociologist*, 36(3/4), 27-45.
- U.S. Fish and Wildlife Service. (2021). *Grizzly Bear Recovery Program: 2021 annual report*. Retrieved from <https://www.fws.gov/sites/default/files/documents/2021%20GBRP%20Annual%20Report.pdf>.
- U.S. Fish and Wildlife Service. (2021). *Southwest Montana Grizzly Bear DNA Pilot Project*. Presented at a Big Hole Watershed Committee Meeting, October 14, 2021, Wisdom, Montana.
- UCONN Health. (n.d.). *Theories on animals and ethics: Cartesian theories*. <https://ovpr.uchc.edu/services/rics/animal/iacuc/ethics/theories/#:~:text=Cartesian%20theories%20state%20that%20animals,the%20effects%20of%20our%20actions>

Wang, C. (2003). Using photovoice as a participatory assessment and issue selection tool.

Community based participatory research for health, 1, 179-196.

Wang, C., & Burris, M. A. (1994). Empowerment through photo novella: portraits of

participation. *Health Education Quarterly, 21*(2), 171-186.

Zinngrebe, Y. M. (2016). Conservation narratives in Peru: Envisioning biodiversity in

sustainable development. *Ecology and Society, 21*(2).