

**GLACIERS IN FLUX: INTERPRETING THE MISSION AND PURPOSE OF GLACIER
NATIONAL PARK IN A WARMING CLIMATE**

by

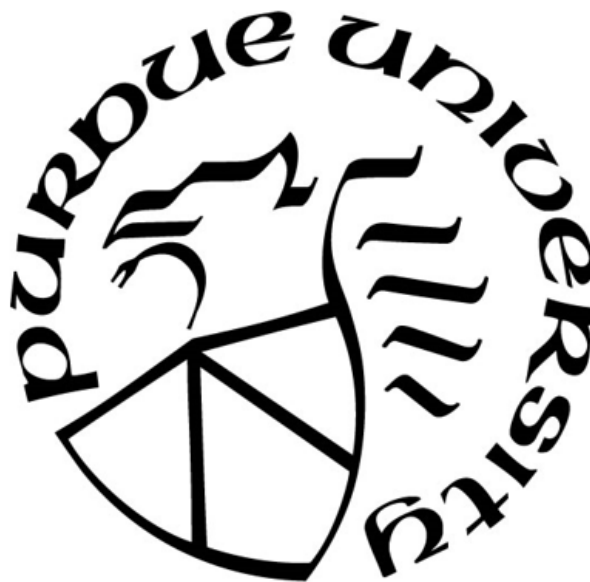
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Dedication

To Jacquelin for supporting me through endless research rants.

To the wind through the pines for reminding me to breathe.

To the bear in Glacier that let me get away.

And to the mountains who indeed called to me during the years it took to finish this project.

May this dissertation give back to them in some way.

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ABSTRACT

This dissertation used a qualitative and interpretive lens to explore visitor and staff perceptions of the mission and purpose of Glacier National Park and the National Park Service as well as the interpreted environmental state of this park. Through the use of online survey data and participant observations, this study provides a deeper understanding of how individuals inside of Glacier National Park view the potential for this park to succeed or fail with its mission as well as how environmental concerns are communicated to those within the park during the summer of 2019. Strategic environmental communication strategies are provided at the conclusion of this study in order to aid Glacier and the National Park Service in more efficiently educating their publics about their core goals and environmental management efforts.

CHAPTER ONE: INTRODUCTION

A one-million-year-old gargantuan ice cube: that is how my fourth-grade teacher introduced my class to glaciers. We explored images of massive mountains and wondered at how these large chunks of frozen water shaped the land on which we stood. On that day, I promised myself I would see a glacier in real life. In 2017, at the age of 25, I finally fulfilled that promise and it was nothing like what I had imagined for so many years. I arrived at Glacier National Park with expectations of views like I had seen in my fourth-grade science book. Instead, I was left searching for a small section of slightly grey ice many miles up a mountain that was hardly distinguishable from the rock surrounding it. Tourists rushed by without even noticing its existence, seeming to forget how this National Park earned its name. Others stood beside me in groups pointing at various rocks up the mountainside asking if that was it, or if maybe it was just a little to the left. A small sign displayed a picture of our view with a little red arrow pointing to the ice we were supposed to be able to see. As I stood at that outlook staring at the shrunken remains of one of the last glaciers within the park, I was saddened, disappointed, and angry. I thought of the fourth graders in class that day and how, if they waited as many years as I had to visit this National Park, they would likely never see a glacier there as many reports predict they will all have melted by the year 2030 (USGS online: Retreat of Glaciers in GNP, n.d.).

On that day I made another promise to myself: I would try my best to make a positive difference in the battle for protecting these glaciers and the national park that contains them. Through coursework, research, and now a dissertation project, I hope to be able to help protect Glacier National Park and the last remaining glaciers found within as well as establish a better understanding of the values and importance of the U.S. National Park Service as a whole.

The National Park Service

The world's first national park was established in 1872, many years before the National Park Service's inception. This first park, Yellowstone, was constructed as, "a public park or pleasuring-ground for the benefit and enjoyment of the people" (NPS, 2018a, para 1). Artists such as Thomas Moran and Albert Bierstadt as well as authors like John Muir and Henry David Thoreau explored the newly protected lands within Yellowstone and beckoned Americans to come and share in the wonder and natural beauty of the park (NPS, 2000). As visitors trickled into the first national parks in the late 1800s, private commercial interests (railroads, sawmills, ranches, hotels...) discovered great economic potential within these highly unregulated lands. The early national parks like Yellowstone, Yosemite (established in 1890), Mount Rainer (established in 1899), Glacier (established in 1910), and Rocky Mountain (established 1915) had no central organization to manage their boundaries or resources and little was being done to protect them (NPS, 2000). Because of this, in 1915, Stephen Mather (a millionaire industrialist) began a movement to establish the National Park Service (National Geographic online: U.S. National Parks-In the Beginning, 2010).

The U.S. National Park Service (USNPS) was established by the Organic Act of 1916 to guide the decision-making processes and protect the resources within a variety of U.S. parks that were previously established (Tranel & Hall, 2003). Combined with the legislation within individual parks, the National Park Service (NPS) worked to fulfill its mission which, at that time, was to,

Promote and regulate the use of the...national parks, monuments, and reservations...by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations. (U.S. Code, Title 16, sec. 1;39 Stat. 535).

In the early years of the NPS, the first directors (Stephen Mather and Horace Albright) recognized the value of these protected lands only in relation to the ability of the American public to experience them directly. Throughout the 1930s, the National Park Service's decisions continued to place more importance on the accessibility of the parks to visitors; resources were mainly allotted to road construction and lodging projects (Tranel & Hall, 2003). From the time of creation, the parks were meant to serve utilitarian needs with the focus on public use, accommodations, and the enjoyment of the American people (Sellars, 1997). As organizers worked to gather funds to establish more permanent protected spaces throughout the 1930s, their tactics involved highlighting ease of access to visitors over other environmental components such as solitude and healthy ecosystems (Tranel & Hall, 2003). The American public, newly made aware of these beautiful protected lands, pushed for the construction of roads to and within national parks so that they could travel there themselves (Winks, 1997). In 1936, NPS director Arno Cammerer demanded that the national parks must be "economically justifiable and [a] humanly satisfying form of land use" (Sellars, 1997, p.106) and again pushed for the creation of roads to attract new visitors.

Throughout the 1940s and 1950s, the NPS continued to focus on recreational tourism and demonstrated its success through reports of increasing visitor numbers and the building of new campgrounds and park facilities (Tranel & Hall, 2003). Comprehensive building projects were established in Yellowstone, Glacier, Yosemite, and many other national parks across the western United States with little regard to environmental impacts of such efforts.

As the environmental movement started to take root in the U.S. throughout the 1960s and 1970s, ecologists, biologists, and environmentalists began to argue for the recognition of the environmental, spiritual, and ethical values of these protected spaces (Sellars, 1997). As

construction projects continued, these environmentalists joined with scientists and researchers within the parks to demonstrate the negative effects of some of the parks' most effective tactics at increasing accessibility. Techniques such as total fire suppression, the introduction of non-native plant species, and the reduction of park predators like wolves and bears were shown to be disrupting the natural ecosystem and creating environmental impacts beyond the understanding of park managers (Tranel & Hall, 2003). Because of these scientific findings, park management practices began to be reevaluated.

In 1988, the NPS began recognizing more of the intangible values of the national parks including solitude, scenery, natural quiet, the sounds of nature, clear night skies, and a sense of American history and culture. It updated park management policies in 2001 to reflect these changes (Tranel & Hall, 2003). Also, in 2001, the NPS clarified its interpretation of the Organic Act of 1916 which had caused confusion previously. It stated that the primary responsibility of the National Park Service was to, "ensure that park resources and values are preserved and protected for the future" (USNPS: Management Policies, 2001, p.81) and explicitly instructed park visitors to halt any actions that would be considered "contrary to the purposes for which the park was established" (USNPS, 2001, p.81). Soon after these changes were made, protection projects began in a variety of national parks including an air quality project in Shenandoah National Park, night sky preservation in Arches National Park, and a reduction of snowmobile use in one third of Denali National Park and Preserve to protect the silence and integrity of the Alaskan wilderness (Tranel & Hall, 2003).

Today, the U.S. National Park Service is responsible for more than 400 protected areas which cover over 85 million acres across 50 states as well as American Samoa, Guam, Puerto Rico, Saipan, and the U. S. Virgin Islands (NPS, 2018a). These protected spaces include national

parks as well as historic sites, scenic rivers and trails, lakes and seashores, and even the White House (NPS, 2018b).

The U.S. National Park Service is currently facing difficult tensions as it is asked to both protect and preserve the natural state of the land while drawing in millions of tourists, experiencing the effects of climate change, and receiving less and less funding from the U.S. government each year. Since 1916, these tensions and challenges have resulted in a shift in the purpose of the NPS. As stated on its webpage, its mission today is to,

Preserve unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations. The Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world (NPS, 2018c).

In comparison to its original mission, the NPS has subtly shifted its core goals. The first version stated its conservationist efforts while the newest edition focuses instead on preservation. While these two terms are used interchangeably in everyday conversation, they have foundationally different meanings. As described in Markham and Van Koppen (2007), preservation reflects the motivation to protect wildlife and their habitats from the use of humans. Preservation focuses more on keeping human impacts away from the wild in order to preserve the physical and spiritual life of nature. Conservation, on the other hand, reflects the motivation to use natural resources in a way that benefits the greatest number of people for the longest possible time. As stated on the NPS website, “Conservation seeks the proper use of nature, while preservation seeks protection of nature from use” (NPS, 2015). Within the first two words of this new mission, the NPS has demonstrated its shift from conservation to preservation, a shift brought about by political, societal, and environmental tensions.

Today, this mission has become increasingly harder to promote and enforce. Working to both protect the natural environment and culturally historical artifacts while also providing a fun, safe, and enjoyable recreation area for a global population has become more and more difficult due in part to the decrease in federal financial support. According to the National Parks Conservation Association (2016), there has been more than a 12% reduction in the amount of federal funds provided for the National Park Service between 2010 and 2015 alone (NPCA online: Annual report, 2016). This percentage amounts to over a \$364 million reduction to the NPS's total budget. Along with this, visitor numbers have been on the rise as seen in Figure 1. This combination of decreasing budget and increasing need has left many parks scrambling to keep their mission alive: trails have become overgrown, wildlife protection programs have been under-regulated, foundationally insecure buildings and historic sites have been left unaddressed, maintenance projects have been backlogged for years, invasive species have begun to wreak havoc in many parks, and some educational and safety services have been disbanded due to a lack of staff members trained to educate the tourists who visit (Brinkley, 2016).



*Figure 1: Annual recreational visits to NPs.
(Flowers, 2016)*

One critical negative impact of this reduction in funding is the effect it has had on research within the parks. The National Park System within the U.S contains some of the most

untouched and intact landscapes in the world (Ohlson, 2016). Scholars studying the natural environment can see into the past within these parks by exploring the mostly untouched areas. For example, most geysers around the world have been destroyed, but geologists can study geysers within Yellowstone National Park where they are protected (Ohlson, 2016). Many endangered (or previously endangered) species like the bison can also be studied within the protected park lands. But national parks are not immune to the effects of humans simply because they are protected. As stated in Ohlson (2016), “Most of what we know about climate change’s effects on ecosystems comes from research within park borders” (Ohlson, 2016, para 6). Observations of melting glaciers, reduction of air quality, and noise pollution have also contributed greatly to our nation’s understanding of human involvement in climate change effects (Ohlson, 2016).

One park in particular is facing the effects of climate change at an alarmingly increasing rate. According to Heyd (2010), in the last decade, Glacier National Park has seen double the temperature increase the planet as a whole has experienced. The warming temperatures have caused a variety of negative impacts in the park which contains an ecosystem essential to the environmental and economic health of the nation (Heyd, 2010).

Glacier National Park

Located in northwest Montana, Glacier National Park was established in 1910, making it America’s 10th national park. Bearing the nickname the Crown of the Continent, the park encompasses over 1 million acres of mountain ranges, flowering meadows, and pristine lakes. With over 3 million visitors in 2017 alone, this national park is the 11th most highly visited in the nation (NPS, 2018d).

Glacier National Park (and its Canadian partner across the border, Waterton Lakes National Park) exist at an ecological crossroads where diverse sections of the continent meet. Plant and animal populations from the Pacific Northwest merge with eastern prairies and the ecosystems of the southern Rocky Mountains. These mountain ridges are also the headwaters for North America and contain the origins of pristine rivers that flow to the Pacific Ocean, the Gulf of Mexico, and even the Arctic Ocean (McKinney, 2016). Containing over a million acres of protected lands and natural resources, this area involves a very diverse population of concerned interest groups. As stated in McKinney (2016), the Crown of the Continent includes two nations (the U.S. and Canada), two provinces (Alberta and Saskatchewan), one state (Montana), and seven tribes and First Nations, as well as more than 20 government agencies that exercise some form of management authority on the land. If you add to that list the many NGOs, nonprofits, and community groups that also have a voice at the table, it is easy to see how complicated protecting and managing this critical landscape is.

Glacier National Park received its title due to the over 150 glaciers that existed in the park around the mid-19th century (NPS, 2016). These glaciers formed around seven thousand years ago as the annual snowfall continually exceeded the annual summer melting (USGS online: Retreat of Glaciers in GNP, n.d.). As average global temperatures began to steadily rise over the years, even with an increase in annual precipitation, there was not enough cold weather to build up what the glaciers lost during the summer melting months (USGS online: History of Glaciers in GNP, n.d.). Out of the 150 glaciers that once existed, only 25 remain today with scientists estimating that all glaciers within the park may disappear by 2030 if current climate trends continue (Williams, 2016). Those glaciers that do still exist have greatly reduced in size, as can be seen in Figure 2 of the Chaney Glacier below (USGS online: History of Glaciers in

GNP, n.d.). In this image, the outer purple ring represents the measurements of the glacier boundary in 1850 while the red inner ring is the boundary in 2005.



Figure 2: Chaney Glacier (USGS online: History of Glaciers in GNP, n.d.)

As stated in Williams (2016), “Climate change is not an abstraction here, but real change in real time: the rapid retreat of glaciers. Rock once covered now lies bare. To touch warm granite beds once blanketed by glaciers is both a hard fact and a perversion” (p. 342).

The increasingly warming temperatures within and surrounding Glacier National Park have affected not only the glaciers within the park but also the wildlife and forests (Heyd, 2010). Hotter summers have resulted in the disruption of bear, wolf, lynx, and mountain lion habitats and have led to a severe increase in damage caused by pine beetles who now can live longer and reproduce at a much higher rate (Williams, 2016). The annual summer melting of glaciers within the park releases cold mountain water which is an important factor for many native species of fish, such as cutthroat trout, who rely on these frigid glacial waters to survive (USGS online: Retreat of Glaciers in GNP, n.d.). With the decrease in number and size of glaciers within the park, these fish species have become increasingly threatened (USGS online: Retreat of Glaciers in GNP, n.d.). Wildfire rates have also increased within the park due to the warmer, drier climate resulting in large swaths of charred land within the park as well as an increased danger to both

wildlife and tourists (Heyd, 2010). The increased fire season has also begun to impact regional air quality increasing the risk to both people and property far beyond the reach of Glacier National Park's borders (USGS online: Retreat of Glaciers in GNP, n.d.).

Other impacts of the changing climate within the park include changes in region water supplies for both human consumption and the agriculture industry (USGS online: Retreat of Glaciers in GNP, n.d.). Spending by visitors in Glacier National Park alone approaches \$1 billion annually and supports over 4,000 jobs in Montana (Heyd, 2010). About 30 percent of visitors to Montana in the summer are drawn into the state by the park and its wildlife, scenery, and stunning natural beauty (Heyd, 2010). With tourism being the number two industry in Montana bringing over three billion dollars into the state each year, many have already begun to not only see but feel these harmful climate change effects (Heyd, 2010). The degradation of this protected space not only effects the plants and animals within the park, but also the humans who rely on the economic values and natural resources within Glacier National Park that are often taken for granted.

It was clear to me when standing at that overlook searching for a glacier in Glacier National Park that there was something wrong with the state of this landscape, but for many, this tourist destination is understood more as a pretty, adventurous photo opportunity than an ecosystem under attack. As I stood at the overlook, I wondered if the visitors, and even those employed by the park, recognized the environmental degradation occurring right in front of their eyes. I was intrigued by the general lack of concern I witnessed from those I encountered in the park and was curious if many knew why this national park even existed. I was startled to hear and find little information about climate change while in the park and was interested in why Glacier National Park was struggling (or refusing) to communicate one of the most central tenets

of their mission: preservation of natural resources. Even on the small scale of one national park, it is clear to see that the effects of global warming are creating both negative environmental and economic outcomes, but why were so few visitors and staff talking about his growing crisis?

Former NPS Chief of Public Affairs stated,

Never in its 200 years has this nation needed the National Park System more. It stands as a collective memory of where we have been, what sacrifices we have made to get here, and who we mean to be. By investing in the preservation, interpretation, and restoration of these symbolic places, we offer hope and optimism to each generation of Americans (National Geographic online: U.S. National Parks-In the Beginning, 2010, para 16).

Because of the incredible value found within the boundaries of Glacier National Park, and the sense of indifference and unawareness I witnessed when visiting the park, I have conducted this study which aimed to gather a better understanding of how both tourists and employees of Glacier National Park understand and co-create meaning surrounding the mission and values of this national park. Through this research, I sought to discover whether the original conservationist mission or the updated preservationist mission was more prevalent in the collective interpretations of both visitors and employees of the park. I also wanted to gather a clearer understanding of how this population recognizes and interprets the environmental threats faced by the park and how the park communicates environmental threat information to its publics. Through research questions involving park visitors' and staff's interpretations of the mission of the NPS, as well as questions surrounding visitor and staff awareness of environmental degradation within the park, I sought to gain a more robust understanding of how the public views this park and what the park can do to improve its environmental communication.

In this dissertation, I first give an overview of the relevant literature pertaining to the theoretical resources used to guide this study as well as the descriptions of environmental communication and national park research that helped form both the research questions and analyses. Then, I discuss the metatheoretical perspectives that are the foundation of this dissertation before describing the qualitative methods used to gather and analyze the collected data. Lastly, the dissertation provides an in-depth analysis of the results of this study, along with a detailed discussion of the overarching conclusions, limitations, and direction for future scholarship on this topic.

CHAPTER TWO: LITERATURE REVIEW

Coordinated Management of Meaning Theory

Originally introduced in 1976 (Pearce, 1976), the Coordinated Management of Meaning Theory (CMM) was first utilized in interpretive studies within the field of interpersonal communication. Since then, however, this practical theory (Cronen, 1995) has been applied to various contexts involving collaborative creation of a shared understanding as well as the communication of public dialogue (Pearce & Pearce, 2000). At the heart of CMM is the production of a coordinated understanding of a social structure or context. As described in Pearce and Pearce (2000), the process of coordination does not mean that all persons involved in a context achieve a unified understanding, but instead asks, “what are we co-constructing together?” (p. 410). How an individual acts or interprets a situation is combined with the acts of many to determine a shared understanding of what *they* as a whole believe or how *they* as a society act. The CMM theory utilizes a constructionist approach to communication research in that it claims that, “the events and objects of our social worlds are co-constructed in communication” (Pearce & Pearce, 2000, p. 413). It is through communication that groups create and destroy relationships, institutions, and shared meanings.

As stated in Pearce (2012),

Communication is about meaning...but not just in a passive sense of perceiving messages. Rather, we live lives filled with meanings, and one of our life challenges is to manage those meanings so that we can make our social worlds coherent and live within them with honor and respect. But this process of managing our meanings is never done in insolation. We are always and necessarily coordinating the way we manage our meanings with other people. (p. 4)

The meaning-making discussed in Pearce (2012) is a shape-shifting process that can and does change from moment to moment. As humans interact and experience events, their

understanding can shift, change, and even completely contradict what they once believed. There is also often a tension between the meaning as understood internally with an individual and the outward lived practices that are coordinated with others (Pearce, 2012). By simply watching what an individual or society does or how people interact, researchers will not always be receiving the full picture of how each person interprets what is happening.

One useful aspect of this theory is its practicality, or its ability to guide those within the context being studied. As described in Oliver (1996), a good practical theory “increases the prudence or social eloquence of practitioners by enhancing their ability to discern and draw upon the resources of particular social settings in order to produce desired effects” (p. 420). Pearce (2005) described the practical nature of this theory as a collaboration with practitioners that seeks to improve communication patterns that the theory itself helps describe and critique. Through a shared language and open discourse between both practitioners and researchers, mutually beneficial results can be discovered about how social groups create, define, and understand specific contexts (Pearce & Pearce, 2000). Pearce (2012) described CMM as having a practical and critical edge that allows researchers to see and critique patterns of communication that can make or destruct better social worlds.

Since its introduction in the 1970s, the CMM theory has begun to blur the line between scholar and practitioner due to this practical and potentially critical nature (Pearce, 2012). Articles such as Pearce, Villar, and McAdam (1992), Cronen and Lang (1994), and Graff, Lund-Jacobsen, and Pearce (2010) all demonstrate the practicality of this theory by extending research beyond traditional outlets and working alongside participants to enact positive change in their research context. Some mixed collaborations have even led to the development of mediator and

therapy practices (Cronen, Chen, & Pearce, 1988) as well as workplace gender education practices (Barker & Zifcak, 1999).

Because of its practical nature, studies involving the CMM theory have spanned a wide array of contexts and events. Bruss et al. (2005) explored the complex process of interpreting messages about health issues and childhood obesity within a community. Through the use of this practical theory, the authors were able to uncover a clearer understanding of how community members negotiated the sometimes conflicting messages surrounding them about their children's health and how the community as a whole interpreted this information.

In another study, Montgomery (2004) utilized the CMM theory to explore how Middle Eastern refugee families co-constructed an understanding of their families' experiences of torture. Through various communication strategies, parents were able to talk to their children about torture and violence in a way that their children could reach a shared understanding of those events with them. This study also provided implications and suggestions for family therapists demonstrating the utility and practicality of this theory. Other studies, such as Orbe and Camara (2010), explored the use of CMM on a societal level. In this article, the authors examined how large diverse groups of individuals defined their experiences with discrimination based on age, sex, race, gender, or ability. Through this study, Orbe and Camara were able to uncover core elements of communicative discrimination across a variety of contexts as well as a better understanding of how subgroups co-construct meaning and interpret their shared experiences with discrimination.

Pearce (2012) described the CMM theory as a powerful tool for engaging with and developing phronesis. Phronesis, as defined in Flyvbjerg (2001), is practical wisdom developed by people who have hands-on experience with the specific context or area being studied. Instead

of focusing research only on the government or administrative elites, scholars utilizing the CMM theory are urged to incorporate the situated knowledge and wisdom of those experiencing the issue first hand. Contributing to its practical nature, the CMM theory allows researchers to not only dive deeply into the coordinated meaning of those involved in their research context, but also aids the scholars themselves in developing their own wisdom through the employment of hands-on methods such as participant observation, case studies, and ethnography (Pearce, 2012). Schram and Caterino (2006) also argued for the value of this type of scholarship, stating that research that aims to produce theory to distribute from the top down is less valuable than practical research and theory that aims to produce participation, discussion, and deliberation as an ongoing process with those actively engaged in the issue. According to Schram and Caterino (2006), scholars should focus on issues that are being experienced and those who are experiencing them instead of on developing complicated theories that may or may not create any actual improvement within that context.

The Coordinated Management of Meaning theory and its practical nature provides an excellent platform for researchers to begin this engaging, experiential type work aimed at producing results with which to help those being studied (Pearce, 2012). Because of its practical nature, the CMM theory also is a useful tool for exploring the critical nature of the field of environmental communication.

Environmental Communication

Specific to the field of environmental communication, this idea of practical research on communicating and forming meaning is even more integral. As stated in their phronetic analysis of environmental communication in New Zealand, Dodson and Palliser (2016) argued that the success of many environmental management initiatives depends on the individuals involved in

the setting directly: their communication, their work styles, and their values and aims. While government elites play a role in shaping a nation's environmental practices, scholars that study environmental communication should make sure to include a diverse range of interests with a focus on practicality and community involvement (Dodson & Palliser, 2016).

Known as a “crisis discipline,” the field of environmental communication (and those who study it) does not have the luxury of slowly developing and reorganizing theory for many years before putting it into practice within the contexts being researched (Cox, 2007). Instead, as the climate changes and brings with these changes an increase in droughts and intense heat waves, rising sea levels and melting glaciers, higher intensity storms and irregular weather patterns, and much more (NASA online: How climate is changing, 2019), environmental scholars are racing against the clock to reach a better understanding of how people talk about the environment, how they understand its changes, how they interpret the effects, and what can be done to help (Cox, 2007).

In order to tackle the challenges of climate change, communicators have researched and employed a variety of participation techniques aimed at counteracting the apathy experienced by many, especially in America (Lahr, 2017). Some strategies, such as fear-inducing communication or the overly dramatic representations of climate change effects, have been found to be counterproductive in promoting public engagement (O'Neill & Nicholson-Cole, 2009). Other strategies that have been found to be more effective include emotional and moral appeals (Roeser, 2012), the use of visual representations of the negative effects of climate change (Schroth, Angel, Sheppard, & Dulic, 2014), and the strategic emphasis on local or community-based action (Moser, 2007). These localized approaches have been shown to prompt a sense of personal responsibility surrounding climate change (Hamblyn, 2009). Many scholars have also

researched the value of making climate science and climate change predictions personally relevant to the public and have found these strategies to be useful in promoting acceptance and engagement surrounding the changing environment (Uzzell, 2000; Leiserowitz, 2005; Whitmarsh, O'Neill, & Lorenzoni, 2015). As stated in Lahr (2017), "Science communication that is devoid of reference to lived experience is likely to be ineffective" (p. 11). These rhetorical approaches to climate change communication, from the use of fear to the use of highly technical language such as that found in the documents produced by the Intergovernmental Panel on Climate Change, demonstrate the wide variety of discourse tools that can be utilized to engage with and communicate to the public about our changing climate (Lahr, 2017).

A current struggle and frustration faced by many environmental communication scholars is the uncertainty still surrounding the existence and cause of climate change. Amongst most scientific communities, anthropogenic climate change is widely accepted and changes in the climate are understood as observable effects of human impact on the environment (Banning, 2009; Gonzalez, 2011; IPCC, 2014). However, due to the complexity of predictive models of climate change and the range of predicted possible outcomes, some believe climate change is a "manufactured controversy" and would rather preserve the status quo than the environment (Banning, 2009). The lay public can become confused over the variation in reports and skeptical about the portrayals of climate change which can lead to a lack of personal behavior changes mitigating climate change as well as diminished support for green policies (Lahr, 2017). As some individuals are still struggling to understand and accept the climate crisis, environmental communication scholars are working to find ways to persuade and communicate these global concerns to the greater public and promote positive action.

One common challenge within the field of environmental communication is that of public engagement and participation. Goodwin (2016) explored the challenges of low public participation in relation to environmental planning and decision-making and examined three types of modeling (cooperative, companion, and participatory modeling). Through this study, Goodwin (2016) noted the importance of the non-experts' interpretations of environmental issues and pushed for the use of more grassroots or community-based practices in documenting the successes and limitations of environmental actions. Lind (2016) also examined the challenges of public participation within discussions of environmental concerns. Through an analysis of transcripts from public discussion of water use, Lind discovered how disjointed many community members' perceptions of water-related concerns were in one community. While some participants discussed environmental concerns, others mentioned social issues, and still others discussed other natural resource problems. But, there was little overlap and an abundance of value-based beliefs (compared to scientific or fact-based arguments) (Lind, 2016). At the conclusion of this study, Lind argued that communities must work to establish a shared belief system that community members can use to help make sense of the world, the changing environment, and their community's place within it all. Without the coordination of like-minded people, discussions surrounding environmental concerns were shown to be less effective (Lind, 2016).

Another area of environmental communication is centered around ecotourism and media studies. Ecotourism is defined as tourism that includes activities such as hiking, camping, wildlife watching, and scuba diving with a focus on an appreciation for the natural world (Buckley, 2004). Unlike mass tourism, ecotourism aims to promote more environmental and cultural awareness and advocacy while visiting a new place (Sowards, 2012). Sowards (2012)

described how popular ecotourism destinations use media materials to rhetorically construct visitors' anticipations, experiences, and memories. Through this ethnographic and rhetorical study, Sowards demonstrated the transformative potential of the ecotourism industry and its ability to encourage self-reflection and critical thinking surrounding environmental issues. Media outlets can help shape the effectiveness of this industry even before an ecotourist sets foot at their destination by establishing expectations for environmentally ethical experiences and community engagement that transfer into the actual lived experience as well as the memories ecotourists take with them when they travel home (Sowards, 2012).

National Park Research

Research involving national parks or the National Park Service originate from a wide variety of scholarly fields. Many involve the collection and analysis of physical specimens such as gravel samples, bird feathers, and fishery counts. When narrowed down to communicative concerns, the range of articles diminishes but still contains a large variety of metatheoretical perspectives, methods, and contexts.

Within U.S. National Parks, many scholars have focused on how parks communicate with those who visit. Mullins, Peine, Gregg, Canter, and Tassier (1987) explored the communicative strategies of the USNPS and designed a seven-step process to most effectively communicate with the public. This process included identifying the most important issues park staff wished to communicate to their publics, developing specific messages that incorporated the perspectives of community members, visitors, and park management, analyzing the demographics of those who visited the parks, selecting specific target audiences for their messages, designing cost-effective programs and media applications, implementing those

programs, and then circling back to analyze the effectiveness of these new messages and programs and their ability to reach the intended objectives (Mullins et al., 1987).

Meyers and Thomas also discovered similar findings in their 1991 study of wilderness visitor education strategies and Doucette and Cole (1993) expanded on this idea. In their 1993 study, Doucette and Cole split the interpretive techniques and communicative strategies of park staff into two categories: passive and active. Passive techniques involved nonpersonal media devices, signs, publications, and other information posted throughout the park. Active techniques involved personal or animated presentation, guided tours and hikes, demonstrations and educational talks, video presentations, and more.

Whether the techniques were active or passive, both Doucette and Cole (1993) and Meyers and Thomas (1993) argued for a four-step process of identifying and defining an environmental issue within a park, developing an effective strategy for addressing the issue, and implementing and evaluating the results of the program. Throughout each of their analyses of park communication strategies, Mullins et al. (1987), Meyers and Thomas (1991) and Doucette and Cole (1993) highlighted the most important aspect of park communication: that it should be a two-way process. Without receiving feedback about park communication methods from visitors themselves (and without analyzing the effectiveness of park messaging), park staff as well as researchers would be missing half of the conversation (Mullins et al., 1987).

Whatley (1995) also explored different communication strategies within national parks. Whatley differentiated three types of environmental issues commonly faced by national parks and developed three specific communicative strategies for educating the public about each. The first set of environmental issues are those that would be benefited by simply enhancing the public's awareness and understanding of the issue (e.g., the need to allow lightning-caused fires

to burn or the policy which requires park staff to remove the more aesthetically attractive, but biologically detrimental, nonnative plants and animal species from the park). For these types of environmental concerns that do not necessarily require any action on the part of the park visitor, Whatley suggested using general presentations, flyers, and posters to simply keep park visitors up to date.

The second set of environmental issues are those that would benefit from significant changes in widespread opinions and attitudes of park visitors (e.g., the need to limit and regulate exotic mules brought to the Grand Canyon National Park for recreational activities to protect the native plant and animal species being adversely affected by their presence). For this type of issue, Whatley argued that educational programs must go a step beyond those utilized in the previous category. For these concerns, in-person interpretive programs and activities should be used to foster an understanding and acceptance of resource management activities to promote and gain the support for these environmental actions from park visitors (Whatley, 1995).

The last category of environmental issues faced by national parks are those that would benefit from direct changes in human behavior within the park (e.g., the necessity for park staff to close certain hiking trails or campsites to reduce human-bear encounters or the need to close specific trails due to erosion). For these types of direct action-based issues, Whatley (1995) discussed how interpretive measures must be direct and convincing while not being negative or didactic. Interpretive programs that address these issues should be personal, educational, and provide other positive experiences available to park visitors outside of those that are currently restricted (Whatley, 1995).

While both active and passive interpretive techniques have been found to be effective, Whatley (1995) concluded this exploration of park communication by arguing for the inclusion

of personal contact between park visitors and park employees. Through live programs and active educational opportunities, park staff were able to enhance the comprehension of park subject matters and serve “as a sort of memory glue to understanding resource issues on a long-term basis” (Whatley, 1995, p. 26).

Other national park studies located within the U.S. include discourse analyses concerning the narratives and histories of these protected lands (Klesman, 2012), discussions of race and cultural factors involved in who visits national parks (Floyd, 2007), and studies of the negative effects of tourism (Finnessey, 2012). Studies like Finnessey (2012) demonstrate the tension between recreation and preservation faced by many parks. As stated in Shultis (2003), “The central paradox of outdoor recreation is that its very presence can lead to a degradation of the social and ecological attributes that draw visitors to the natural environment” (p.68).

It is frightening how easy it is to find examples of damage to national parks caused by those who spend time there. In Yellowstone National Park, visitors have been known to throw pennies, rocks, and trash into the stunning Morning Glory pool. Over the years, the items have clogged up parts of the heat source far beneath the water’s surface, causing the pool’s temperature to drop and the color of the pool to change dramatically (see Figure 3 below) (Clark, 2015).



Figure 3: Morning Glory in the 1940s compared to 2015 (Clark, 2015)

Noise pollution is another example of a negative result of national park tourism. Many species found within these protected spaces rely on their impeccable hearing to hunt and hide. In Yosemite National Park specifically, owls have been known to plunge into as much as a foot deep of snow to reach their prey. They rely on their hearing and the silence of untouched nature to locate mice and other vermin who reside under the snow. With the cacophony of tourist noises (including shuttles, cars, touring planes, and the buzz of generators), many species like these owls struggle to find enough food to survive during the snowy months (Kirkwood, 2011). Because of park visitors, these animals are forced to either adapt, relocate or even starve (Kirkwood, 2011).

Trampling of protected vegetation has also been found to be a highly visible example of the negative effects of visitors within national parks. By hiking, backpacking, horseback riding, biking, and rock climbing, tourists trample the vegetation, compact the soil, and destroy a variety of ecosystems within national parks (Butcher, 1997). Through this process, the damage can cause a loss of biodiversity as well as increase the risk for erosion (Butcher, 1997). In Yosemite specifically, trampling damage has made it hard for the majestic California Black Oaks to grow there (Finnessey, 2012). This causes problems for the animals that usually make homes out of these trees such as squirrels and birds. Erosion in Yosemite is also a critical issue as it can lead to surface run off as well as higher chances for landslides and avalanches (Finnessey, 2012)

In a very recent example of visitor-created negative impacts, during the United States government shutdown beginning December 21, 2018, the NPS was required to divert funds collected from entrance fees (instead of their usual federal funding) to fund trash cleanup projects, provide restroom maintenance, and hire additional law enforcement due to an abundance of trespassing (Gibbens, 2019). In Joshua Tree National Park in California, campsites

were forced to shut down due to overflowing pit toilets as well as human waste found along the roadways and open areas (Gibbens, 2019). Also within this park, vandals toppled gates and posts, off-road vehicles carved new roads throughout the desert's protected spaces, and thousands of Joshua trees were destroyed (Stack, 2019).

While it would be easy to take these examples and become disheartened, Finnessey (2012) offered a potential solution: education. If park employees are able to educate visitors and invite them to become part of the solution through both active and passive communication techniques, parks have the ability to reduce these harmful effects. Finnessey (2012) also argued for an increase of research within and surrounding national parks and encouraged all scholars in this field to make their findings easily available not only to fellow scholars, but to park staff, government officials, and those who use park resources. Similar to Finnessey (2012), Shultis (2003) concluded by describing the need for more in-depth research surrounding the tension between recreation and preservation faced by national parks. Shultis (2003) articulated the frustration faced by researchers in this specific field and argued that studies surrounding this paradox have not produced the necessary ideas and solutions required to deal with these complex social and environmental issues in part due to the subjective political nature of them.

Outside of the USNPS, scholars have also explored the global national park system and the communicative strategies employed within them. O'Riordan, Wood, and Shadrake (1992) studied the value of and methods used by interpreters (or park staff in charge of educational programs) within Yorkshire Dales National Park in the United Kingdom. In their study, the authors discovered the great value of interpreters and interpretive programs in relating information about climate and environmental concerns to their visitors. They stated, "At a time of great uncertainty in terms of worldwide environmental sustainability, interpreters have a duty

to throw their lot in with other specialists and use their powerful skills to resolve outstanding problems” (O’Riordan, Wood, & Shadrake, 1992, p. 6). The authors argued that interpreters and their programs within the park must educate visitors beyond the level of simply being aware of an issue and should focus on establishing a detailed understanding rather than a surface level awareness (O’Riordan, Wood, & Shadrake, 1992).

Whatley (1995) gave many examples of environmental issues and the communicative strategies chosen to address those issues with one of the most prominent (and also most creative) being that of the North Mountain construction project in Canada’s Cape Breton Highlands National Park. During the construction of Cabot Trail within the park, road delays of 15 minutes or greater were required. Park staff had the option to create temporary road surfaces around the construction zone but, due to the increased environmental damage those surfaces would cause, park staff chose to instead manage the traffic jams and potentially long lines of frustrated tourists through educational interpretive programs along the roadside. At vehicle holding points near the construction site, the park set up an innovative array of activities including a live bagpipe player in Scottish attire and park rangers with educational flyers and activity worksheets. These sheets explained the reasoning for the long delay and broke down the environmental concerns surrounding the construction zone. According to Whatley (1995), visitors frequently wanted to stay at these holding points long after traffic had begun to move again. Not only was this an effective way to entertain tourists as they waited in traffic, it also educated them on the project and the environmental reasoning behind the long wait. This example demonstrates the creativity park managers can employ when trying to find solutions to environmental concerns related to park visitors.

Aronchick (1991) also studied the communicative strategies employed within a national park outside of the U.S. In this study, Aronchick utilized focus groups composed of visitors to the Canadian Park Service/Parks Canada to differentiate the communication approaches about environmental changes that were most effective for different groups of previously established environmentalists (either passionate environmentalists, moderate environmentalists, or concerned observers). The type of message about an environmental concern that was most effective depended on which group a participant belonged to. Through this study, Aronchick (1991) demonstrated the need for park staff to be educated about who their visitors are and what they believe about climate concerns within the park in order to most effectively communicate with them about these environmental challenges.

A similar study was conducted by McGinty and Rickett (1992) within the Atlantic Regional Office of the Canadian Parks Service. Through this study, the researchers asked park attendees if they were aware of environmental issues faced by the park, what illustrations of these issues were present within the park, and what actions individuals could take to remedy the situation both within the park and within their own communities. For one specific concern (the destruction of subalpine meadows caused by off-trail foot traffic) McGinty and Rickett discovered the communicative strategies employed by the park (simple trail signage) were not an effective way to keep hikers from wandering into the flowering meadows. Instead, personal contact methods were found to be most effective (such as having a guided hike with an interpreter or park ranger or having a staff member stand near trail heads to inform hikers of the need to stay on the marked trails) (McGinty & Rickett, 1992 as cited in Whatley, 1995).

In another study of communicative strategies within a national park, Gerner, Heurich, Gunther, and Schraml (2011) explored the communication techniques involved in the

management of Bayerischer Wald National Park, Germany. This article used a case study approach and focused on the decision-making process of park stakeholders surrounding the issue of the red deer within the park wandering in and out of protected, public, and private lands. This study revealed that the stakeholders' behaviors were less determined by their interests and more by other factors such as communicational and relational structures at play within the conflict situation. The authors concluded their article by arguing that environmental conflicts should be addressed in a holistic manner involving economic, relational, and social aspects as well as environmental in order to reach the most successful agreements (Gerner, Heurich, Gunther, and Schraml, 2011).

Other national park and protected lands research has focused on management's struggle to protect land that has mostly intangible values (Schaaf, 2003). These intangible values are described by Putney (2003) as the psychological, emotional, cultural, intellectual, religious, artistic, educational, historical, and spiritual aspects of nature and the natural environment. While many ascribe meaning to national parks and other protected spaces solely due to their legally protected designations, there are a variety of other intrinsic values that add to the necessity to grant areas protected status (such as those listed above) (Putney, 2003). With almost 13,000 protected areas around the world covering over 13.2 million square kilometers, protected lands such as national parks take up approximately 8.8 percent of the world (Shultis, 2003), demonstrating their seemingly global value.

One form of intangible value many associate with national parks and protected lands is a sense of place. Bricker and Kerstetter (2010) defined sense of place as a relationship one forms with their surroundings. One's sense of place is usually highly personal, emotional, and related to one's identity and is often based on the symbolic meaning an individual attributes to a setting

(Rose, 1995). This connection can be developed over time or can be the result of an instant sense of belonging in a place (Tuan, 2001). When tourists visit a national park or when employees live within one, they can develop these deep connections with the land and the feeling of belonging they experience there (Schweizer, Davis, & Thompson, 2013). Lahr (2017) argued that this sense of place, experienced by both park staff and visitors, can be a useful tool in understanding and talking about climate change within the park. When an individual feels a deep connection with a park, they may be more highly motivated to think about and discuss climate change effects observed both inside and outside the park (Lahr, 2017).

Harmon and Putney (2003) studied of the economic, ecological, physical, and spiritual value of these spaces and how societies have both built up and torn down these values over time, demonstrated the need for an increase in recognition, awareness, support, and management of these natural resources. Davis, Graber, and Acker (2003) also dove into the values associated with protected natural spaces and explored the concerning lack of historical research surrounding them. Through their research, the authors described the negative impacts that are the result of limited historical research within this field and explained how, without conclusive and rigorous research, it is often difficult to determine significant changes in environmental standards within protected spaces over time.

As stated in Lahr (2017), protected public lands play an integral role as context for climate change and environmental communication research. Within parks like Glacier National Park, climate change effects have already begun to cause negative effects on both the natural environment and the ability of the park to uphold both conservationist and preservationist values. Jonathan Jarvis, the director of the National Park Service, stated in 2010 that climate change is “fundamentally the greatest threat to the integrity of our national parks that we have ever

experienced. The current science confirms the planet is warming and the effects are here and now” (NPS, 2010, p.1). National Park managers must find a way to uphold their mission while effectively communicating their efforts to their visitors.

With this literature, as well as my previous experiences in the park, in mind and with the CMM theory as guidance, I constructed the following research questions:

RQ1a: How do visitors and staff of Glacier National Park interpret and co-construct the mission and purpose of this National Park and the National Park System?

RQ1b: How well do visitors and staff believe Glacier National Park is fulfilling, or is able to fulfill, that mission?

RQ2a: How do visitors and staff of Glacier National Park interpret the environmental state of this park and do they perceive any risks to the environmental state?

RQ2b: How are the environmental concerns found within the park being communicated to park visitors?

CHAPTER THREE: METHODS

Metatheoretical Foundations

Before any scholar can begin to build the methods of a study, or understand its results for that matter, they must first clearly understand their own philosophical assumptions and metatheoretical perspectives that shape their research. Philosophical assumptions are categorized into three types: assumptions of epistemology, assumptions of ontology, and assumptions of axiology. Through the inspection of these assumptions, researchers can begin to understand the foundations on which their research and theories were built and how that research is positioned compared to other scholars (Littlejohn & Foss, 2010). This first section of the methods chapter is dedicated to describing the metatheoretical perspectives that guided and shaped this specific dissertation study.

Epistemological assumptions are centered around the study of knowledge and how people come to know what they know (Cragan & Shields, 1998). These assumptions help researchers answer the question of how knowledge is produced. According to Miller (2005), epistemological stances exist on a continuum with one end representing objectivists and the opposite end representing subjectivists. Objectivists see knowledge as something that can be rationally and analytically explained in a world where everything can be observed and empirically verified (Miller, 2005). Subjectivists on the other hand see the world as completely influenced by human perception and experiences and take into consideration the effects of difficult-to-measure concepts like emotions, values, and perceptions. As this perspective exists on a continuum, there of course is middle ground. As stated in Firdaus (2017), “What humans learn through being able to experience things with the five senses and what we learn from introspection, as well as the perceptions and feelings that we have are all part of knowledge” (p.

83). Throughout my research, I place myself much closer to the subjectivist perspective than the objectivist. I view the social world that I research as relativistic and understood from the point of view of the individuals directly involved in the specific context being studied.

The second of the three philosophical assumptions is ontology, or the study of social reality and human social interaction (Littlejohn, 1992). Littlejohn and Foss (2010) describe four perspectives to answer ontological questions. The first is rationalism, or the belief that knowledge is produced by the authority of the mind to search for truth. The second is empiricism, or the belief that knowledge is produced through individuals' perceptions. The third is constructivism, or the belief that knowledge is produced from people's understanding of the world and is used to function pragmatically. The last assumption of knowledge production is social constructivism, or the belief that knowledge is produced through interactions with others in society. Gergen (1985) describes the social constructivist perspective as placing knowledge within the course of societal interchange and lists social artifacts and exchanges as a fundamental component. As stated in Berger and Luckmann (1967), "The world of everyday life is not only taken for granted as reality by the ordinary members of society...It is a world that originates in their thought and actions and is maintained as real by these (thoughts and actions)" (pp. 19-20). The way researchers conduct inquiry and construct theories depends largely on their epistemological assumptions because what they think knowledge is and how they think it is obtained determines what they will discover. As a social constructionist, I approach communication scholarship with the understanding that reality is created through communication.

The last of the three philosophical assumptions to be discussed is axiological assumptions, or the study of values. This category of assumptions is centered around questions of

research and theory being value free or value influenced. As stated in Littlejohn and Foss (2010), research and theory all stem from a researcher's interests. Scholars see an issue or problem that they believe requires investigation and set forth to provide a more detailed understanding or solution. Similar to the epistemological assumption, the objectivist side of the ontology continuum argues that scholarship should be free of values while the subjective position argues that values should guide social research (Firdaus, 2017). Similar to my personal epistemological perspective, I also align closer to the subjective end of the ontology continuum. I believe values can be used to influence research in a way to make it more powerful and valuable to the context being studied.

In combination, my metatheoretical perspectives align most closely with the interpretivist approach to communication research and theory. This interpretive perspective embraces the view that reality is socially constructed, and meaning is made through individuals' understandings (or interpretations) of events (Martin & Nakayama, 1999). As an interpretive researcher, I seek to understand the world as it is experienced by those who live and work in the context being explored, in this case, Glacier National Park. The goal of this interpretive research, then, is more to understand than to predict communicative behaviors through qualitative methods such as open-ended questioning, observations of participants' lived experiences, and discussions of how individuals create meaning through communication. Qualitative methods were chosen in order to gather the in-depth and personally lived understanding of experiences and definitions provided by the participants. As stated in Maxwell (2013), qualitative research methods should be used if the goal of a study is "understanding the meaning, for participants in the study, of the events, situations, experiences, and actions they are involved with or engage in" (p. 30). These meanings and beliefs are at the center of this study as it aims to collect the detailed perspectives of each

individual who chooses to participate. The specific methods selected for this dissertation study are discussed in detail in the following sections.

Qualitative Induction

This research study was designed as an exploratory and interpretive look into understandings of the National Park Service and the environmental state of Glacier National Park specifically. The inductive qualitative research design was established to gain insight into how both visitors and staff of this national park co-construct meaning surrounding the mission and purpose of this protected space and how these individuals view the environmental conditions within the park. This study uses a qualitative approach in order to gather a detailed and more robust understanding of these interpretations.

According to Tracy (2019), qualitative research involves four major features. The first is its ability to capture the details of a participant's experiences and personal meaning making. The second is qualitative methods' tendency to incorporate naturally-occurring data collection strategies (unlike those found in experiments or research conducted in lab settings). The third is the ability of a qualitative method to work inductively by building claims instead of deductively testing them. Finally, qualitative methods tend to analyze words and visuals more often than numbers. Qualitative research also is used to explore and describe, searching for the definitions and redefinitions of meaning, in order to help society understand the stories and experiences of others (Creswell, 2009). By utilizing this methodology, this study was able to keep the integrity of participant responses while also discovering and establishing a more collaborative interpretation of Glacier National Park. Because of these beneficial features, this study relies on a qualitative approach.

The Coordinated Management of Meaning theory (CMM) (Pearce, 1976) was used to help guide the qualitative methods involved in this study. At its core, CMM is used to help researchers determine what is being co-constructed within a shared space or situation, how a shared understanding is coordinated, and why this shared understanding matters within a given context. Within this study, as I looked to find how the mission and purpose of Glacier National Park and the NPS is co-constructed by both visitors and staff, this theory was also used to help determine how the park is (or could be) responding to this shared interpretation through its communication and management efforts. Stemming from previous CMM research such as Barker and Zifcak (1999), Montgomery (2004), and Bruss et al. (2005), this study aimed to expand the CMM theory into a new setting and explore its effectiveness when qualitatively interpreting a co-constructed NPS mission and a coordinated management approach to mission concerns and environmental degradation within the park.

Research Location

After receiving approval from both the National Park Service and the IRB, I traveled to Glacier National Park from May 27th to June 10th, 2019. Working through the Crown of the Continent Research Learning Center, I was able to locate researcher housing directly connected to the park itself, making the data collection portion of this study much more feasible. The tourist season was just starting to warm up as I arrived, but snow still blocked the highway through the park connecting the east and west entrances. As I had intended to collect data at both popular entrance points (Apgar Visitor Center on the west end and St. Mary Visitor Center on the east), this created a few challenges, most of which I overcame by camping on the east end for two nights.

The bulk of the data was collected at these visitor centers in order to get the most representative selection of participants visiting and working in the park. During moments when I was not set up outside the visitor centers, I also gathered participants from Apgar Village (a small town within the park that contained various cabins, restaurants, and outfitters) as well as individuals I encountered while on personal hikes.

Participants

Participants in this study included visitors and staff within Glacier National Park who were over the age of 18 and who were in the park between May 27th and June 10th. I collected visitor participants primarily by waiting outside of the two visitor centers and approaching those who did not look to be in a hurry. Oddly enough, many participants were those who were waiting for others in their party to come back from the restroom, which gave me just enough time to talk to them without wasting their valuable, and often limited, time in the park. I also waited in line with participants who were interested in talking to a ranger within the visitor centers themselves. I found other visitor participants by walking through Apgar Village and simply looking for individuals who were relaxing near the restaurants, shops, or beach. Lastly, a minimal amount of visitor participants I found hiking through the park during a few moments of personal recreation.

Staff participants included rangers and other park employees working educational stations within the park and those working the entrance booths where visitors were required to stop and pay the \$30-\$35 fee to enter. Other staff included individuals working at the restaurants, shops, permit stations, and outfitters at Apgar Village. Lastly, the researcher lodging in which I stayed just outside of the park was located next to where the new park staff were being trained, so I was able to talk to a few new recruits during their training breaks. As I was mindful of

visitors' limited time, I also tried to respect staff members' time and only approached them when they were not busy with other visitors.

Procedures

For this project, a multimethodological case-study approach was used. As described in Sake (2003), a case study approach uses multiple sources of data collection to locate themes within a specific setting or research area. This approach utilizes multiple data sources to collect a diverse variety of responses and observations that can best provide a clear understanding of research questions (Creswell, 2003). In order to have this case study be as effective as possible, I first became familiar with the park, its resources, and its history before conducting any portion of the data collection process. Building from the methods used in Connaughton and Williams (2012), I used multiple qualitative methods in order to unearth deep, interpretive, and contextual data. The two methods I chose for this project were qualitative open-ended online surveys with both staff and visitors of Glacier National Park with whom I interacted as well as active and passive observations from within the park. These data collection techniques are described in more detail below.

Surveys

An online open-ended (or free-response) qualitative survey was chosen for this study due to the need for deep and interpretive responses without using a large amount of participants' time in the park. This survey allowed participants to use their own words while expressing their thoughts and feelings toward Glacier National Park. As described in Babbie (2010), free-response surveys are an essential tool for interpretive scholars as they allow participants to describe their understandings of a concept in their own words on their own time. The questions

chosen for this survey were carefully and deliberately created in order to collect original, qualitative, text-based data from a population that was too hard to reach through other methods (such as interviews). As will be articulated at length in the discussion chapter of this dissertation, interviews were originally proposed for this study. But, upon arriving in the park, I learned the time interviews would consume would be a serious hindrance to gathering individuals to participate. Also, due to the lack of public shuttles running at the time while I was in the park, surveys became the most reliable method for obtaining the qualitative data I was searching for.

Stemming from the four guiding principles of online survey creation proposed by Manning and Kunkel (2014), I first ensured that all five content questions in the survey directly tied back to my research questions. I then designed the survey, using Google Forms, to be visually attractive to those whom I would ask to participate. As stated in Manning and Kunkel (2014), surveys should be aesthetically pleasing, uncluttered, and easy to complete without being overwhelming. The heading included an active video of a mountain landscape with a running river through the center which also matched the overall design of the business cards I was distributing to those I talked to in the park. While it may seem like a small consideration, attractive designs work as a persuasive appeal not only to draw participants in to complete the survey, but also to establish credibility as an environmental scholar.

Lastly, as discussed in Manning and Kunkel (2014), I ensured that participants would feel comfortable about the information they were sharing as well as be aware of why they were being asked to provide their responses. As stated earlier, creatively-designed business cards were used to distribute my contact information as well as a QR code and link to the online survey to participants I talked to within the park. Because of the online nature of the survey, participants required a minimal level of online technical skills in order to access the survey. Those who felt

too intimidated by this may have opted not to complete it. Each participant that took the online survey was someone I personally talked to within the park itself, which allowed me to give each participant a brief overview of who I was, why I was conducting this research, and what they would find in this short online survey. This helped alleviate any concerns participants would have up front and let them put a face to a name, or in this case, to a research study. Throughout these conversations, I was also able to gather some of their initial responses before reading each full response online.

The online survey used in this study was created through Google Forms and contained one multiple choice and five open-ended questions for each participant to answer (see Appendix A). The first question was simply used to determine if the participant was a visitor or a staff member within the park. Once participants selected either visitor or staff, they were then taken to the second survey page containing the correct wording of the remaining five questions for either participant group. After giving each participant a business card with the online survey information, they had until late August to complete the survey. This helped overcome the challenge of minimal internet access within the park. Had participants needed to complete the survey while still at their campsite, cabin, or work-site, very few would have been able to do so.

A total of 152 participants completed the online survey. Of these participants, 130 (85.5%) respondents self-classified as visitors to Glacier National Park while only 22 (14.5%) reported being staff or employed within the park. This uneven amount of visitor to staff responses reflect the reality within the park; there are many more tourists visiting the park per day than there are staff on hand.

Participant Observation

Participant observation was also part of this study while I was in Glacier National Park. This method involved watching and learning about a specific setting and the people in that setting while participating in the daily realities being studied (Merrigan & Huston, 2009).

Participant observation is especially advantageous for researchers as it allows them to study the members of a population while in their natural setting. It grants researchers a peek into how community members interact, what they do in that specific community, and what conversations happen within that specific setting. While surveys prompt participants to describe what they say and do, participant observation lets the researcher actually experience those interactions firsthand. Researchers not only get the details of a particular story or experience, they also can observe to whom those stories were told, where they were told, and with what structures of elaboration (Merrigan & Huston, 2009). Participant observation also grants researchers access to more of the nonverbal details (such as the setting of an interaction, the visible emotions, and the physical reactions) whereas with interviews or surveys, a researcher may only know the details of the story itself. While the details of a story or an event are important, information observed about the physical setting, the time of day in which events occurred, and others who were present at the time may also have just as much importance overall (Locke, Spirduso, & Silverman, 2014).

Also, through observation, a researcher can view every side of an interaction, unlike interviews which may reflect only one side of an issue. Through participant observation, the researcher can track interactions over time, overhear information between nearby participants, and develop relationships with those that frequent the specific setting, all of which can be very beneficial to gathering a well-rounded understanding of a context or issue (Berg, 2004).

Depending on the methods of participant observation a researcher uses, the researcher may be able to observe a setting without even being noticed. This can also be an advantage of this method of research. By becoming invisible in a specific setting, the researcher can diminish the Hawthorne Effect and witness the participants how they normally would interact. If the participants are unaware of a researcher in their presence, they may speak more freely and honestly and may behave in their more natural manner (instead of adjusting to sound smarter, less emotional, or more like the interviewer) (Berg, 2004).

As with online surveys, participant observation also has its disadvantages. First, it can sometimes be difficult to get access to a setting. Through online surveys, a researcher does not need to be granted access to a specific (sometimes guarded) setting because the interviewee can exit the setting for the interview. Through participant observations, though, a researcher must gain access to a site that is appropriate for answering their specific research questions, and this can be a time-consuming and sometimes expensive process.

Through participant observation, a researcher's knowledge is relative to the relationships they are able to establish within the group they are studying (Merrigan & Huston, 2009). If researchers are unable to connect with those they are observing and studying, it may be hard for them to collect the detailed information necessary for their analysis. For my specific research context, if I were unable to establish a good rapport with the rangers and staff within a park, I might lose out on a large amount of information and key interpretations. If I were to only participate and observe as a tourist, I could easily view interactions between tourists as well as tourists and staff, but I would likely miss a large portion of staff-to-staff interactions (most of which happen behind closed doors).

Along with this, a researcher utilizing participant observation must have specific personality traits and sensitivities to be able to conduct this method of research effectively and ethically. A participant observer needs to be able to fade into the background at times to pick up on all of the verbal and nonverbal communication happening within a setting. As stated in Lindlof (1995), a participant observer must “open up [their] senses to the tastes, smells, tempers, touches, colors, lights, shapes, and textures of the cultures [they] study” (p. 138). If researchers are unable to pick up on these sometimes very small cues, they will be missing out on some of the important data around them and ultimately conducting a less effective study. Depending on the natural traits of the researcher, this method could come more or less easily and be more or less advantageous to the overall goals of a study (Merrigan & Huston, 2009).

Another disadvantage of participant observation is that it often takes more time than interviews or online surveys and usually results in a massive amount of field notes. If not handled effectively and in an organized manner from day one of the study, these notes can become a jumbled mess that is nearly worthless by the end of the study (Emerson, Fretz, & Shaw, 2001). Because of the duration of this method of research, if the organization is not clear from the beginning, it can result in major headaches and errors during the analysis portion of the study.

In order to make the most out of this method, I resided at the Crown of the Continent Research Learning Center’s researcher housing, which provided me with behind-the-scenes access to park staff, rangers, and other researchers that an average tourist would not usually be able to see. It was also located right outside the western entrance to the park, which made it very convenient to go in and out of the park throughout each day. Upon receiving my researcher’s permit from the National Park Service, I was also granted a researcher’s entrance pass which

allowed me to bypass the sometimes-busy visitor entrance gate and instead use the employee entrance. While convenient, I often chose to use the regular visitor's entrance anyway in order to come in contact with as many employees of Glacier National Park as I could (the employee entrance did not involve talking to anyone on your way in).

Before arriving in the park, I researched the potential locations for observations and marked them on a printed map. Once in the park, many of those locations were viable options and I often found myself seated on benches outside of Apgar Visitor Center, St. Mary's Visitor Center, and a handful of outlooks, trailheads, and bathrooms located on or near the Going-to-the-Sun Road (the central road through the park). I also gathered every printed handout, brochure, map, and free activity booklet I could find in both visitor centers to analyze as passive observations. Other observations were made of interactions between visitors and staff throughout the park as well as visitor actions I witnessed while seated outside visitor centers or along hiking trails. Using the structure of Doucette and Cole (1993) and Meyers and Thomas (1993), I organized observations as I gathered them into either passive or active categories (see Appendix B for observation grids). These categories described the observations themselves and not my involvement with each observation. For example, passive observations involved no participation from visitors or staff for me to document. Instead, these were static signs and documents that I could document on my own time. Active observations on the other hand were those that involved active participation from the people being observed. For example, overheard conversations and ranger activities that visitors and staff were engaged with actively were recorded as active observations.

For this study, I gathered 50 passive observations. Passive observations were those that did not involve any action or participation from staff or visitors and included posted signs and

deliverables around the park. Out of those 50, 15 were observations of signage within the park. These signs were located either at the visitor centers or at outlook points along the Going-to-the-Sun Road and included information about the nearby landscape and wildlife, maps, hours, descriptions of guided programs within the park, and safety warnings.

Out of the 50 passive observations, 26 of them were deliverables produced by the National Park Service or the vendors inside Glacier. These were all collected from a ranger in the Apgar Visitor Center and included maps and general park history, brochures for guided tours, boat rentals, and lodging within the park, safety guidelines and regulations for camping, fishing, and backcountry hiking in bear country, and activity booklets for kids.

The remaining 9 passive observations included negative environmental impacts I witnessed throughout the park such as litter, social trails, and graffiti, as well as observations of burn zones on hiking trails and recycling bins located throughout the park. For a full list of passive observations, please see Appendix C.

Along with the 50 passive observations, I also collected 21 active observations during my time in Glacier National Park. In comparison to the passive observations which involved no participation from visitors or staff, these active observations involved visitors and staff actively engaging throughout the park in situations such as ranger-led activities, conversations between visitors and staff, and ranger training sessions. Out of the 21 active observations, 7 involved staff and visitors interacting together, 10 were of staff only, and 4 were of visitors only. These observations were documented at the Apgar and St. Mary Visitor Centers, Apgar Village, the Crown of the Continent Research Housing, as well as at a few popular trailheads. While documenting these observations, a detailed chart was used to help identify what was happening during the interactions, who was involved, and whether the interaction was focused on

recreation, the environment, or safety concerns. For a full list of active observations, please see Appendix D.

Data Analysis Procedures

Online Survey

To begin the analysis portion of this study, I first downloaded all survey responses from Google Forms into an Excel spreadsheet format, separating the visitor and staff responses from each other into two different Excel files. This step made importing the data into NVivo and coding by respondent identifier much easier. This also allowed for easier comparisons between staff and visitor responses later on. As Excel files were originally used to document the observation data while in the park, this data was already in chart format in Excel files as the analysis process began.

Coding Process

Once the files were prepared, the initial open coding process could begin. While research questions certainly influenced coding, there were no fixed codes at the beginning of this process. Instead, codes developed naturally from the data itself. In order to capture all of the potentially relevant aspects of the online survey and observation data, I analyzed each response and document. As described in Saldana (2009), one of the most interpretive elements of qualitative research is coding, thus making it a clear first step in the analysis process. Through the coding process, a researcher draws out meaning from a set of data and begins to develop main themes and trends within the data. Codes, as described in Saldaña (2009), can be a word or short phrase that “symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data” (p. 3). By comparing responses and coding for similarities, I observed and recorded patterns that emerged from the data.

To begin this process, I first performed one round of descriptive coding (Wolcott, 1994) on the online survey responses, creating rough codes while considering this study's research questions. I read through each of the online survey responses and began looking for trends and repetitive ideas throughout each of the five content questions separated by their visitor or staff status. As coding continued, responses were grouped into the categories that fit most appropriately within each participant groups. Careful notes were taken throughout this process so as not to miss any meaningful observations hidden within the data. While counting for frequency was not the main strategy in this analysis, I did record the frequency of responses in each category.

As the coding process continued, I began to develop a taxonomy. According to Manning and Kunkle (2014), a taxonomic analysis allows researchers to identify what elements are present within a given context or culture (such as within a national park) and is ideally used by researchers attempting to interpretively derive patterns of substance from a qualitative data set. This type of analysis is also useful in determining elements of experience which can be categorized into intelligible groups of meaning, especially when the goal is to understand the coordinated or collective interpretation of a certain experience. As each code was more precisely defined, I began pulling quotes from the data that helped build the definition of each of the codes. This process was later strengthened using computer-assisted analysis.

During the next round through the data, I used the computer program NVivo. While I prefer having my hands on the data and seeing it laid out in front of me, NVivo provided a useful backup system to my pen and paper analysis and allowed for easy organization of in vivo quotes for each code. After importing the online survey data (still separated by visitors and staff responses), I then recoded each response within the program checking for overlapping codes or

responses that I had missed coding properly the first times through. Some responses posed a challenge in that they were rather lengthy and contained sentences that fit multiple codes. Because of this, a select few responses were broken into pieces and coded into multiple categories. As described in Manning and Kunkel (2014), non-exclusive codes or taxonomies are beneficial when there is clear overlap within responses. While this overlap was possible for some codes, codes such as preservation and conservation were mutually exclusive; one response could not contain both. Responses that contained either preservation or conservation as well as another code such as education or showing off were allowed to be placed into both categories. After making small adjustments to a couple of codes and pulling definitive quotes for each, the coding process for the online data was complete.

Observation Data

A similar coding process was used for coding the active and passive participation data. As I made observations within the park, I placed the data into specific charts that would make the analysis process much more manageable (those charts again can be found in appendices C and D). Most of these coding notes were marked in the charts while I was still in the park, but I reexamined each once I had returned home.

Passive observations were coded for their topic, the goal of the item (e.g., education about the park and resources, education about the environment, safety concerns...) as well as if they included themes of conservation or preservation. After completing each section of the passive observation chart, I again pulled one to two quotes from each item that helped exemplify its purpose. These observations were used mainly to help answer research question 2b which will be discussed in much more detail in the results section.

Active observations were a little more complicated to code, as they were interactions I only witnessed once within the park and could not return to again at a later time because I had not been given permission to record or film any interactions. While in the park, I charted who was involved in the specific active observation, what was being done or said while I watched, and what the topic of conversation was (e.g., environment, safety concerns, recreation as the primary objective...). I also commented on any other values that were present in the conversation (such as spiritual or economic), but those topics rarely came up during these observations. These active observations were used to again help answer R2b and as supplementary data to the online survey responses to help triangulate the data with more diverse methods of collection and an alternate form of coding similar content (Fielding & Fielding, 1986).

Through this process of data collection and coding, a clearer understanding of the collective interpretation of the mission and purpose of Glacier National Park from the perspective of its visitors and staff emerged. This understanding helped me define a deeper meaning surrounding the interpreted environmental state of GNP and how that information is communicated to its publics. In the following chapter, I will define the resulting codes and offer exemplars of each.

CHAPTER FOUR: RESULTS

Online Survey Results

RQ1a: How do visitors and staff of Glacier National Park interpret and co-construct the mission and purpose of this National Park and the National Park System?

To begin, the online survey data is broken into either visitor or staff codes. Due to the high volume of visitor responses, I have listed those codes first for each research question, followed by staff responses. Within each section, codes are listed from most frequently reported to least, with one exception (conservation) which will be discussed within that code's description. Responses of visitors and staff are often similar but with different frequencies within each code.

Visitor Responses

True preservation

This first code was present within 48 visitor responses. The code was titled true preservation because respondents described the mission of GNP as to preserve the land and its resources from the use of humans. This differs from the following code, preservation for human use, in that the term preservation was used accurately and not as a substitute for conservation. In vivo responses that fit within this code, and helped define it, described the mission and purpose of GNP and the National Park System as to: "Preserve a piece of the world from man's destruction," "To preserve the land, to protect the plants and animals that live there, and to educate the public on the plants, animals, and how to preserve them," and "Land preservation and animal protection." Other participants described the mission as, "To preserve and protect this pristine natural resource," and "To preserve and protect the amazing glaciers, plants, mountains

and wildlife of the park as well as its history, especially that of the Blackfeet people." These in vivo examples demonstrate true preservation as there is no mention of protection for human use in the future. This is the big differentiation between the true preservation code and the preservation human use code.

Preservation for Human Use

This code was present within 44 visitor responses. Within this code, the term “preservation” was used in each response, but the descriptions of the mission and purpose were closer to conservation in that the preservation was to extend human use of the park and not to protect the park *from* human use. In vivo examples of this code described the mission as, "To preserve our wilderness for everyone to enjoy," "To allow visitors to see the beauty of the park while preserving it," and "To preserve the land for the enjoyment of the people." Others described the mission as, "To preserve some of the most beautiful parts of the country to be enjoyed by the American people," and "To preserve the grandeur of the park for the benefit and enjoyment of the people." These examples demonstrate the incorrect usage of the term preservation and the large sample of participants who view the mission and purpose of the National Park System to be most closely tied to protection *for* human use in the future.

Conservation

This code was present in 5 visitor responses. Similar to the preservation for human use code, conservation was also used to describe the mission of GNP and the NPS as protecting the land for human use in the future. While few participants used this term, it is important to note as it contributes to the larger understanding that GNP is protecting the environment for humans to continue to use for years to come. The preservation for human use code could easily fit within

this conservation code, but, as will be later discussed, the misinterpretation of the word preservation could have significant meaning. In vivo examples of this conservation code describe the mission and purpose of GNP as, "To conserve and share the natural environment/ecosystem with the public," "Conserving this incredible ecosystem," and to "Share nature with the public, while maintaining, conserving, and helping it's resources to flourish." Due to the similarities in definition, the preservation for human use and the conservation codes could easily be combined into one, resulting in 49 responses in this category.

Education

This code contains responses that indicated that the mission of GNP and the NPS is to educate the public on environmental, historical, or cultural components within the park. This code was present in 18 visitor responses. In vivo quotes from this code described the mission as, "[to] teach how to keep up and maintain our wilderness," to "Educate visitors on how to appropriately enjoy the outdoors while still respecting nature," and "To educate people on global warming, the melting of glaciers..." While components of preservation and conservation were present in some of these responses (for example: "Educating guests as to why we need to preserve the biodiversity found here"), these participants put education as the main purpose of Glacier National Park and the NPS.

Pure Recreation

This code was present in 12 visitor responses and defined the mission of GNP as to simply provide a space for human recreation. These responses had no mention of protecting the environment from or for human use and described GNP as a place for human enjoyment and entertainment. In vivo visitor responses that were placed into this category described the mission

as, "For the enjoyment of the people," "To provide a peaceful mountain area to visit," and "For the people to enjoy. It is our slice of unspoiled, non-commercial wilderness." One participant simply put, "To entertain me," providing no other purpose for Glacier National Park. This code demonstrates the visitor perspective that Glacier is a location meant for visiting, recreation, and enjoyment with no reference to any environmental or educational work going on in the park.

To Show Off

This code described the mission of the park as showing off the beauty of this country to others, especially those outside of the United States. This code was present in 10 visitor responses. Examples of this code demonstrate a lack of preservationist or conservationist ideals and instead simply describe the mission of GNP as to have a space in this country that we can put on display for others to see. In vivo responses include to, "Show off the best America has to offer," "To show off the beauty of Montana", and to "Showcase a unique area within the United States."

Other individual responses included financial gain for the government, research about cultural or natural factors within the park, spiritual inspiration and peace, and rediscovery of the soul. While these responses are interesting, the named and most popular codes best exemplify the interpreted meaning of the larger population of visitors and thus will be the focus of this study.

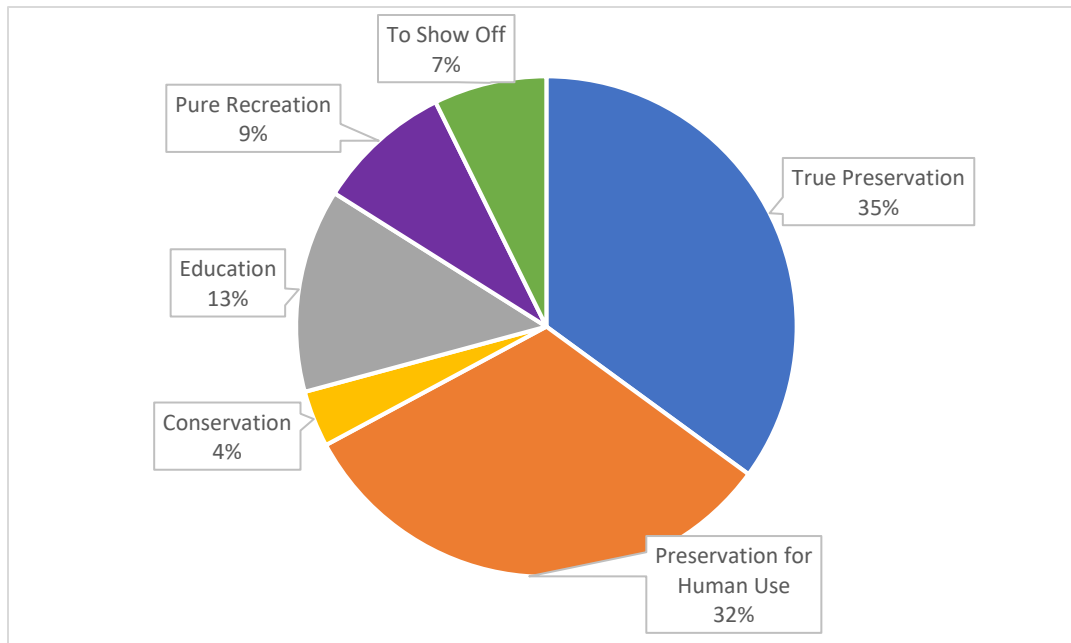


Figure 4:RQ1a: Visitor Response Codes

Staff Responses

In comparison to visitor responses, staff responses included all the same codes (except for the showing off category), but with different frequencies of each. As stated previously, fewer staff members than visitors participated in this online survey resulting in fewer responses for each code (an issue that reflects the actual imbalance of staff to visitors within the park itself). These codes again will be listed in order of frequency with the exception of the conservation code, which fits directly with the preservation for human use code.

Preservation for Human Use

This code was present in 10 staff responses and was defined in the same way as the visitor response code. Within this code, staff participants used the term preservation but referenced the protection of natural resources being for human use now and in the future. In vivo examples of this code describe the mission of GNP and NPS as, "To leave unimpaired, to provide for the benefit and enjoyment of all, and to protect and preserve for future generations"

and "To preserve the wilderness and provide a sanctuary for visitors to enjoy the wilderness."

Each response in this code included the improper use of the term preservation by describing the mission as being preservation for the people instead of protecting from the people.

Conservation

Again, similar to the visitor code, responses in this category used the term conservation to describe the mission as protecting nature for human use, the same definition as the preservation for human use code. This code included 2 staff responses, but as stated previously, could easily be added to the preservation for human use code to bring that total to 12 responses instead of 10. In vivo responses described the mission as being, "For the enjoyment and benefits of the people while conserving the grandeur for future generations" and "To protect and conserve the natural and cultural resources of Glacier while providing for the enjoyment of this place for now and for future generations." The important distinction between true conservation and true preservation will be described in detail later in the discussion section as it poses a specific and difficult problem faced by the National Park Service as a whole.

True Preservation

This code was present in 7 staff responses and was defined the same as the visitor's true preservation code: to protect nature from human use. In vivo responses described the mission as, "To preserve and keep nature untouched by people" and "To preserve and save the natural features and wildlife therein." Many staff responses were much lengthier than the visitors' and contained much more detailed explanations. One such example was from a staff member within Glacier National Park who stated, "I personally feel a duty to protect and preserve this park. We want this park to be for the people, and sometimes that means protecting it from the people. The

park was not built with the infrastructure to handle the current visitation it is receiving. We are glad people love this place, but we must protect it from being loved to death.” This specific example perfectly summarizes one of the major tensions within Glacier National Park (preservation vs. conservation) which will be broken down in more detail during the discussion of these results.

Education

This code contained 4 staff responses and defined the mission of GNP and the NPS as to educate those who attend the park about environmental, cultural, and historical elements of the park. In vivo examples of this included, “To provide opportunities to experience natural and historical settings and gain understanding of relatively undisturbed natural systems through research and education,” as well as “To teach people about the damage climate change can do.” While responses in this code also contained references to preservation and conservation, the main mission of the park was described as educating others about environmental efforts more so than actively engaging in those efforts.

Pure Recreation

Lastly, 2 staff responses fit into the pure recreation code which contains no mention of protecting the environment for or from human use. I was surprised that any staff members used this frame, but these two staff members simply described the mission of the NPS and GNP as providing a place for people to have fun in nature. One participant described the purpose of the park as, “So that everybody in their own way may have a wilderness experience whether it's hiking the most remote trails or driving the Going-to-the-Sun Road.” The other respondent defined Glacier’s purpose as to, “Provide guests with a great experience.” These two staff

participants neglected to mention any environmental or educational goals of the park or the NPS in their responses and simply interpreted the mission as providing a fun place for adventure and scenic views.

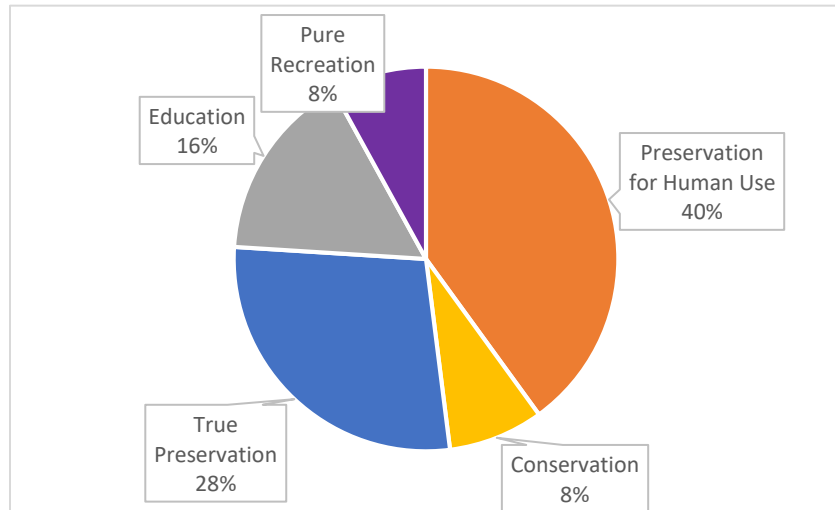


Figure 5: RQ1a: Staff Response Codes

The following table provides a condensed look at both visitor and staff responses and helps begin to provide an answer to RQ1a.

Table 1: RQ1a Visitor and Staff Codes

Code Title	Brief Definition	Visitor Frequency	Staff Frequency
True Preservation	To preserve nature from human use	48 (35%)	7 (28%)
Preservation for Human Use	To preserve nature for human use	44 (32%)	10 (40%)
Conservation	To conserve nature for human use	5 (4%)	2 (8%)
Combined Preservation for Human Use and Conservation	To protect nature for human use	49 (36%)	12 (48%)
Education	To educate the public about natural and cultural resources	18 (13%)	4 (16%)
Pure Recreation	To provide a space for entertainment and fun	12 (9%)	2 (8%)
To Show Off	To show off the natural beauty	10 (8%)	0

RQ1b: How well do visitors and staff believe Glacier National Park is (or is able to) fulfill that mission?

The following section also utilizes the online survey data to begin to answer RQ1b. Participants responded to the question of “How well do you think this national park is living out that mission?” in the online survey following their initial interpretation of what the mission is. These responses contained within them a reflection of the RQ1a codes stated above. While these were taken into consideration for the previous section, for this research question to be answered, the level of ability to live out the mission of the park was analyzed more closely than the rationale. Why the park is successful or not at fulfilling its mission is also listed following each code and will be explored later in the discussion section. Codes are reported in order of most popular to least within each participant category.

Visitor Responses

Excellent

This code contained 55 visitor responses which included only high praise of the park’s ability to live out its mission. Responses that helped define this code describe the park’s success at fulfilling its mission and show complete satisfaction in how the park is being managed and used. For example, one participant described the park as doing, “Extremely well,” while another stated, “A zillion people come into the park each year so I would say very well.” Another stated, “It is a beautiful place and fulfills its mission spectacularly. The area is both accessible and within minutes it is possible to feel like you are in the wilderness. This is a gift not easily found elsewhere.” Within these responses, participants also support their interpretation of the mission and purpose of Glacier National Park as well. For example, participants who described an environment-central mission included environmental factors within their responses. One

participant described GNP as doing, “Very well, because of all of the supporting efforts from the NPS as well as local and volunteer entities that provide sustainable results in said preservation and awareness,” while another who described a more educational mission stated, “Very well. Glacier NP does a great job helping to keep the area wild while also educating the general public on the area and sharing its history and beauty.” Other participants who described the mission as more recreation-focused provided examples that supported the park’s recreation efforts in their responses such as one participant who stated, “They are doing an excellent job providing lodging, hiking trails, camp grounds and Going-to-the-Sun Road to the people who may live in big cities or on farms and can’t experience them on a daily basis.”

Visitors described the rationale for this high praise in a variety of ways including the park having a healthy animal population, an untouched natural environment, tons of visitors each season (and a growing amount of visitors), great hiking trails and wilderness experiences for all, preservation of natural habitats, and excellent educational programs, ranger-led activities, and a knowledgeable staff. Visitors also described the park’s organized structure and clear signage as a rationale for their high praise. Lastly, visitors also explained their praise for the park’s ability to live out its mission by detailing the easy access to and from the park for many people around the world. During my short time within the park, I witnessed firsthand the construction projects underway to create wider roads for larger recreational vehicles and even easier access to the two main entrances (Apgar and St. Mary). This again ties back to the tension between preservation and conservation within the mission of Glacier National Park and the NPS, which will be discussed later in detail.

Good

These 34 responses contained mostly praise for the park's ability to live out its mission but included one concern that might hinder the park's mission success. Examples of this code include one participant who stated, "I think they do a great job. My only possible complaint would be how long they let the fires burn. I understand that the forest regenerates itself, but it breaks my heart to see it burn," and another who stated, "I think they've done a good job of protecting this area as it is highly remote and underdeveloped. It is only open for a brief period every year. Climate is out of their control, but I feel like they've done as much as they can." Other participants described the imbalance of visitors to staff within the park as their primary concern, with one respondent stating, "Given the constraints, I believe they do their best. The massive increase in visitors without a corresponding increase in budget must make it difficult, but I still believe they take their mission seriously," and another who put it more plainly, "I think they do a pretty good job. I think they need more rangers to help patrol the idiots that have no respect." These responses demonstrate the participants' confidence in the park to fulfill its mission with only one concern listed that might hinder the park's success.

Visitors explained their responses by describing the park's successes so far (such as their ability to bring back endangered species and continue to provide an excellent space for outdoor recreation) but listed wildfires burning for too long, climate change and glaciers melting, not enough funding, and disrespectful visitors as reasons why the park may struggle to live out its mission.

Fair

This code contained 22 visitor responses and was defined by respondents who, while still believing the park can succeed, listed multiple concerns for the park being able to live out its

mission. Responses within this code contained a higher level of concern compared to the previous code and responses listed more detailed explanations for why the park might be struggling to succeed in its mission. In vivo responses described the park's likelihood at fulfilling its mission as, "50%. They need more \$ to do it better than that," and "5/10. I believe that national parks need more funding because visitors are off the charts and they are destroying the park." Other respondents described the park's mission success as, "Fair. Cycling in from Apgar to Avalanche Creek I witnessed nearly a dozen bicycle shuttles go by. One, one, I repeat one had a bicycle on it. They put on 182 miles to transport one bike. No need to go back and forth empty...zero. Waste of taxpayer's dollars burning fuel and piling miles on shuttle vans." Lastly, one participant again detailed concerns surrounding a staffing shortage as well as a lack of staff training in their response stating, "Fair. Not enough rangers. I did see one drop his gun out of his truck when he got out. Perhaps they need more education as well."

Many visitors within the category described Glacier as trying its hardest to live out its mission but then explained that there are too many people and not enough funding for this to be possible. Others reported pollution from cars and shuttles, increased wildfires, and disrespectful visitors as putting a strain on the limited resources within the park and suggested more funding or more training for park staff to enable the mission to succeed.

Poor

Lastly, 4 visitor participants' responses expressed incredible concern for Glacier's ability to fulfill its mission and listed many reasons for their concern. One participant provided a detailed response stating, "The tourism and popularity of the area are putting a stranglehold on the park. Traffic has gotten worse as the sprawl of new subdivisions takes away forests and agriculture areas. All of this is spreading into the park. Park visitors want to experience it all

without having a respect for the nature and the wildlife. People walk off trail and disturb the animals. They are out of control. One use plastic containers and trash are everywhere. Cell towers are going up just outside the park...Glacier is one million acres of raw nature, not an amusement park.” Another participant stated, “I think the park is being stretched to its limits especially with human traffic rising every year” with others describing the ability for Glacier and the NPS to live out its mission as “Not well” and "Poor.”

As described in the first in vivo example, participants gave a variety of reasons for why they had little faith in the park’s ability to fulfill its mission. Their rationale included the park being too crowded, there being too many disrespectful visitors, and the lack of funding to support the park’s operations and staff. Others described uneducated visitors, climate change, and the continued use and sale of single-use plastics as their rationale for their dismal outlook for Glacier National Park.

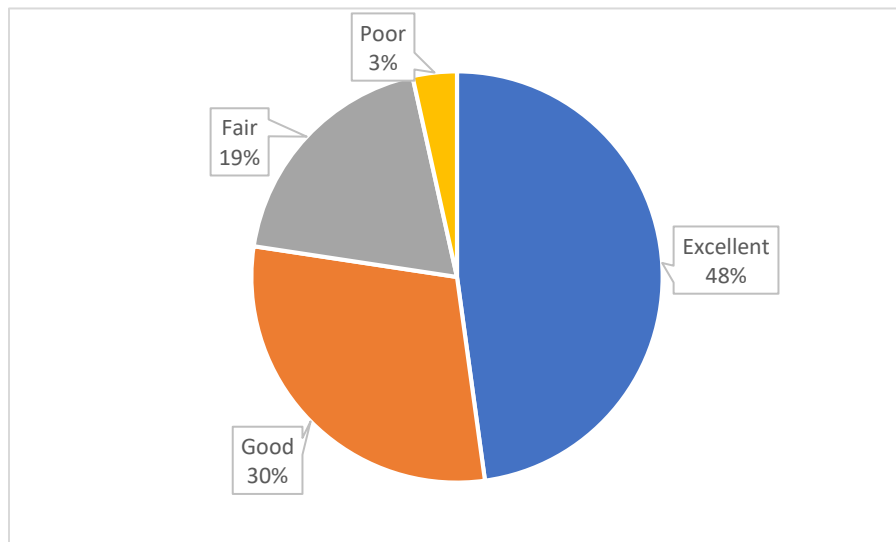


Figure 6:RQ1b: Visitor Mission Evaluation Responses

Staff Responses

Fair

In contrast to the visitors' optimistic outlook on Glacier National Park being able to live out its mission successfully, the park staff assessed this ability as fair with the most frequency. With 7 responses fitting into this code, staff reported the park as facing a good deal of difficulty in fulfilling its mission. One staff member reported their skepticism stating, "I think this park is way over whelmed with visitation but does it's best to provide the same experience for future generations," while another reported, "I think they are preserving the wilderness as much as possible, but the natural forest fires every year and melting glaciers are overwhelming that preservation." One staff member described in great detail the concern they had for the park stating, "It is a double-edged sword. How do you balance preservation and allowing access to the park? In some ways, we are failing, in others we are succeeding. For example, I believe the \$35 entrance fee limits many groups of people from enjoying the park at all, which is not good. It has become inaccessible to people with less economic means. On the flip side, the widening of the highway leading to the east entrance will make the park too accessible, in my opinion. People who can drive here easily without the effort are less likely to care about their impact and may leave a larger footprint."

These staff members expressed the overpopulation of visitors (especially unprepared and uneducated visitors), climate change, forest fires, park fees, and new construction projects as the rationale for their concern. While they still believe the park may be able to live out its mission, they described a handful of challenges in the way of the park's success.

Good

Similar to the visitor code, 6 park staff described the park as fulfilling its mission to its best ability with one concern listed in each response. In vivo examples of this code describe the park as doing, “Pretty well, apart from scenic lodges and dams located within park boundaries, the surrounding nature is very wild” and “Doing the best we can with the money we have.” Another staff member stated, “I think the education component does well, but the nature of a highly visited park often means it's not preserved in the same capacity I would hope for.”

While the rationale for these responses were similar to the Fair category, these staff members included much less detail and description about what is causing their concern and generally described the outlook of the park as more positive.

Excellent

These 5 staff responses included only praise for the park and contained no concern for Glacier or the NPS' ability to fulfill their mission. In vivo examples that support this code include one staff member who described the park's mission as being fulfilled, “Extremely well! The Senior leadership is extremely committed to the mission statement and I have seen them take each and every part into consideration when making decisions which effect the park.” Another staff member reported the park's outlook as, “Great. Our footprint in the national park is only 10% of the National park's total area and is constantly being preserved by NPS, concessionaires, and the conservancy.” One last response was simple and to the point defining GNP and the NPS' ability to live out their mission as, “100%.”

These 5 staff members listed the park's leadership and preservation efforts as their rationale for giving this park such high praise and for believing the park and the NPS can continue to fulfill its mission.

Poor

Lastly, 3 staff responses constructed this code and described the park as not being able to fulfill its mission. Two of these responses were short and to the point describing the likelihood of the park living out its mission as, “Not well,” and “Not well. Too many people.” The last response stated, “We are loving our National Parks to death. Sadly, to preserve and protect nature and also share it with mankind is a delicate dance.” These three staff members reported only concern for the park’s ability to live out its mission and provided a dire outlook for the state of Glacier National Park.

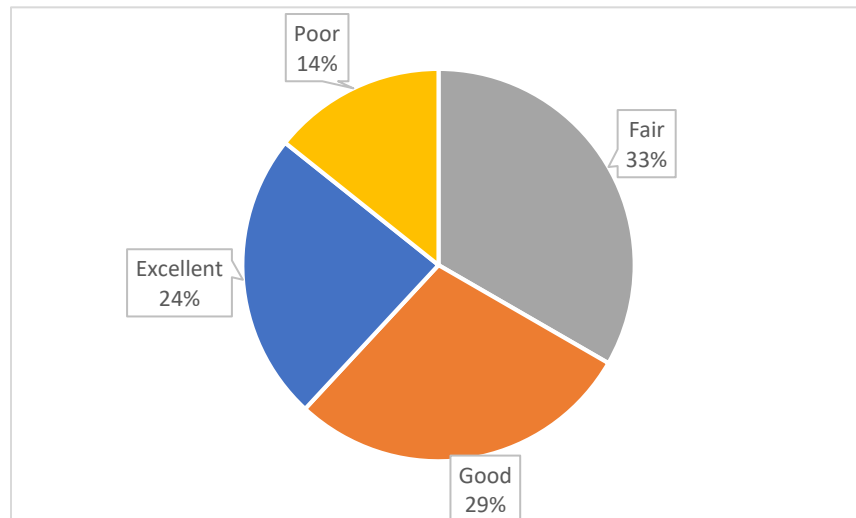


Figure 7:RQ1b: Staff Mission Evaluation Responses

The following table (see next page) provides a condensed look at both visitor and staff responses and helps begin to provide an answer to RQ1b.

Table 2: RQ1b Visitor and Staff Codes

Code Title	Brief Definition	Visitor Frequency	Staff Frequency
Excellent	No concern, only praise	55 (48%)	5 (24%)
Good	Mostly praise, one concern	34 (30%)	6 (29%)
Fair	A few concerns, mixed potential	22 (19%)	7 (33%)
Poor	Lack of potential to fulfill mission	4 (3%)	3 (14%)

For more clarity surrounding responses to RQ1 overall, data from RQ1a and RQ1b are presenting in the following tables. These tables show the relationship between participants' mission fulfillment responses (i.e., how well is the park fulfilling its mission) and how they interpret the mission and purpose of the park (e.g., preservation, conservation, recreation). These tables help show how subgroups of participants divided by mission responses understand how Glacier National Park is able or not able to fulfill their interpretation of that mission.

Table 3: RQ1 Visitor Mission and Mission Fulfillment Response Comparison

	Excellent	Good	Fair	Poor
True Preservation	17	16	10	2
Preservation for Human Use	22	10	9	1
Conservation	3	2	0	0
Education	6	3	1	0
Pure Recreation	4	1	1	1
To Show Off	3	2	1	0

Table 4: RQ1 Staff Mission and Mission Fulfillment Response Comparison

	Excellent	Good	Fair	Poor
True Preservation	1	0	3	2
Preservation for Human Use	3	4	2	1
Conservation	0	1	1	0
Education	1	0	1	0
Pure Recreation	0	1	0	0
To Show Off	0	0	0	0

RQ2a: How do visitors and staff of Glacier National Park interpret the environmental state of this park and do they perceive any risks to the environmental state?

Visitor Responses

In response to RQ2a, 42 visitor participants reported not seeing any environmental damage when in the park, while 82 respondents reported having seen concerning environmental damage while in Glacier National Park. Of those 82 who reported witnessing risks to the environmental state of the park, the top reported damages are described below.

Social Trails

This code is defined by visitors who witnessed evidence of people walking off trails, extending the trails outward, or trampling the vegetation near trails. This code was built from the 22 visitor responses that mentioned social trails as an environmental risk within the park. In vivo examples of this code include descriptions of, “Lots of off-trail walking, which leads to social trails,” “Unofficial trails, but I made my contributions there I have to admit. It doesn't feel as wild now as when I was younger, if you count human presence as an environmental impact,” and

“Trampled ground from people wandering off trail.” While these social trails may not seem like a large environmental factor to consider, they contribute to the degradation of the foliage and small wild creatures who live alongside the trails and also can damage the perception of a pristine wilderness by enlarging the footpaths. While in Glacier myself, I saw a large variety of these social trails on every trail I hiked. At times, it was actually difficult to tell if I was on a marked trail or a social trail due to the overuse of some social trails. Photos of these more prevalent social trails were described in the passive observation chart in support of the many visitor responses on this environmental concern.

Wildfires/Wildfire Damage

This code was present in 22 visitor responses detailing their concern for active wildfires (which were occurring nearby at the Canadian border while I was in Glacier) as well as large burnout zones within the park (some of which I hiked through). In vivo examples of visitors’ concerns include one participant who stated, “Smoke hinders views. The first time we didn’t realize we were right next to Lake McDonald the smoke was so thick,” as well as others with similar responses who stated, “Forest fires caused by careless backpackers and lightning strikes,” “There is more damage from wildfires and the evidence of ongoing drought is everywhere,” and “Results of wildfires is evident, most caused by lightning.” While naturally-caused wild fires are a part of nature’s life cycle, the increase in prevalence raised concern for many visitors. Some visitors, uneducated about the park’s efforts to let fires burn naturally in order to decrease the size and negative impacts of future fires, also reported the burn zones as concerning and annoying as they hindered their recreation while in the park. Having hiked my fair share of burn zones while in Glacier for this study, there is a shocking emptiness to those

areas of charred forests, limited brush, and reduced wildlife that, for visitors not properly warned, would cause many to be concerned.

Litter

This code was present in 20 visitor responses and is simple in its definition. These visitors witnessed trash and garbage outside of the trash receptacles and reported that as an environmental concern. Examples of this code include one participant who witnessed, “Trash left in the backcountry, toilet paper left on the ground” as well as another who reported, “I hiked to Avalanche Lake, and at the far end around some low vegetation, there was a lot of human waste, a lot. I can't imagine how much of this occurs on the trail. I don't think everyone that hikes are aware or follows the leave no trace philosophy.” Specific trails listed in these examples, and in many of the responses in this code, are some of the most popular trails that get the most visitors each season. With many visitors not understanding, or simply disregarding, the ‘Leave No Trace’ rules, and the lack of trash containers in the wild hiking areas, it is likely most visitors will witness some form of litter while within the park. While there myself, I saw a variety of trash where it didn't belong, most of which was either food wrappers or tissues and toilet paper. These 20 visitor participants used this survey to express their concern for the environmental impacts this trash will have on Glacier.

Glaciers Melting

This code is defined by the 17 visitor respondents who described the disappearing glaciers within the park as an environmental risk. As one visitor reported, “We've been going for several years and we've noticed the glaciers getting smaller each year and the visitors being less respectful.” Another stated, “The glaciers...have drastically changed in just the last 11/12 years

I've been going. Grinnell Glacier used to be WAY more snow pack when we first hiked to it and now it [is] virtually all lake. This also goes for Iceberg Lake [which] used to actually have mostly ice and a few spots of lake...it currently is mainly just a lake.” As previously stated in the introduction to this study, the amount of glaciers still present in Glacier National Park, and the size of the remaining glaciers, is cause for concern for anyone visiting the park. With only 17 visitors commenting on this environmental concern, it seems that many visitors are perhaps not aware of this issue. As will be discussed later in this study, communication about these melting glaciers from the park to visitors may be at the root of this minimal number of concerned individuals.

Overcrowding

This code was present in 10 visitor responses and was defined by issues of overpacked hiking trails, congested roads, and fully booked campgrounds and lodges. Some visitors described this issue as a, “Crush of people. Too many visitors” and “Too many people on trails, too much traffic.” Others explained that, “Parking and trips to Logan Pass are a \$hit show...the numbers of people going to hidden lake, avalanche lake, and iceberg lake are ridiculous.” Lastly, one visitor described the overcrowding issues by explaining, “Vacant campgrounds are difficult to find, parking is crowded and now hiking trails are even becoming congested.” Some of these responses were likely stemming from previous experiences as the campgrounds were not completely booked while I was in the park. In fact, a few were not even open yet due to the snow still present and the road closure at the center of the park. It is a reoccurring issue, and one frequently discussed with both visitors and staff, though, and so it is likely to be on visitors’ minds while in Glacier. Even during this off season, weekends became very crowded with long lines in the visitor centers, parking lots (some under construction) becoming very full, and many

popular trails filling up with hiking visitors. On my own weekend hikes through some of the most popular trails, I often had to wait in congested areas in order to traverse a skinny passage or bridge where visitors had stopped to take photos. Having only been in Glacier on two separate occasions, neither times during the peak season, I can only imagine how much worse these trails would be by midsummer.

General Visitor Disrespect

This disrespect code is defined by the 5 visitor responses which described witnessing concerning visitor behaviors while in the park. Examples of this code involved a mixture of uneducated and simply disrespectful visitor behaviors such as one participant who witnessed, “Initials carved in trees or rocks...many visitors have a very poor amount of knowledge on how to be a good respectful park visitor.” One visitor detailed witnessing some environmentally concerning behaviors stating, “I saw this frat guy throw two large rocks into Lake McDonald so that he could stand on them and look like he was 'walking on water'.” Other responses included less detailed overviews of these behaviors such as, “Visitors being less respectful [than previous visits]” and “Just the effects of uneducated people.” Responses in this code described the behaviors of visitors that were either uneducated about park policies or who simply disregarded and disrespected the park resulting in negative environmental impacts.

Cairns/Stacked Rocks

While small, this code represented 4 visitor responses showing concern for unnatural cairns found within the park. Cairns, which are stacked rocks, usually starting large at the bottom and ending with small stones on top, disrupt the natural environment and can damage the critters that live beneath the rocks. As one participant described, “The trails were well worn and [we've]

seen where people were stacking rocks” while another reported, “I've seen people stack rocks.” While this environmental impact may seem small, to many visitors, these cairns make the wilderness feel a little less wild and more disrupted by human impact and result in concern for the overall environment within the park.

Inappropriate Animal Interactions

The last visitor code contained 3 responses and described inappropriate interactions between visitors and the wild animals within the park. One visitor reported witnessing, “People feeding animals” while another had seen, “People condition bears.” The last in vivo response described a dangerous situation where visitors were, “Getting too close to wildlife creating stressful environments and risky situations for the rangers and other visitors as well as the animals.” It is often difficult for visitors new to the wilderness environment of these national parks not to treat the wildlife as potential pets, but as these visitors reported, these behaviors can be dangerous to both visitors and staff as well as the animals themselves.

Other environmental concerns reported by visitors included noise pollution from motorcyclists, signs of drought, invasive species, and noxious weeds, all of which are important concerns but did not fit into the previously listed categories and were too limited in frequency to produce their own code.

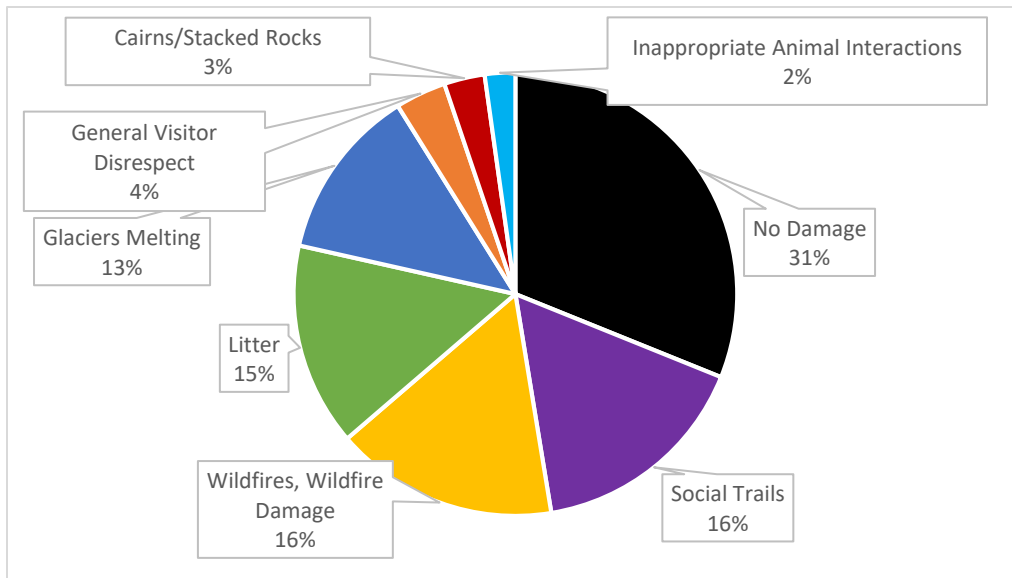


Figure 8:RQ2a: Visitor Environmental Risk Awareness

Staff Responses

Out of the staff who responded to this question, 20 reported having seen environmental damage within the park while 1 responded that they had not witnessed any environmental concerns. Of those who responded yes, the most frequent categories are reported below.

Social Trails

Similar to the visitor responses, the environmental risks reported with the most frequency was social trails. These 8 staff responses described visitors, “Going off trails, damaging plants,” “People walking off trails in sensitive areas,” and “People trampling the alpine environment by walking off the boardwalks and trails.” In some places in the park (such as the Trail of the Cedars), boardwalks have been created to help steer visitors in the correct direction, but even in these places, environmental degradation still occurs due to social trails. In areas where the boardwalks do not exist (which is most of the park), visitors tend to go off trail to get closer to attractions or to take a break from hiking. It is not a surprise that social trails were the most

commonly reported environmental concern for both visitors and staff as they are present no matter where you are in the park.

Animals Hurt/Killed

This code was defined by the 7 staff responses that described visitor interactions with wild animals and the harm that can cause. One example of this comes from a staff member who stated, “When a mom bear and 2 baby bears came to employee's village a few times, to my knowledge they were killed.” Other staff reported witnessing, “People hitting bears/wild animals with cars” and “Wildlife [being] harassed by people who have been raised by animated wildlife films.” These interactions with the wildlife are of great concern to the staff of Glacier National Park as they are usually the ones required to take care of these potentially dangerous situations. Similar to the inappropriate animal interactions code from the visitor’s responses, this code focuses more on the results to the animal and its environment than on the negative behavior of the visitors.

Litter

Similar to the litter code from the visitor responses, 5 staff members also reported litter to be a concern for the environmental state of Glacier National Park. Again, staff reported, “Human feces on [the] trail” and “Human waste and toilet paper all over the highline and at St. Mary Falls.” One staff member also stated, “With more visitation comes more trash littered along the roads and trails.” This code again reflects the overall concern for the park’s environmental state with increased litter on trails and roadways throughout the park.

Visitor Disrespect

This code was defined by 5 staff responses which described in detail the disrespectful behaviors witnessed by staff and how those behaviors were a risk for this national park. One staff member reported, “The main thing I notice that brings the potential of environmental damage is the rule breakers. Just yesterday, I came across two dogs off leash, someone flying a drone, and someone actually bow hunting on the trail of the cedars. I was off the clock and didn't have a radio to report it, and by the time we got to cell phone service, dispatch and law enforcement officers had gone home for the evening. These don't necessarily have environmental effects as a single action, but the combined effects of many people doing them could have a great effect on (mainly) wildlife and the environment.” Another staff member reported, “The emphasis of how people use the park has changed to a radically recreational bent. The lakes are filled with boats, kayaks, and other boating. Horse riding has destroyed trails in some fragile areas. People carry windsurfing and kayaks to the back-country lakes. Dogs in the park have become a huge problem... Peace and tranquility are no longer to be found.” Due to the increase in negative visitor behaviors, these park staff reported clear concern for the environmental state of Glacier.

Invasive Species

This code was built from the 3 staff responses that demonstrated concern for the environmental state of GNP due to the increase in non-native or invasive species of both plants and animals. Examples of this include an increase in mountain pine beetles who lay eggs under pine bark and consume the trees ultimately killing them within 10 months (NPS, 2017a) as well as invasive fish species such as the lake trout whose foraging behaviors have catastrophic effects on the native fish and their habitats (NPS, 2019). As one staff member reported, “I just started working here but noticed lots of nonnative fish (so abundant that fishing is free!).” Even with

only 3 responses, this code represents a growing concern for Glacier National Park as visitor numbers rise and bring with them new non-native species that can disrupt the natural ecosystem already established within the park.

New Developments

While small, this development code consisted of 2 staff responses who reported environmental damage due to road construction to make accessing the park easier for large recreational vehicles, new building developments, and other construction projects within the park. As one staff member described, “There has been minor damage for new developments.” Even though this damage was reported as minor, small changes to the natural habitat for construction projects like new roads, new campgrounds, and new buildings found within the park can often create large and lasting environmental impacts for years to come.

Glaciers Melting

Lastly, 1 staff member reported concern for the melting glaciers in the park. As stated by this staff member, “The most obvious [risk] is glaciers melting.” While this staff member believed this would be the most obvious and most reported concern, surprisingly, it was not a top concern for either visitors or staff of Glacier National Park.

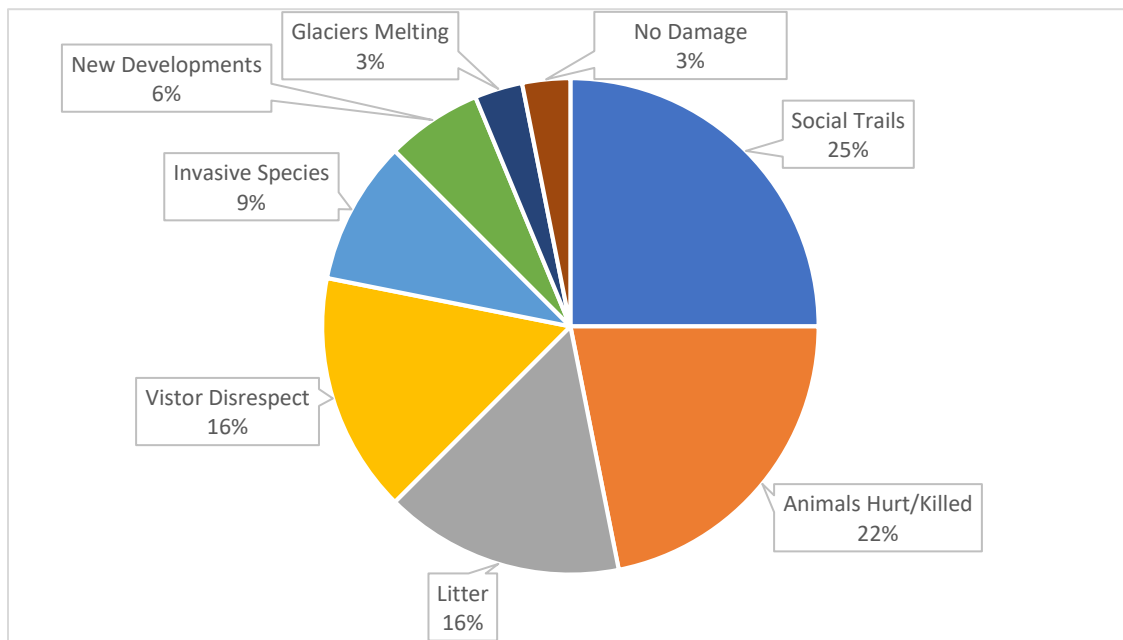


Figure 9:RQ2a: Staff Environmental Risk Awareness

Participant Observation Result

RQ2b: How are the environmental concerns found within the park being communicated to park visitors?

Passive Participant Observations

In order to begin to answer research question 2b, I used the passive participant observation data. During my time within Glacier National Park, I recorded the details of 50 passive observations which included signage in the park, handouts, maps, and activity books distributed from the visitor centers. All passive observations were of static items such as signs and handouts which I photographed or collected. A full list of these observations as well as a short description is included in Appendix C.

To begin, each observation was coded for its general topic and goal. As displayed in Table 5, there were a variety of topics included in the signage and handouts within the park

ranging from safety rules and regulations to education about park resources to activity workbooks for children. While this doesn't explicitly answer RQ2b, it begins to form a better picture of what kinds of information Glacier National Park is distributing to its publics who are in the park itself. To paint an even clearer picture of this content, each topic will be described briefly below.

Education of park resources and information about park features

This most common topic area was present within 12 passive observations and involved useful information about guided tours provided by the NPS staff, schedules of evening programming for children, maps to and from popular destinations in the park, and stops along the Going-to-the-Sun Road. As an example, one list of guided activities advertised, "Take advantage of Glacier's unusually dark skies and join rangers and members of the Big Sky Astronomy Club to gaze through telescopes into the depths of the universe." Many of these items contained simple maps to campgrounds and hiking trails and provided visitors with a quick look at the fun things they could do while in the park.

Education about park animals and plants and how to identify them

This topic area was present in 9 observations and provided guests with information about the wildlife in the park. From mammal, fish, and bird identification charts to simple descriptions of the animal inhabitants, these observations provided visitors a fun way to learn about the wildlife they might encounter while in the park.

Advertisements for concessionaries

Eight passive observations included advertisements for businesses allowed to function within Glacier National Park while not being a part of the official NPS. These included many handouts for local businesses that provided guided tours, trail rides, cruises, and even a Blackfeet Interpretive Bus Tour through parts of GNP. One example advertised, “The cruise on the lake is accompanied by an informative, entertaining commentary- developed over the past 60 years and presented by experienced Interpretive Tour Guides!” While not officially affiliated, staff at Glacier were distributing these handouts from within the visitor centers which helps create the collective understanding of the mission and values of the park itself from the perspective of the visitors who collect them.

Education about safety rules and regulations

This topic was present in 7 passive observations and included information about how visitors should act within the park. These handouts and signage contained information about bear safety and backcountry regulations as well as campground etiquette and how to properly collect firewood and store food while camping in Glacier. In one example, campers are warned to “Keep a clean camp. Improperly stored or unattended food will likely result in confiscation of items and/or issuance of a Violation Notice.” Another explained, “Do not leave food, garbage, or coolers in the open bed of a truck or the exterior of any vehicle. Never feed a bear.” These passive observations all contained information needed to stay safe while in the park as well as useful information about the rules and regulations.

Education about the history and culture of park lands

Five passive observations contained this topic area, which provided brief details on the past native inhabitants of the park lands as well as the native cultures that still live around the area. Artifacts and ancient traditions were discussed within these handouts and signs as well as the locations most impactful to the native populations. One example comes from a sign in the Apgar Visitor Center that stated, “It is not hard to see why the North Fork, with its towering peaks, and abundant wildlife, attracted early homesteaders to settle this region of Montana before Glacier's establishment. A visit to this primitive and rustic location will transport you back in time.” These observations all contained useful educational materials that could help visitors establish an appreciation for the history of those who lived and worked in this area before this national park existed.

Information about climate change within the park

This topic area was present in 4 passive observations. While many observations discussed the plants, animals, and changes to the park overtime, only these four observations explicitly discussed the effects of climate change in the park as well as the human impact on the park overall. Three of these observations were from signs scattered throughout the park and one was a handout from within Apgar Visitor Center. The one handout contained many details including, "Scientists link this build-up of greenhouse gases in the earth's atmosphere, due largely to human activities, to the rapid rise in temperature" and "In 2010, the National Park Service released a Climate Change Response Strategy to address climate change and provide direction for the agency and its employees." Lastly, the one handout stated, “We can't go back in time and change our current warming trajectory, but we can minimize how much change Earth experiences in the future. Step by step, we can work toward shaping that future. It's up to all of us.” While small in

number, these observations contained important information tied directly to the mission of Glacier National Park.

Education about environmental management programs

These 4 passive observations involved information about wildlife management programs within the park. One discussed the increased grizzly bear population over time and another contained information about the wildfire management programs throughout history up to the current efforts in place in Glacier. The wildfire example stated, “The National Park Service wildland fire program applies traditional fire management tools as well as new technology to provide better public safety and resource protection before, during, and after fire.” The last two examples contained information about the increased wolf population in the park (now considered a sign of a healthy ecosystem) and the prospering fish species that live in Glacier. While these examples included information about environmental protection programs, little information within these examples contained details about how the issues had arisen to begin with, how visitors were creating a negative impact, or how visitors could become a part of these management solutions.

Activity booklets for kids

While these 2 observations contained a wide variety of information, it was necessary to code them as a separate topic. As will be discussed in detail further on, these booklets were created for young children (Jr. Rangers) and toddlers (Pre-Readers) and contained an incredible amount of content about the park, its mission, and the overall human impact on the park. These were two of the most interesting observations as they contained the majority of the content I had been hoping to find during my time in Glacier.

Maps for locations beyond park boundaries

This singular observation was simply a road map for the entire state of Montana. After checking through similar maps found within the visitor centers (such as one showing the roads connecting Montana to Canada), there was little content contained within them, so I did not feel it necessary to collect and analyze each one. They were also very bulky, used a lot of paper to make, and were not necessarily connected to Glacier National Park in any way so I simply used this one as an example.

Table 5: Contents of Passive Participant Observations

Passive Observation General Topics	
Education about park resources and information about park features	12
Education about park animals and plants and how to identify them	9
Advertisements for concessionaries	8
Education about safety rules and regulations	7
Education about the history and culture of park lands	5
Information about climate change within the park	4
Education about environmental management programs	4
Activity booklets for kids	2
Maps for locations beyond park boundaries	1

The next step to answering RQ2b (and supporting the online survey content related to the previous research questions) was coding each passive observation for any content related to either preservation or conservation and pulling out content within these documents and signs that were related to the NPS mission. Throughout this process, 15 observations contained information related to preservation and 13 contained information related to conservation, many containing elements of both terms within one document or sign. In total, 19 observations contained either preservation, conservation, or an undefined mixture of both terms (this is about 38% of the 50 passive observations collected for this study). Out of these 19, 6 signs and handouts contained only content related to environmental protection while the others had brief paragraphs or

sentences about protecting the environment. These 6 observations included the 4 previously described in the information about climate change observations as well as the two kids' workbooks.

One clear example of an environmental protection observation was a sign located outside of the Apgar Visitor Center titled, "Goodbye to the Glaciers." This sign stated, "Currently, they [the glaciers] are rapidly shrinking due to human-accelerated climate change. When they will completely disappear, however, depends on how and when we act." After returning from Glacier, I learned that this sign (and several others around the park) were in the process of being replaced. According to a CNN article, previous signs around the park had warned that all glaciers within this national park would be melted by 2020 (Maxouris & Rose, 2020). Having researched in the park during the summer of 2019, I was not aware of these changes occurring nor did I find a sign that stated this 2020 date. Regardless, these signs and handouts were still some of the few that briefly mentioned climate change science, human impact on the climate, and the environmental degradation occurring inside the park. The children's workbooks, on the other hand, provided much more detail on the environmental impacts of humans within the park and how people can help reduce their environmental footprint while here. The Jr. Ranger workbook included the following activity as an example.

To begin, it shows each piece of the NPS logo and then asks the user to try to connect each piece of the logo to what it represents (e.g., the arrowhead represents protecting the nation's history, the lake represents protecting the water, the mountain represents protecting the beautiful scenery, the bison represents protecting the wildlife, and the tree represents protecting the plants). The workbook then continues, "As a Junior Ranger, I will do all I can to take care of and protect Glacier National Park and the plants and animals that live here. I promise to continue to

explore, learn about, and respect the natural world wherever I go.” On the next page, it states, “Rising temperatures and longer summers mean big changes for our planet. As the climate warms, some species must migrate north, or move to higher elevations to find the colder environments they need.” At this point, a cartoon fish says, “This mountain stream is a cool 50 degrees this summer. If the water was hotter, I may not survive!” The workbook then proceeds to a fill in the blank rhyming section that says, “We understand now that all those cars emit gases, as everyone's driving themselves up the steep mountain passes. Now we can share a ride and together we'll huddle, 'cause as a team we all win when we hop on the park shuttle.” The workbook concludes with,

Glaciers are rivers of ice that move very slowly. Scientists have been studying glaciers in the park for over 100 years. In that time, human activity has caused the Earth's temperature to rise and the glaciers to shrink. Many of the park's glaciers have already disappeared. Scientists are monitoring the size of the remaining glaciers...Sometimes it's easy to forget that the choices we make affect others. All of us can make choices that minimize our impact on the Earth and reduce the effects of climate change.

These two workbooks, the Jr. Ranger and the Pre-Reader edition, contain a large amount of useful information describing the state of the environment in Glacier National Park and how visitors can reduce their negative impact. No other observations contained as much explicit information about the human impact on the warming climate and the effects within the park as well as ideas on how to be environmentally conscious while in the park and when back at home.

Active Participant Observations

In addition to the passive participant observations, I also collected 21 active observations that included conversations between visitors (including myself) and staff as well as staff-to-staff conversations and visitor-to-visitor conversation. These were collected near or inside of the

visitor centers, within the staff living community, and within Apgar Village. A full list of these observations can be found in Appendix D.

One series of active observations I was lucky to stumble into was staff training sessions in a lodge I frequently used for Wi-Fi while staying in the researcher housing on the border of the park. I was in a separate room but was able to overhear large portions of their training. The first session I listened to was what sounded like their first time gathering as a group. The presenter opened with these questions: “Why are we here? What is our mission?” One enthusiastic response rang out, “To preserve unimpaired!” Other responses from the crowd included serving the park, caring for the animals, protecting the natural resources found within the park, and documenting infractions when seeing bad visitor behaviors. Another stated, “Preserving for future generations and enjoyment. We are protecting for future access and preserving the natural habitat.”

In another similar session, I overheard a discussion on the issue of overcrowding: “We get more visitors than we can handle. It can seem overwhelming, but this is not new. We are connected to the past and their moments of angst.” At this point, the presenter read a portion of a letter written by an elderly couple in 1946 which stated, “The crowds on the roads and at the hotels made my heart very low. It’s a great thing to have seen, but it is shocking to see.” The presenter continued, “So much of what visitors experience today is a continuation from the past. The sunset we watch over the mountains is the same sunset people were watching many years ago. That hasn't changed. Generations have been camping in this park. We ride the same boats, stay in the same historic buildings, see the same views...and we are working to make sure generations to come get to experience it too.”

These staff training sessions contained a large volume of information about how new staff construct their understanding of their purpose at the park and the mission of the NPS. Within these sessions, terms such as preservation and conservation were used interchangeably with frequency. The resounding conclusion from the leaders in these sessions aligned well with the NPS mission in that the staff were in charge of protecting the natural environment in order to maintain its beauty and wildness for many generations to continue to use in the future. A few responses from the new hires included individuals who showed concern more for the protection of the natural elements over the accessibility of human use, but in summary, the staff were all there to protect Glacier National Park and its visitors so that it could continue to operate for many years to come.

Another fortunate interaction I was able to have while in the park involved a conversation I had with a ranger within the Apgar Visitor Center. During a slow weekday, I stopped into Apgar to gather all of the handouts they usually give to visitors. I discussed what types of information the ranger usually gives out to visitors the most and her response was the park maps and guided tour information. I told her about the purpose of my study, and she described how the brochures and handouts would not really contain anything about global climate change or environmental issues within the park. I asked if she knew why this was the case and she said that it was a political issue and that they used to include more about climate change a few years back. She explained that climate science information isn't usually why people come to the visitor center, but that visitors mostly want maps for hiking and information about guided tours and when buildings, lodges, restaurants, and stores are open. She was excited when she pulled out the one document, titled Climate Change, and described how she had forgotten it even existed as no one asks for this kind of information.

Another series of active observations I collected involved ranger-led activities throughout the park. In one example on an early morning hike, I witnessed a ranger teaching visitors about the wild spaces and wild animals in the park, specifically the Pileated Woodpecker. While only 2 visitors were on this guided hike with the ranger, she still took the time to discuss environmental components of the area while also offering protection for these visitors (she was trained and carrying bear spray). From the content I was able to collect from this interaction, education and recreation were the main foci and discussions of how to protect these wild spaces were not present.

During another ranger-led hike, a large group of visitors were walking through the Trail of the Cedars while the ranger discussed the park staff's decision to construct the newly renovated boardwalks in the area. The ranger described how, if they built them, it would keep people on the trail more, would open the trail to those in wheelchairs, and would make for an easy walk through this wet area. But, by building the boardwalks, they were disrupting the natural habitat, had to displace the animals living where the boardwalks would go, and constructed non-natural trails for human use (clearly demonstrating the tension between recreation and preservation faced by the park). On this same tour only minutes later, the ranger asked if the visitors would like to extend their walk by a few minutes in order to potentially see a glacier. The group of visitors were not interested.

The last ranger-led activity I observed was an educational booth set up outside the Apgar Visitor Center where a ranger had a collection of animal furs, bones, and talons for visitors to come touch and learn about. Many visitors passed by this station on their way into the center, but a few stopped to pet the furs before moving on. At this station while I was there, no

conversations related to protecting the environment or any environmental concerns were discussed.

Another series of active observations I made while in Glacier were discussions with hired park researchers who stayed within the same staff community that I stayed in. Of these 4 researchers, all were surprised to find a researcher here studying the human perspective within the park. Some had been studying here for years and had never seen a social scientist like myself doing my type of research. Their research focused more on mountain sheep behaviors, the small lynx population in the park, a dangerous fungus that is hurting the frog and toad population, as well as keeping track of how many people use certain trails per day during the spring and summer season. Collectively, these researchers agreed about the importance of preserving the natural habitats of the plants and animals within the park and how important those living creatures are to this whole ecosystem here. While likely biased as researchers who study the natural environment, these participants all showed greater concern for protecting the wild animals and spaces within the park than for protecting humans' rights to participate in recreation within Glacier.

Of the visitor-to-visitor observation I made, none contained any content related to preserving or conserving the natural environment within the park. These conversations were mainly about the unreliable weather that week, how busy the trails had become since their previous visits, how dangerous the Sprague Fire had been in 2017, and how annoyed they were at the massive mosquitos already present in the park. I documented one particular conversation from Apgar Village as a group of visitors were trying to get the best Instagram-worthy photo of Lake McDonald. The smoke from the nearby Canadian wildfires had rolled in thick that day and

they expressed annoyance at the cloudy view of the mountains in the distance (many of which were completely blocked by the smoke).

Lastly, on one of my hikes, I took a wrong turn and ended up in a closed campground quite a distance from the more popular areas on the west side of the park. As I tried to find my way out of this maze-like campground, I stumbled into a large group of middle school students who were volunteering and touching up this campground before it officially opened for the season. These young students were excitedly participating in light construction projects around the campground alongside park staff and cleaning up any debris or trash left over from the previous season. While not explicitly discussing environmental protection efforts, this type of school project was helping these kids to learn to care for the environment from an early age. At one point, I overheard a staff member describing how important it was to preserve this space in its best condition so that people could continue to use it, and use it properly, for many more years. As students fixed up the amphitheater where educational demonstrations were soon to be led by park rangers, they laughed and chatted while learning this important lesson.

Throughout this chapter, I have begun to provide an answer to each research question within this project. Having described the data in detail, the following section will more concussively describe the answers to these questions along with a discussion of the importance of this study's findings. Lastly, I will provide a few suggestions stemming from my findings that could aid Glacier National Park and the NPS in communicating about the environment to their publics.

CHAPTER FIVE: DISCUSSION

RQ1a: How do visitors and staff of Glacier National Park interpret and co-construct the mission and purpose of this National Park and the National Park System?

While most visitor participants recognized some form of environmental protection within their interpretation of the NPS mission, there was a lot of confusion surrounding whether it was the park's mission to protect the environment *from* the people or *for* the people. About 36% of visitor responses described the mission as protecting nature for human use in the future while 35% defined the NPS mission as protecting nature from human use. It is no surprise when looking at the NPS mission statement that participants were confused about the overall purpose of the National Park System (and Glacier National Park specifically). As stated in the most recent version of the NPS mission statement, the goal of the NPS is to:

Preserve unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations. The Park Service cooperates with partners to extend the benefits of natural and cultural resource *conservation* and outdoor recreation throughout this country and the world. (NPS, 2018c, emphasis added)

Within this mission itself are both terms, preservation and conservation, used interchangeably. What is clear from these responses is that visitors of GNP involved in this study believe the park's mission is to protect the environment in some way, but are divided rather evenly over whether or not this protection should focus on the human or the natural aspects of the park most closely.

Similarly, the staff members who participated in this study were also confused over these terms. While 28% reported the mission as protection from human use (true preservation), 48% aligned the mission with conservation and recreational values instead. This was also reflected

again throughout the active observations of the staff training in which responses about the mission contained a mixture of both terms.

One visitor respondent to the online survey efficiently summarized this issue when describing their interpretation of the NPS mission:

I think the NPS has a somewhat inconsistent mission: on the one hand, they intend to preserve the resources kind of like a nature museum or nature preserve; on the other, they have a mandate to share it as a place of public recreation. I see these two aims as in tension and contribute to sort of an 'in clarity' in the Park Service's intentions.

The tensions between Glacier's goal of protecting the wild spaces and animals within the park and their goal of providing a fun, safe recreational space for visitors are mutually exclusive, and yet they are both present within the NPS mission statement. If the NPS mission were solely centered on preservation of the natural and cultural resources in the park, visitors would not be allowed in. But without visitors to these protected spaces, there would not be funding for these spaces to exist. On top of that, if visitors are allowed in for recreational use, there will be environmental and cultural resources that become degraded or completely ruined by these visitors. Within the two sentences of this mission statement, this tension is prominent.

If a visitor were only to examine the deliverables and signage posted by the NPS within Glacier National Park, they would likely conclude that the park was built to provide a recreational experience to park visitors while also protecting nature (in that particular order). Stemming from the observation data collected in this project, as previously stated, out of the 50 passive observations, only 19 contained any reference to preserving or conserving the park's natural resources. If visitors were not traveling with kids (so they did not collect the Jr. Rangers booklets) and didn't stop at the Jackson Glacier Overlook (where signs describe the melting condition of the glaciers), they would likely not come into contact with the environmental

protection component of the mission statement at all. If, like many, a visitor were to enter the park through a main gate, they would likely receive a park map and potentially some safety handouts and would spend their time in the park unaware of the environmental programs and resource preservation efforts going on in the park. Outside of the word being used in the mission statement, preservation is not prominent when visiting this national park. By simply observing common visitor behaviors within the park, I could easily see how visitors could be confused about the mission and purpose of Glacier National Park and the NPS.

While visitor confusion is more understandable, the staff within Glacier National Park also were unsure how to balance the conflicting values within the NPS mission. In search for a better rationale for this confusion, I looked at a variety of other NPS and Department of the Interior (DOI) documents for support. One document in particular (the US DOI Budget Justifications and Performance Information documents for the 2020 fiscal year, a 427-page document), the authors open with the NPS mission on page one. In this document, the NPS mission states,

As the steward of 418 park units, 23 national scenic and national historic trails, and 60 wild and scenic rivers, the NPS is charged with *conserving* these lands and historic features that were designated for their cultural and historic significance, scenic and environmental attributes, and educational and recreational opportunities. Additionally, the NPS further helps the Nation protect resources for public enjoyment that are not part of the National Park System through its financial and technical assistance programs. (Overview, p. 1, emphasis added)

Within this government document likely distributed to many NPS employees, the stated mission no longer contains the word preservation. To add to this confusion, in comparison to the 2020 document, the same US DOI Budget Justification and Performance Information documents for the NPS for the 2018 fiscal year contains different wording for the NPS mission. This document states,

As the keeper of 417 park units, 23 national scenic and national historic trails, and 60 wild and scenic rivers, NPS is charged with *preserving* these lands and historic features that were designated by the nation for their cultural and historic significance, scenic and environmental worth, and educational and recreational opportunities. Additionally, the NPS further helps the nation protect resources for public enjoyment that are not part of the National Park System through its grant and technical assistance programs. (Overview, p. 1, emphasis added).

While not given an official explanation for this wording change, this change might be related to the larger governmental shift starting after the 2016 U.S. election and the ensuing regulations that reduced many environmental protection efforts already in place in this country. Employees of Glacier National Park, including the ranger from Apgar, expressed seeing these changes in action within this park (including reduced deliverables centered on climate change). Perhaps this shift in government values has also created an increase in confusion within the NPS.

As stated in Beissinger, Ackerly, Doremus, and Machlis (2017), this confusing mission and its continual changes pose large challenges for park managers, government officials, and environmentalists alike. The NPS mission does not explicitly acknowledge the tensions between preserving the natural habitat and providing enjoyment of park resources for years to come. It doesn't address what it means or how it is possible to preserve "unimpaired" for the future all while knowing change is inevitable. And its abstract nature, along with its combination of conflicting terms, may be creating an opening for confusion and conflict. As these authors state, "How we interpret the mission of the US National Park System has implications that go well beyond the resolution of specific management conflicts" (Beissinger, Ackerly, Doremus, & Machlis, 2017, p. 3). The mission's interpretation is crucial in determining whether parks should expand by adding more protected land or by adding more hotels and concessions, and which acquisitions have the higher priority (Clark & Slocombe, 2008).

Weiss (1996) also emphasized the importance of an organization's mission statement. Weiss explained how a clear mission can help frame and motivate the work of those connected to the organization. It can shape how publics related to the organization think about the organization and its efforts. It can also help create a shared sense of priorities within those who work with and for the organization. Weiss continued, "The great advantage of a mission is that it permits the head of the agency to be more confident that operators will act in particular cases in ways that the head would have acted had he or she been in their shoes. There are fewer distortions in the flow of information because both the sender and the recipient of the message share common understandings" (p. 101).

Clear mission values can also assist organization employees in identifying with the organization and engaging in the mission's values (Eccles & Nohria, 1992). These connections can motivate employees by making employee performance a significant component of the individual's self-identity, thus increasing the employee's motivation to strive to achieve the mission's goals (Weiss, 1996). When a mission is confusing, contradictory, or continuously changing, as is the case for the NPS, it is difficult for either staff or visitors to identify with and connect to the goals of this organization. With confused visitors and staff, the NPS is losing out on the potential for more enthusiastic supporters and motivated employees.

But Beissinger, Ackerly, Doremus, and Machlis (2017) have argued that "In the face of an uncertain future, its lack of specificity is an opportunity, not just a challenge" (p. 5). The authors suggest that this ambiguity and dual nature "may be essential to building long-term constituency for protected lands," all the while creating "challenges for managers because this mandate harbors both tension and ambiguity" (p. 2). Perhaps this ambiguity within the NPS mission allows it to exist and be supported in a highly divided nation where government leaders

change far more rapidly than the environmental status of the parks themselves. If the NPS chose a less ambiguous mission statement, it could potentially lose funding from organizations that fall in line with only one component of the mission. If the mission contained only recreational values, many environmentalist groups might pull back their support. If the NPS mission contained only preservationist values and no nod to citizen enjoyment, the NPS might not continue to be funded by the federal government at all.

The Coordinated Management of Meaning theory has argued that meaning creation and deployment of that meaning rely on the conversations, interactions, and shared exposure to a situation (Griffin, 2012), in this case, exposure to Glacier National Park and the deliverables found within. The staff and visitors of Glacier while I was there were all co-constructing their interpretations of the mission and purpose of GNP and the NPS, whether they were fully aware of it or not. Through their dialogue, overheard conversations, actions, and witnessed behaviors, both visitors and staff were coordinating with each other on how to act while in the park and how to construct their understanding of the purpose of this protected space. In addition to this, park management teams were also aiding in this construction of a shared meaning surrounding GNP. While not overtly visible, park workers use their own resources in order to try to manage the overall perceptions of the park and the actions of those who visit. Through the lens of this theory, park management could be using the tensions found within the mission of the NPS and Glacier National Park to steer the collective understanding of what this park is and why it is here and to benefit from the divided interpretations of its mission.

Lastly, another important piece of the NPS mission that was not included in any visitor or staff responses to this study was the partnerships discussed in the NPS mission's second sentence. As described by Galvin (2016), the second sentence of the NPS mission is usually left

out of discussion surrounding the purpose of these parks. In fact, when the most recent mission was published in the Management Policies documents of 2006, the mission was displayed on the front inside cover of this 168-page document. Following that front cover, a detailed description of the conduct necessary to accomplish that first sentence was discussed in detail. The procedures required to accomplish or govern the second sentence were never mentioned again (Galvin, 2016). These community partners and government relations may provide the answer to why this mission statement is continually changing and ambiguous in nature. It may be that strategic individuals within the organization have determined that an inconclusive mission statement is how the NPS can continue to be funded and supported. While this might well be practically necessary, it results in a collective confusion surrounding what the NPS and Glacier National Park value the most.

Acknowledging that both visitor and staff participants in this study seemed ultimately confused about the heart of the NPS mission and the purpose of Glacier National Park, it is still valuable to understand how well these populations believe the park is acting out its mission. The discussion of RQ1b addresses both optimistic and pessimistic outlooks.

RQ1b: How well do visitors and staff believe Glacier National Park is (or is able to) fulfill that mission?

As discussed in the previous section, it is clear that many visitors and staff involved in this study are generally confused about the mission and purpose of the NPS and Glacier National Park. It is still important to gauge how well these two groups believe the park and the NPS are fulfilling their interpretations of that mission. Many visitor participants (48%) believe Glacier National Park is doing an excellent job fulfilling its mission, with another 30% believing the park is doing a good job. Only 4 visitor respondents believe the park is doing a poor job fulfilling its

mission. Within these results, most participants believe the park is living out its mission, but as can be seen through RQ1a, many see the mission of the park being centered around human use. In general, these visitors see this National Park as being able to maintain the careful balance between preserving the natural landscape and yet providing a recreation space for visitors to enjoy.

Staff participants, on the other hand, showed more concern for the ability of the park and the NPS to live out its mission with 33% reporting mixed potential (Fair) and only 24% reporting no concern (Excellent). This may be due to the staff's increased knowledge about park operations and problem (from internal releases or newsletters) and their connection to information not distributed to those not employed by the NPS. This could also be due to the fact that park staff spend a lot of time within Glacier and likely experience more of the mission tension described above. While visitors can fairly blindly enter the park and have a fun recreational time hiking and sight-seeing, park staff are faced with the realities of park operations and park finances on a more frequent basis. They have watched government funding decrease, entrance fees increase, and visitor numbers rise each season and can likely see how these components play a large role in the park's ability to succeed.

When comparing visitor and staff responses from RQ1a (mission and purpose) to those from RQ1b (mission fulfillment), a few additional results come into light. Of the visitors who interpreted the mission of GNP and the NPS as true preservation, 74% reported the park's ability to live out that mission as either excellent or good. In comparison, of the visitors who interpreted the mission of GNP and the NPS as preservation for human use, 76% reported the park's ability to live out that mission as either excellent or good. Whether visitors interpreted the park's mission as preservation or preservation for human use, they reported a belief that the park is

being successful at fulfilling its mission. Across all visitor responses, though, these differences were mainly centered around the excellent and good categories with only minor differences when looking from excellent to poor. These visitor responses, while representing subtle differences, were not as dramatic as those found within the staff data.

Park staff who participated in this study had an overall more pessimistic view of the park's ability to live out its mission across all of the mission description codes. For example, of the staff who reported the mission as being true preservation, 50% reported the park's ability to live out that mission as fair, 33% reported the park's ability as poor, and only 17% described the park as doing an excellent job at living out that preservation mission. Similarly, of the staff who reported the mission as being preservation for human use, 40% reported the park's ability to fulfill that mission as good with 30% reporting excellent and 20% reporting fair. Across each mission category, staff overall displayed a more pessimistic view of Glacier's ability to live out its mission successfully, but nowhere were they more pessimistic than in the true preservation category.

When comparing the visitor and staff responses across both RQ1a and RQ1b, visitor responses reflected less differences between mission interpretation and mission success than staff responses. While the majority of visitors across each mission category believed the park's ability to live out its mission was either excellent or good, staff responses were more varied by mission category. Of the staff who interpreted the mission as true preservation, over 80% gave a fair to poor response for the mission success of the park. In comparison, of the staff that reported the mission as being preservation for human use, 70% gave a good to excellent response for the mission success. Overall, the staff members of Glacier National Park are more pessimistic about

the success of the mission of the park than visitors, with the most pessimism stemming from those who view the mission of the park as true preservation.

While many visitors and some staff believe Glacier National Park and the NPS is doing an excellent job at fulfilling its mission (whether that be to preserve or conserve), most participants in this study still noticed environmental risks to the park while in Glacier. The following section will dive more deeply into those risks and both visitor and staff interpretations of them.

RQ2a: How do visitors and staff of Glacier National Park interpret the environmental state of this park and do they perceive any risks to the environmental state?

Many visitor participants were not aware of any environmental concerns while they were in the park (34% reported seeing no damages). In overlapping the data used for RQ1b and RQ2a, it is easy to align the 34% of visitors who saw no environmental damage while in the park with those visitors who also reported the park as doing very well. If they were not aware of any concerns, they would likely report the park as doing just fine as it is. These 42 visitors were able to spend time inside Glacier National Park without being aware of any environmental risks and likely did not read about any of those risks printed in park deliverables or posted on park signage. As reported above, this content is not easy to find without explicitly seeking it out, so it is not surprising that these 42 participants could enjoy their time in the park without being aware of the many environmental risks surrounding them.

The risks most witnessed by park visitors (social trails, wildfire damage, litter, melting glaciers, overcrowding, and general visitor disrespect) could all easily go unnoticed without prior education or experience with these concerns. For many visitors, social trails are simply an extension of the marked trails. If visitors are unaware of how trail signage works, it would be

easy for them to end up on some of the largest social trails without even knowing. Without previous education, they may even contribute to their creation without knowing that it is detrimental to the natural habitat. The same argument goes for cairn building and animal interactions. Without being warned or educated about the negative effects of these behaviors, many visitors could easily miss these risks to the park overall.

Visitors could also likely see concerns (such as overcrowding) as a benefit to the national park, as evidence that the park is prospering. Again, without previous education about the risks overpopulation brings, these visitors would likely not report this as a concern. Also, if these same visitors reported the mission of Glacier National Park as being solely recreational, this overcrowding issue would again likely be reported as a positive factor and not a negative risk.

This overcrowding issue is one of the great complicated tensions faced by the NPS and its publics and is not one that is easily resolved. On one hand, the NPS and Glacier National Park rely heavily on visitors who purchase entrance fees, campground reservations, and other supplies and event tickets. Under the Federal Lands Recreation Enhancement Act, 80% of these entrance fee funds stay in the park where they are collected while the other 20% is spent on other parks, especially those that do not collect fees or receive very few visitors (NPS, 2017b). Funds collected from entrance fees specifically at Glacier are used to enhance the visitor experience by maintaining and repairing the facilities in the park, providing easier access to popular park features, constructing new restrooms and larger parking areas, and replacing outdated or worn trails, bridges, and technological features in the park. These funds also go toward paying staff and law enforcement personnel on site as well as other operating and capital costs and habitat restoration projects (NPS, 2020).

As stated previously, the NPS is also funded by the federal government, which helps supplement the funds raised by park visitors. But according to the National Parks Conservation Association (2016), there has been more than a 12% reduction in the amount of federal funds provided for the National Park Service between 2010 and 2015 alone (NPCA, 2016). This percentage amounts to over a \$364 million reduction to the NPS's total budget. With the trend of decreased federal funding, many parks have considered raising entrance fees to help make up for these missing funds.

While increasing the entrance fees at the popular national parks might sound like a simple solution, it creates a risk of allowing these parks to only be accessible to the wealthy and could be interpreted as a sign of a distressed National Park Service. Fees to get into Glacier National Park are currently set at \$35 per vehicle for a 7-day pass, or \$70 for a year-long pass. In a 2017 proposal from the NPS, entrance fees during the peak visitor season would be raised to \$70 per vehicle, doubling the original cost to enter the park. The higher fees would likely reduce the number of individuals and families that could access the park, and thus might decrease the number of visitors entering the park each season. While this may or may not help the budgeting concerns of the NPS or Glacier, it would decrease the harmful effects of overcrowding within each park. By raising the price of the entrance fee, the NPS could potentially reduce the number of visitors causing negative environmental impacts, but this would also reduce the availability of these parks to those with lower income levels, making the parks a vacation destination only for those of higher socio-economic status. Without raising the entrance fee price, the park is more equally accessible, but the higher number of visitors is putting a strain on the underfunded parks and the under protected natural spaces. This is just one of the complicated tensions that partially stems from the uncertainty surrounding the mission of the NPS and their overarching goal. It is

clear, even after only a brief description of the issue, that visitors and staff may have differing opinions on how they interpret the risk of overcrowding within Glacier National Park.

The one reported risk that would be hard to misunderstand as a visitor is litter. During my time in GNP, I witnessed litter at least once each day alongside trails or near local businesses and visitor centers. Much of this litter was fairly small (tissues and granola bar wrappers being the most common items I saw) but could clearly be seen without much effort. As an environmentalist myself, I was struck at how these pieces of trash stuck out from the natural surroundings like a sore thumb. But for many visitors who don't study the environment and who perhaps are coming from a larger city where litter is prominent, the minimal amounts of trash might have easily slipped by unnoticed.

Unlike visitors, participating park staff were much more aware of environmental risks across their smaller sample (95% reported seeing damages versus 66% of visitors). This is likely due to the staff's extended time within Glacier as well as their general education about environmental concerns before their employment in the park. While many visitors are only in the park for a few days to a week, staff return to Glacier for an entire season or as year-round staff making it much more likely that they would observe the reported negative environmental risks. Social trails, for example, are much easier to notice if you've hiked that same stretch of trail more than once.

Also, the park rangers who participated in this study were likely interested in environmental issues before being hired. It could be assumed that, before becoming a national park ranger, these participants were already interested in the park's wellbeing as well as the overall status of the environment within the park. In addition to this, as I witnessed during the staff training, those who were hired by the NPS (and not the restaurants and hotels within the

park) were subject to information regarding the overall park mission and environmental issues within the park before starting their employment in Glacier for the season.

Of those visitors and staff who reported environmental risks within the park, these identified risks were fairly similar. Social trails, litter, disrespectful visitors, melting glaciers, and animal-human interactions were commonly reported as risks to the park from both staff and visitors. Wildfires, on the other hand, were listed as a risk only in visitor responses. This specific risk may point to a larger visitor issue—that visitors are not aware of the necessity of wildfires within Glacier National Park or their value to the park overall. During my time in GNP, large Canadian wildfires caused a few days of thick smoke to roll into the west side of the park. I overheard many visitors discussing this smoke and expressing concern and fear over the nearby fire's existence. These fires may have increased the amount of visitor participant responses reporting the wildfires as a risk, but evidence of these fires was only present for a couple days.

Other visitors who reported fires as a risk likely had hiked through old, non-active burn zones throughout the park. Historically, GNP's wildfire management policies called for complete suppression of fires within the park and this mentality may continue to permeate visitors' perceptions. Over time though, researchers in the park discovered that this method of fire suppression was not the best strategy for the environment or for park staff. With limited resources, this suppression strategy called for more support than the park could provide and called for many more staff than the park could supply. Letting naturally occurring fires burn themselves out on their own also was shown to provide ecological benefits to the park's natural resources. Today, natural fires that are not located near developed areas such as hotels and that do not pose a threat of expanding far beyond the park's borders are monitored but allowed to burn out naturally. By doing this, park managers help create a mosaic of diverse habitats

throughout the park that help maintain various plants and animals, reduce the amount of built-up fuels (such as downed trees or areas of dry brush) that could result in larger fires in the future, and help endangered species recover (NPS, 2018e). Content like this, though, is not widely distributed to the average park visitor. In fact, of the 50 passive observations made for this study, only 1 sign and 2 handouts commented on the wildfire management policies in place in the park. Again, an average tourist who only collects the park's hiking maps, trail guides, and entertainment schedules would likely not come into contact with this valuable information, thus resulting in their increased concern for the existence of large burn zones in the park.

Another risk that differentiated staff from visitor responses was new developments. Staff were the only participants that brought up construction of new roads and buildings as a potential risk to the environment in GNP. Connected back to the interpretation of the NPS mission, 36% of visitors reported human use as more central to the mission than protecting nature from human use. On top of that, 9% of visitors reported the mission as valuing pure recreation above anything else. With this in mind, it isn't surprising that visitors would view new developments such as larger campgrounds and more restaurants as beneficial to the park overall. Without being educated about the potential preservation-related dangers of this development, visitors might even view these construction projects as a way for the park to overcome its overcrowding issue and contribute to a more conservation-oriented mission.

Overall, visitors of Glacier National Park have a much more positive outlook on the environmental state of the park and are less aware of risks to the environment than the staff who participated in this study. While some of this may be attributed to time spent in the park itself, it is my belief that GNP's communication strategies surrounding these issues are the main reason

this divided interpretation exists. To help break this down in more detail, the results of RQ2b must be considered.

RQ2b: How are the environmental concerns found within the park being communicated to park visitors?

The simplest answer to RQ2b is that the environmental concerns within Glacier are only sparingly communicated to visitors inside the park. Out of all the deliverables I collected within the park, a small number actually mentioned environmental preservation or climate change concerns. Most items distributed to park visitors, as well as the signage around the park, contain information about park resources, maps, general information about the plants, animals, and cultural history of the park (without mention of resource preservation), safety regulations, and advertisements for park concessionaries. While 19 out of 50 passive observations contained some information about preservation, conservation, or environmental protection, only 6 were solely dedicated to those topics.

The deliverables created for children had the most information about climate change, the park's environmental protection efforts, and creative ideas on how visitors could be mindful of their natural surroundings while in the park. These children's workbooks included incredible details on climate change science and the negative human effects happening in the park. They also included many specific actions the children could do to help reduce their carbon footprint and eliminate their plastic reliance, as well as general environmentally friendly ideas they could implement when back in their hometowns.

In addition to the deliverables, most signage in the park was also about general park information or about visitor regulations and safety concerns. Many signs instructed visitors on how to properly store their food in campgrounds, for example, but none connected that back to

why this is a major concern (without proper storage, bears may become habituated to collected food from these sources which usually results in them being relocated or killed). In another example, a sign in a campground stated, "Practice Leave No Trace techniques while camping. Pitch tents on designated pads where provided or on bare ground, not vegetated areas. Leave logs and rocks as you find them and do not move tables to other sites." This sign provides the rules for visiting campers but does not go into the details of the Leave No Trace practices or the rationale behind why these rules exist. While there are space and size limitations when printing signs or deliverables, a brief sentence or two describing how camping off the pad damages the nearby environment or how leaving trash behind could attract wild animals putting both the animals and visitors in danger would be beneficial in helping connect visitor's recreational and conservational values with the park's overall preservationist goal. Even with these tensions still at play within the park, in this way, visitors would be better educated about how to leave a smaller environmental footprint while vacationing.

With the collected deliverables and observed signage in the park in mind, the active observations within this study also paint a picture of the limited nature of environmental risk communication being delivered to visitors. While the staff are educated and trained about some of these risks, visitors are left with much less information on which to inform their actions and beliefs about the environmental state of the park. During the ranger-led activities I witnessed, little attention was paid to environmental risks and the human impact on the park. Instead, more attention was placed on the entertainment value of the park and more surface level education (such as the identification of a bird or animal). Unfortunately, I was not able to participate in all of the many ranger-led activities, but from those I was able to view and the discussions I overheard, conversations about climate change impacts in the park were very sparse. While I

understand that not every moment of these interpretive programs should be focused on the changing environmental state of Glacier (and in fact that would make them undesirable to most visitors), these active observations that involved both visitor and staff engagement only support the lack of environmental protection content found within the passive observations as well.

One area of NPS content not explored within this study is the NPS's online content related to climate change and environmental risks within its parks. With the hope of finding the missing environmental risk communications online, I dug into what the NPS tells individuals about the parks on their website. While this information is likely only sought out by visitors like me who are interested in these types of details and not often seen by the average visitor, it is worth exploring even briefly. In this short exploration, I found a 2016 brochure about climate change effects on national parks around the country as well as a webpage dedicated to the same content. This webpage described the NPS's climate change key messages as: Climate change is real, there are consequences for the parks, the NPS is responding with solutions, and they hope (with visitors' support) to make a difference (NPS, 2018f). The page continues with their education and communication goals, which highlight the creation of interpretive programs centered on this topic, the training of park staff on climate science, practicing sustainable actions as a staff to lead by example, and the distribution of "a broad range of interpretive communication products...to inform general audience about the impact of climate change to parks, and climate-friendly practices" (NPS, 2018f). While these first three goals may be present in my observations of Glacier National Park, the last goal seems to be missing from most park content received by any average park visitor.

Overall, the communication strategies selected by park staff and those who determine the signage and deliverables on site focus largely on the conservational and recreational goals of

Glacier National Park and the NPS as a whole. In combination with the shifting mission statements and interchangeable use of the terms preservation and conservation, many park staff and visitors are now left unsure of or uneducated about the strategic efforts of the National Park Service such as its fire management, recycling and efficient energy programs and its wildlife safety and repopulation efforts.

At its core, the NPS is underfunded and overcrowded and is in need of a solution, but faces conflicting tensions making a solution much harder to navigate. If the NPS were to focus largely on preserving the natural spaces in parks such as Glacier and limiting visitor numbers to reduce overcrowding and negative environmental impacts (the mission 35% of visitors and 28% of staff respondents believe is accurate), they would ultimately receive less funding from the visitors they would not be allowing in. If their limited funding continued, resource management efforts would also need to be reduced once visitor funding could no longer support the researchers and security teams needed to preserve those spaces. As was also demonstrated during the brief government shutdown of 2018, parks left without staff would also likely succumb to vandalism. So, reducing the number of visitors in this way isn't a viable option.

Another option would be to increase the park entrance fee as discussed previously. By doing this, the NPS would again be reducing the number of visitors but could ultimately receive more funding from these limited visitors if the entrance fee were high enough to balance the decrease in visitation. With fewer visitors harming the natural environment, producing less waste, and requiring less staff and park management, the NPS could benefit from these changes and could again focus more attention on its preservationist goals. For the 9% of visitors and 8% of staff that believe the park's mission is purely recreational, this increase in price wouldn't be a surprise. When hotels are booked out years in advance and campgrounds are filled quickly at the

start of a season, many recreational spaces would see this an imbalance of supply and demand and would quickly increase prices. But by raising entrance fee costs, the NPS would be limiting visitors based solely on socioeconomic status resulting in a much less equitable recreation space partially funded by the federal government. This is a great concern and makes raising the entrance fees a very difficult choice for the NPS.

By decreasing visitation to the most popular parks, the NPS could ultimately dedicate more effort to preserving the natural environment within each park but would likely encounter funding issues or ethical concerns soon after making these changes. Without limiting rates of visitation, these protected spaces are overcrowded and understaffed resulting in environmental damages that parks may not be able to ever rectify. The majority of both visitors and staff in this study described at least a minimal level of concern for the current state of Glacier National Park and its ability to live out its mission. The environmental risks that participants described, such as litter, social trails, invasive species, melting glaciers, and disrespectful behaviors, would only increase if the NPS decided to continue allowing increasing levels of visitors in combination with the limited number of staff available.

This tension between preserving the natural environment while still providing a safe recreational space for visitors is one that will not easily be resolved. A park cannot both focus on preservation and conservation as they are mutually exclusive, but, as the results of this study have shown, this park has found itself in a tug of war between these two mission goals. Currently, the NPS is able to include environmental protection and wildlife management efforts in conjunction with more conservational and recreational goals, but with budgets continually becoming more tight, it may soon need to make more dramatic changes in order to keep the parks in business and/or to preserve the natural environments found within.

While all of this sounds quite heavy with no clear solution, throughout this study, I have discovered a few possible communicative options for the staff of Glacier National Park to help manage the tension between preservation and recreation found within GNP. The following chapter will begin to conclude this study by first detailing a few potential strategies GNP could use to help educate the high volume of visitors it receives each year on how to better protect and preserve the natural environment within the park. I will then conclude with the limitations I encountered throughout this study as well as a few tips for researchers interested in studying this topic or this setting in the future.

CHAPTER SIX: CONCLUSION

Communication Recommendations

After analyzing and researching the park's existing communication strategies and the many deliverables and action-based experiences provided to visitors in the park, I combined all of the answers to my research questions, along with environmental communication literature related to national parks and the theoretical groundwork of the CMM theory, to propose the following changes to Glacier's limited environmental risk communication strategies. I propose these strategies as possible ways that Glacier National Park and the NPS can educate their visitors on the environmental changes and challenges faced by the park and how these visitors can help reduce their negative impact on parklands while visiting.

The first recommendation is for Glacier National Park to publish much more information about visitor impact and climate change impacts within commonly distributed park documents and signage (and not those just meant for children). My observation found very few instances of this content in the park. Whether or not the mission of the NPS is to preserve or conserve, both involve protecting the environment from the damages of human use for either pure protection or to conserve for others to enjoy for years to come, making negative environmental impacts a problem regardless of the perceived conservation or preservation priority.

One park ranger brought up the possibility of information restrictions within the NPS stemming from the larger shift in environmental protection interests as of the 2016 election, but from the digging I did online, I found no published rules requiring NPS staff to limit discussions of climate change science. In fact, they provide this information online regarding most major national parks online. While there was a scare during the rogue NPS tweets immediately following President Trump's inauguration, it seems that the NPS is fully allowed to publish and

distribute information about the human impact on our warming climate. With this in mind, there is not a clear reason why the NPS hasn't produced more handouts containing this important information. Perhaps due to budget or staff limitations, it may be difficult for parks such as Glacier to reprint handouts mid-season, but once older items begin to run short on supply, the NPS could simply add a few short sentences containing more environmental risk information within each relevant document. This would not require a large overhaul on what deliverables already exist within the park, but instead would help add more purpose to each.

One additional deliverable park staff should consider is a simple 1-page infographic or handout distributed to every park visitor who enters through the main park gates. This handout would contain the general park rules along with recommendations for how to visit sustainably while in the park. An explanation of the Leave No Trace policies could be included along with descriptions of park resource management efforts in place and how best not to disturb those efforts while enjoying the natural beauty of Glacier. A bulleted list of how visitors can incorporate environmentally friendly behaviors while inside and outside of park boundaries would also be a useful addition. This information was clearly explained in the two children's booklets distributed in the visitor centers, but these recommendations rarely made it into any content produced for adult visitors. I cannot say that I am 100% sure I received every deliverable produced by Glacier (although I did ask for every one and did receive many), so there is a chance that this document already exists. But having described myself and my purpose in Glacier to many staff members, none pointed me in the direction of this type of handout, so its existence seems unlikely.

In my personal experience, when entering a national park, I am by default usually given a map and a brochure containing basic park information. In fact, when entering Glacier National

Park for the first time, I was given the expected brochure, a park map, a campground map, and a flyer about bear safety. If park staff were concerned about the effects of this infographic's additional paper usage, they could also consider adding this content to that "welcome to the park" style handout already commonly distributed or by adding it to the backside of a 1-sided map. An alternative plan that would not increase paper usage would be to provide a link to this content posted online, but as I experienced while in Glacier, access to the internet and cellular service is very hard to find, making this content unreachable to most. Instead, a printed version would likely be the most reliable form of distribution. While park staff cannot make visitors read this content, at least it would be available to those who have questions or take interest.

The next recommendation for Glacier National Park is to be explicit in its descriptions of environmental concerns and risk communication. Park staff should not assume visitors will connect the dots from a rule to a rationale. While many park signs and handouts were related to the park's rules and regulations and hinted at the harmful environmental impacts caused by humans in the park, explicit statements about why visitors should engage in rule-following behaviors were generally missing. Signs would order visitors to keep their campgrounds clean, or to stay on the trails, or to recycle their single-use plastics, but these signs never provided an explanation for why.

It would be convenient to believe all visitors already understand the "why." Based on the online visitor responses and observations from within the park, however, it is clear that many do not. Many visitors have likely never heard about the Leave No Trace policies or how following those policies can create a cleaner, safer park and can help preserve the natural environment of the park overall. Many visitors have read the signs to not feed the elk but have likely never been told why animals habituated to human contact pose a threat to not only the human population in

the park, but the elk population as well. Many visitors have seen the trail maps, but few have likely been told about the harmful effects of social trails on the natural environment within the park. Many of these concerns, such as social trails, may seem like small issues to park visitors, but in reality can create harmful, irreversible damage to the animals, plants, and overall sustainable condition of Glacier National Park. The framework for this content is already in place with many signs and handouts related to this content. Now, the staff of Glacier and the NPS need to add a little more detail and make these items an effective extension of their mission.

The last recommendation is to create more active interpretive techniques for informing visitors about the human impact on the Glacier National Park environment. While I cannot speak to every interpretive event held at Glacier as I could not participate in or view them all, by examining their descriptions in handouts and on signage and by watching some in progress, there was a clear lack of environmental risk content being shared within them. Many contained content about the environment, but few took this content the next step forward (how humans have been involved and how we can help protect it). For example, some events included: Creature of the Night: Find out what is hunting and creeping about while you are sleeping; Bootleg Lady of Glacier Park: Hear a tale of an intriguing early area resident; and If These Rocks Could Talk: Take a journey through time and unearth the amazing geological story of Glacier. Many of these 45-minute programs profile historic participants of the early construction of this national park and many touch on the plants, animals, and natural features of the park, but few contain the information necessary to educate visitors about environmental risks and their contributions to those risks.

This recommendation is supported by the research of Whatley (1995) and Doucette and Cole (1993), all of whom argued for more interpretive educational events within national parks

in order to overcome environmental concerns. When facing environmental issues that would benefit from direct changes in human behavior, interpretive measures should contain direct action-based information (Whatley, 1995). They should be personal, educational, and provide a positive but impactful experience. Visitors still want to have fun during these programs, but a few minutes dedicated to describing how each visitor can help make a difference would likely not disrupt that fun educational experience for many. One way park staff can ensure the heavy topic of climate change doesn't dampen the fun for park visitors is to highlight the benefits of addressing climate change instead of describing the more often discussed negative impacts (Pike, Doppelt, & Herr, 2010). While public conversations and media coverage of the climate crisis is usually centered around the doom, gloom, and negative outcomes of climate change, by focusing more on the benefits of corrective programs and actions, visitors may feel more encouraged to participate constructively as well.

Within the US DOI Budget Justifications and Performance Information documents for the 2020 fiscal year, the authors dedicate a small section to "Protecting Park Resource in a Changing Environment". Throughout this brief section, the authors discuss the vulnerability of park environments before turning to the resources in place to help park staff, managers, and community partners conduct research on these detrimental changes and effects of our warming climate. They then make the following statement:

In serving park visitors, the NPS develops interpretive products and provides first-hand learning opportunities about environmental impacts and how the NPS is responding to protect park resources and the nation's heritage. (USDOI Budget, 2020, p. 53)

The NPS and Glacier National Park have done a wonderful job providing fun, educational interpretive programs, but as this document states, their goal extends far beyond simple awareness of the natural environment. In order to fulfill this goal and perhaps begin to see more

positive visitor behaviors around Glacier, these programs should dedicate more attention to the environmental impacts of climate change and visitor behaviors and how both the NPS and visitors can respond.

Throughout these recommendations, one overarching goal of the additional content and programming is to help visitors feel the tension or dissonance between their interest in Glacier National Park and the threats to this park that climate change brings. Once visitors feel sufficiently worried that climate change will threaten their ability to continue to visit and enjoy this protected space, they may be more likely to take personal action and support policies addressing these issues (Pike, Doppelt, & Herr, 2010). Through these programs, the staff at Glacier National Park can help make visitors aware of the challenges posed by climate change within the park and the threat that their continued use of the park might be disrupted if the climate continues to negatively progress as expected. In order to motivate visitors to alter their thinking and behaviors, these programs and handouts should try to bridge the gap in understanding and connect visitors' lives and the wild spaces they care about to changes already underway in the park.

Simply instilling this tension alone is unlikely to change visitor behavior. The next step is to get visitors to believe that people, including themselves, can make a positive difference and that there are tools and strategies in place to help. By building visitors' sense of efficacy through communicating the already successful examples of policies and programs in place within Glacier, park communicators can begin to motivate visitors to take action and live a more sustainable life (at least while in the park, but optimally also once back at home). Demonstrations centered around wildlife management success stories and habitat restoration projects would be a useful addition to the already existing interpretive programs and would help

to instill this sense of efficacy. Within these demonstrations, park staff would be able to focus on real-world tangible solutions to environmental risks within the park and help frame the strategies in place in a way park visitors could understand, appreciate, and perhaps join. Through the distribution of new print content and the creation of new (or updated) interpretive events, Glacier can begin to give park visitors a clear role in the narrative of protecting this national park. Through this combination of detailed handouts and interactive programs, the staff at Glacier National Park can help visitors progress from general disinterest in climate change information, to designing green strategies for moving forward, to actually living out those environmentally friendly behaviors, to finally becoming defenders of the environment overall.

Limitations

Throughout the process of researching the visitor and staff perspectives within Glacier National Park, there were many challenges and surprises along the way resulting in a variety of limitations. Acknowledging these limitations may help future researchers interested in this topic have a much smoother route to a completed study.

The first limitation is the uneven distribution of visitor to staff responses. While it would have been useful to have approximately even amounts of respondents to represent both the visitor and the staff perspectives, that was not the reality for the population being studied within Glacier National Park. When touring the park, it is easy to see why this would be the case. Even during the slower spring season with snow still blocking a large portion of the park from vehicle access, I saw visitors at nearly every turn while staff took much more effort to find and track down. Apgar Village and the two visitor centers always were reliable locations for finding staff participants, but during my two weeks there, I encountered many of the same staff repeatedly at these locations.

Researchers interested in collecting qualitative data from staff at national parks in the future should prepare for the potential of staff shortages during the off season before arriving. They must also keep in mind that the staff within these parks are busy and may need to rush to a safety concern at any minute. Other methods, such as phone interviews during the off season, may be able to reach a larger section of this participant pool. An online survey method also during the off season could gather more staff participants as well, although there is the drawback of less recent information when postponing until the staff are no longer working in the park. Future researchers may want to consider tackling the visitor perspective during peak season while gathering the staff perspective when they have more time to dedicate to this type of research.

Another limitation encountered during this study was the dates I chose to be present in Glacier National Park. While late May to early June sounds like summer weather in many places in this country, the high Continental Divide mountain peaks of this park make the weather unpredictable, highly variable, and sometimes dangerous during this part of the spring season. In fact, during the two weeks I was in the park, I experienced temperatures in the high 80s on multiple occasions, thunderstorms and a blizzard on the same day, and an avalanche on the Going-to-the-Sun Road. The weather was unpredictable to say the least and these dramatic changes kept many visitors who would have to travel a long distance from risking their one visit to Glacier during this season. Choosing spring dates also meant that many schools were still in session, resulting in fewer visitors being present in the park. Glacier National Park's peak tourist season is July through August, a time I was unable to be in Montana. Had I had access to the park during this peak season instead of the earlier spring, I might have been able to gather

responses from a larger, more diverse population. There also would have been more staff around during the peak season that I could have asked to participate.

Besides there being fewer people overall in the park, there were other setbacks due to the season in which I was in Glacier National Park. The free shuttle service, advertised online as running starting in late May, was not running (except on weekends) while I was there. My original plan for gathering participants was to stand in line for this free shuttle many times each day to talk to individuals while they were waiting for their ride. This way, I would not be taking up any of their valuable time adventuring around the park. With this shuttle not operating, I had to rely on much quicker conversations with those I encountered and the survey cards I had created to gather participant responses.

Another setback due to my chosen dates was the snow still present on the Going-to-the-Sun Road. The snow was so deep at the center of the park that this road, the most reliable way to get from the east to the west side of the park, was closed at the center as plows tried to dig it open for the summer season. This made getting from the Apgar Visitor Center (on the west end) to the St. Mary Visitor Center (on the east end) difficult and much more time consuming. The drive over the mountains using the Going-to-the-Sun Road takes about 50 minutes to get from the east to the west gate. The alternative highway I was required to use instead took about three hours one way. Because of this, I decided to stay two nights in a campsite on the east end of the park in order to gather participants from both visitor centers. Luckily, the west side, where I had my more permanent researcher housing, had the better weather and more visitors during this spring season. For any researchers planning a study within this wild national park, timing and the weather is an important factor to consider as it can dramatically change the feasibility of the chosen methods.

One other limitation to this study was my inability to attend all of the ranger-led programs while I was in the park. Even though I photographed the signage and documented the descriptive handouts about these programs, I couldn't attend each one which may have resulted in missed information about the environmental efforts within GNP. It is possible that, during the programs that I didn't attend, conversations about the environment, climate change, and human impacts were happening and that this important information was being shared with visitors within the park. While the results of this study demonstrate a gap in the NPS's communication about environmental risks, this untapped area of data could be a good place to continue this line of research. If a researcher could spend more time in the park attending these events during the peak season, they may be able to gather a more detailed view of the environmental conversations happening during these programs.

Lastly, while not directly effecting this research, I finished writing this study during the Coronavirus pandemic and am defending this dissertation remotely due to restrictions on gathering in groups and the requirement to stay 6-feet from other people. The Covid-19 outbreak has wreaked havoc across the globe infecting over 3 million and killing over 250,000 as of the date this was written. Because of this virus, entire countries have shut down and communities have been asked to stay quarantined inside. Right now, Glacier National Park (and many other national parks) is temporarily closed following the guidance of the Centers for Disease Control (CDC) and the Federal Government. While essential employees continue to provide law enforcement, maintenance, and wildlife protection programs, many park rangers have begun teleworking and have developed and expanded the NPS's virtual education programs. Now, many can visit these national parks by simply accessing the newly created and updated information found online. Depending on how long this virus continues to plague the world, the

NPS may find themselves closed or partially closed for an entire summer season resulting in an incredible loss of revenue from visitors. Whatever happens, the NPS will need to be flexible in managing their finances, staff, and programming as the US works to recuperate from this pandemic. Scholars interested in this line of research should take care when organizing their studies as Glacier and other national parks may look and operate quite differently in the near future.

Conclusion

In conclusion, this study sought to take a deep dive into visitor and staff interpretations of the mission and purpose of the National Park Service and Glacier National Park through the lens of the CMM theory as well as the participants' understanding of the environmental state of this beautiful protected space. Throughout the data collection and analysis process, I uncovered the confusion within both visitor and staff participants surrounding the overall mission of the NPS and provided the pros and cons of this confusing and continually shifting mission statement. By using the Coordinated Management of Meaning theory both to guide the construction of this study's research questions and to analyze its results, this study explored the power of a shared interpretation of the mission of this protected space as well as how the management teams at the NPS can use this co-constructed and divided understanding to their advantage in the midst of a warming climate. Through this theory's lens, future scholars can dive more deeply into how this coordinated mission interpretation and the management efforts surrounding it can influence the NPS' funding, where that funding is spent, how the NPS communicates with donors, how staff persuade visitor behaviors, and how both visitors and staff identify with the NPS and individual national parks. While many of the visitors and staff involved in this study are uncertain or

unaware of the differences between preservation and conservation, many agree that Glacier National Park is a space worth visiting, protecting, and researching in the future.

In addition to this, the environmental risks most commonly recognized within Glacier National Park were also reported as well as how those risks were being communicated to park visitors. By examining park signage, interpretive programs, and deliverables, it became clear that the park does not communicate important environmental concerns to its visitors with much frequency. Outside of the children's workbooks, most communication coming from the park failed to provide enough detail and rationale about environmental management strategies and safer environmental practices to its visitors. Instead, most communication focused on the recreational components of the park while neglecting to educate park visitors about why following the rules and being environmentally conscious are integral to the success of Glacier overall. As a result, many visitors are able to spend time in the park without even being aware of the consistently changing environment, their impact on that environment, and how they can become stewards of this environment. Whether or not the NPS mission aligns most closely with preservationist or conservationist ideals, protecting the natural wonders of the park and educating the public about them are at the heart of this service and this national park. By communicating more clearly about environmental protection efforts underway in GNP as well as how visitors can contribute positively to the environment of the park, the National Park Service can continue to live out its mission within Glacier National Park.

While reflecting on the long process of planning, researching, and writing this dissertation, it was important to return to the opening introduction which was written long before these concluding statements. My goal when I set off on this journey was to help protect the natural spaces in GNP and to help establish a better understanding of how individuals perceive

the value and importance of the U.S. National Park Service as a whole. Now that this study is nearing its completion, I think this research does indeed have the potential to make a positive difference in the battle for protecting Glacier National Park even if simply used as a jumping off point for more research of this nature. With growing attendance rates each year, it is clear that people appreciate these national parks and would like to continue using them for many years to come. Perhaps, through more strategic environmental communication practices and more research on these protected spaces, we can continue to provide access to the beauty that is, and hopefully forever will be, Glacier National Park.

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APPENDIX A: ONLINE SURVEY

Visitor:

1. Why did you choose to visit this national park?
2. What do you think is the purpose and mission of Glacier National Park?
3. How well do you think this national park is living out that mission? Why?
4. Have you seen any environmental damage in the park while you were here? If so, please provide examples.
5. What do you think Glacier National Park can do to help stop this environmental damage from happening?

Staff:

1. Why did you choose to work at this national park?
2. What do you think is the mission and purpose of Glacier National Park?
3. How well do you think this national park is living out that mission? Why?
4. Have you seen any environmental damage to the park while you have been working here? If so, please provide examples.
5. What do you think Glacier National Park can do to help stop this environmental damage from happening?

APPENDIX B: OBSERVATION GRIDS

	A	B	C	D	E	F	G	H	I
1	Glacier National Park Observation Grid								
2	Passive Observations	What is it	Where was it located	General topic	Goal of item (Educational about park, Educational about environment, Description of a safety rule or advice...	Includes conservation values (Y/N)	Includes preservation values (Y/N)	Makes reference to park mission (Y/N)	(Active) What are people doing with it
3	PO1								
4	PO2								
5	PO3								
6	PO4								
7	PO5								

	A	B	C	D	E	F	G	H	I
1	Glacier National Park Observation Grid								
2	Specific Active Observations	Who is involved (S, V, SV)	Where was it located	What is being done or said	Is recreation the primary objective (Y/N)	Evidence of environmental values (Y/N)	Evidence of safety values (Y/N)	Makes reference to park mission (Y/N)	What other values are present (health, education, leisure, spiritual, relaxation, economic, scenic beauty, entertainment...)
3	AO1								
4	AO2								
5	AO3								
6	AO4								
7	AO5								

APPENDIX C: PASSIVE OBSERVATIONS

Passive Observations	What is it	Where was it located	General topic
PO1	June 2019 Ranger-Led Activity Guide	Apgar Visitor Center	How visitors can get involved in educational and entertaining activities while at the park.
PO2	Features of Glaciation	Apgar Visitor Center	Map of the whole park with campsites, roads and points of interest. Some brief info about glaciers and the history of the park.
PO3	Bears	Apgar Visitor Center	Important bear safety information
PO4	Mammal Checklist	Apgar Visitor Center	Checklist of common and uncommon mammals in the park
PO5	Bird Checklist	Apgar Visitor Center	Checklist of common and uncommon birds in the park
PO6	Fish in Glacier	Apgar Visitor Center	Information about fish species in the park
PO7	Glacier National Park Conservancy	Apgar Visitor Center	Information about the conservancy and request to donate
PO8	Glacier Trail Rides	Apgar Visitor Center	Advertisement for Swan Mountain Outfitters
PO9	Hiking Glacier Guide	Apgar Visitor Center	Advertisement for Glacier Guides Inc.
PO10	Cruise Beautiful Waterton Lakes to Glacier National Park	Apgar Visitor Center	Advertise for Waterton Inter-Nation Shoreline Cruise Co.

PO11	Glacier National Park Sun Tours	Apgar Visitor Center	Advertisement for Sun Tours-Blackfeet Interpretive Bus Tours of Going-to-the-Sun Road
PO12	Glacier National Park Scenic Boat Cruises	Apgar Visitor Center	Advertisement for Glacier Park Boat Company
PO13	Glacier National Park Lodging Rates	Apgar Visitor Center	Information about rates at 5 different lodges within the park
PO14	Glacier National Park Red Bus Tours	Apgar Visitor Center	Information about Red Bus Tours through the park
PO15	Glacier Institute	Apgar Visitor Center	Information about guided tours and educational programs
PO16	Climate Change	Apgar Visitor Center	Information about climate change, melting ice, effects on mountain ice and water, how animals and plants need to adapt, increase in fire's and fire damage, as well as what the park is doing to help stop these harmful effects of climate change.
PO17	Montana Official Highway Map	Apgar Visitor Center	Map of Montana for driving
PO18	Boating	Apgar Visitor Center	Boating rules and regulations in park waters
PO19	Camping Regulations	Apgar Visitor Center	Information on rules and regulations while staying in GNP campsites

PO20	Wildland Fire in National Parks	Apgar Visitor Center	Information about how fires were managed historically as well as how tactics have changed over time. Lots of information about NPS fire management strategies and why the park must have fires at times.
PO21	Grizzly Bears in the Northern Continental Divide Ecosystem	Apgar Visitor Center	Information about grizzly bear habitat loss and endangerment as well as progress made on protection efforts and scientific studies of their population and lives

PO22	Crown of the Continent Newspaper	Apgar Visitor Center	Safety concerns. Rules and regulations for camping, pets, boating, hazards in the park such as weather, falling, drowning, hantavirus, ticks, giardia...lots of hiking maps, Information on shrinking glaciers.
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PO23	Junior Park Ranger Packet	Apgar Visitor Center	Engaging activity book with educational information about the purpose of the NPS. Activities: Listening to the sounds of nature, Practicing Leave No Trace policies, learning native names for animals and plants, habitats of native animals and how those spaces are being reduced, how the glaciers have shrunk around the park, being wise around wildlife, and living lightly. Recommendations for living lightly such as using reusable totes, recycling, planting trees, conserving water by turning off the faucet, unplugging electronics while not in use, using LED lightbulbs, inflate tires properly to get better gas mileage, keep houses hotter in summer and cooler in winter, buy local foods to reduce transportation energy consumption.
PO24	Pre-reader Activity Guide for Glacier National Park's Youngest Junior Rangers	Apgar Visitor Center	Contains activities for young children including finding living and nonliving things in nature, coloring a butterfly wing, and finding shapes like triangles in nature.
PO25	Backcountry Guide 2019	Apgar Visitor Center	Information about backcountry hiking and camping. Includes rules, regulations, fees, and safety tips

PO26	Day Hikes in Glacier	Apgar Visitor Center	Maps of hiking trails in the park as well as tips for staying safe while hiking.
PO27	Evening Program Descriptions Sign	Apgar Visitor Center	Information on educational programs happening in the park
PO28	Two Medicine Sign	Apgar Visitor Center	Information about the history and location of Two Medicine in GNP
PO29	No title: Graffiti	East side hiking trail through burn out	People have carved their names and initials into a burnt tree near a hiking trail
PO30	No title: Social trail	Hiking to Avalanche Lake	Social trail expanding on the official trail. Users wanted to get closer to the water.
PO31	No title: Litter in small stream	Trail of the Cedars	Granola bar wrapper in a small stream close to a hiking trail
PO32	Travel Through Glacier Sign	Apgar Visitor Center	Information about the Going-to-the-Sun Road and roads within the park visitors may want to use
PO33	Many Glacier Sign	Apgar Visitor Center	Information about the Many Glacier part of the park as well as information about the glaciers and climate change
PO34	Goodbye to the Glaciers Sign	Apgar Visitor Center	Information about the shrinking glaciers in the park due to climate change
PO35	Attention Campers Firewood Sign	Apgar Campground	Rules surrounding gathering firewood in campgrounds
PO36	Fine for Improperly Stored Food Sign	Apgar Campground	Fine warning for improperly stored food in the campground

PO37	Graffiti in a public outhouse	Going-to-the-Sun Road bathroom stop	Graffiti
PO38	Children's Programs Sign	Apgar Visitor Center	Information about the Junior Ranger program and events as well as boat tours
PO39	Logan Pass	Apgar Visitor Center	Information about Logan Pass, its elevation, plants and animals...
PO40	Sun Point	Along Going-to-the-Sun Road	Information about sun point, its plants and animals, and what you can do there.
PO41	Glaciers on the Move Sign	Going-to-the-Sun Road	Information about Grinnell Glacier from 1939-2015
PO42	Recycling bin	Avalanche Creek Campground	Recycling bin
PO43	Graffiti on bridge railing	Outside Apgar Village	Blue paint graffiti on river bridge railing
PO44	Burn zone	Trail Gunsight Pass	Huge area of old forest fire
PO45	The North Fork Sign	Apgar Visitor Center	Information about the North Fork section of the park-a rarely visited section

PO46	Losing a Namesake Sign	Jackson Glacier Overlook	Image of each remaining Glacier in the park's shape and size comparing 1966 to 2015
PO47	Jackson Glacier Overlook Sign	Jackson Glacier Overlook	Information about hikes nearby, the history of horseback in the area, and information about the Least Chipmunk.
PO48	St. Mary Valley Sign	Going-to-the-Sun Road east side	Information about the mountains in sight as well as the native plants, animals, and people that live(d) here
PO49	Changing with the Times Sign	Jackson Glacier Overlook	Information about climate change and melting glaciers as well as a graph of CO2 levels in the atmosphere over time
PO50	Where the Prairie Meets the Mountains Sign	St. Mary Visitor Center	Information about the creation of this landscape and the plants and animals there

APPENDIX D: ACTIVE OBSERVATIONS

Specific Active Observations	Who is involved (S, V, SV)	Where was it located	What is being done or said	Is recreation the primary objective (Y/N)	Evidence of environmental values (Y/N)	Evidence of safety values (Y/N)
AO1	SV	Howe Lake Trailhead	Ranger is getting ready to lead a group hike with 2 other visitors-gathering in the parking lot	Yes. Positive. Excited. Tired (it was early in the A.M)	Yes. When I ran into them again on the trail, the ranger was teaching the visitors about the pileated woodpecker	Yes. The Ranger was carrying bear spray
AO2	SV	Fish Creek Campground (closed)	Large group of middle school kids are doing little construction projects and cleaning up the campground	No. Lots of chatting and laughing. Generally positive.	Yes. They were trying to keep the place clean and likely safe as well.	
AO3	V	Apgar Village beach	A group of visitors were taking photos of the lake with thick smoke from a Canadian wild fire rolling in	Yes	N	N
AO4	VS	Avalanche Lake Trail	A ranger was rushing up the trail to Avalanche Lake after visitors reported a bear that wouldn't leave them alone	N	N	Yes- the goal was to go scare the bear away from the people fishing and

						hiking up there
AO5	VS	St. Mary Visitor Center	A long line had formed in the visitor center as visitors waited to talk to the rangers at the counter. I waited in line with them. The visitors around me were from Texas and had questions about how large of an RV could fit through the narrow passages on some roads in the park. The ranger seemed overwhelmed and took nearly 15 minutes (once we had reached the front of the line) to come answer the man's questions.	Y	N	Yes-if they took the wrong turns, they could hurt themselves, get in an accident, or get stuck in a tight turn around point.
AO6	VS	Apgar Visitor Center	A ranger had set up a booth outside Apgar with different furs and talons and pieces of animals found within the park for people to come touch and learn about.	N	Y	N
AO7	V	Trail to Snyder Lake	Hikers were stopped talking about the burn zone on this ridge and the Sperry	Y	Y	Y

			Chalet area that burned in the Sprague fire of 2017			
AO8	S	Apgar Visitor Center	Conversation with Ranger	Y	Y	Y
AO9	VS	St. Mary Visitor Center	Long line of visitors waiting to get maps and discuss trail conditions. Actually thanked me once I talked to her for answering the questions of people who were waiting in line with me.	Y	N	Y
AO10	V	Apgar Visitor Center	Group of elderly people waiting outside the bathroom were looking at the weather conditions on a tv screen located on the outside wall of the visitor center	Y	N	Y

AO11	V	Avalanch Lake Trail	A group of visitors had stopped on the trail to take pictures and drink water. I talked to them about my research for a while. They were excited to hear someone was researching this. They had traveled here from a nearby state because they wanted to see the glaciers before they disappeared.	Y	Y	N
AO12	VS	Trail of the Cedars	A ranger was leading a guided hike through the Trail of the Cedars with about 15 other visitors following. He was talking about the newly renovated boardwalks in that area and how it was a hard decision for the park to make them.	Y	Y	Y- they previously discussed bear spray and bear safety
AO13	S	Apgar Village	This store worker been working at this store for many years and was excited that someone was paying attention to the environmental state of the park. Usually sees	N	Y	N

			researchers counting guests, monitoring a specific species...he liked the purpose with the focus on people who know the park.			
AO14	S	Crown of the Continent Research Housing	He studied mountain sheep on the more secluded trails in the park. He finds a specific spot, sit down, and just watches the sheep behavior each day. He was surprised to find a researcher studying the human perspective	N	Y	N
AO15	S	Crown of the Continent Research Housing	I talked to a researcher and her team. They studied frog and toad populations and a fungus that is killing them. They were also surprised to find a researcher studying the humans in the park and not the animals	N	Y	N
AO16	S	Crown of the Continent Research Housing	A young researcher on a team. He studies the lynx population with a team in the park. Sets up cameras	N	Y	N

			in wilderness to count reclusive lynx.			
AO17	S	Crown of the Continent Research Housing	Talked to a researcher from the park who studies the frequency of visitors on specific roads and trails throughout the park.	N	Y	N
AO 18-21	S	Wi-Fi Room and Adjacent Room	Staff training session for the new staff starting this spring season	N	Y	Y