EXPLORING DETRACTING ELEMENTS AND COPING MECHANISMS REPORTED ON FOUR TRAILS ALONG THE GOING-TO-THE-SUN ROAD CORRIDOR IN GLACIER NATIONAL PARK

By

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Abstract

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Exploring Detracting Elements and Coping Mechanisms Reported in Four Trails along the Going-To-The-Sun Road Corridor in Glacier National Park.

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Abstract Content:

The results of the ongoing study to monitor visitors use, and the shuttle experience in Glacier National Park demonstrate that use levels in the park have increased considerably. Thus, it was pertinent to evaluate to which extent the conditions on the trails are so undesirable or unexpected for visitors that they would usually employ coping responses to deal with those situations. This research was structured to provide a description of the salient setting attributes and personal factors associated with the identification of the detracting elements of the recreational experiences, and types of coping mechanisms usually used.

The study reported here was implemented at four of the most popular trails in GNP: Avalanche Lake, The Loop, Sunrift Gorge, and the Highline trail. A total 765 on-site collected surveys were used for the analysis. Ordinary least squares regression was used to test whether situational and personal factors could predict detracting elements and coping responses. One-way analysis of variance was used to test whether the use of coping mechanisms varied by type of detractor, and by use level.

From the overall sample, results indicated that 67% of the respondents experienced “a lot of other hikers” as the most common detracting element (48%), followed by non-natural sounds (42%) and overflights (32%). For hikers experiencing detracting elements, 80% would usually use a coping mechanism to reduce the negative effect of that kind of detractor. Hikers sampled employed different cognitive coping mechanisms. Rationalization and product shift would be used 49% and 47% respectively. Displacement, in the form of seasonal, time of the day, activity or location changes, was also a usual response considered for 47% of the hikers sampled.

The results suggested that personal factors were more useful than situational factors to predict detracting elements, especially crowding. The regression models suggested that there is still much of the variance in the use of coping responses that needs to be explained by factors other than the ones used in this study. Furthermore, there was not enough evidence found to support differences in the use of coping responses by use levels and number of detractors. However, encounters with wildlife were found to have incidence in the use of cognitive coping responses.

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Chapter 1 INTRODUCTION

Background

Glacier National Park (GNP) sits at the apex of the three oceans that bound the North American continent (a triple divide) in northwestern Montana, "encompassing almost 1.2 million acres of breathtaking mountain scenery" (NPS, 1999). Together with Waterton National Park in Canada, GNP is part of the Waterton-Glacier International Peace Park, the first park of its kind in the world. In addition, GNP was designated a Biosphere Reserve in 1976 and both Waterton and Glacier were designated a World Heritage Site in 1995. GNP has two Wild and Scenic rivers, over 350 historic properties, six national historic landmarks and is a key to survival of the federally listed grizzly bear and Canada lynx (NPS, 1999).

The park functions as a relatively undisturbed core of the Crown of the Continent ecosystem that supports a tremendous variety of plants and animal populations. "The area offers a sanctuary and a corridor for wildlife interaction, migration, and genetic exchange" (Douglas, 2012). The diverse habitats sustain a great diversity of wildlife populations, including threatened and endangered, rare, and sensitive species (NPS, 1999). "GNP is home of the most complement of native wildlife in the United States" (Nielsen, 1999), gray wolves, grizzly bears, mountain lions and goats, wolverines, moose, bighorn sheep, bald eagles, marmots, squirrels, among other species have found a place in the park.

The Going-to-the-Sun Road (GTSR) is a 52-mile scenic road that spans the Continental Divide and is the only road in Glacier that links the east and west sides of the Park. Completed in 1932, The GTSR is listed in the National Register of Historic Places, as a National Historic Civil engineering Landmark and a National Historic Landmark by "outstanding historic structural features and access to some of the most spectacular scenic landscapes in the United States" (NPS, 1999). The corridor is also designated a cultural landscape. The GTSR provides visitors easy access to "Glacier spectacular high country" (NPS, 1999). According to NPS public use statistics office, the Park attracts in average about

2.2 million visitors annually, with approximately 503,000 vehicles traveling the Road between June and October each year when the road is open. In its 1999 General Management Plan, the National Park Service (NPS) concluded that the GTSR should be rehabilitated to preserve a national historic landmark and premier visitor experience in the Park, and called specifically for an integrated transportation plan.

As the GTSR rehabilitation project nears completion, GNP must prepare for a transition of the GTSR transportation system. A shuttle was implemented in 2007 as mitigation during construction to reduce congestion on the road and provide alternative means for visitors to travel across the GTSR. The transit system has been extremely successful, seeing increasing numbers of riders each year (Dimond & Freimund, 2009). However, it has affected overall use patterns and changed how visitors recreate in the GTSR corridor, enabling more hikes linked by the transit system, increasing use of trailhead parking areas and enabling more visitors to visit the backcountry (Dimond & Freimund, 2009; Bedoya & Freimund, 2012). Thus, it is necessary to understand the relationship between shuttle use levels and trail use levels and how those use levels influence experience quality and resource impacts (e.g. effects in wildlife populations and vegetation). With that understanding, alternative management strategies (e.g., limited parking time in congested lots, trail access, permit quotas, shuttle scheduling, trail closures) can be assessed under multiple demand scenarios.

Previous studies in GNP (Freimund, McCool, & Adams, 2006; Freimund, Baker, & McCool, 2006; Baker & Freimund, 2007; Dimond & Freimund, 2009; Bedoya & Freimund, 2012) developed methodology and protocol for assessing parking lot saturation, pullout use and trail use within the corridor. These studies reveal that the presence of the shuttles has influenced visitors decisions to choose a trail or hike within the park. However, while the shuttle has favored to long distance hikers, it is reducing already limited access for visitors who do not use the shuttle and want to make use of the limited parking available along the GTSR for short hikes, sightseeing and access to restroom facilities.

Issues related to crowding are considered to have implications for multiple aspects of the recreational experiences. In 1997, a study conducted by Miller in GNP, reported that from those visitors who did experience a detractor, 32% cited the number of other people as the most detracting element.

Opportunities to view wildlife and scenery, enjoy the quiet of the area, reflect upon and learn about nature, and gain access to park resources, were considered all potentially impacted by density of visitation in GNP (Miller & McCool, 2003).

Understanding how visitor experiences are being influenced or affected by different trail settings and personal factors, and what the potential visitors behaviors or reactions are to those factors, is important for managers as they attempt to determine acceptable conditions or consequences for management actions. Addressing issues like trail use, hiking detractors, and visitor behaviors in a corridor planning process will enable decision makers to assess the real experiential impacts of the selection of an alternative. This will benefit visitor access, education, and recreational opportunities.

Problem definition

About 70-80% of GNP visitors travel some part of the GTSR, and while the road is a destination experience itself, it also provides access to subalpine areas, trails and overlooks such as Logan Pass and the Highline Trail (NPS, 1999). Beginning in 2005, GNP managers implemented an ongoing study to monitor visitor use, and shuttle experience. The study revealed that "the shuttle is changing and adversely impacting visitor experience and visitor use patterns along the GTSR corridor, which includes the road itself, the shuttle system, road side viewpoints, and trails which can be accessed from roadside viewpoints" (Dimond & Freimund, 2009). These results also suggest that the shuttle is increasing the number of visitors who take longer hikes on trails where the transit system facilitates return trips from geographically separated trailheads.

Before the shuttle was implemented, many parking lots were at or above capacity. This limited visitor capacity at roadside viewpoints and trailheads, and indirectly limited the capacity on trails in the GTSR corridor. With the addition of the shuttle, more people can now travel the road and hike the trails than the trailhead parking lots previously allowed. Almost three quarters of the looped hikers sampled on the Highline Trail in 2009 had used the shuttle to facilitate a one way hike on the trail (Dimond &

Freimund, 2009). Additionally, the shuttle makes it possible for more people to visit popular sites and trails within the GTSR.

The study conducted by Bedoya & Freimund during the summer of 2011 provided information about trail use and increased use levels along the road. In the Avalanche Lake trail the 2011 results were contrasted with the backcountry use study conducted in 1988 by McCool & Braithwaite. They estimated that Avalanche Lake trail received 26,200 visitors between May 21st and September 5th. Based on the trail counter installed in 2011, the study of Bedoya & Freimund (2012) got an estimate of 55,170 visitors during the summer season (July 1st to September 5th) at Avalanche Lake trail. In addition, 13,068 visitors hiked Avalanche from September through November of 2011. It appears that use levels on the Avalanche Lake trail have increased by as much as 250% since last measured 23 years ago. Among others trails monitored during the 2011 season, Hidden Lake presented the second highest visitations with an average of 811 visitors per day. The average daily use in St. Mary was 370.1 visitors. The Virginia Falls trail received approximately 40% of the total visitation of St. Mary Falls.

There could be significant and continued increases in the number of visitors riding the shuttle and using the GTSR corridor in the future, further impacting park resources and visitor experiences in the corridor and adjacent areas of the park. The increased use on trails such as the Highline, Hidden Lake and Avalanche Lake, and the subsequent experiences of crowding, may lead to changes in use levels on trails even deeper in the park backcountry as some hikers attempt to escape crowded trails.

According to these results, it is pertinent to evaluate to which extent the conditions on the trails are undesirable or unexpected for visitors that they have to employ responses to deal with those detractors. Since coping is defined as an attempt that an individual makes to deal with stressful, unexpected or undesirable conditions (Lazarus, 1983; Manning, 2011), it is valid to wonder whether the continued visitation growing in the park leads to increase reports of detracting experiences, or whether visitors at GNP are successfully employ coping strategies so that increased visitation levels do not affect the recreational experiences. Under these scenarios, it is useful for manager to assess: what are those circumstances that affect the way visitors deal with undesirable conditions in the trails? Moreover, if

displacement proves to be employed, should the park managers be concerned that spatial displacement is causing increased crowding and biophysical impact in trails that are currently lightly used?

Miller & McCool (2003) identified stress and conflict while hiking as one of the most significant detractors to visitor enjoyment. In the study, 32% of the respondents reported the number of other people encountered as the most common source of the detraction. Access to visitor facilities, rude behavior by other visitors, construction delays and inconveniences, and human caused noise were other elements commonly identified by respondents. These items accounted for 80% of the elements that respondents identified as detracting.

As mentioned before, visitors are gaining access to trails that are now linked with the presence of the shuttle. According to Dimond & Freimund (2009), adding people on trails, however, increases competition for parking, and has potentially increased the use levels on the trails, where previous studies found that a considerable percent of the visitors commented that crowding has had a negative effect on their experience. With the end of the road construction project, park managers will have to make important decisions about the future of the shuttle system and management of the GTSR corridor as whole.

Currently, the park does not have a plan that informs whether the changes described above are positive, negative, appropriate, acceptable or preferred by park management and the public. It is unknown to what extent visitors cope, and how their coping responses vary according to the type of detractor, location or reasons for being there (e.g. desire of observing wildlife). As Hall & Cole (2007) argue, "to make good decisions about how to manage heavily used [trails], where use is increasing, managers need to know more about how visitors are affected by increasing use." Moreover, park managers need to better understand the impact of the detractors not only on the recreational experiences but also on the natural conditions associated with those recreational experiences. Park managers also need to identify the different coping strategies employed by visitors as a means of describing visitor response and as a foundation for recreation management planning in heavily used trails.

The aim of this study was to provide an analysis of visitors perceptions and behaviors regarding crowding and other detracting elements from the recreational experiences in the park trails. Additionally, this study focused on defining coping strategies that those visitors use to deal with the detracting elements found during their hiking experiences along the GTSR corridor. More specifically, this study attempted to identify the personal and trail conditions that influence the way visitors react to some detracting elements, and predispose subsequent coping behavior. Perhaps, these conditions are the environmental quality (wildlife encounters), the level of experience (first-visitors vs. repeated), gender (female vs. male), age (younger vs. older), or the company with others (alone vs. family vs. friends).

The data from this study provides information to help park managers identify a set of considerations on trail use so that appropriate management actions can be implemented. This research was designed to provide information that would permit park managers to anticipate changes in park use allowing them to mitigate unforeseen impacts to visitor experiences, and key biophysical attributes.

Thesis organization

This thesis is presented in five chapters. Chapter one provides the context of the study and the problem being addressed. The second chapter will present the literature review. Specifically, studies that have been conducted about visitor experiences and motivations for engage in determinate places; differences in experiences according to visitor characteristics and settings, and importance of wildlife in the recreation experiences; detractors and coping behavior. At the end of this chapter main research questions and hypotheses will be proposed. The third chapter will describe the methodology used to address the problem, including the research approach, sampling frame and the processes of data collection and data analysis. The study results from descriptive statistics will be presented in the chapter four. Results of hypotheses testing will be addressing in chapter five, including additional tests for wildlife encounters and their relation with coping responses employed. The last chapter will summarize the implications of this study for park management and for future research.

Chapter 2 LITERATURE REVIEW

Initial evidence of increased use on trails (such as the Highline and Avalanche Lake, among other trails along the GTSR) and the subsequent experiences of crowding lead to the need of investigate their effect on visitor experiences and behaviors in GNP. This chapter will provide a description of the current state of understanding about visitor experiences, motivations, importance of wildlife encounters, crowding, and coping strategies. In addition, previous studies about coping and visitor use in GNP will be presented. This information will provide the theoretical and conceptual foundation for the questions addressed with this research.

Visitor experiences

One of the important goals of recreation management is to provide a continuing flow of satisfying experiences to the public (Stankey & McCool, 1984). The Revisiting Leopold report states that the National Park System (NPS) resource management should provide visitors with transformative experiences in all units of the NPS. Moreover, it was suggested in the report that a policy to address this requirement "should formally embrace the need to manage for change, the precautionary principle, and to maintain or increase current restrictions on impairment of park resources" (Colwell, 2012); additionally, it should include an evolving understanding of public wants and needs.

The issue of uniqueness in recreational experiences is particularly important in a national park setting. Millions of visitors annually are attracted to national parks to engage in recreational activities, many of them attracted by natural conditions, especially to observe wildlife and scenery. National parks often offer a collection of attractions for which there is no readily available substitute. As expressed by Miller (1997) "the activity and the location must be taken together with coping strategies employed by the recreationists if satisfaction is to be maintained" (Miller, 1997). Not only are there strong attachments to national parks, but visitors to these areas often make large investments of time and money pursuing recreational goals in these areas.

A recreational experience can be viewed as “a transaction between the visitor and the environment” (Miller & McCool, 2003). Visitor experiences are complex, multidimensional, dynamic and multiphasic (Borrie & Birzell, 2001; Manning, 2011). Recreation experiences are influenced by many subjective (or personal characteristics of the visitors) as well as situational factors (or environmental conditions encountered at an area). These influencing factors may be users expectations, any discrepancies between what users expect and what they actually find or experience, social and personal norms (shared "rules" or "standards" of good or bad, right or wrong, etc.), use levels, and "social interference" (Jacob & Schreyer, 1980), as well as the meanings ascribed to a specific place, personal characteristics, the influence of others within the visitor group, and the influence of the activities that the visitor undertakes (Borrie & Birzell, 2001), as well as the presence of wildlife in the area (Montag et al., 2005) and other setting attributes. As the number and diversity of visitors to parks, wilderness and outdoor recreation areas has risen over the past several decades, so has the concern over the potential effects of these trends on the quality of recreation experiences (Manning, 2011). Specifically, individuals or groups adopt a variety of coping mechanisms to combat perceived crowding and other detracting situations found in the recreational experience.

If reports of visitation in the GNP keep growing every year, then one might suppose that negative conditions, such as crowding will increase, and visitors have to employ some type of coping strategy to deal with the undesirable conditions. The question that rises here is: what are those circumstances that have some effect in the way that visitors cope? Previous research suggest that motivations (solitude, enjoy scenery, wildlife encounters) (Miller, 1997), the level of experience (first-visitors vs. repeated) (Hall and Cole, 2007), gender (female vs. male) (O’Connell, 2010), age (younger vs. older) (O’Connell, 2010), the company with others (alone vs. family vs. friends) (Peden & Schuster, 2004), or the type of trip (over-night vs. day hikers) (Hall, Johnson, & Cole, 2007) can influence if and how a person copes. Determining what elements within the recreation settings are salient to the visitor, and which might serve as indicators of potential conditions that influence these coping behaviors, is crucial for recreation management.

Motivations

Attempts to understand why people engage in leisure behaviors have resulted in a body of inquiry referred to as the intrinsic motivation disposition. Motivation is defined as “a tendency to seek intrinsic rewards in leisure behavior” (O'Connell, 2010). The motivational research program (developed by Driver & Toucher, 1970; Driver & Brown, 1975; Driver & Bassett, 1977; Driver & Rosenthal, 1982; Schreyer & Driver, 1989 as cited in Manning, 2011), defines recreational engagements in terms of "a package of specific psychological outcomes which are realized from a recreation engagement” (Patterson et al., 1998). This approach also recognizes that people may choose to participate in certain activities in certain settings for a variety of different reasons (Borrie & Birzell, 2001). Motivation has been characterized as the “why of behavior and provides evidence as to what psychological needs and expected outcomes caused people to engage in activities such as recreational pursuits” (Vallerand & Losier 1999 as cited in O'Connell, 2010).

Research on motivations assesses expectations, goals, desired outcomes, motivations, and cognitive judgments about outcomes that are actually received (Williams et al., 1992). As a result, its focus has been on satisfaction with the experience defined in terms of “the degree to which desired and expected outcomes are realized (Patterson et al., 1998).” As Manfredo et al. (1996 as cited in O'Connell, 2010) noted, motivation is a key area because it helps determine why people engage in leisure behavior in the manner they do.

Motives differ among recreationists and are largely dependent on their goals and their respective activity (Thapa et al., 2004). Thus, “motivation in a recreational setting is thought to be multidimensional with specific motives changing over time and varying along physiological, social and psychological dimensions” (Ewert, 1993). Understanding motives for participation, researchers have further examined non-motivational factors that may influence participation in a certain activity (Thapa et al., 2004). Empirical research has consistently demonstrated that motivations differ based on participation in various activities, as well as due to the significant effect of other non-motivational variables such as past

experience and skill level (Ewert, 1993; Graefe et al., 1981; Schuett et al., 2010; Todd et al., 2002a,b; Williams et al., 1992), first/repeat visit and type of trip (Graefe et al., 1981; Thapa, Confer & Medelsohn, 2004), group composition (Ewert, 1993; Schuett et al., 2010), enduring involvement (Schuett et al., 2010; Hall, Seekamp, & Cole, 2010), and select demographic variables (Schuett et al., 2010; O'Connell, 2010; Lee, Graefe, & Li, 2007).

Overall, based on empirical research, there has been some consistency in findings as recreationists have noted the following but not limited to these motivations/domains such as, exploration, escape, general natural experience, introspection, exercise, to be with similar people, to seek exhilaration, and to escape physical stressors (More & Averill, 2003; Thapa et al., 2004). In that regard, Miller (1997) identified four clusters under which visitors motivations to GNP could be assigned. The main motivational items observed were scenery, solitude, independence, wildlife viewing, and security. Similarly, Nickerson (2003) detected that people visit GNP primarily to view the scenery and the wildlife. Nikolaeva (2012) found sixteen different motivations/benefits of actual and desired experiences from semi-structured interviews conducted to visitors in GNP. Escape and remoteness, learning, and challenge were identified as most prevalent throughout the data among motives and benefits according to researcher observations, interpretation of data and personal judgments. In addition, enjoying wild nature was one of the motives mentioned by the visitors interviewed. The researcher concluded that numerous natural elements that can be seen in the park usually add to the experience, be it unique glaciers, wildlife, waterfalls, lakes, old-growth trees, or wildflowers. Wildlife, especially bears, sometimes serves as main reasons to come to this place and is one of the highlights of the experience.

Importance of wildlife in the recreation experiences

Wildlife provides a unique and engaging recreational opportunity (Montag et al., 2005). Many people, when visiting a natural area hope to see wildlife at some point or another. People who enjoy

wildlife may seek out encounters, increasing their appreciation for wildlife and thereby support for conservation initiatives (Kretser et al., 2009 as cited in Taylor & Knight, 2003).

It has been stated that watching or encountering with wildlife is one of the key motivations for recreation experiences in natural settings (Manning, 2011; Davenport et al., 2002). Thus, wildlife encounters is not only an important motivation among visitors but also wildlife watchers are an important group among visitors to national parks and wilderness areas. Davenport et al. (2002) assert that "it is not merely the presence of wildlife in the park that is central to the experience, but the opportunity to observe an abundant diversity of unique wildlife species in their natural habitat".

Manfredo & Larson (1990) found that 60% of Denver metro area residents took trips away from home primarily to view wildlife. Recently, Hall & Cole (2007) found that nearly 40% of respondents in Oregon wilderness areas said that wildlife was the focus of their attention during their recreation experience, and about 10% said they had been thinking about wildlife. In other words, many people were focused on searching for wildlife, even though they hadn't yet seen any. Researchers conclude that given that not everyone saw wildlife, the prevalence of wildlife as a positive influence is notable. Moreover, people who did see wildlife enjoyed observing animal behavior. Sometimes these experiences were very intense as noted by one respondent: "*seeing the wildlife is probably the crowning point. I was just amazed and glad"* (Hall & Cole, 2007).

Nickerson (2003) detected that people visit GNP primarily to view the scenery and the wildlife. Additionally, Nikolaeva (2012) found that GNP as a unique setting where the experiences occur. The beauty of the place is enhanced by spectacular scenery and wildlife. Wild animals - and especially the bears – are one of the symbols of GNP. Other animals - mostly sheep, mountain goats, moose and elk – are also related to visitors experiences. Moreover, seeing various wildlife was one of the highlights and added to the experience for most visitors interviewed. In that regard one of the visitors commented: "*One thing that I really have enjoyed is we've seen a fair amount of wildlife, we saw a grizzly bear, a mother with three cubs… – it was the first day, and we've seen moose, mountain goats…I love seeing wildlife, and so that really enhanced my experience here."*

According to these results, wildlife is a critical component of visitors experiences. It can serve not only as a primary attraction or an enjoyable part of the visitor experience but also as a source of conflict (Manfredo, 2008). Miller (1997) found that respondents identifying crowding as detractor scored high on perceived threat, not only for solitude, but also for opportunities to view wildlife. If a visitor feels crowded, he or she may also perceive a threat to opportunities to view wildlife. That is, the identification of a detracting experience element may have multiple associations with a range of perceived threats to experience elements, aspects of the experience, for which, a recreationist has a stake. In that context, the relation between wildlife populations and visitation has heightened importance. The effects of wildlife presence are reflected in visitor experiences (enhancing or detracting those experiences), but also the presence of people in a determined setting may cause the displacement of wildlife which leads to detracted or enhanced experiences as well.

Influence of personal factors

Empirical evidence has shown that level of experience is significantly related to individual and trip characteristics, as well as desired experience outcomes (Manning, 2011). Within this framework, level of experience becomes critical to understanding the choice and behavioral process. "Individuals at different levels of experience have been found to define the leisure meanings and desired outcomes of similar recreation settings differently" (Schreyer & Lime, 1984; Schreyer & Roggenbuck, 1978). This line of research indicates that many visitors, especially those with less site experience, may not perceive recreation impacts, and, if they do, they do not necessarily judge them to be problematic, even when impacts are of significant magnitude (White et al., 2008; Vaske et al., 2004).

Past experience is a potentially useful tool for understanding the motivations and behaviors of people who participate in outdoor recreation activities (Kuentzel & Heberlein, 2006). An understanding of how recreationists perceive, choose, and relate to various settings is essential for researchers attempting to understand recreation behavior and managers attempting to provide opportunities for satisfying

recreation experiences (Moore & Graefe, 1994). Past experience can be used to increase an understanding of user groups, desired resource and desired activity characteristics for those visitors at GNP. Past experience provide insight into the different strategies employed by visitors when they find undesirable conditions during their visits to the park.

Miller (1997) tested whether higher levels of experience produce more incidents of perceived detracting experiences in GNP. The rationale behind this hypothesis was to see whether different levels of past (measured by the numbers of times visitors had visited the park before) and current (measured by the number of days visitors had been in the park during the current trip) experience with the park had any impact on the identification of detracting experience elements. There was a general lack of evidence from the data collected for this study to determine significant relationships that reject the null hypothesis between these variables. Contrastingly, the study of White et al. (2008) conducted at Molalla River Recreation Corridor and Table Rock Wilderness, found that the longer visitors have been coming to the site, the more negatively they evaluate social and environmental conditions, specifically, depreciative behavior, environmental impacts, and recreational conflict. The effect of prior visitation on evaluations of social and environmental impacts supported the premise that increased experience causes greater sensitivity to deteriorating site conditions in natural recreation settings.

Kuentzel & Heberlein (1992) claim that "long-time visitors are more likely to be displaced than newcomers because they are more sensitive to changes in conditions and are able to compare current conditions to those they first experienced". Investigations of displacement conducted by Hall & Cole (2007) also found that temporal displacement -altering the timing of visits- is a common way for people to deal with undesirable conditions and may be affected by prior experience. Trail conditions typically vary over time, in predictable ways, being more desirable at some times than others. Visitors learn these temporal patterns and build this knowledge into their trip planning behavior. In some cases, "changing the timing of one's visits may be less difficult than visiting another place altogether, but there has been insufficient research to make definitive statements about the relative prevalence of different forms of displacement related with experience" (Hall & Cole, 2007).

Indeed, if you live closer, chances are you can go more frequently and over a longer period of time to the recreational setting. In that extent, Miller & McCool (2003) noted that since winter visitors at GNP were more likely to be local residents than the visitors during other seasons, the use of a temporal substitution option may reflect a greater knowledge and a greater level of control over their ability to visit the park in off-peak times.

In addition to past experience and place of residence, there are other situational factors that have been studied to understand motives for participation and visitor behaviors in recreational settings. Those factors are age (O'Connell, 2010; Schuett et al., 2010), gender (O'Connell, 2010; Lee, et al., 2007; Schuett et al., 2010, Meng & Uysal, 2008), preferences and expectations (Shelby et al., 1983, Strother & Vogelsong, 2002); group size and type (Thapa et al., 2004), day vs. over-night visitors (Hall et al., 2007).

Recent literature has examined the issue of gender and age in tourism behavior from varied perspectives (Morais et al., 2001). Participants in the O'Connell's (2010) study were recruited during the summer of 2004 at four sea kayak symposia held around Lake Superior. Findings show that there were differences in motivation based on the interaction of age and gender as well as differences in motivation based on level of experience in select domains of motivation. In terms of gender differences, men appear to be more motivated by the active, challenge-oriented aspects of recreation activities than women. In addition, consistent with stereotypical realities of young adult versus older adult life stages, younger recreationists were most likely engaged in raising a family, work obligations, and building social relationships with friends and colleagues. Older recreationists were more likely to be retired, not directly responsible for raising children, and to have an established circle of friends, and were thus less motivated by the need for achievement/stimulation or to get away from social pressures.

The research of Lee et al. (2007) tested the extent to which the paddlers' specialization levels and gender explained motivations and preferences for site attributes. The findings showed that gender is a factor related to specialization, motivations, and preferences for site attributes among paddlers. The results suggested that females tend to be more motivated by experiencing nature, relaxation, and social contact. Additionally, in a study of temporal changes in the motivations of freshwater fishing club

members over a 10-year span, Schuett et al. (2010) demonstrated that age, income, and survey year were significant covariates of motivation. As age increased, the importance of all motivation factors decreased.

Thapa et al., (2004) study examined the effect of select situational variables on motivations among recreationists on the Gallatin River, Montana, USA. Repeat visitors were more likely to mention solitude, while first-time visitors indicated to watch wildlife, and to tell others about it as key motives. Males were more likely to participate for solitude while females noted that they could tell others about it at home. Researchers concluded that recreationists have wide sets of motives, and understanding what individuals seek through recreation can provide useful guidance to a variety of planning and management decisions.

Meng & Uysal (2008) examined the gender perspective on the perceived importance of destination attributes, motivations and values of travel in nature-based destination context. Gender differences were revealed in the perceived importance placed on destination attributes. The study further investigated the interaction effects of gender with other demographic and travel preference variables on tourists perceptions and values. The variables included age, marital status, education, income, preference for price quote and length of stay. The major covariates which changed the results were age and income, which had the most significant impact on the gender perspectives.

During a study of coping and crowding conducted in Adirondack wilderness area, the characteristics of respondents were tested to determine their association with the employment of coping mechanisms. Johnson & Dawson (2004) found that gender was not associated with the respondents use of coping mechanisms. Similarly, place of residence and trip type (overnight vs. day hike) appeared to be unrelated with use of coping mechanisms.

Shelby et al. (1983) explored the individual and combined effects of encounters, expectations, and preferences on perceived crowding. They argued that people would feel more crowded if they expected low numbers of encounters and expected fewer than they actually saw. In addition, they proposed that people would feel more crowded if their reported contact levels exceeded personal standards or preferences. Moreover, people who need solitude and prefer low contact levels would be

likely to see more than they prefer. The results confirmed that recreationists experience crowding not only when they come into contact with other recreationists, but also when contacts exceed their expectations and preferences (Shelby et al., 1983).

Similarly, Strother & Vogelsong (2002) attempted to determine if a relationship exists between crowd size expectations and selected crowding variables. The results indicated that visitors who expected to see fewer people on the beach felt significantly more crowded than those with accurate or over-estimated expectations. They felt the number of people they encountered were significantly less acceptable, and believed that the other people at the site/location detracted more from their experience than people who expected more visitors, or those who had accurate expectations. Data analysis indicated that visitor expectations of crowd size play a vital role in determining how they perceive the number of other visitors (Strother & Vogelsong, 2002). This information may be important to park managers, possibly develop appropriate expectations by improving the accuracy of what visitors can expect at the destination.

Studies of crowding in outdoor recreation indicate that perceived crowding may be a function of several categories of variables, including the characteristics of respondents, the characteristics of visitors encountered, and situational or environmental variables (Manning, 1999 as cited in Johnson & Dawson, 2004). Factors found important include the type and size of group, visitor behavior, and the degree to which groups are perceived to be alike (Manning & Freimund, 2004). In conceptualizing the role of social support in coping with detracting elements, researchers have generally agreed that social support is a multidimensional concept (Manning & Freimund, 2004). Significant others or friends may provide emotional support to show care, thoughtfulness, or encouragement, whereas they may provide esteem support to help a person regain her or his self-esteem following an experience of failure (Iwasaki & Mannell, 2000).

Numerous researchers (Buchanan, Christensen, & Burdge, 1981; Burch, 1964, 1969; Cheek, 1971; Dottavio, O'Leary, & Koth, 1980; Field & O'Leary, 1973; Meyersohn, 1969 as cited in Manning & Freimund, 2004) have emphasized the importance of the social group in outdoor recreation: the vast

majority of people participate in outdoor recreation in family and friendship groups. Those results have been confirmed by Diamond & Freimund (2009) and Bedoya & Freimund (2012) in GNP studies, where groups of family and friends are the most popular groups found in the trails studied. Hall et al. (2007) asked visitors how being with their group affected their experience, and the overwhelming majority responded that the effect was positive. Many people, especially those traveling with family or significant others, commented on the quality time they could have with others in the wilderness environment.

Using a qualitative approach, Hall et al. (2007) found that day and overnight visitors exhibited relatively few differences in their experiences. The most meaningful difference was a greater likelihood for overnight visitors to be adversely impacted by other visitors. The researchers concluded that the impact of encounters with others depended on the circumstances of the encounter and the group, and most people reported positive as well as negative aspects to encountering others. However, day and overnight visitors did not differ much in the way they articulate their trip motives, in their comments about their own group, or the factors that contributed positively or negatively to their trip.

This section provided an overview of the wide range of personal factors that have influence in the type of the recreation experience sought and obtained by the recreationists. The information suggest that there is a complete set of elements to consider when assessing the way in which the people behave in the course of a visit to a defined area. For the present study in Glacier, it is necessary to consider situational factors when evaluating visitor perceptions of detractors and coping strategies used.

Coping conceptualization

Coping can be understood as “an explicit attempt by an individual to deal with stressful conditions either by changing the situation or by dealing with his or her distress” (Baum & Paulus, 1987 as cited in Miller, 1997). Coping strategies emerge as a response to individual evaluations of a given situation. If the individual concludes that the encounter or situation poses some harm, threat, or challenge, then he/she identifies coping strategies. Furthermore:

> "Coping is the process through which the person manages the demands of the person-environment relationship that are appraised as stressful, taxing, or exceeding the resources of the individual. As coping strategies are initiated, and the person-environment relationship changes, the individual reappraises the situation. This process continues until the condition is deemed not stressful or at least tolerable" (Schneider & Wilhelm, 2007).

Coping is defined in the recreation literature as a behavioral and cognitive process that is one of the mechanisms by which visitors may attempt to obtain overall satisfaction or multiple satisfactions from their recreation experience (Kuentzel & Heberlein, 1992; Shafer & Hammitt, 1995; Manning & Valliere, 2001; Johnson & Dawson, 2004; Hall & Cole, 2007). In some cases, situational or contextual factors strongly influence the selection of a coping action (Iwasaki & Mannell, 2000).

According to the stress/coping theory proposed by Lazarus & Folkman (1984) there are at least two major functions of coping: problem-focused and emotion-focused. The function of problem-focused coping is "to change the troubled person-environment relationship by acting on the environment or oneself" (Lazarus, 1993). This coping method can be employed when the situation is estimated as changeable and "is directed at defining the problem, generating alternative solutions, weighing the alternatives in terms of their costs and benefits, choosing among them, and acting" (Iwasaki & Schneider, 2003). The function of emotion-focused coping is "to change either: a) the way the stressful relationship with the environment is attended, or b) the meaning of what is happening" (Lazarus, 1993). This coping function mitigates the stress even though the actual conditions of the relationship have not changed (Lazarus, 1993). "This strategy is directed toward lessening emotional distress through avoidance, distancing, selective attention, positive comparisons and finding positive value in negative events" (Schuster & Hammitt, 2002).

Individuals responses to stressful situations have been measured using an adjusted version from the original checklist developed by Lazarus (1993) to create more specific and adapted coping scales to a recreation context. In many cases, these scales are a combination of variables unique to the recreation setting and variables from the original scales (Schneider & Hammitt, 1995; Schneider, 2000; Schuster, Hammitt, & Moore, 2003 & 2006; Miller, 1997; Miller & McCool, 2003; Schuster et al., 2006). To assess the coping responses of visitors at the GNP the present study will be guided by the studies of Miller &

McCool (2003) and Hall & Cole (2007), where coping responses were obtained through the use of a checklist approach consistent with behavioral and cognitive adjustments suggested by the recreation literature. The checklist provided a mechanism to assess both the range of available coping options and the utility of the theoretical coping options available in recreational settings.

Predominant coping strategies

The recreation literature suggests that when people feel crowded or confronted with undesirable conditions they are likely to either change their behavior, attempt to change their environment, or change the way they evaluate the situation; all of these coping strategies change the character of the experience for the user forced to cope (Kuentzel & Heberlein, 1992; Schneider & Hammitt, 1995; Miller & McCool, 2003; Peden & Schuster, 2004). Recreation coping research has typically focused on three types of coping strategies: product shift, rationalization, and displacement (Manning & Valliere 2001; Johnson & Dawson 2004; Peden & Schuster, 2004; Manning, 2011). An additional strategy, denominated direct action, has been tested for Miller (1997) and Miller & McCool (2003) in GNP.

Product shift: Coping with unexpected and perhaps undesired conditions requires one to alter our previously established standards to correspond with the conditions or circumstances. This change of thinking is referred as product shift. Manning (2011) asserts that "visitors who experience higher use levels than which are expected or preferred may alter their definition of the recreation opportunity in congruence with the conditions experienced". For Kuentzel & Heberlein (1992) the product shift strategy "involves moving beyond changes in one's evaluative expectations, to changing the label applied to the experience". Participants, in effect, change their mind about the product they are getting. Moreover, Miller & McCool (2003) expose that "product shift involves a change in the definition of the experience and standards for the importance of characteristics of that experience and the overall area". After the use of this coping strategy it is expected that satisfaction remains high and recreationists are not obliged to remove themselves either physically or temporally from the area.

Rationalization: This coping strategy represents "a process whereby recreationists reevaluate an undesirable situation in a more favorable light" (Miller & McCool, 2003). Rooted in the theory of cognitive dissonance, this concept suggests that "people tend to order their thoughts in ways that reduce inconsistencies and associated stress" (Manning & Valliere, 2001); if activities or situations fail to achieve their objectives, they may rationalize the experience to restore cognitive consistency (Hoss & Brunson, 2000). Since recreation activities are voluntarily selected and sometimes involve an investment of time, money and effort people may be motivated to rationalize most impacts as acceptable. "People may rationalize their experience and report high levels of satisfaction regardless of conditions in order to reduce inconsistencies, associate stress and internal conflicts" (Manning, 2011).

Direct Action: Direct action implies that people can engage in behaviors directed toward changing the undesirable conditions or situations. This concept it is applied to visitors "who judged suboptimal conditions as acceptable and took action to improve the negative impact(s) they experienced" (Hoss & Brunson, 2000). Like cognitive adjustments, this coping strategy does not require individuals to substitute resource or activity elements of their experience to maintain satisfaction. "This strategy, however, is likely to be associated with higher levels of stress. The assumption is that a higher perceived threat will justify the greater expenditure of energy associated with directly changing the environment" (Miller & McCool, 2003). In the case of direct action coping responses, respondents in national park settings may be more likely to attempt changes in the environment because of their higher level of personal investments in recreational activities and recreational goals (Miller, 1997).

Displacement: "As use levels increase, some recreationists becomes dissatisfied and alter their patterns of recreation activity to avoid crowding, moving to less used areas, and being displaced by users more tolerant of higher use levels" (Manning, 2011). The displacement hypothesis suggests that "people will choose to alter their participation patterns and seek more remote, less used areas" (Kuentzel & Heberlein, 1992). Displacement does not necessarily involve a shift from one recreation area to another (intersite displacement) but can involve shift within a recreation area (intrasite displacement) and shift from one time period to another (temporal displacement) (Manning, 2011). "Visitors may use

displacement to maintain the number of encounters with other visitors within their zone of comfort or tolerance" (Johnson & Dawson, 2004).

Recent research has indicated that visitors use displacement for other reasons as well, "such as to avoid management actions that they considered were a hindrance or had a negative effect on their experience" (Johnson & Dawson, 2004), such as regulations, permits, or fees. Hall & Cole (2000 as cited in Hall, Johnson, and Cole, 2007) reported that the implementation of certain visitor regulations caused more people to be displaced than the crowded conditions the regulations were designed to correct. In addition, Hall & Cole (2006, 2007, and 2010) also evaluated the effects of environmental degradation as one of the reason for the displacement of wilderness areas visitors.

According to Schneider (2007), displacement "does not only entail unacceptable changes, but settings that are substitutable". The concept of substitutability has been explored in the extent to which recreationists might satisfactorily substitute activities, places, or time periods in order to fulfill their expectations with the specific recreation setting (Miller & McCool, 2003). Manning & Valliere (2001) come to the point that "displacement might be considered a subset of substitutability, in that displacement-related changes in recreation activities, places or times are, by definition, are caused by adverse stimuli and not voluntarily chosen".

Hall & Cole (2007) studied the presence of substitutability among different wildernesses. For these researchers, substitutability refers to the extent to which a different place (wilderness or non-wilderness) might be a satisfactory substitute for a high use wilderness. If substitutability is high, spatial displacement is more likely to occur than if it is low, in response to either adverse changes in conditions (such as increased crowding) or restricted access (such as use limits). Their results present a straightforward point. These responses suggest that other places would not be very substitutable and that most visitors would continue to keep visiting even as use increased because of the tradition and memories attached to the place. That point might explain the continued and even increased use levels of some trails in GNP.

In conclusion, each of these strategies has been defined in the literature in terms of the product obtained after its use in the recreation setting. However, Kuentzel & Heberlein (1992) suggested that there is a hierarchy of coping strategies. Their model proposed that different coping strategies parallel different levels of perceived impact: with increasing impact, a visitor will shift from a non-coping state to adopt a cognitive coping strategy, then to a within-site behavioral coping strategy before finally leaving a site altogether. Thus, it is suggested that coping responses might vary based upon the type, intensity, and perhaps, the number of impacting elements identified by recreationists.

Recreational experiences and coping studies

The use of coping strategies is well-documented in the recreation literature (Kuentzel & Heberlein, 1992; Shafer & Hammitt, 1995; Shindler & Shelby, 1995; Schneider & Hammitt, 1995; Kearsley & Coughlan, 1999; Schneider, 2000; Manning & Valliere, 2001; Iwasaki & Schneider, 2003; Johnson & Dawson, 2004; Hall & Cole, 2006, 2007 and 2010; Miller, 1997; Miller & McCool 2003; Schuster et al., 2000, 2003 and 2006). However, results from studies attempting to identify the most frequently strategy employed have been contradictory. Those results have depended on the type of approach and analytical methods used, and also on the setting or activity assessed.

Hammitt & Patterson (1991 as cited in Hoss & Brunson, 2000), confirmed that both cognitive and behavioral strategies were employed in their study of coping in wildlands; rationalization was the least documented of the coping strategies used; both temporal and spatial displacement were reported; and spatial displacement took place at both micro- and macro-levels. However, results of Hoss & Brunson (2000) found little evidence of product shift in the interviews conducted to wilderness visitors. They also identified a behavioral coping strategy, direct action (such as picking up litter left by others), that has rarely been mentioned in prior discussions of coping. Contrary to Hammitt & Patterson (1991) their study provides documentation that rationalization was the most common strategy observed for coping with suboptimal conditions; indeed, 50% of all reported such adaptations.

Manning & Valliere (2001) found relatively high levels of adoption of coping mechanisms by residents of communities in and around Acadia National Park in response to perceived increases in 1) overall recreation use levels, 2) selected recreation activities and 3) selected problem behaviors. Nearly all respondents (94%) reported adopting one or more behavioral or cognitive coping mechanisms. Among them, cognitive coping strategies were the most prevalent used above of behavioral coping strategies. The researchers found temporal displacement to be more common than spatial displacement.

Based on the premise that recreation experiences can produce conflict, and that a subsequent coping process influences the outcome of the visitor experience, Peden & Schuster (2004) conducted qualitative interviews among visitors in the eastern High Peaks Wilderness Area of upstate New York. Researchers try to identify influencing factors, detracting elements, and coping responses. Results suggested that common detracting elements were crowding, resource impacts, and managerial regulations. The most prevalent coping mechanisms were rationalization and displacement. Detracting elements and coping appraisal were influenced by a variety of factors including previous experience, place of residence, motivations, and geographic features of the site.

Hall & Cole (2007) were interested in estimating the magnitude of displacement in Oregon and Washington wildernesses for social, managerial, or impact-related reasons. The results suggest that use density is currently a more substantial source of displacement than regulations or recreational impacts. The most common behavior was to avoid holidays and peak weekends. Other temporal displacement behaviors, such as visiting on weekdays and earlier or later in the season, were also fairly common. Spatial displacement was less common than temporal displacement. In the six wilderness areas studies, rationalization was a particularly widespread cognitive coping mechanism. Majorities agreed with a number of reasons for continuing to visit and for considering high use to be appropriate or at least acceptable. Researchers found relatively little evidence of the cognitive coping mechanism product shift. They concluded that it was unclear whether product shift is uncommon, or whether it is prevalent but most people are not consciously aware that it has occurred.

Hall & Cole (2010) research assessed the existence and magnitude of displacement which occurs because a wilderness is heavily used and impacted. In these areas, visitors who care most about solitude and low levels of impact were presumably displaced, leaving visitors who are relatively less sensitive to impacts. Visitors who care more about freedom than about solitude should continue to use these sites. The researchers found very little evidence of the type of displacement in which visitors sensitive to crowding and impacts are displaced by increasing use and managerial inaction. Instead, it seems likely that crowding-sensitive visitors go to low-use areas when seeking solitude; they still may enjoy these unique, high-use destinations for different experiences. They may also come to these sites at different times, without avoiding them altogether (Hall & Cole, 2010).

Overall, many studies have attempted to measure displacement but with varying degrees of success because of methodological difficulties in providing direct empirical evidence for the inverse relationship between displacement and visitor satisfactions (Kuentzel & Heberlein, 1992; Shafer & Hammitt, 1995; Shindler & Shelby, 1995; Johnson & Dawson, 2004; Hall & Cole, 2007 and 2010). Studies documenting the employment of product shift are few and have reported limited evidence, perhaps due to the inherent difficulty of measuring such a cognitive and less tangible change that may have been made subconsciously or used in conjunction with other coping mechanisms. Also, the difficulties might rise in the extent to which its measure can be less reliable than the physical changes inherent in displacement (Shindler & Shelby, 1995). Johnson & Dawson, 2004 suggested that it is likely that recreational visitors often employ rationalization subconsciously or in conjunction with product shift and this phenomenon maybe difficult to document even through qualitative methods. Thus, it may be necessary to consider cognitive coping as one measure since separating rationalizing from product shift is unclear with the present definitions and how the constructs are measured (Johnson & Dawson, 2004).

Regarding these results from the previous studies, all the four coping strategies documented in the recreation literature are going to be tested in GNP with the present research. The assumptions underlying this study are that displacement is the easiest strategy to asses or identify, however cognitive coping

strategies are the most widely used by visitor dealing with detracting situations. Thus, both type of mechanisms were expected be found with this study.

Crowding and coping studies.

Manning (2011) indicates that "there is some level of visitor density beyond which the quality of outdoor recreation experience is diminished to an unacceptable degree." For Kuentzel & Heberlein (1992) crowding is not purely a question of density, but is contingent on evaluations about appropriate use levels in conjunction with specific activities and settings. Fleishman et al. (2007), claim that recreationists who feel crowded may adopt some coping mechanisms to reduce stress.

Recreational conflict is seen as "a negative experience occurring when competition for shared resources prevents expected benefits or participation to an individual or group" (Miller & McCool, 2003). When competing groups view a setting and its purpose in different ways and/or there is inappropriate behavior, people will employ various coping mechanisms (behavioral, cognitive, or affective) to try to eliminate the source of stress and try to return things to a more desirable state. "Conflict occurs when these coping strategies are inadequate, unsuccessful, or unavailable in an acceptable period of time" (Kuentzel & Heberlein, 1992).

In 1997, the study of Miller in GNP found issues related to crowding were the primary source of detraction for many respondents. Furthermore, the researcher found that issues relating to visitor density have implications for multiple experience elements. For example, opportunities to enjoy the quiet of the area, reflect upon and learn about nature, view wildlife and scenery, and gain access to park resources, are all potentially impacted by density of visitation. Miller (1997) concluded that adopting effective coping behaviors to deal with the threats to experience presented by density related issues is an important aspect of visitor behavior, and psychological functioning, while at the Park.

There is a concern over the effects of increasing use levels on the quality of the recreation experience (Manning & Valliere, 2001). Borrie & Birzell (2001) assert that "high levels of visitor use

leads to a decrease in experiential quality. And yet, in some circumstances, visitors do seem to change their behavior in response to this supposed decline in the quality of the visitor experience." Regardless those concerns, empirical research has often found low correlations between perceived crowding and overall satisfaction with experiences. In other words, "visitor satisfaction has generally remained high even when use levels and reports of crowding increase, and disparities between the social and environmental conditions visitors expect to find and what they actually encounter" (Johnson & Dawson, 2004).

A possible explanation of these findings, or discrepancy between crowding and satisfaction, suggests that some recreationists may adopt one or several coping mechanisms in response to crowding and/or conflict. Indeed, recreationists vary greatly in their response to use density and encounters according to their motivations, expectations and preferences, as well as to their ability to cope with various encounter levels (Kuentzel & Heberlein, 1992; Schneider, 2000; Schuster & Hammitt, 2000; Manning & Valliere 2001; Miller & McCool, 2003; Peden & Schuster, 2004; Johnson & Dawson, 2004; Hall & Cole, 2007). According to Peden & Schuster (2004), "it appears that the efficacy of one's coping efforts may influence responses to open-ended questions. Visitors who have successfully coped with stress/conflict in the field are not likely to report the presence of stress/conflict." This supports the argument proposed by various researchers that the discrepancy between crowding and satisfaction, suggests that some recreationists may adopt one of several coping mechanisms in response to crowding and/or conflict (Johnson & Dawson, 2004; Kuentzel & Heberlein, 1992; Manning & Valliere 2001; Miller & McCool, 2003; Schneider, 2000; Schuster & Hammitt, 2000).

There has been interest in visitor differences between sites with differing levels of use. It is sometimes assumed that "high levels of visitor use leads to a decrease in experiential quality, and yet, in some circumstances, visitors do not seem to change their behavior in response to this supposed decline in the quality of the visitor experience" (Borrie & Birzell, 2001), instead visitors would alter their expectations given the significance of other aspects of the experience.

Many scholars have argued that people distribute themselves spatially to obtain desired outcomes (McCool & Cole, 2001 as cited in Hall & Cole, 2007). If high and low use destinations provide radically different experiences of solitude and crowding, logically people seeking experiences dependent on low density should go disproportionately more to low-use places or visit at low use times. Evidence has shown that people do tend to visit high use places on week days or at low use times of the year to avoid crowds (Hall & Cole, 2007). However, it is interesting to note that although users felt that use level indicators were very important to their overall experience, they typically chose to hike and camp along the most highly used trails (Borrie & Birzell, 2001).

Johnson & Dawson (2004) measured coping behavior at different levels of visitor use in Adirondack wilderness areas. Each area was placed into one of four use-intensity categories: intensive use (over 50,000 visits), heavy use (10,000 to 50,000 visits), moderate use (500 to 9,999 visits), and light use (less than 500 visits). Based on coping behavior theory, the use of coping mechanisms should vary among users in more heavily used areas and among users in less used areas (e.g., respondents in less heavily used areas may be spatial displaced) (Hall & Cole, 2010).

If Adirondack wilderness respondents were being spatially displaced to more suitable locations either within an area (intra-area displacement) or among areas (inter-area displacement), then displaced respondents may be more concentrated in areas with lower use intensity levels. However, Chi-square tests yielded no statistically significant associations between use intensity for those respondents using no coping mechanisms and those using behavioral coping mechanisms, suggesting that respondent use or non-use of behavioral coping mechanisms is not statistically different among the use intensity levels (Johnson & Dawson, 2004). The authors concluded that future studies of coping and multiple satisfaction need to be conducted in conjunction with monitoring of actual visitor use estimations to better understand what factors contribute to the use of coping mechanisms. With this regard, the present research in GNP employed information from trail monitoring data to assess level use in the trails studied. Trail counter information allow to designate use-intense categories with data collected on the field, enhancing the quality of analysis related with use levels and reactions from the visitors in the park.

In a coping study within nature reserves of Israel, Fleishman et al. (2007) analyzed the short-term coping process as a function of the crowding disturbance. Researchers hypothesized that the simplest responses visitors can be expected to make are attempts to avoid or to reduce the number of encounters during the visit, or to decrease their duration. For instance, visitors may change the pace of walking to avoid others who generate the disturbance. This response is likely for relatively low use levels and low probability of crowding disturbance. As the use level and perceived crowding intensifies, so may the likelihood of crowding disturbance. The next level of response may be a shift in routes to less crowded areas within the recreational setting (i.e., intra-site displacement). More radical responses such as shortening the visit are possible outcomes of rather high levels of use perceived and a high probability of crowding disturbance. The logic behind this proposal is that a more intensive feeling of crowding and a higher probability of crowding disturbance will justify a greater expenditure of efforts associated with coping behavior (Miller & McCool, 2003; Kuentzel & Heberlein, 1992).

In 2007, Hall & Cole attempted to determine whether experiences differed with the use levels encountered in wilderness areas. Comparing the experiences of visitors on days with different levels of use revealed several differences of moderate magnitude. Visitors on low use days reported more of the experiences associated with wilderness. They frequently focused on the natural environment and their senses. They also commented most positively on the lack of other people. These findings are consistent with findings from trailhead surveys (Cole & Hall, 2005 as cited in Hall & Cole, 2007) that wilderness-like experiences were somewhat more likely to be sought and attained by visitors to moderate use trailheads than visitors to trails with higher levels of use. In high use places, the number of other people is more frequently perceived to be a problem than the behavior of other visitors.

It has been demonstrated that overuse of a recreation area can reduce the quality of visitor experience. With such impacts from increasing number of visitors and users, park managers are challenged to create a balance between providing recreational opportunities while protecting natural resources and the quality of visitor experience (Strother & Vogelsong, 2002). Thus, this study is designed to provide GNP managers with accurate information to better understand the influence of current use

levels on visitor experiences. The purpose of this study is to determine if park visitors have had the need to employ coping strategies to deal with the use level found during their hikes.

Park use and coping studies at GNP

Nickerson (2003) found that visitors to GNP notoriously enjoy their experience, "whether there for a repeat visit or for the first time, GNP is loved. However, the high occurrence of repeat visitors to the park points even more directly to a positive attitude about the park" (Nickerson, 2003). In the same study, it was reported that the number of repeat visitors to GNP increased from 41% of all GNP visitors in 1990 to 56% of visitors in 2000. This trend is indicating a strong loyalty to GNP. In addition, Nickerson (2003) reported that "the Park is valued as a place to hike where one can easily leave the trace of civilization behind".

In the Nonresident Visitor research report, Nickerson (2002 as cited in Nickerson, 2003) asked questions of returning nonresidents. Visitors were asked to indicate how they felt Montana/GNP had changed over time for 12 different features. The visitor could respond, "better," "same," "worse," or "don't know". Of the 12 features, only three received "worse" ratings from ten percent or more of the respondents. These features were the "condition of the natural environment," wildlife viewing opportunities," and "amount of open space". Visitors to Montana/GNP see the amount of 12 open spaces decreasing more than any other feature followed by wildlife viewing opportunities and the condition of the natural environment. Nickerson (2003) advised that these statements by nonresident should serve as a red flag, indicating that some things, which attracted visitors to Montana/GNP in the first place (environment, wildlife, & open space) are starting to dwindle.

In 1996 a visitor study conducted by Miller, Freimund, & McCool, the researchers found week support by visitors for park management in GNP to implement use limits to bring encounters (with other visitors) to preferable or acceptable levels. They also found that when conditions were inconsistent with what was desired, visitors were most likely to rationalize the conditions and enjoy the experience anyway.

The authors concluded that people are adaptable and will either say they are satisfied, or they will simply move on and seek their experiences elsewhere.

In addition, the study of Miller & McCool (2003) used a transactional model of stress and coping as a way to understand the relationship between reported levels of stress and the types of coping strategies used by recreationists in GNP. The authors found the highest levels of perceived stress were associated with direct action (e.g., talking with someone who could change the situation). These observations offered support for the notion that "an individual judgment concerning what might and can be done is related to the level of perceived stress" (Miller & McCool, 2003). Taking these findings into consideration, Peden & Schuster (2004) emphasized that "studies that help to explain the on-going transaction between the person, the environment, and results of coping, can also further our understanding of the long-term changes that occur in recreational populations and settings."

Miller & McCool (2003) reported that 21.1% of summer visitors at GNP had visited the park at low use times avoid encountering others, while 74.8% of winter visitors had used this strategy. Evidence was also observed that visitors engaged in resource substitution behavior. Winter visitors to the park were more likely to have avoided specific locations because of anticipated crowding (49.5%), than were spring (28.4%), summer (18.4%), or fall (17.4%) visitors. Authors noted that, since winter visitors were more likely to be local residents than the visitors during other seasons, the use of a temporal substitution option may reflect a greater knowledge and a greater level of control over their ability to visit the park in off-peak times. This suggests that visitor beliefs regarding a perceived behavioral control might be salient to their intention to exhibit this substitution response. In fact, the present study included place of residence as a factor influencing coping responses to detracting elements of the recreational experiences of visitors to GNP.

A long term study of visitor behavior on the GTSR has been developed for Freimund & associates since 2005. In the summer of 2007, this research provided an assessment, based on 376 completed surveys, of the decision processes, motivations, activity choices, and experience of the shuttle riders vs. non shuttle riders (Baker & Freimund, 2007). In 2009, following up on this information, the

researchers investigated the role of the shuttle in increased backcountry and point-to-point hiking activity and visitor use and obtaining a greater understanding of how visitors use park-provided shuttle information sources. The results of this phase of research indicated that the shuttle is increasing the number of people hiking on popular trails that are made more accessible by the shuttle, including the Highline Trail. In addition, the results suggested that some visitors may feel that this trail is becoming overcrowded (Dimond & Freimund, 2009). The study conducted during the summer of 2011 provided straightforward information about the increased use level in eight trails along the GTSR corridor. Data from that study suggested that there is an increment of more than 200% in trails use level during the last twenty-five years (Bedoya & Freimund, 2012).

To sum up, this section described the conceptual and theoretical frameworks that are the basis for the present research related to understand visitor experiences, the factors that influence and/or constrain those experiences, and the mechanisms chosen by visitors to ameliorate or avoid the impact of detracting situations. The next section will provide information about how the constructed frameworks will be applied on the coping assessment in Glacier National Park.

Research questions

The studies previously presented demonstrate the need of keep exploring the multi-dimensionality of the visitor experience and how coping mechanisms may be employed to address undesirable elements of the experience. The following questions have been selected to guide the present research:

1. What are the most salient setting attributes and personal factors that contribute in the identification of detracting experiences?
2. To what extent do setting attributes, personal factors and detracting elements influence the decision process regarding the use of coping strategies?

3. Are there differences in coping responses employed depending on the number of detractors identified?
4. Are different use levels in the trails studied associated with particular types of coping mechanisms employed by visitors?

Model proposed

Taken together the theoretical frameworks in the recreation literature concerning to the visitor experiences and coping behaviors, the following model has been used to guide the analysis of the data presented in this research (Figure 1).

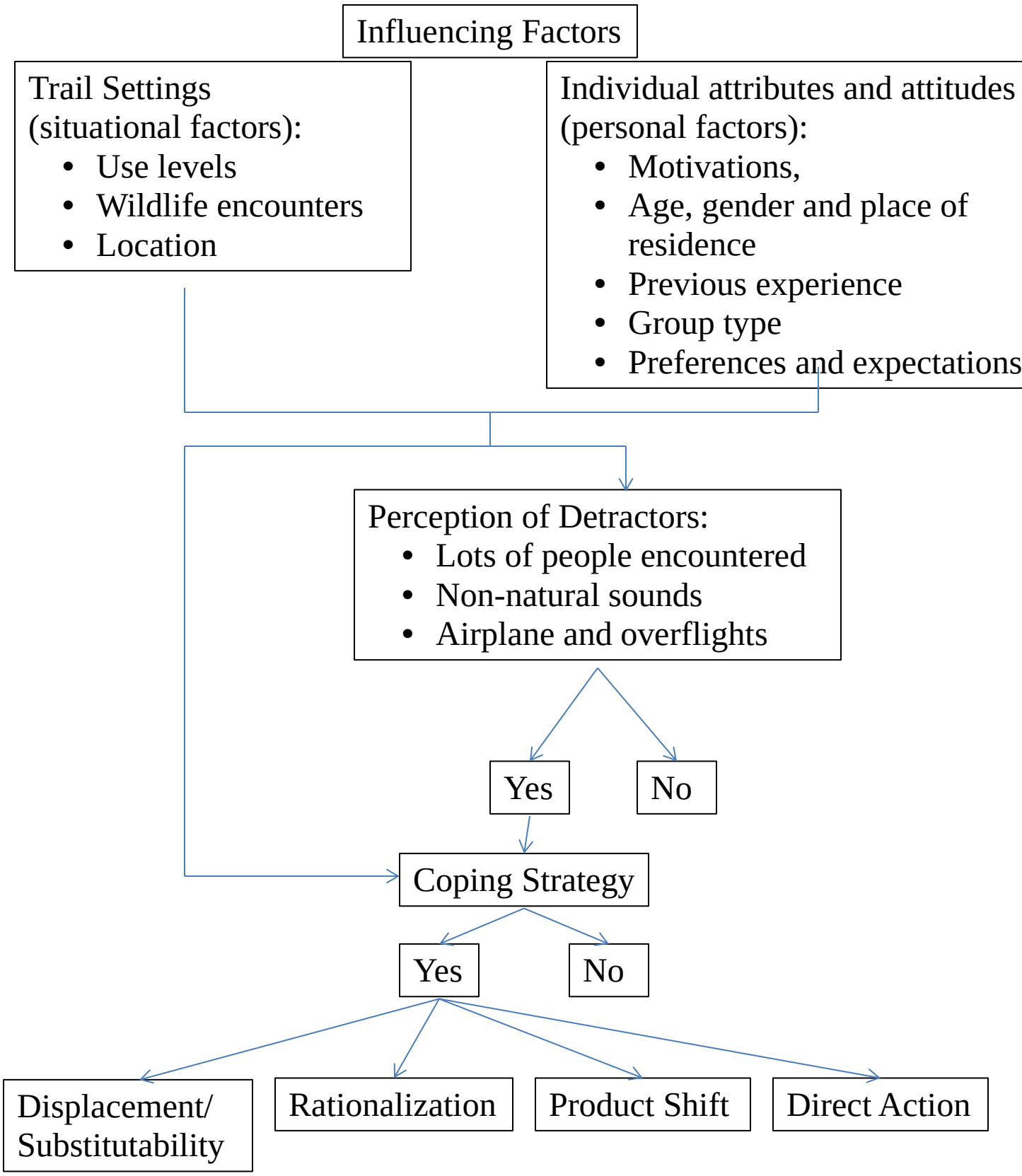

Influencing Factors
Trail Settings (situational factors):
• Use levels
• Wildlife encounters
• Location
Individual attributes and attitudes (personal factors):
• Motivations,
• Age, gender and place of residence
• Previous experience
• Group type
• Preferences and expectations
Perception of Detractors:
• Lots of people encountered
• Non-natural sounds
• Airplane and overflights
Yes
No
Coping Strategy
Yes
No
Displacement/ Substitutability
Rationalization
Product Shift
Direct Action

Figure 1 Model subject to hypothesis testing: influencing factors, detractors, and coping mechanisms. Adapted from: Fleishman et al., 2007

The structure of this model highlights the influence that personal and situational factors have on the appraisal of conditions that a person encounters. The evaluation of a threat of harm or loss in the recreation experience depends on antecedent conditions and the psychological characteristics of the individual (Miller & McCool, 2003), as well as the intrinsic and specific characteristics or attributes of the setting (e.g. wildlife populations). Since situational factors are typically manageable and personal factors are intrinsic to the individuals, their identification and understanding is of importance to management recreational experiences. With regard to the social and environmental conditions, studies show that visitors perceptions are related not only to the objective conditions they encounter (e.g., type of wildlife, use levels, amount of trail erosion) but also subjective factors such as visitors prior experience, expectations, motives, setting preferences (Manning, 2011), and personal characteristics such as gender, age, group type.

Personal and situational factors, or influencing factors, refer to how an individual perceives the environment and his or her relationship to it (Schneider & Wilhelm, 2007). Therefore, in this model, the personal and situational factors both influence the evaluations of detractors and coping responses.

The second component is related to coping behaviors which involves “a judgment concerning what might and can be done” (Lazarus & Folkman, 1984 as cited in Miller & McCool, 2003). The evaluative component within this appraisal focuses primarily on the availability of specific coping responses, the perceived likelihood that these responses will accomplish what they are supposed to, and the ability to apply these strategies within the specific situation. In general, it is thought that people naturally adjust their thoughts to align with the circumstances they encounter and thereby maintain a positive affective state rather than becoming dissatisfied (Schuster et al., 2006). This appraisal, then, is an interaction between the person and the environment that specifically deals with the usefulness of coping strategies aimed at responding to particular stress experience. When confronted with undesirable

conditions, recreationists are likely to either change their behavior, attempt to change their environment, or change the way they evaluate the situation.

This study attempted to build links between three topical areas in situational factors research (type of wildlife encounters, use levels, and locations), and seven topical areas in personal factors research (gender, age, motivations, group type, previous experience, place of residence, and expectations/preferences) to understand the use of coping strategies when facing detractors in their recreation experience. Detractors are conceptualized in this study as any elements within the setting that are perceived by the recreationist to diminish the quality of the experience. "Understanding how recreationists deal with detractors helps identify the range of strategies employed as well as the intensity of negative reaction to them" (Miller & McCool, 2003). Since all individuals have multiple situational characteristics, it was assessed how combinations of those situational and personal factors influence individuals coping reactions to detractors in outdoor recreation.

Evidence of the need to cope with undesirable conditions, regardless of whether the strategy involves temporal displacement, spatial displacement, or some type of rationalization, would suggest that visitors are being forced to either change their behavior or to exert mental energy to deal with the conditions they find. Consequently, it is necessary to quantify the proportion of visitors who were either displaced by undesirable conditions or forced to cope with those conditions in some other way. The concept of substitutability has been inserted in the model because "spatial displacement can result in increased crowding and biophysical impact in places in wilderness that are currently lightly used" (Hall, Johnson, & Cole, 2007).

Study hypotheses

Based on the theoretical orientation utilized in this study, the hypotheses to be tested are related to two general areas: identification of detractors and employment of coping responses.

Hypothesis 1: Detracting elements of the recreation experience can be explained by personal characteristics and trail conditions.

Hypothesis 2: Individual characteristics, trail settings and detracting elements influence the use of coping mechanisms during the recreational experience.

Hypothesis 3: Respondents make use of different coping mechanisms depending upon the number of detracting elements identified.

Hypothesis 4: Respondents employ different coping mechanisms depending upon the trail use levels experienced during their hikes.

Chapter 3 METHODOLOGY

This chapter provides information about research and analysis methods employed to assess the hypotheses formulated in chapter 2. The following sections will present information regarding the trails studied in GNP, sampling approach, and data analysis.

Study area

The present study was implemented on four of the most popular trails along the Going-to-the-Sun (GTSR) corridor in Glacier National Park (GNP) (Figure 2). The four areas studied were: Avalanche Lake, The Loop, Sunrift Gorge, and Highline trail. These trails provide different opportunities to observe relationships among a variety of settings, use levels, and visitors seeking for outdoor recreation experiences.

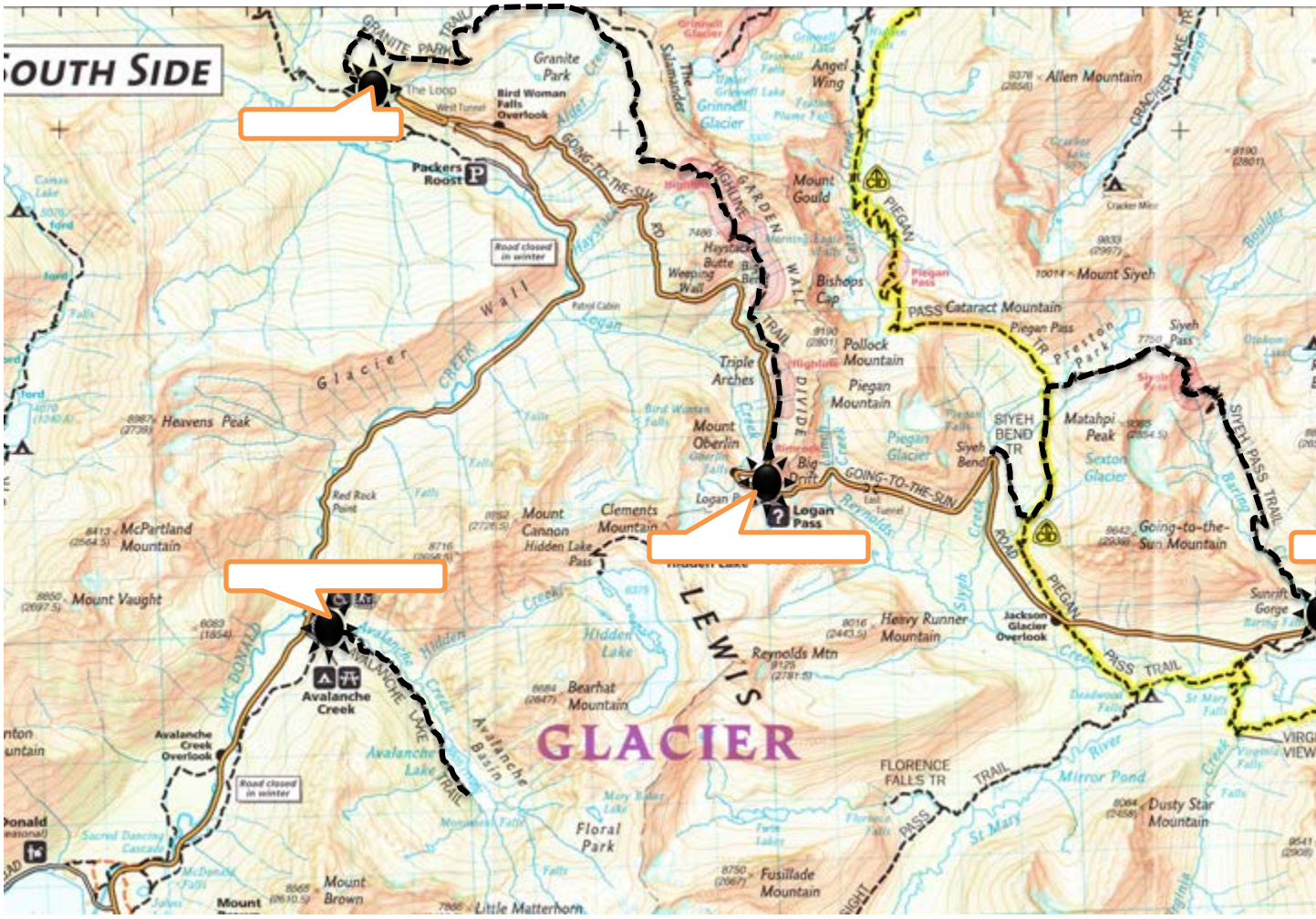


Figure 2 Sample locations.

The Avalanche Lake trail is approximate two miles one-way with a 730 foot elevation gain. It is rated as a moderate trail in difficulty. The trail follows a creek all the way to the lake. The lake sits at the base of Bearhat Mountain, which rises almost 4800 feet above the lake. There are several long waterfalls cascading hundreds of feet that make their way towards the lake from the cliffs and mountains that surround it (NPS, 1999). The Avalanche Lake trail is an extremely popular hike. The average visitation per day during the summer is 796 people with a median of 831 people (Bedoya & Freimund, 2012).

The Loop trail is an 8.4 mile round trip. This hike to the Granite Park Chalet begins from The Loop, a sharp bend in the GTSR on the west side of the park, located 13.1 miles east of the McDonald

Lodge. If coming from the Logan Pass via Highline trail, the Loop trail begins by the Chalet and ends at the Loop by the GTSR. The trail difficulty rating is strenuous. The forest is in the process of regeneration from the Trapper Creek Fire of 2003. However, there is extensive undergrowth, including thousands of wildflowers. The most dominate feature in the area is the view of the 8987-foot Heavens Peak. Hikers will reach the Highline Trail junction roughly 4.2 miles from the trailhead (NPS, 1999). The Loop trail is not as busy as Avalanche Lake or St. Mary Falls trails. The average daily use is 269 visitors with a median of 264 visitors. Most of the visitation use of this trail is related with those hikers coming from the Highline trail (Bedoya & Freimund, 2012).

The Highline trail is an 11.8 miles one-way trip. The trail begins from the north side of the Going-to-the-Sun Road at Logan Pass. The Highline Trail is an extremely popular hike. Indeed, the average daily use is 622.5 visitors with a median of 623 visitors. This high use occurs at morning hours, which might be explained by visitors attempting to hike all the way to the Granite Park Chalet or The Loop (Bedoya & Freimund, 2012). The trail offers spectacular scenery along the Continental Divide, also known as the Garden Wall. The exceptionally beautiful views, excellent opportunities for spotting wildlife, and the wildflowers, all combine to provide an outstanding experience for hikers (NPS, 1999).

The Siyeh Pass trail is a 10.3 miles one-way trip to the Sunrift Gorge. The hike to Siyeh Pass begins from the Siyeh Bend Trailhead, located 2.2 miles east of Logan Pass on the Going-To-The-Sun Road. The trail offers outstanding views to Mt. Siyeh, Going-to-the-Sun Mountain, Matahpi Peak, and St. Mary Lake in the distance. The trail features red and green rock walls. Alpine meadows provide opportunities for wildflowers abound and sightings of mountain goats, bighorn sheep and even sometimes grizzlies are not unusual (NPS, 1999). This is not a very busy trail. The average visitation per day during the summer is 98.7 people with a median of 105 people (Bedoya & Freimund, 2012).

Survey data collection

A survey instrument was developed to assess the research questions of the present study. The instrument consisted of self-administered paper questionnaires (approximately 15 minutes in length) and was distributed based upon a pre-designed systematic schedule starting with the first available group during the sampling period. Questionnaires were filled out on site and handed to the administrator when the visitor was finished. See *Appendix 1* for a copy of the survey instrument.

A pre-test of the survey instrument was conducted at Sunrift Gorge and Avalanche Lake trail on June 19th and 20th. The pre-test explored the understandability of the questions. Thirty-six surveys were completed by visitors at those days. Based upon comments by respondents and observations by the survey team, it was apparent that the coping items were confusing in the wording. The respondents also comment on the length of the coping check list employed, which in turns affected the length of the survey making it unacceptable to the visitors. Responses to specific survey items provided guidance in changes of wording and sentence structure. Overall, this test indicated that the instrument used in the study were appropriate for subsequent analysis.

Sampling approach

The sampling universe consisted of all adults over 18 years old who stopped at four high-use areas along the Going-to-the-Sun road between June 19th, 2012 and August 21st, 2012. Accounting for days off, this time period provided 47 days of sampling during the peak visitation months, of them 27 days were used to sample hikers.

The four areas were sampled during the primary daylight hours from 8AM until 7PM. Surveys were implemented in six-hour sampling periods that covered this time frame using a morning sampling period from 8AM to 2PM or 9AM to 3PM, and an afternoon sampling period from noon to 6PM or 1PM to 7PM. The crew was limited to one six-hour sampling period per day because of travel times and data-entry needs. The Loop and Sunrift Gorge areas sample period was adjusted toward the afternoon to

maximize the response rate in these areas due to the presence of long distance and backcountry hikers returning later in the day as they come off the Highline and Siyeh Pass trails.

The sampling procedure used a systematic random sampling process in which the initial study areas and period were randomly selected. Following the initial day of sampling, sampling periods (AM/PM) and study areas were rotated systematically to ensure that over the study period each study area was sampled according the number of surveys obtained in each place. Overall, there were seven sampling periods at Highline trail, ten sampling periods at the Loop, five sampling periods at the Avalanche Lake trail, and ten sampling periods at Sunrift Gorge. These sampling periods were split between AM and PM sessions and between weekends and weekdays. See *Appendix 2* for the sampling schedule. This sampling approach was intended to gain access to a broad cross section of hikers who took short and long hikes while also providing access to hikers who took longer "backcountry" day hikes.

Surveyors followed OMB-recommended protocol for visitor contact. Contact was based upon a pre-designed systematic schedule starting with the first available group during the sample time. The eligible adult member of each group with the next closest birthday to the sampling day was asked to participate. Hikers were approached as they exited the trailheads at the four locations.

Response rates

A total 826 hiker surveys were collected. Additionally, 258 groups were approached but refused to take the survey. The response rate therefore is 76%. Approximately 28% of the surveys were collected at the Avalanche Lake, 27% at the Highline Trail, 26% at The Loop, and 19% at Sunrift Gorge. However, from those 826 surveys 61 surveys were dropped out because they were mostly incomplete.

Sources of potential sampling bias in the sample were considered. One possible source of sampling bias might occur at the point of contact for sampling. Visitors that were experiencing greater detractors could have refused to participate in the survey. Also, other visitors who had experienced great detractors in the past could have been displaced by the time the study was conducted. Another possible

source of sampling bias could have risen from the potential for visitors who have successfully employed a coping response. That is, they may have employed a coping response such that a detracting experience is no longer perceived in a negative manner at the time of sampling contact. The possibility of a non-response bias introduces another potential source of variation within this research. Visitors who refused to participate in the survey might possess different perceptions of detractors and coping than those who complete the survey instrument. These considerations notwithstanding, the overall response of 76% was sufficient to remove the need for an analysis of non-response bias (Dolsen & Machlis, 1991; Becker & Iliff, 1983 as cited in Miller, 1997).

Analysis

This section will explain the construction of the variables used in this study. Further, methods and tools for analysis data will be presented.

Variables included

The independent variables used for the hypothesis testing include: 1) gender, 2) age, 3) group type, 4) preferences/expectations, 5) level of experience, 6) location, 7) motivations for engaging in recreational activities, 8) use levels, 9) wildlife encounters, 10) place of residence, and 11) perception of detracting experience elements. Dependent variables for the study include: 1) perception of detracting elements or situations, and 2) coping responses (displacement, product shift, rationalization, and direct action).

There were three dichotomous independent variables used in the analysis: gender, level of experience and place of residence. Level of experience was analyzed basis on the answer to the yes/no question: is this your first trip to GNP? A dummy-type variable was constructed to define whether respondents were from Montana; those responses from Montana were rated as one while different precedence was rated as zero.

In order to help surveyors to track the respondents ages, they were divided into four categories: 1) younger adults from 18-29 years old, 2) adults from 30 to 39 years old; 3) adults from 40 to 49 years old; and 4) seniors older than 50 years. In addition, the variable called location was a categorical variable related with the locations sampled in this study: Avalanche Lake, The Loop, Highline and Sunrift Gorge.

The categories used to assess group type, and visitors expectations and preferences were defined based on their widely use in the recreational literature and in previous studies conducted in GNP by Miller (1997), Dimond & Freimund (2009), and Bedoya & Freimund (2012). Group types included family, friends, family and friends, organized groups, and others (e.g. religious and scholar groups). Expectations about number of hikers encounters were assessed with the categories "expected more", "expected about the same", 'expected fewer", and "did not know what to expect". Categories in the preferences of number of other hikers encounters included "more people", "fewer people", "just right", and "the number of people does not matter".

Hikers were asked to rate a range of reasons for hiking in GNP, including to experience challenge, solitude, develop skills, escape and relaxation, accomplishment, spend time with relatives, feeling close to nature, excitement, introspection, peace, see wildlife, easy access, enjoy scenery, exercise, or meet new people. The five point scale, from 1="very unimportant" to 5="very important", had been employed previously by Miller (1997) to assess visitors motivations in GNP. The motivational items included were adapted from Manning (2011), and results obtained by Miller (1997) and Nikolaeva (2012) in GNP.

Type of encounters with wildlife categories were constructed basis on the responses of hikers sampled and general categorization of wildlife. Big mammals like grizzly and black bear, mountain goat, moose, bighorn sheep, mountain lion, wolverine and wolf were grouped into one category. Other wildlife species like deer, birds, and squirrels among others were grouped into a different category denominated "other wildlife". Visitor reporting have seen both big mammals and other species altogether, and no encounters with any kind of wildlife were also categorized.

Use levels were constructed using information from the trail counters installed during the summer of 2012 by the NPS and the University of Montana to asses trail use. The procedures to identify the use levels which hiker sampled would most likely to have experienced are going to be explained in the results section.

Detracting elements from the recreational experiences of hikers at GNP were identified using a five-point scale. Hikers were asked to rate on a scale, from 1="detracted greatly" to 5 ="added greatly", how a range of setting elements affected their hiking experience. The setting elements used included seeing other hikers, experiencing a pristine environment, non-natural sounds and overflights, seeing wildlife, experiencing solitude, and encounters with bears. The five-point scale as well as the setting elements used to identify detractors were adapted from Miller (1997) and Dimond & Freimund (2009). In addition, the element "concern about bears" was included based on the results from Nikolaeva (2012). That study found that "concern about bears" was a common detractor for recreational experiences of visitors at GNP.

The check list used to assess this question was adapted from the study conducted by Miller (1997) in GNP. "Miller's scales departed from the original ways of coping items and created questions specifically to suit the constructs of recreation substitution and displacement" (Schuster, 2003).The items related to absolute displacement from the check list developed by Miller (1997) were not considered in the present study given the lack of evidence found for this coping strategy in previous research (Miller, 1997; Hall and Cole, 2006, 2007 and 2010). Additionally, the number of items was reduced according to suggestions from the respondents given that the survey was taken on-site. The coping list used in this study consisted of eight items. The coping responses included, attempted to assess four coping strategies: displacement (2 items of temporal substitution, 1 item of activity substitution, and 1 item of resource substitution), rationalization (1 item), product shift (2 items) and direct action (1 item). For each item, respondents were asked to indicate the extent to which the statements described their usual response to those detractors found. A four-point scale (1= "do not use/not applicable", 2= "use somewhat", 3= "use quite a bit", and 4= "use a great deal") was used for evaluation of individual statements.

Data analysis

IBM Statistical Package for Social Science statistic 19 for windows was used for data analysis. Missing values from the incomplete surveys were coded as 99. Also, selection of more than one response and "not applicable" responses from the scales for motivations, trail closure and detractors were coded as 97 and 98 respectively. Code 98 was also used in the coping scales to exclude from analysis those answers given by the hikers when they did not experience any detractor. These cases were excluded "pairwise" within the analysis.

Data was analyzed using descriptive statistics including frequencies, means, medians, and standard deviations. Chi-squared analyses were used to test for significant differences among locations studied. Significance was established at the 0.05 level. Cronbach's alpha reliability coefficient was used to examine the internal consistency of motivational and coping items. A scale was considered reliable with a coefficient of 0.6 or greater (Tabachnick & Fidell, 2007).

The next step in the analysis was to use ordinary least squares regression to test whether situational and personal factors could predict detracting elements identification (Hypothesis 1). This linear regression was used also to test whether situational and personal factors and detracting elements could be good predictors of coping responses (Hypothesis 2). Multiple ordinary least squares regression was selected to facilitate testing all the influencing factors at a time, instead of having individual test for each independent and dependent variables.

Finally, one-way analysis of variance (ANOVA) was used to test whether the use of coping mechanisms varied by type of detractor (Hypothesis 3), and by use level (Hypothesis 4).

Analysis of the results will be presented in chapter 4 focusing on the variables of interest. Results of the hypotheses testing will be addressed in chapter 5.

Chapter 4 RESULTS

In this section the results from the analysis of the 765 surveys collected from hikers at GNP during the summer of 2012 are presented. This chapter explores the results from descriptive statistics performed for the demographic and main research variables considered in this study.

General findings: visitors and groups characteristics

Surveyors kept track on gender and age of the respondents. Additionally, people sampled were asked basic questions about themselves and their group including state of residence, group type, number of people in group, and whether they were in an overnight hike.

Where are respondents from?

People from 46 states and 17 countries are represented in the sample. The largest percentage of hikers sampled is from Montana (17%) (Table 1). The second large group of hikers corresponds to visitors from California (7.1%) and Washington State (6.8%). From the overseas, visitors sampled were mostly from Canada (4.5%) and Germany (1.5%).

Table 1 Residence of hikers sampled.

	Total Sample %	Avalanche L. %	The Loop %	Highline %	Sunrift G. %
Montana	17.0	12.9	19.1	16.2	23.9
California	7.1	7.7	6.7	8.1	4.5
Washington	6.8	5.7	7.2	5.1	12.5
Other States	58.8	64.1	55.2	60.1	51.2
Canada	4.5	2.9	5.7	5.6	3.4
Other Countries	5.8	6.7	6.1	5.1	4.5
Total	100.0	100.0	100.0	100.0	100.0

Differences were observed in the residence of the respondents at the four survey locations. At Sunrift Gorge and The Loop respondents were more likely from Montana. Hikers from Canada were more

likely to be sampled at Highline and The Loop. Hikers from states other than Montana and countries other than Canada were more likely to be sampled at Avalanche Lake trail. However, these differences were statistically insignificant with a Pearson's chi-square of .736.

What are respondents' gender and ages?

The hikers sampled were mostly males (53.6%). Differences in gender among respondents in the four survey locations were significant (Person's chi-square .030), with The Loop male respondents being higher (60% of the sample at the location) than respondents from the other sites.

Respondents ages were divided into four categories: 1) younger adults from 18-29 years old, 2) adults from 30 to 39 years old; 3) adults from 40 to 49 years old; and 4) seniors older than 50 years. The sample was composed mainly by a population older than 50 years with a 45.1% of participation, followed by adults from 40 to 49 years old (22.7%). Adults in their thirties and younger adults were sampled 16.8% and 15.5% of the times, respectively.

Significant differences in age were observed for respondents at the four survey locations (Person's chi-square .012). Younger visitors were most likely sampled at the Sunrift Gorge. Contrastingly, older visitor were mostly sampled at Highline trail. However, for all sites, the majority of the respondents were people older than 50 years.

What group were respondents hiking with?

Families represent approximately 70% of the hikers surveyed. Friends were the second most common group type (18%), followed by groups made up of family and friends (8%). Differences in group type by survey location were statistically significant (Person's chi-square .011). Specifically, respondents at Avalanche were more likely hiking with family members than respondents in other locations. Respondents traveling with friends were more likely to be found at Sunrift Gorge. Those respondents hiking alone were more likely to be found at Highline trail (Figure 3).

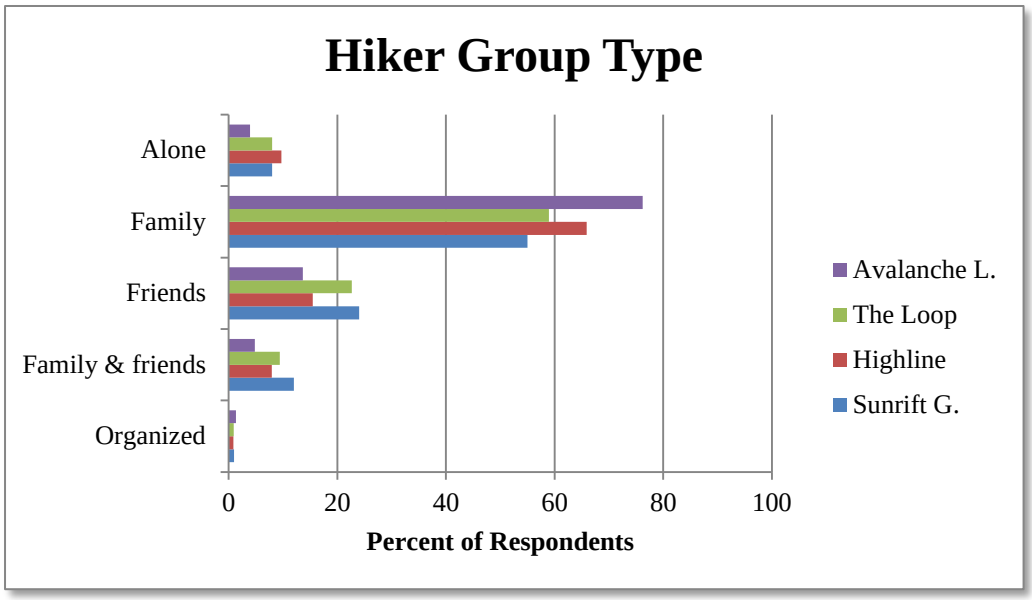


Figure 3 Hiker Group Type by Location.

How many people are in respondents groups?

Among hikers surveyed, the median group number was two and the mean group number was 3.38. Groups range is from one to 30 people. Approximately 50% of those surveyed were hiking in groups of two, followed by 14.5% in groups of four, and 11.2% in groups of three people. In addition, 7.6% of hikers were alone. Pearson's chi-square .68 suggested that differences in group type by location are not statistically significant.

How many respondents were in an overnight hike?

Among the hikers sampled, approximately 9% of the groups were on an overnight hike. Thus, 91% of the respondents had a day hike. Differences among the four survey locations were significant (Pearson's chi-square .000), with respondents at The Loop being more likely in an overnight trip than respondents in the other locations.

How many respondents had previous hiking experience in the park?

Approximately 53% of the hikers sampled were on their first visit to the park. Most of the visitors sampled at Avalanche Lake trail were in their first trip (61.5%), the same occurred with the hikers sampled at The Loop (51.7%). In contrast, most of the hikers sampled at the Highline Trail (52.5%) and Sunrift Gorge (52%) were repeat visitors.

Repeat visitors sampled at the four locations in the park were asked whether they had taken a previous hike the same length or longer that the one they just had in the park. Approximately 80% of those hikers answered affirmatively, indicating that they have returned at the park in part for the same type of hiking experience.

Within location, the results in Table 2 show that repeat visitors sampled at the Avalanche Lake and Highline trails have mostly hiked before in those trails; whereas, most of the repeat visitors sampled at The Loop and Sunrift Gorge have no prior experience in those trails. However, Pearson's chi-square of .71 suggests that differences on previous hiking experience in GNP are not statistically significant by location.

Table 2 Crosstab of locations and previous hike experience.

Location		Hiked the same hike before	
		No	Yes
Avalanche	Count	41	45
	% within Location	47.7%	52.3%
The Loop	Count	54	45
	% within Location	54.5%	45.5%
Highline	Count	55	59
	% within Location	48.2%	51.8%
Sunrift	Count	27	23
	% within Location	54.0%	46.0%

Table 3 summarizes the demographic characteristics of the hikers sampled by location. The summary includes the variables of interest for the present study.

Table 3 Demographic summary of hikers sampled by location.

	Total Sample	Avalanche L.	The Loop	Highline	Sunrift G.
Gender	**%**	**%**	**%**	**%**	**%**
Male	53.6	47.1	60.4	51.8	58.5
Female	46.4	52.9	39.6	48.2	41.5
	n = 759 m = .46 SD = .499	n = 227 m = .53 SD = .500	n = 212 m = .40 SD = .490	n = 226 m = .48 SD = .501	n = 94 m = .41 SD = .495
Age	**%**	**%**	**%**	**%**	**%**
18-29	15.5	13.7	16.5	12.8	23.5
30-39	16.8	15.0	20.8	14.2	18.4
40-49	22.7	26.0	25.5	21.2	12.2
50+	45.1	45.4	37.3	51.8	45.9
	n = 763 m = 2.97 SD = 1.113	n = 227 m = 3.03 SD = 1.074	n = 212 m = 2.83 SD = 1.104	n = 226 m = 3.12 SD = 1.079	n = 98 m = 2.81 SD = 1.249
Group Type	**%**	**%**	**%**	**%**	**%**
Alone	7.3	4.0	8.0	9.7	8.0
Family	65.6	76.2	59.0	65.9	55.0
Friends	18.0	13.7	22.6	15.5	24.0
Family & friends	8.0	4.8	9.4	8.0	12.0
Organized	1.0	1.3	.9	.9	1.0
	n = 765 m = 2.30 SD = .761	n = 227 m = 2.23 SD = .661	n = 212 m = 2.36 SD = .800	n = 226 m = 2.24 SD = .771	n = 100 m = 2.43 SD = .844
Overnight Trip	**%**	**%**	**%**	**%**	**%**
No	91.1	96.0	81.5	94.7	92.0
Yes	8.9	4.0	18.5	5.3	8.0
	n = 761 m = .09 SD = .285	n = 225 m = .04 SD = .196	n = 211 m = .18 SD = .389	n = 225 m = .05 SD = .225	n = 100 m = .08 SD = .273
First Trip	**%**	**%**	**%**	**%**	**%**
No	47.1	38.5	48.3	52.5	52.0
Yes	52.9	61.5	51.7	47.5	48.0
	n = 752 m = .53 SD = .499	n = 226 m = .62 SD = .488	n = 207 m = .52 SD = .501	n = 219 m = .47 SD = .501	n = 100 m = .48 SD = .502

What motivates respondents to hike in the Park?

Hikers were asked to rate, in a scale from 1="very unimportant" to 5="very important", a range of reasons for hiking in GNP, including to experience challenge, solitude, develop skills, escape and relaxation, accomplishment, spend time with relatives, feeling close to nature, excitement, introspection, peace, see wildlife, easy access, enjoy scenery, exercise, or meet new people. A reliability test was conducted to 15 motivational items. The .852 reliability test score suggests that there is a strong internal consistency among the items measured.

In the overall sample, "enjoy the scenery" was considered the most important reason for taking hikes with a mean of 4.58. At the top list of the reasons for hiking are "feel close to nature" (m=4.35), "exercise" (m=4.12), "spend time with family or friends" (m=4.07), and "escape routine and relaxation" (m=4.05). Contrastingly, "develop skills" (m=2.72) and "meet new people" (m=2.22) were the most common unimportant reasons for the hikers sampled.

The analysis per location (Table 4) shows that "enjoy the scenery" of the Avalanche Lake trail was the most important reason for hikers using this trail. Other common reasons to take this trail were "feel close to nature" and "spend time with friends or family". In contrast, "develop skills" and "meet new people" were considered the most unimportant reasons for hikers at this location. Not surprisingly, hikers said that "experiencing challenge" and "solitude" were also unimportant reasons for hikers given that this trail is considered easy access and one of the most visited in the park.

The most important reasons that stimulate the interest for hiking The Loop were "enjoy the scenery" and "feel close to nature", whereas "safe, easy access", "develop skills" and "meet new people" were less important at this location. Given the length and slope of this trail, hikers considered "exercise" in the top of their motivations for hiking The Loop trail.

As found at the others locations, "enjoy the scenery" was the most important reason for hikers taking the Highline trail, followed by "feel close to nature" and "exercise". Not surprisingly, "see wildlife" was considered one of the important reasons that motivated visitors to hike the Highline trail.

“To meet new people” together with “develop skills” were the most unimportant reasons for hikers sampled at this location.

“To enjoy scenery”, “feel close to nature” and “escape routine and relaxation” were weighed as important motivations for hiking the Sunrift Gorge and Siyeh Pass trails. In contrast, “develop skills” and “meet new people” were very unpopular motivations for taking hikes at this location.

Table 4 Motivations for hiking at the locations sampled.

	Avalanche Lake Trail			The Loop Trail			Highline Trail			Sunrift Gorge Trail		
	N	Mean	Std. Deviation	N	Mean	Std. Deviation	N	Mean	Std. Deviation	N	Mean	Std. Deviation
Challenge	215	2.87	1.146	201	3.57	1.112	212	3.22	1.141	91	3.31	1.180
Solitude	215	2.77	1.172	204	3.30	1.230	216	3.07	1.185	95	3.18	1.238
Develop skills	218	2.37	1.141	204	2.91	1.124	211	2.89	1.072	93	2.73	1.261
Escape & relaxation	221	4.03	1.063	205	4.08	1.002	216	3.99	1.050	96	4.15	1.026
Accomplishment	216	3.41	1.117	201	3.87	1.165	218	3.68	1.179	94	3.79	1.144
Spend time w/ family	221	4.21	1.153	205	4.05	1.305	219	4.02	1.265	96	3.93	1.378
Close to nature	223	4.35	.996	209	4.39	.980	223	4.33	.989	95	4.29	1.040
Excitement	220	3.57	1.102	207	3.90	1.048	218	3.86	1.075	94	3.83	1.188
Introspection	217	3.02	1.168	204	3.37	1.231	218	3.28	1.196	94	3.21	1.269
Peace	219	3.41	1.217	206	3.74	1.091	217	3.52	1.143	95	3.71	1.061
Wildlife	220	3.65	1.151	208	3.84	1.030	222	4.08	1.073	94	3.80	1.043
Easy access	216	3.19	1.190	203	2.91	1.249	219	3.20	1.195	94	3.19	1.238
Scenery	223	4.56	.898	210	4.61	.841	217	4.57	.984	96	4.60	.888
Exercise	220	4.04	1.033	209	4.16	1.030	221	4.16	1.100	96	4.08	1.083
Meet new people	218	2.17	1.061	206	2.19	1.140	218	2.36	1.234	94	2.06	1.171

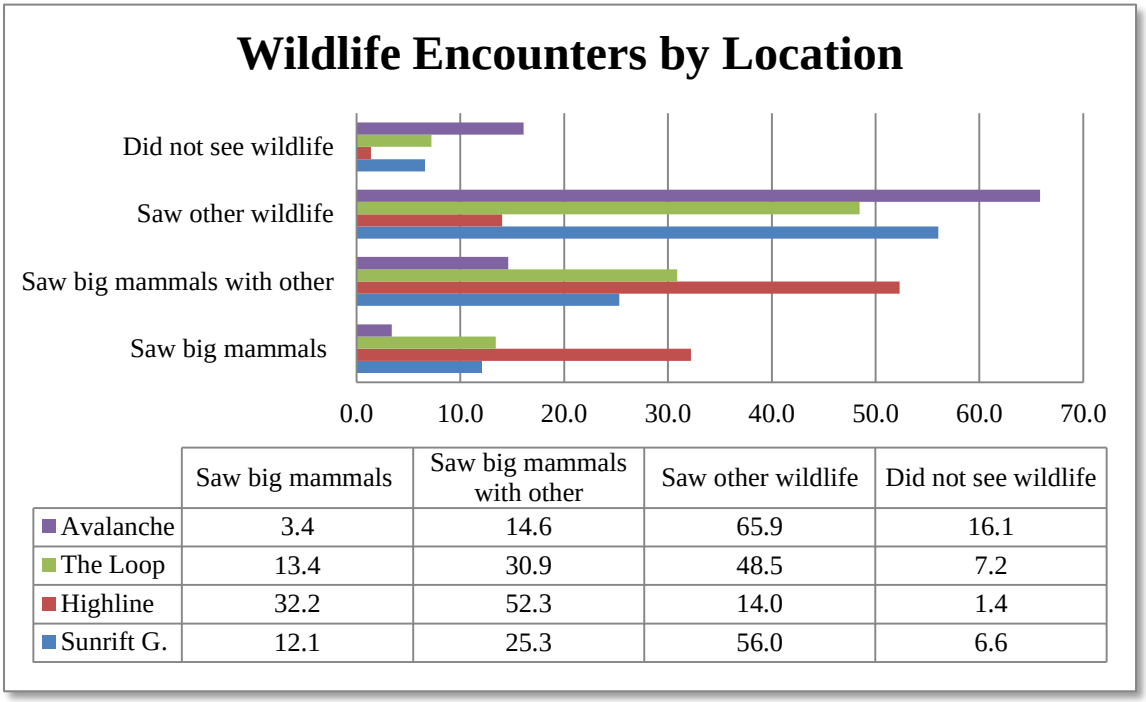
Motives rated as most important Motives rated as most unimportant

Wildlife encounters

From the motivations results it was suggested that for approximately 67% of the hikers sampled seeing wildlife was somewhat important or very important during their recreation experiences. Thus, to assess whether hikers desired goals very fulfilled from their hiking experiences, hikers were asked to list the species encountered while hiking at the four trails studied. Big mammals like grizzly and black bear, mountain goat, moose, bighorn sheep, mountain lion, wolverine and wolf were grouped into one category. Other wildlife species like deer, birds, and squirrels among others were grouped into a different category

denominated “other wildlife”. Visitor reporting have seen both big mammals and other species altogether, and no encounters with any kind of wildlife were also categorized.

The overall results suggest that 15% of the hikers sampled at the four locations experienced encounters with some type of big mammals while hiking. In addition, 41% of the hikers sampled reported have encountered other type of wildlife. Twenty-nine percent of the hikers sampled reported have seen big mammals together with other type of wildlife. Just 8% of the hikers sampled said they did not encounter any wildlife.



	Saw big mammals	Saw big mammals with other	Saw other wildlife	Did not see wildlife
Avalanche	3.4	14.6	65.9	16.1
The Loop	13.4	30.9	48.5	7.2
Highline	32.2	52.3	14.0	1.4
Sunrift G.	12.1	25.3	56.0	6.6

Figure 4 Wildlife encounters by location (in percentages).

Compared by location, there are significant differences found (Pearson’s chi-square .000). At the Highline trail is where people most frequently report have encountered big mammals with 32% of the sample (Figure 4). At that location, also, most of the hikers sampled saw big mammals together with other type of wildlife (52%). Only one percent of the Highline trail hikers reported seeing no wildlife. In contrast, at the Avalanche Lake trail hikers saw mostly other type of wildlife (66%). Also, that location is

where most of the hikers reported have seen any wildlife (16%). Most of the hikers sampled at The Loop (49%) and Sunrift Gorge (56%) reported encounters with other type of wildlife that was not in the category of big mammals.

Hikers sampled were asked to report the number of animals they saw while hiking at the four locations studied. The responses range from none to 62 animals (n=576, m=9.1, SD=11.48). The species commonly observed in groups larger than ten individuals are squirrels (ground squirrels and chipmunks), marmots, deer, big horn sheep, mountain goats, birds, and butterflies. Both variables, type of wildlife observed and number of animals observed, will be included in further analysis for hypothesis testing.

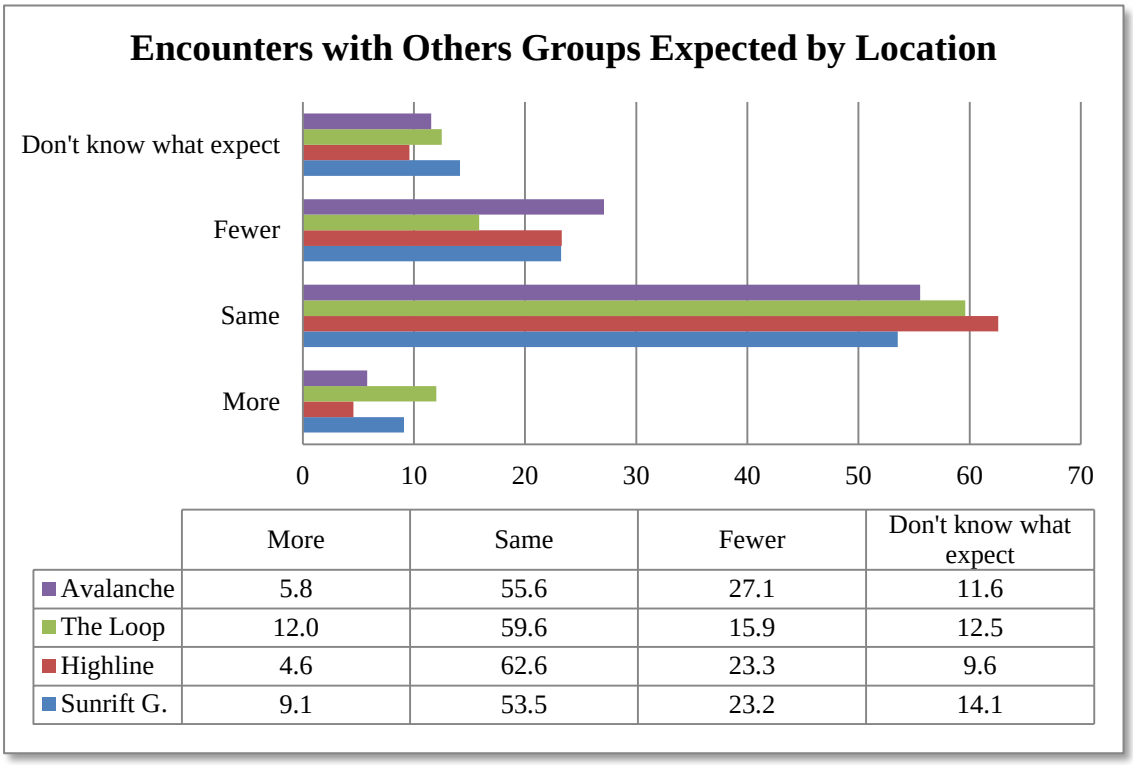
Respondents expectations and preferences about other groups encounters

In order to define whether respondents expectations and preferences of encountering other groups while hiking were met, hikers were asked how many people they had expected compared to those they saw while hiking, and what they would have liked to have seen.

Regarding expectations, 58.5% of the hikers sampled said they had expected about the same amount of people they saw. Those results suggested that it was not surprising for those hikers to have seen the amount of people the saw; that is, a slightly majority of the hikers in the Park expect to see lots of people during their hikes. However, a considerable proportion of the hikers sampled (22.4%) expected to have encountered fewer hikers; these results suggested that those hikers may have experienced detracting experiences due the number of hikers encountered while hiking.

Differences in hikers expectations among the survey locations were found significant (Pearson's chi-square .030). At the Avalanche Lake trail 55.6% of the hikers said they had expected about the same number of people they encountered, while 27.1% said they had expected have encountered fewer hikers. Hikers sampled at the Highline and Sunrift Gorge had expected the same number of hikers (62.6% and 53.5% respectively) and another significant proportion had expected to see fewer hikers (23.3% and 23.2% respectively). Contrastingly, at The Loop 59.6% of the hikers sampled answered they had expected

about the same number of other hikers but 12% of the hikers sampled said they had expected have seen more hikers.



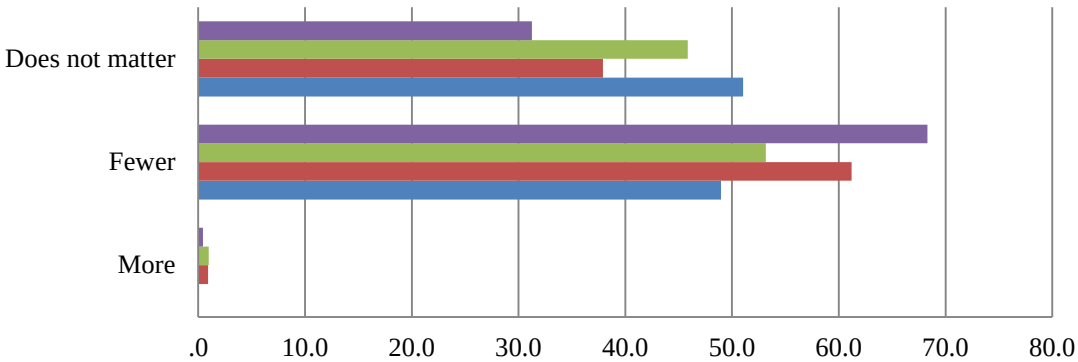
	More	Same	Fewer	Don't know what expect
Avalanche	5.8	55.6	27.1	11.6
The Loop	12.0	59.6	15.9	12.5
Highline	4.6	62.6	23.3	9.6
Sunrift G.	9.1	53.5	23.2	14.1

Figure 5 Hikers expectations of encounters of other hikers by location (in percentages)

Regarding preferences, 59.5% of the hikers sampled answered that they would have liked to have seen fewer people. Thus, a slightly majority of hikers wished to have found less people during their hikes in the park. Additionally, 39.8% of the hikers sampled mentioned that it does not matter the number of other people they would have preferred to encounter in the trail, which leaded to suppose that for those hikers crowding was not a problem. Whit this regard, a hiker sampled at Sunrift Gorge wrote the following quote "they are out there for their own enjoyment. Sometimes you meet some lovely people out there." Survey#505

Significant differences were observed in the preferences of respondents at the survey locations (Pearson's chi-square .010). At two of the heaviest visited trails sampled, Avalanche Lake and Highline

trails, most of the hikers sampled had preferred have seen fewer other hikers while hiking in those trails (68.3% and 61.2% respectively). Contrastingly, hikers sampled at The Loop and Sunrift Gorge reported an even split between those who had preferred to have seen fewer other hikers and those for whom the number of other hikers encountered does not matter.



	More	Fewer	Does not matter
Avalanche	.4	68.3	31.3
The Loop	1.0	53.2	45.9
Highline	.9	61.2	37.9
Sunrift G.	.0	49.0	51.0

Figure 6 Hikers preferences of encountering others hikers by location (in percentages)

What detracted hikers recreational experiences?

Hikers were asked to rate on a scale from 1="detracted greatly" to 5 ="added greatly", how a range of setting elements affected their hiking experience including seeing other hikers, experiencing a pristine environment, non-natural sounds and overflights, seeing wildlife, experiencing solitude, and encounters with bears.

In general, seeing "a lot of other hikers" detracted in some extent the hiking experiences of approximately half of the hikers sampled (m=2.58, SD=.887). Similarly, non-natural sounds and overflights were detracting elements during the hikes of the population sampled. Non-natural sounds were reported as detracting to some extent for 53% of the hikers sampled (m=2.66, SD=1.235). Forty-six

percent of the hikers sampled identified overflights as detracting from some extent of their experiences (m=2.50, SD=.909).

Contrastingly, “pristine areas” were perceived as an element that added in some extent to the hiking experiences of the 96% of the hikers sampled (m=4.80, SD=.512). In addition, “encounters with wildlife” and “experiencing solitude” were identified as welcome elements that added in some extent to the recreation experiences. “Encounters with wildlife” was reported as adding to the experiences of 89% of the hikers sampled (m=4.53, SD=.715). Eighty-one percent of the hikers sampled identified “experiencing solitude” as adding to their recreational experiences (m=4.26, SD=.832).

Others elements of the recreational experience such as “seeing few other hikers” and “concern about bears” were identified as having no effect in the hiking experiences for the majority of the hikers sampled.

Table 5 Setting conditions adding or detracting to the recreation experiences.

	Avalanche L.			The Loop			Highline			Sunrift G.			Total Sample		
	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
A lot of hikers	220	2.51	.934	194	2.68	.912	218	2.56	.841	91	2.58	.817	723	2.58	.887
Very few hikers	158	3.50	.865	164	3.61	.890	162	3.62	.893	83	3.87	.908	567	3.62	.891
Pristine areas	218	4.72	.566	205	4.86	.437	216	4.84	.476	98	4.77	.589	737	4.80	.512
Non-natural sounds	153	2.93	1.38	168	2.62	1.18	213	2.53	1.12	76	2.57	1.29	610	2.66	1.24
Overflights	163	2.57	.936	148	2.53	.929	155	2.50	.871	74	2.26	.861	540	2.50	.909
Encounter Wildlife	181	4.43	.804	185	4.51	.685	212	4.68	.639	88	4.44	.709	666	4.53	.715
Experiencing solitude	196	4.14	.892	184	4.34	.766	188	4.24	.855	92	4.36	.750	660	4.26	.832
Concern about bears	192	3.01	.883	194	3.05	.829	189	3.01	.792	87	3.07	.925	662	3.03	.846

Setting conditions rated as appealing Setting conditions rated as detractors

The results found along the four locations sampled follow the same pattern of those found from the overall sample (Table 5). Setting elements rated with high scores were considering appealing elements, and those elements ratted with lower scores were considering detractors. “A lot of hikers” was lowest rated at the Avalanche Lake trail suggesting that in that location visitors experienced perhaps more

encounters with others hikers or crowding. “Non-natural sounds” was rated with the lower score at the Highline trail perhaps due to the noises being heard from the GTSR. Finally, “overflights” were lowest rated for the hikers sampled at the Sunrift Gorge location.

From the overall sample, results presented in Table 6 indicate that 31% of the hikers sampled did not experience a detracting element; the largest percentage of hikers reporting none detractor (36%) was at The Loop. Respondents reporting a single detracting element were found in 26.1% of the sample. “A lot of other hikers” was the most frequent detractor reported by itself (15.6%), and it was reported most frequently at the Avalanche Lake trail (25.1%). Hikers experiencing two detracting elements were found in 27.1% of the sample. In that group, hikers experiencing crowding and non-natural sounds are the most frequent found altogether (12.7%). Those two detractors were most frequent reported together at the Highline trail (20.8%). The three detractors together were 14.1% reported. Hikers sampled at the Sunrift Gorge mentioned those three detractors most frequently than in other locations with 18% of the sample at that location.

Table 6 Detracting elements by type and location.

Detracting Element	Avalanche		The Loop		Highline		Sunrift G.		Total Sample	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
None	74	32.6	77	36.3	53	23.5	33	33.0	237	31.0
A lot of other hikers	57	25.1	26	12.3	25	11.1	11	11.0	119	15.6
Non-natural sounds	4	1.8	12	5.7	27	11.9	8	8.0	51	6.7
Overflights	10	4.4	6	2.8	7	3.1	6	6.0	29	3.8
A lot other h. & Non-nat. sounds	18	7.9	25	11.8	47	20.8	7	7.0	97	12.7
A lot other h. & Overflights	21	9.3	8	3.8	8	3.5	6	6.0	43	5.6
Non-nat. sounds & Overflights	14	6.2	24	11.3	18	8.0	11	11.0	67	8.8
All detractors	24	10.6	28	13.2	38	16.8	18	18.0	108	14.1

How do respondents react to detractors of their recreational experiences?

Hikers who reported some degree of detracting elements were asked to indicate to what extent they would usually take any action to deal with the elements or situations they identified as detracting from their experience. A four-point scale (1= “do not use/not applicable”, 2= “use somewhat”, 3= “use

quite a bit", and 4= "use a great deal") was used for evaluation of individual statements. A reliability test was conducted to the eight coping items used in the check list. The .877 reliability test score suggests that there is a strong internal consistency among the items measured. Answers from those hikers who did not experience any detracting element were excluded of the present analysis.

Mean responses listed in Table 7 indicated that respondents rated high the coping strategy "told myself that there was nothing I could do about it so I just enjoyed the experience for what it was" (mean=2.96, SD=1.06). In addition, there were high ratings for the strategy "decided that for this trail, the condition or situation was what it should be" (mean=2.57, SD=1.02). Thus, the results most heavily relied on cognitive coping mechanisms such as rationalization and product shift. In contrast, respondents rated poorly the direct action (mean=1.34, SD=.70) or activity substitution (mean=1.69, SD=.92) as coping strategies usually employed to deal with detracting elements found during their recreation experiences.

Table 7 Coping responses per location.

	Avalanche L.			The Loop			Highline			Sunrift G.			Total Sample		
Coping Responses	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
Visit at a different season	128	1.98	1.035	107	2.16	1.029	138	2.06	.926	51	2.22	.966	424	2.08	.991
Visit at a different time of day	129	2.22	1.055	111	2.14	1.013	137	2.27	.996	49	2.18	.993	426	2.21	1.016
Do a different activity	128	1.70	.873	111	1.66	.958	136	1.66	.921	48	1.81	.938	423	1.69	.916
Visit different trails	128	2.34	1.125	108	2.40	1.102	137	2.50	.979	46	2.48	.983	419	2.42	1.056
Nothing I could do	130	2.84	1.119	111	2.95	1.082	142	2.99	1.031	51	3.22	.923	434	2.96	1.062
Situation was suitable	129	2.18	.956	110	2.34	1.052	138	2.44	1.025	48	2.50	1.052	425	2.34	1.018
Situation is as it should be	128	2.41	1.000	109	2.70	1.023	140	2.56	1.006	49	2.78	1.085	426	2.57	1.022
Talk with park personnel	127	1.36	.752	104	1.36	.709	137	1.29	.644	50	1.38	.725	418	1.34	.702

Coping strategies most used

Coping strategies less used

Analysis by location presented approximately the same response patterns as those found in the overall sample; however, there are some interesting variations that deserve mention. At the Avalanche Lake trail respondents cope less usually than in other locations. For example, hikers at the Avalanche are little less likely to "visit the Park in a different season" (mean=1.98, SD=1.04), "to visit different trails in the Park" (mean=2.98, SD=1.04), "tell [themselves] that there was nothing [they] could do about it" (mean=2.84, SD=1.12), "realize that the condition or situation was really suitable after all" (mean=2.18, SD=.96), and "decide that the condition or situation was what it should be" (mean=2.41, SD=1.00), to avoid the detracting conditions that they found in the trail compared with hikers sampled in other locations.

In contrast, hikers at the Sunrift Gorge location cope more usually than in other locations. Respondent at the Sunrift Gorge location are little more likely to use the cognitive coping strategy "tell [themselves] that there was nothing [they] could do about it" (mean=3.22, SD=.923), "realize that the condition or situation was really suitable after all" (mean=2.50, SD=1.05), and "decide that the condition or situation was what it should be" (mean=2.78, SD=1.09), also those hikers are more likely to "talk with Park personnel about the condition or situation"(mean=1.38, SD=.73), "visit the Park in a different season" (mean=2.22, SD=.97), and "to do a different activity" (mean=1.81, SD=.94), to avoid the detracting conditions that they found in the trail compared with hikers sampled in other locations.

In the Figure 7, the numbers in parenthesis refer to percentages respect to the total sample. Overall, from the total sample of 765 hikers, 67% of the respondents experienced a detracting element. A lot of other hikers is the most common detracting element found (48% of the total sample), followed by non-natural sounds (42%) and overflights (32%). From those hikers experiencing at least one type of detracting element, 80% usually employ some coping mechanism to reduce the negative effect generated from the detracting experience. Hikers sampled usually employed a cognitive coping mechanism, either rationalization (91% of those using a coping mechanisms) or product shift (88%). A direct action, as talking or complaining with park personnel, was usually less employed (23%). Displacement, in the form of seasonal change, time of the day change, activity change, or location change, was considered by 87%

of those hikers experiencing a detracting element. From those hikers using displacement, visit different trails (88%) was the most usual response.

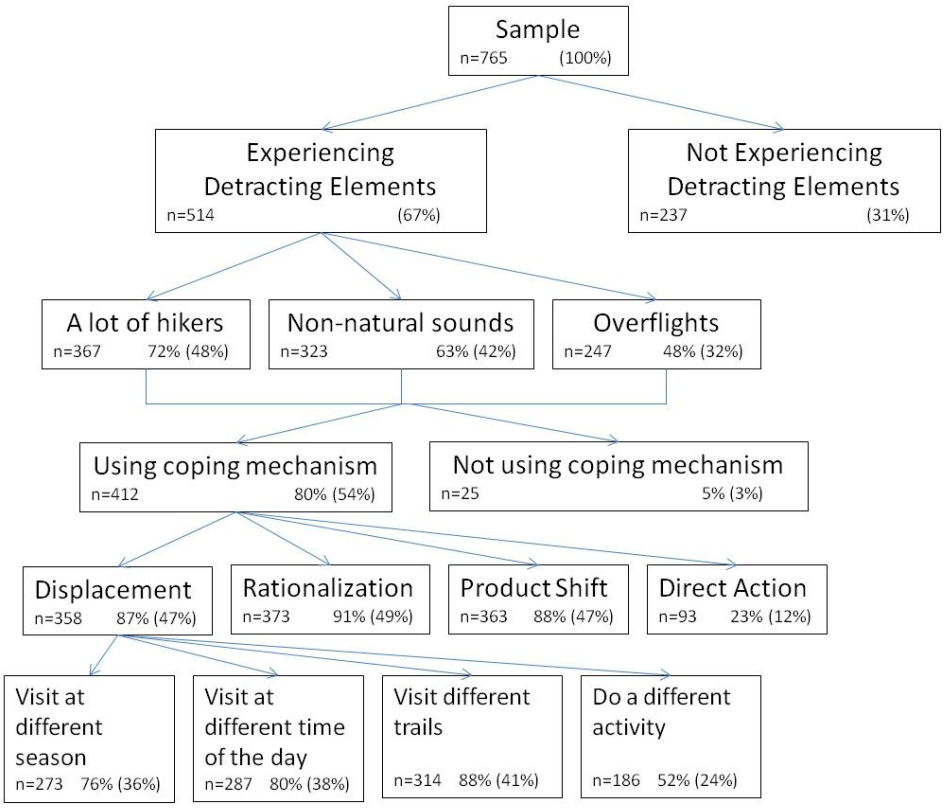


Figure 7 Distribution of hikers according to detracting elements identified and coping mechanisms employed.

Are there areas being currently less visited in the park?

In addition to the check list employed to evaluate the use of coping responses, repeat hikers at the park were asked to list which areas they visited less due the presence of three common undesirable conditions: too many people, restrictive regulations on recreation use, and environmental impacts. That question helped to assess if there was some evidence that hikers were experiencing intra-site displacement in GNP. In general, displacement due restrictive regulations on recreation use, and environmental impacts was not a frequent mechanism utilized by those hikers sampled at the GNP. However, there is a

considerable percent of repeat hikers (30%) who have been displaced from some areas within the park due to overcrowding.

Displacement because of crowding

From the 338 repeat hikers that answered whether they experienced displacement due overcrowding in certain areas in the Park, 30% answered they currently visit some areas less frequently than they did in previous visits. The areas being mostly avoided by hikers due the presence of too many people were Logan Pass and Avalanche Lake. The analysis per locations shows that there are significant differences among the places (Pearson's chi-square .008). Table 8 evidences that most of the repeat hikers at The Loop (42%) and Sunrift Gorge (33%) experienced displacement due to the amount of people encountering in some places in the park.

Table 8 Repeat hikers visiting areas less often due to crowds.

Location		Areas less visited because crowds		
		No	Yes	Total
Avalanche	Count	67	17	84
	% within Location	79.8%	20.2%	100.0%
The Loop	Count	55	40	95
	% within Location	57.9%	42.1%	100.0%
Highline	Count	80	27	107
	% within Location	74.8%	25.2%	100.0%
Sunrift	Count	35	17	52
	% within Location	67.3%	32.7%	100.0%

Displacement because of regulations

Three hundred thirty-one repeat hikers answered the question of whether there were any areas in GNP that they visited less often because the regulations on recreation use were too restrictive. Among those responses, 95.5% of the repeat hikers said that was not the situation for them; just 4.5% of the repeat hikers sampled confirmed that there were some areas that they visited less because regulations presented some inconveniences for them. Those areas corresponded mostly to campsites and the

backcountry (without specifications). The analysis per locations, in Table 9, does not confirm significant differences among the places (Pearson's chi-square .345).

Table 9 Repeat hikers visiting areas less often due to regulations.

Locations		Areas less visited because regulations		
		No	Yes	Total
Avalanche	Count	80	1	81
	% within Location	98.8%	1.2%	100.0%
The Loop	Count	87	5	92
	% within Location	94.6%	5.4%	100.0%
Highline	Count	99	7	106
	% within Location	93.4%	6.6%	100.0%
Sunrift	Count	50	2	52
	% within Location	96.2%	3.8%	100.0%

Displacement because of impacts in the natural conditions

From the non-first time visitors sampled, 335 hikers answered the question whether they visited some areas less often because the natural environment has been too highly impacted by recreational use. From those, 9.6% of the repeat hikers sampled mentioned that they have been displaced from some areas impacted by recreational use. The areas most frequently mentioned were Logan Pass, Avalanche Lake and Apgar. The analysis per locations does not confirm significant differences among the places (Pearson's chi-square .068).

Table 10 Repeat hikers visiting areas less often due to regulations.

Location		Areas less visited because environ. impacts		
		No	Yes	Total
Avalanche	Count	81	4	85
	% within Location	95.3%	4.7%	100.0%
The Loop	Count	80	11	91
	% within Location	87.9%	12.1%	100.0%
Highline	Count	99	8	107
	% within Location	92.5%	7.5%	100.0%
Sunrift	Count	43	9	52
	% within Location	82.7%	17.3%	100.0%

How would respondents react if their preferred trail was closed?

In addition to the coping strategies presented for the detracting elements or situations encountered, hikers were asked what they would most likely have done if they learned that the trail they hiked had been closed that day. This question was attempted to assess the likelihood of displacement due to management actions. The hikers were presented three possible scenarios where they might have known about the closure: at the park entrance, while riding the shuttle, and at the trailhead. That question pretended to assess the likelihood of the behaviors hikers would engage in case that the detracting element comes from an action implemented by the park managers. The results from the three scenarios suggested that most of the hikers sampled (75.83%) would stay within the corridor, either hiking a trail close by (41.9%) or hiking a trail accessible by the shuttle (33.9%).

If they learned at the park entrance

Hikers would most likely have selected another trail close by the trail they hiked if they knew at the park entrance that their desired trail had been closed, with 40.6% of the sample (Figure 8). However, there were some differences among the answers provided by the hikers depending on where they were surveyed (Pearson's chi-square .005). For example, hikers at the Highline and Sunrift Gorge trails had mostly selected another trail close by but hikers at the Avalanche Lake and The Loop trails could have hiked another trail close by or hiked another trail within the GTST corridor (Table 11).

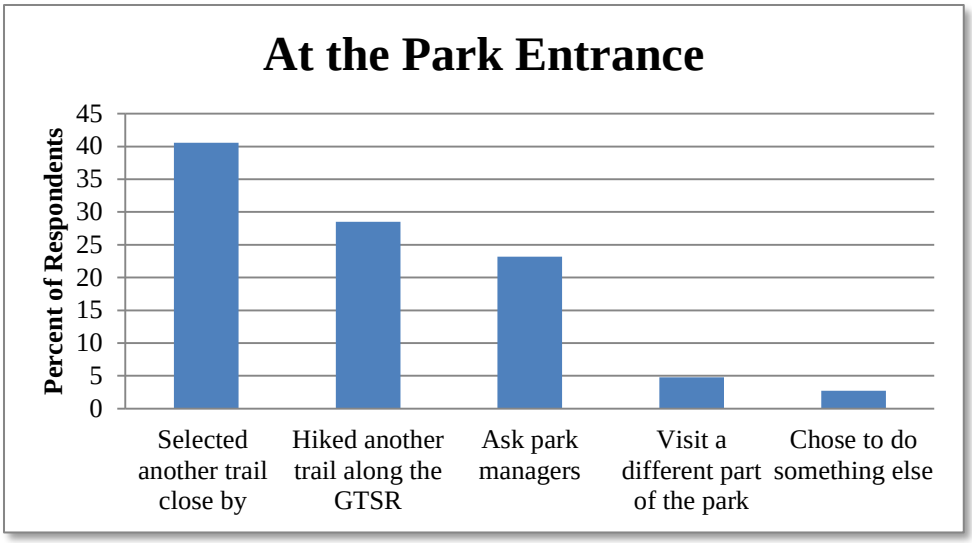


Figure 8 Hikers reactions to trail closure while at the park entrance.

Table 11 Reactions by location to trail closure while on at the park entrance.

Possible Reactions		Location				Total
		Avalanche	The Loop	Highline	Sunrift	
Hike close by	Count	76	64	92	50	282
	% within Location	38.0%	33.2%	44.4%	52.6%	40.6%
Hike along GTSR	Count	58	59	58	23	198
	% within Location	29.0%	30.6%	28.0%	24.2%	28.5%
Ask park managers	Count	50	52	42	17	161
	% within Location	25.0%	26.9%	20.3%	17.9%	23.2%
Visit different area	Count	4	14	11	4	33
	% within Location	2.0%	7.3%	5.3%	4.2%	4.7%
Do something else	Count	12	3	4	0	19
	% within Location	6.0%	1.6%	1.9%	0.0%	2.7%
Other	Count	0	1	0	1	2
	% within Location	0.0%	.5%	0.0%	1.1%	.3%
Total	**Count**	200	193	207	95	695

If they learned while riding the shuttle

Forty-five percent of the hikers sampled would mostly like have hiked another trail close by that they could access via shuttle if they knew that their chosen trail had been closed while they were riding the shuttle (Figure 9). The analysis per location suggests that there were not statically significant differences among the answers provided by the hikers in the four locations studied (Pearson's chi-square .072).

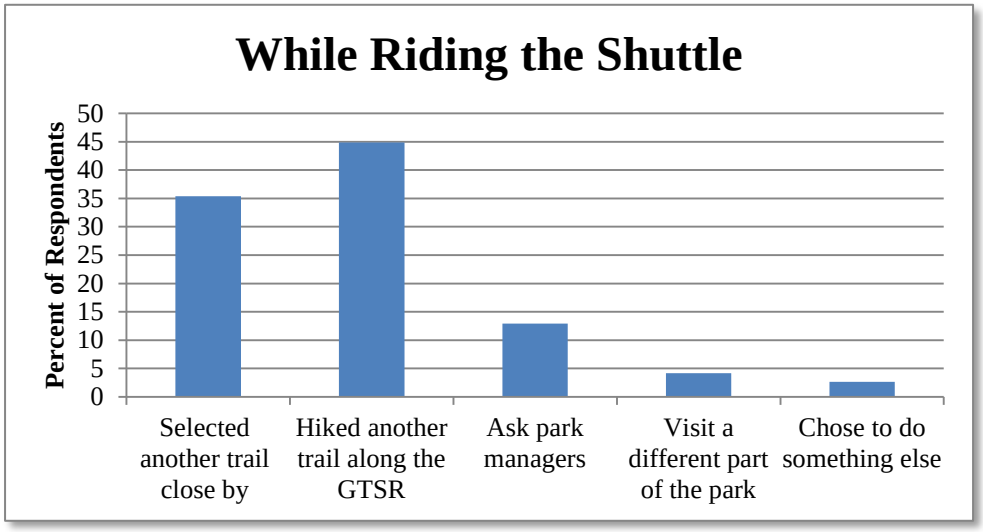


Figure 9 Hikers reactions to trail closure while riding the shuttle.

Table 12 Reactions by location to trail closure while riding the shuttle.

Possible Reactions		Location				Total
		Avalanche	The Loop	Highline	Sunrift	
Hike close by	Count	2	35	39	17	93
	% within Location	18.2%	34.0%	41.1%	31.5%	35.4%
Hike along GTSR	Count	5	47	36	30	118
	% within Location	45.5%	45.6%	37.9%	55.6%	44.9%
Ask park managers	Count	2	13	15	4	34
	% within Location	18.2%	12.6%	15.8%	7.4%	12.9%
Visit different area	Count	0	6	4	1	11
	% within Location	0.0%	5.8%	4.2%	1.9%	4.2%
Do something else	Count	2	2	1	2	7
	% within Location	18.2%	1.9%	1.1%	3.7%	2.7%
Total	**Count**	11	103	95	54	263

If they learned at the trailhead

Hikers would most likely have selected another trail close to the trail they hiked if they knew that their chosen trail had been closed while they were at the trailhead, with 49.7% of the responses (Figure 10). Those results were confirmed among the four locations studied. Accordingly, the Pearson's chi-square significance above of .000 suggests that there was a significance difference among the locations. Hikers sampled at the Highline and Sunrift Gorge were more likely to hike nearby (Table 13).

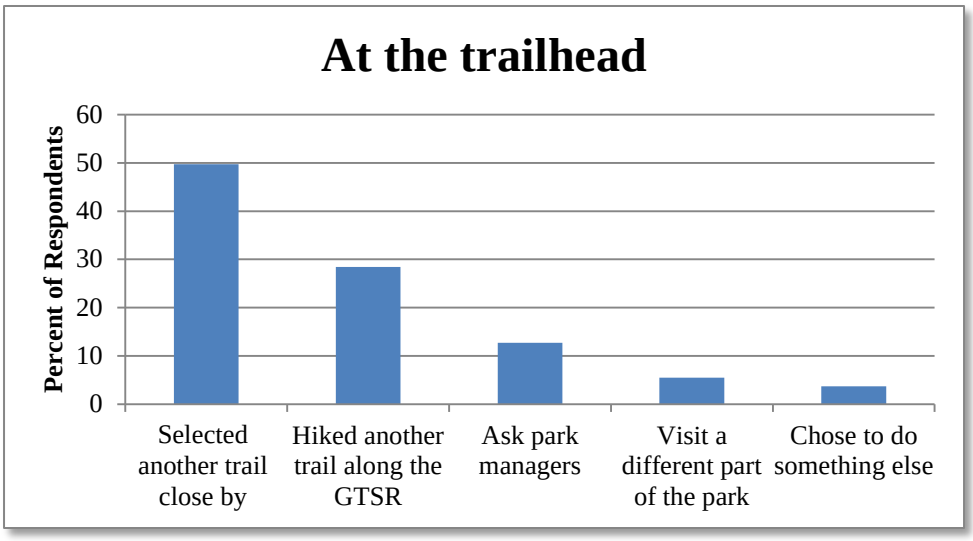


Figure 10 Hikers reactions to trail closure while at the trailhead.

Table 13 Reactions by location to trail closure while at the trailhead.

Possible Reactions		Location				Total
		Avalanche	The Loop	Highline	Sunrift	
Hike close by	Count	86	90	112	48	336
	% within Location	45.3%	48.1%	53.8%	52.7%	49.7%
Hike along GTSR	Count	65	57	46	24	192
	% within Location	34.2%	30.5%	22.1%	26.4%	28.4%
Ask park managers	Count	18	21	40	7	86
	% within Location	9.5%	11.2%	19.2%	7.7%	12.7%
Visit different area	Count	6	13	9	9	37
	% within Location	3.2%	7.0%	4.3%	9.9%	5.5%
Do something else	Count	15	6	1	3	25
	% within Location	7.9%	3.2%	.5%	3.3%	3.7%
Total	**Count**	190	187	208	91	676

What are the use levels and number of people in the trails studied?

Previous studies of coping (Miler, 1997; Johnson & Dawson, 2004) mentioned the importance of assessing coping responses in conjunction with monitoring of actual visitor use estimations. During the summer of 2012, the University the Montana and NPS installed trail counters to assess trail use levels. For the purposes of the present study, trail counter information from July 1st through September 5th was used to calculate hourly averages and quartiles per location using Trafx DataNet website (www.trafx.net). This date range included week days and weekends, resulting in more realistic averages. In addition,

hourly averages were calculated from 7:00 AM to 8:59 PM, considering this range of hours that have sun light during the summer allowing hikers to explore the park.

It has been estimated that each of the trails studied has different patterns of use during the day (Bedoya & Freimund, 2012). Table 14 presents the use levels calculated per each location included in the present study.

Table 14 Use levels calculated per location.

Use level	Avalanche L. (# People)	Highline (# People)	The Loop (# People)	Sunrift G. (# People)
1 = Light use	Less than 21	Less than 9	Less than 8	Less than 2
2 = Moderate use	22 to 66	10 to 43	9 to 16	3 to 4
3 = High use	67 to 105	44 to 75	16 to 25	5 to 9
4 = Intensive use	More than 105	More than 75	More than 25	More than 9

Time of survey taken, distance to the trail counter from the trailhead, and average of speed while hiking were used to calculate the use levels each respondent was likely to have experienced. According to Bedoya and Freimund (2012), hikers at the St. Mary falls moved at an average of speed of 2.17 MPH, and visitors at the Hidden Lake moved at an average of speed of 1.84 MPH. For the purposes of the present study, the topographic trail conditions of Avalanche Lake and Highline trails were considered closer to those found in St. Mary falls so it was assumed that visitors at those locations move at a speed of 2.17 MPH. Similarly, the topographic trail conditions at The Loop and Sunrift Gorge trails were considered similar at those found at the Hidden Lake, thus, it was assumed that hikers moved at an average speed of 1.84 MPH there. Thus, it was calculated that hikers took 20 min from the trail head to the trail counter at Avalanche Lake trail, 28 min at The Loop, 36 min at Highline trail, and 11 min at the Sunrift Gorge location. That information was subtracted from the time when the survey was taken to define the time range and use level in which each respondent was hiking.

The results of those calculations are presented in Table 15. Results suggested that most of the hikers sampled at the Avalanche Lake and Sunrift Gorge trails were hiking during intensive use level

hours (73% and 66% respectively). Hikers sampled at The Loop and Highline trails were hiking mostly during high use level hours (47% and 58% respectively). Additionally, results evidenced that none of the hikers sampled were hiking during a light use level in any of the four locations studied. That fact was not surprising because of the study design. The light use levels are commonly presented during early hours in the morning and evenings, but hikers sampled were approached during midmorning, noon and afternoon hours which correspond to moderate to intensive levels hours of the day in all the locations.

Table 15 Hikers sampled by use level and location.

Use Level	Avalanche L.		The Loop		Highline		Sunrift G.		Total Sample	
	Freq.	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
Moderate	15	6.6	31	14.6	33	14.6	5	5.0	84	11.0
Heavy	47	20.7	100	47.2	132	58.4	29	29.0	308	40.3
Intensive	165	72.7	81	38.2	61	27.0	66	66.0	373	48.8
Total Location	**227**	**100.0**	**212**	**100.0**	**226**	**100.0**	**100**	**100.0**	**765**	**100.0**

In addition to use levels, the number of people that were possibly at the trail at the same time than hikers sampled was calculated. With that aim, trail counters counts by date and hour, and survey date, time, hike length and destination were considered. The information available allowed calculating the people that 494 hikers sampled could have encountered. Missing data (271 cases) were due lack of hike length reports in the surveys (96 of the cases), or due the lack of information from the trail counters (175 of the cases).

The number of people that were at the trails at the same time that the hikers sampled ranged from 3 people (at Sunrift Gorge, a responder hiking for about two hours) to 680 people (at The Loop, a responder hiking for about eight hours from the Highline trail). Both variables, use levels and number of people at the trail, will be included in subsequent analysis for hypothesis testing.

To sum up, at this point of the document the results from descriptives statistics have been presented. The results have focused in showing frequencies of the variables of interest and differences of the results by location. In addition, the results have allowed confirming the presence of detracting

elements and coping mechanisms employed, which are both of the variables of interest for this study. A more detailed analysis of the implications of each variable included in this study for the identification of detracting elements and use of coping responses will be offered in the discussion to follow.

Chapter 5 HYPOTHESES TESTS

The previous chapter provided a descriptive overview of the variables measured for this study. This chapter focuses on testing the four hypotheses proposed in chapter 2. Hypotheses 1 and 2 were proposed to assess the influence of personal and situational factors upon the identification of detracting elements and the use of coping mechanisms. Hypotheses 3 and 4 attempted to identify the influence of the number of detracting elements experienced and trail use levels on the use of coping mechanisms.

Hypothesis 1: detracting elements of the recreation experience can be explained by personal characteristics and trail conditions.

This hypothesis is directed by the research question: what are the most salient setting attributes and personal factors that contribute in the identification of detracting experiences? A lot of other hikers was the most common detracting element found (48% of the total of 765 hikers sampled), followed by non-natural sounds (42%) and overflights (32%). Thus, to test this hypothesis each detracting element identified by respondents was examined against a set of personal and situational factors using ordinary least squares procedures.

Ordinary least squares regression was used to test whether situational and personal factors could influence detracting elements identification from the recreational experiences of the hikers at GNP. This tool is appropriate to assess whether situational and personal factors could be good predictors of detracting elements identification since it is based on the association between the explanatory variables and the dependent variable. This tool is also suitable because allows to test the variables simultaneously.

The independent variables include location (Avalanche, The Loop, Highline, and, Sunrift Gorge), gender, age (less than 30, 30-39, 40-49, more than 50), 15 motivational items (rating from 1 “very unimportant” to 5 “very important”), type of wildlife encountered (big mammals, other wildlife, big mammals and others, did not encounter any animal), number of animals encountered, expectations (do not know what to expect, more people, the same, fewer people), preferences (the number of people does not

matter, more people, just the same, fewer people), first trip (yes/no), group type (alone, family, friends, both, others), use level (low, moderate, high, intensive), and number of people on the trail. The dependent variables (detractor 1: a lot of other hikers seen; detractor 2: non-natural sounds, and detractor 3: overflights) range from 1 "added greatly" to 5 "detracted greatly".

Table 16 Zero-order correlations for detracting elements and independent variables.

	A lot of hikers	Non-natural sounds	Overflights
1. Location	-.013	.088	.106*
2. Gender	.015	-.015	.000
3. Age	-.067	-.031	.038
4. Challenge	-.092*	.037	-.072
5. Solitude	.007	.005	.019
6. Develop skills	-.073	.056	-.032
7. Escape & Relax	.023	.038	-.005
8. Accomplishment	-.084*	-.018	-.080
9. Time w/ family	-.019	-.026	-.057
10. Close to nat.	-.002	-.017	.023
11. Excitement	-.107**	-.054	-.036
12. Introspection	-.131**	-.008	.026
13. Peace	-.035	.020	.045
14. Wildlife watch	-.004	.037	-.016
15. Easy access	-.085*	-.051	-.031
16. Scenery	.054	.027	.047
17. Exercise	-.015	-.027	-.059
18. Meet people	-.242**	-.056	-.075
19. Type wildlife	-.003	.026	.059
20. # Animals	.031	-.036	-.059
21. Expectations	.208**	-.027	.053
22. Preferences	.543**	.147	.161**
23. First trip	-.025	-.018	-.091*
24. Group type	.019	.008	.006
25. Use Level	.008	-.079	.025
26. # People	.025	-.007	-.086
n	723	610	540
Means	3.42	3.34	3.5
St Dev	0.887	1.235	0.909

Correlation is significant at the *.05 level, ** .01 level (two-tailed).

Table 16 displays zero-order correlations for the three detracting elements under study and the independent variables. Zero-order correlations constitute the first piece of evidence to establish linear relationship between the dependent and independent variables. The results suggest that there was a positive and moderate relationship among one of the explanatory variables (preferences) and considering

a lot of other hikers as a detracting element for the recreation experiences of hikers sampled. The score for the association between preferences and "a lot of other hikers' means that the more a hiker preferred have seen fewer people, the more likely he/she was to identity "a lot of other hikers" as a detractor. The rest of the items present a weak relationship with the detracting elements. A complete table of intercorrelations, means and standard deviations of all the variables of interest can be found in *Appendix 3*. The results from the ordinary least squared regression models will be present as follow.

Dependent variable: detractor 1 (a lot of hikers)

The first regression analysis used the detractor "a lot of hikers" as a dependent variable, and the 26 independent variables which form the theoretical foundation for this study. The overall model was statistically significant, $F_{(26, 293)}=9.327$, $p\leq.00$, explaining 40.4% of the total variance of the dependent variable (see *Appendix 4* for the complete results of the overall models). However, in the partial estimates, there were some variables that did not explain any unique variation that was not shared with other variables in the analysis. Therefore, a parsimonious analysis (Tabachnick & Fidell, 2007) was conducted to remove variables from the model that did not contribute with the unique variation to the model (R^2). With that aim, variables that presented slopes less than .05 in the overall models tested were taken out one at a time looking for improvement in the adjusted R^2scores.

Adjusted R^2 scores were considered to evaluate the results, because the adjusted R^2 statistic is an adjustment to the R^2 statistic that attempts to account for the number of predictors in the model. This statistic is used when comparing regression models with different numbers of predictors (Tabachnick & Fidell, 2007). In this case, predictors were excluded from one model to other checking for variances in adjusted R^2 scores.

The model resulting from the parsimony analysis accounts for 43.2% of the variation observed in "a lot of other hikers" as a detracting element for the recreation experiences of the hikers. In addition, $F_{(13, 319)}= 17.68$ suggested that the model was statistically significant ($p\leq.00$).

Model assumptions were checked to confirm the appropriateness of the results basis on the data. Model assumptions regarding independence of the residuals, collinearity, and normal distribution of the residuals were assessed for each of the detractors identified. The Durban-Watson coefficient, scoring 1.89, suggested that there was a slight positive autocorrelation of the residuals. However, that autocorrelation was not severe enough to cause a lot of concern. VIF scores did not show any value over two. Tolerance scores showed two variables presenting values around .6; however, they were not a matter of concern since they were not so far from one. In addition, collinearity diagnostics did not present any value greater than .95. Thus, it can be concluded that there was no evidence of collinearity in the analysis. Cook's distance scores did not present values over one, those results suggested that it was not likely to have a disproportion or leverage influence in the data set. Finally, the histogram of the residuals looked approximately normally distributed, and so did the pp-plot. Those results confirm that there were no problems with multicollinearity in the data, and the assumptions of independence, normality and heteroscedasticity were met.

Table 17 Ordinary least squared regression estimates for detracting elements (trimmed models).

	A Lot of Hikers (*Adj. R^2 = .432*)		**Non-natural sounds (*Adj. R^2 = .101*)**		**Overflights (*Adj. R^2 = .075*)**	
	Beta	**Sig. *p* ≤**	**Beta**	**Sig. *p* ≤**	**Beta**	**Sig. *p* ≤**
Location			.146	.019*	.147	.030*
Age	-.097	.025*			.082	.193
Challenge	-.074	.124			-.174	.024*
Solitude	.154	.002*			.096	.165
Develop skills			.063	.304	.102	.173
Escape & Relax			.121	.061		
Time w/ family	-.063	.167				
Close to nature	.077	.148				
Excitement	-.130	.018*	-.160	.018*		
Introspection	-.094	.068				
Wildlife watching	.096	.050*	.084	.182		
Easy access	-.107	.016*	-.143	.019*		
Meet people	-.162	.000*				
# Animals Enc.	-.030	.506	-.131	.032*	-.121	.067
Expectations			-.114	.052		
Preferences	.526	.000*	.222	.000*	.157	.013*
First trip			-.094	.112	-.085	.180
Group type			-.096	.100	-.094	.135
Use Level			-.088	.138		
# People	.008	.856	.091	.157	-.009	.890

Note: * p< .05; (two-tailed tests)

The results of the parsimony analysis suggested that the most efficient model, in terms of explaining the variation in the detracting element "a lot of hikers", was the one which included the variables displayed in Table 17. Of that group of variables, the significant predictors of the scores in the dependent variable were the personal factors age (β=-.097), and preferences (β=.526), and the motivation items solitude (β=.154), excitement (β=-.130), desire of seeing wildlife (β=.096), easy access (β=-.107), and meet new people (β=-.162). The results suggested that setting conditions were not significant predictors of the detracting element "a lot of hikers".

Dependent variable: detractor 2 (non-natural sounds)

The second overall model included the same independent variables used in the previous model, and non-natural sounds as a dependent variable. The model was statistically significant, $F_{(26, 246)}=1.681$, $p\leq.024$, explaining 6.1% of the total variance of the dependent variable (see *Appendix 4*). The model resulting from the parsimony analysis accounted for 10.1% of the variation observed in the identification of non-natural sounds as a detracting element. In addition, F test $_{(13, 271)}=3.448$, suggested that the model was statistically significant ($p\leq.000$). However, while the statistical association was significant, the vast majority of the variance remains unexplained (Table 17). The results suggested that there was a weak evidence to support association between the dependent and independent variables.

Dependent variable: detractor 3 (overflights)

The third overall model assessed overflights as the dependent variable. Contrary to the results obtained in the two previous models, this model was not statistically significant, $F_{(26, 213)}=1.22$, $p\leq.22$, explaining just a 2.3% of the total variance of the dependent variable (see *Appendix 4*). The model resulting from the parsimony analysis accounted for 7.5% of the variation observed in the identification of overflights as a detracting element. $F_{(10, 242)}=3.003$ suggested that the model was statistically significant ($p\leq.001$). However, similarly to what happened with the model for non-natural sounds, while the statistical association was significant, the vast majority of the variance remains unexplained (Table 17).

The results suggested that there was a weak evidence to support association between the dependent and independent variables.

In conclusion, the hypothesis that personal and situational factors might predict the identification of detracting elements from the recreation experiences of visitors at GNP was supported for the detractor "a lot of hikers". The results suggested that personal factors were better predictors than situational factors for that detracting element. Personal factors such as age and preferences of the number of people encountered, and motivational items such as solitude, excitement, desire of seeing wildlife, easy access, and meet new people were significant predictors of identifying "a lot of hikers" as a detracting element. Contrastingly, weak evidence was found to support this hypothesis for the detracting elements "non-natural sounds" and "overflights".

Hypothesis 2: individual characteristics, trail settings and detracting elements influence the use of coping mechanisms during the recreational experience.

The research question directing this hypothesis asks: to what extent do setting attributes, personal factors and detracting elements influence the decision process regarding the use of coping strategies? Coping mechanisms employed usually by hikers sampled were reported in Chapter 4. From the 514 hikers reporting a detracting element during their recreation experience, 80% (412 hikers) would usually employ one or more of the eight coping mechanisms presented to them.

Ordinary least squared regression analyses were used to determine which detracting elements, personal and situational factors best explain the use of coping mechanisms in the four trails studied. The independent variables for this test were the same ones used in the test of detracting elements above. In addition, the three detracting elements (a lot of other hikers, non-natural sounds, and overflights) were included as independent variables. An additional independent variable was included, named Montana. This variable allowed to differentiating respondents having Montana as a place of residence from those who did not. Visitors from Montana were rated with one and those visitors from different places were

rated with zero. It was expected that people living close by GNP were more willing to change time of the visit to avoid undesirable conditions than visitors living further away.

The dependent variables were the eight coping mechanisms studied: four displacement mechanisms (visit in a different season, visit in a different time of the day, do a different activity, and hike in a different trail), one for rationalization (nothing it could be done, just enjoy the experience as it was), two for product shift (the situation was suitable after all, and the situation was what it should be), and one for direct action (talk with park personnel). These dependent variables ranged from 1 “not used” to 4 “used a great deal”.

Table 18 displays zero-order correlations for the eight coping mechanisms under study and the independent variables. The results suggested that there was a weak association between the coping responses and all the independent variables used in this study. A complete table of intercorrelations, means and standard deviations of all the variables of interest can be found in *Appendix 5*.

Table 18 Zero-order correlations for coping mechanisms and independent variables.

	Visit at a different season	Visit at a different time of the day	Do a different activity	Visit different trails	Nothing could do just enjoy it	Situation was really suitable	Situation was what should be	Talk to park personnel
1. Location	.058	.001	.031	.047	.103*	.102*	.091	-.003
2. Gender	.035	.039	.060	.035	.079	-.002	-.025	-.056
3. Age	-.038	-.008	-.026	-.014	-.001	-.027	-.052	-.006
4. Challenge	.090	.071	-.026	-.008	.017	.076	.090	-.050
5. Solitude	.069	.092	-.019	-.001	-.013	.047	.061	.025
6. Develop skills	.069	.064	.007	.013	.065	.118*	.064	-.007
7. Escape & Relax	.010	-.019	-.003	-.078	-.037	.014	.020	-.027
8. Accomplishment	.012	-.001	-.037	-.009	.027	.009	.018	-.038
9. Time w/ family	-.045	-.021	-.042	-.108*	.007	-.041	-.002	-.045
10. Close to nature	-.021	.053	-.017	-.148**	.004	-.003	.013	.011
11. Excitement	-.017	-.022	-.043	-.081	-.015	-.002	.008	-.023
12. Introspection	-.026	-.010	-.016	-.030	-.005	.033	.037	-.021
13. Peace	.013	.001	-.063	-.085	.000	.027	.059	-.011
14. Desire wildlife	-.054	-.048	-.034	-.045	-.010	.024	-.013	-.010
15. Easy access	-.047	-.042	-.049	-.129**	.011	-.061	-.027	-.012
16. Scenery	-.036	.009	-.006	-.113*	-.028	-.006	-.022	.015
17. Exercise	-.047	.003	.018	.007	.065	.032	.016	.015
18. Meet people	-.077	.001	-.095	-.039	.049	.048	.052	-.056
19. A lot of hikers	.004	.048	-.017	.049	.045	-.008	-.043	.041
20. Non-natural S.	-.025	-.046	-.021	-.042	.038	.010	.028	.014
21. Overflights	.008	-.052	.046	-.027	-.122*	.016	.018	.037
22. Type wildlife	.024	-.049	-.001	.051	.086	.117*	.109*	-.108*
23. # Animals Enc.	.002	.040	-.082	.010	.134*	.090	.086	-.092
24. Expectations	-.007	.062	.047	-.023	.036	.015	.023	.061
25. Preferences	.010	.030	-.077	.066	.035	.003	.019	-.049
26. First trip	-.041	.005	-.045	-.019	.006	-.073	-.027	-.013
27. Montana	-.036	-.090	.053	-.024	-.015	.024	.029	-.049
28. Group type	-.045	-.074	.058	.035	.065	.072	.085	-.061
29. Use Level	.063	.008	.003	.018	-.034	.026	.006	.037
30. # People	.064	.036	-.102	.093	-.032	.019	-.033	-.079
n	424	426	423	419	434	425	426	418
Means	2.08	2.21	1.69	2.42	2.96	2.34	2.57	1.34
St Dev	0.99	1.02	0.92	1.06	1.06	1.02	1.02	0.70

Correlation is significant at the *.05 level, ** .01 level (two-tailed).

The regression models that resulted from this analysis did not support an adjusted R^2 beyond .194, even after parsimony analyses. Results of parsimony analyses are showed in Table 19. Those results suggested that most of the variance in the use of coping responses remained unexplained with the regression models performed. Thus, there was a limited, yet statistically significant evidence to support association between the dependent and independent variables. A table with the results of complete models and parsimony analyses can be found in *Appendix 6*.

Table 19 Ordinary least square regression models summary for coping mechanisms.

Coping Mechanisms	Adj. R2	F-test	Sig $p \leq$
Realized that if I visit this trail in the future, visiting at a different season would help me to avoid this condition or situation.	.119	1.942	.022
Realized that if I visit this trail in the future, visiting at a different time of day would help me to avoid this condition or situation.	.128	2.105	.011
Decided that I would come back to the Park at the same season but would do a different activity to avoid this condition or situation.	.113	2.086	.015
Realized that visiting different trails of the Park would allow me to avoid this condition or situation.	.117	2.367	.006
Told myself that there was nothing I could do about it, so I just enjoyed the experience for what it was.	.190	3.719	.000
Realized that the condition or situation I experienced was really suitable after all.	.194	3.165	.000
Decided that for this trail, the condition or situation was what it should be.	.134	2.494	.004
Decided to talk with Park personnel about the condition or situation.	.071	2.128	.012

Significance at p< .05 (two-tailed tests)

Despite the low levels of variance explained in the overall results of the regression models used in explaining coping mechanisms, there was more variance explained for mechanisms related with cognitive coping strategies (rationalization and product shift) than for behavioral strategies. The models for those coping strategies explained approximately 20% of the variation of each strategy. Table 20 shows that the

personal factors such as gender and motivation items (challenge and develop skills), and situational factors such as number of people encountered and detracting elements (overflights and non-natural sounds), were significant predictors of the rationalization strategy "told myself that there was nothing I could do about it, so I just enjoyed the experience for what it was". In addition, the product shift strategy "realized that the condition or situation I experienced was really suitable after all" could be explained by just two significant predictors; they were the motivation items spend time with family and excitement.

Table 20 Ordinary least squared regression estimates for coping mechanisms (treated models).

	Visit at different season (*Adj. R^2 = .119*)	Visit at different time of the day (*Adj. R^2 = .128*)	Do a different activity (*Adj. R^2 = .113*)	Visit different trails (*Adj. R^2 = .117*)	Nothing I could do (*Adj. R^2 = .190*)	Situation was suitable (*Adj. R^2 = .194*)	Situation was what should be (*Adj. R^2 = .134*)	Talk park personnel (*Adj. R^2 = .071*)
Gender	.175		.199*	.121	.206*		.126	
Age	-.218*	.143					-.084	-.126
Challenge	.234*	.216*	.217*		-.260*	-.039		
Develop skills				-.150	.186*	.179	.149	.141
Escape & Relax	-.237	-.088	-.104	-.136	.062		-.024	-.216*
Time w/ family		.131				-.378*	-.169	.001
Close to nature		.161	.173			.198	.307*	
Excitement			-.293*	-.267*	-.130	-.237*	-.213	.140
Wildlife watching		-.307*	-.160		.157	.116		
Scenery	.225	.130	.182			.190		.175
A lot of hikers	.001	.308*	.049		.069			
Non-natural s.	-.178		-.126	-.232*	.186*			
Overflights	.234*	-.046	.243*	.172	-.201*	.091	-.008	
Type wildlife	.106	.110	.152	.090				-.074
# Animals Enc.	.003	.261*	.025		.146	.141	.317*	
Montana	-.150	-.199*		-.209*		.003	.050	-.022
# People	.021	-.097	-.166	.000	-.203*	.005	-.084	-.158*

Note: Coefficients are standardized slopes, *p< .05 (two-tailed tests)

In conclusion, weak to moderate evidence was obtained from the ordinary least squared regression models to probe the hypothesis that detracting elements, personal and situational factors used in this study, explain the use of the coping mechanisms measured. There is still much of the variance in the use of coping responses that needs to be explained by other factors. This study has been able so far to explain 20% in the variance of two mechanisms related with cognitive coping strategies.

Hypothesis 3: respondents make use of different coping mechanisms depending upon the number of detracting elements identified.

Of primary concern for this study was an examination of the coping strategies employed as result of situational factors that could be considered negative impacts from the recreational experiences of the visitors to the GNP. In particular, the focus was on the relationship between coping and number of detracting elements identified (hypothesis 3) and trail use levels experienced (hypothesis 4) while hiking.

Test of the hypothesized relationship between coping mechanisms employed and number of detracting elements identified were accomplished through one-way analysis of variance (ANOVA). The goal of this analysis was to address the research question: are there differences in coping responses employed depending on the number of detractors identified?

Table 21 summarizes the analysis of variance for observed scores in coping responses by none, one, two, and three detracting elements identified. For all the coping mechanisms studied there was not sufficient evidence observed to reject the null hypothesis of no differences in means scores of coping use by numbers of detracting elements at the .05 significance level. Overall, differences in mean coping responses scores appeared to be unrelated to the number of detracting elements.

Table 21 Mean scores for coping responses by number of detracting elements identified.

Coping Mechanisms	Number of Detracting Elements Identified (n=751)				
	None	One	Two	Three	sig. $p \leq$
Realized that if I visit this trail in the future, visiting at a different season would help me to avoid this condition or situation.	2.11	1.98	2.12	2.12	.683
Realized that if I visit this trail in the future, visiting at a different time of day would help me to avoid this condition or situation.	2.20	2.27	2.14	2.22	.847
Decided that I would come back to the Park at the same season but would do a different activity to avoid this condition or situation.	1.65	1.66	1.74	1.75	.817
Realized that visiting different trails of the Park would allow me to avoid this condition or situation.	2.35	2.43	2.51	2.41	.697
Told myself that there was nothing I could do about it, so I just enjoyed the experience for what it was.	3.05	2.93	2.88	2.97	.623
Realized that the condition or situation I experienced was really suitable after all.	2.36	2.26	2.36	2.43	.721
Decided that for this trail, the condition or situation was what it should be.	2.60	2.53	2.57	2.61	.950
Decided to talk with Park personnel about the condition or situation.	1.33	1.24	1.41	1.38	.264

* Significance at p< .05 (two-tailed tests)

Hypothesis 4: respondents employ different coping mechanisms depending upon the trail use levels experienced during their hikes.

It was also hypothesized that different trail use levels would contribute to the selection of coping responses in the recreational experiences. The research question for this hypothesis concerned of whether different use levels in the trails studied were associated with particular types of coping mechanisms employed by visitors.

Table 22 summarizes the one-way analysis of variance (ANOVA) used to test the differences in the scores of coping responses by trail use level. The results suggested that for this test, differences in coping mechanism employed in different trail use levels provided no evidence to reject the null hypothesis of no differences at a .05 significance level. In conclusion, there was a general lack of

evidence from the data collected for this study to determine significant relationships that rejected the null hypothesis of no differences between coping responses employed and trail use levels.

Table 22 Mean scores for coping responses by trail use level experienced.

Coping Mechanisms	Trail Use Level			
	Moderate	Heavy	Intensive	sig. $p \leq$
Realized that if I visit this trail in the future, visiting at a different season would help me to avoid this condition or situation.	2.00	2.02	2.15	.385
Realized that if I visit this trail in the future, visiting at a different time of day would help me to avoid this condition or situation.	2.12	2.24	2.20	.771
Decided that I would come back to the Park at the same season but would do a different activity to avoid this condition or situation.	1.81	1.63	1.72	.429
Realized that visiting different trails of the Park would allow me to avoid this condition or situation.	2.31	2.45	2.42	.750
Told myself that there was nothing I could do about it, so I just enjoyed the experience for what it was.	3.00	3.00	2.92	.739
Realized that the condition or situation I experienced was really suitable after all.	2.19	2.37	2.35	.583
Decided that for this trail, the condition or situation was what it should be.	2.50	2.60	2.57	.851
Decided to talk with Park personnel about the condition or situation.	1.43	1.25	1.39	.107

* Significance at p< .05 (two-tailed tests)

ANOVA results for Coping and other Categorical Variables

Despite the lack of evidence to support the hypotheses proposed of differences in coping responses base upon use levels and number of detractors, additional one-way analysis of variance (ANOVA) tests were conducted to examine differences in coping responses depending on the other categorical variables that were significant in the regression models tested previously. Type of wildlife encounters was the only variable from which results supported differences in use of two coping responses. Based on this analysis, sufficient evidence was observed to reject the null hypothesis of no differences in mean of type of wildlife encountered for the cognitive coping responses “told myself that there was

nothing I could do about it, so I just enjoyed the experience for what it was" (Table 23) and "realized that the condition or situation I experienced was really suitable after all" (Table 24).

For the rationalization coping response "told myself that there was nothing I could do about it, so I just enjoyed the experience for what it was" the F probability was significant ($p \leq .02$). A post-hoc comparison of means indicated that the use coping responses was significantly different between those visitors that did not see any type of wildlife from those that actually saw any type of wildlife. Differences in the use of coping responses between different types of wildlife were not significant at the .05 level for this test.

Table 23 Analysis of variance for the use of a rationalization coping response by type of wildlife encountered.

Source	*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
Between groups	11.05	3	3.683	3.371	.019
Within Groups	433.748	397	1.093		
Total	4000	401			

In similar fashion as the previous coping response, a one-way analysis of variance ANOVA test was conducted for the product shift coping response "realized that the condition or situation I experienced was really suitable after all". Based on that analysis, sufficient evidence was observed to reject the null hypothesis of no difference in the mean of coping response use for categories of wildlife encountered ($F=3.11$, $p \leq .03$). A post-hoc comparison of means indicated that the use of the coping mechanism is significant different from those visitors who did not encounter any type of wildlife and those who actually encountered big mammals and other type of wildlife together. Differences in the use of the product shift coping response by other type of wildlife encounters were not significant at the .05 level for this test.

Table 24 Analysis of variance for the use of a product shift coping response by type of wildlife encountered.

Source	*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
Between groups	9.57107427	3	3.190358	3.105339	.027
Within Groups	398.6228033	388	1.027378		
Total	2558	392			

To conclude, this chapter presented the results from the analyses performed to test the four hypotheses formulated for this study. Moderate support was found to support hypothesis 1 for just one of the three detracting elements tested. In similar fashion, weak to moderate evidence was found to support hypothesis 2 for two of the eight coping mechanisms assessed. There was not enough evidence found to support hypotheses 3 and 4. However, additional tests provided evidence on differences in the use of cognitive coping responses by type of wildlife encounters. The next chapter will present the analysis and implications for the main findings of this study.

Chapter 6 SUMMARY AND CONCLUSIONS

The present study focused on exploring the detracting elements from the recreational experiences of hikers at GNP, and the coping responses used to deal with those detracting elements. With that regard, four main research questions were proposed to guide the analyses:

1. What are the most salient setting attributes and personal factors that contribute in the identification of detracting experiences?
2. To what extent do setting attributes, personal factors and detracting elements influence the decision process regarding the use of coping strategies?
3. Are there differences in coping responses employed depending of the number of detractors identified?
4. Are the use levels reported in the trails generating differences in the type of coping mechanisms employed by visitors?

The research was structured to provide a description of the salient setting attributes and personal factors associated with the identification of the detracting elements of the recreational experiences. Additionally, by using a list of eight coping mechanisms representing four of the main coping strategies identified in the recreational literature, the study was designed to explore the influences of personal and situational factors on the coping mechanisms used by hikers. Finally, tests were conducted on the hypothesized relationships between trails use levels and coping responses, and between number of encounters identified and coping responses. Additional tests were performed to identify significant differences on the use of coping responses based on situational and personal factors such as type of wildlife encounters, group type, gender, age, and first trip. This chapter provides a summary of the major findings relative to the four research questions, research limitations, a discussion of the implications for management, and suggestions for future research.

Discussion of the results

From the overall sample (see Figure 7), 67% of the respondents experienced a detracting element. “A lot of other hikers” is the most common detracting element found (72% of the hikers experiencing detracting elements), followed by non-natural sounds (63%) and overflights (48%). In 1997, Miller found that while 44% of respondents reported no detracting experience elements, of those visitors who did experience a detractor, 32% cited the number of other people as the most detracting element. Thus, the number of visitors experiencing detractors may be increasing, and issues related to crowding have been the primary source of detraction for many respondents since then.

The results of this study confirm that recreationists utilize multiple coping responses (see Figure 7). From those hikers experiencing at least one type of detracting element, 80% would usually use some coping mechanism to reduce the negative effect generated from the detracting experience. Hikers sampled usually employ a cognitive coping mechanism, either rationalization (91% of those using a coping mechanisms) or product shift (88%). Displacement, in the form of seasonal change, time of the day change, activity change, or location change, was considered by 87% of those who experienced a detractor or 47% of the entire sample. From those hikers using displacement, “visit different trails” (88%) was the most frequently mentioned coping mechanism for the type of detractors they encountered. A direct action, as talking or complaining with park personnel, would usually employ by 23% of those hikers experiencing a detractor.

The findings in this study suggest that the personal and situational factors selected to assess detracting elements of the recreational experiences presented differences regarding their capacity to understand detracting elements. Indeed, the data supported the model proposed for identifying “a lot of other hikers” as a detracting element. However, the data did not predict “overflights” and “non-natural sounds” very well. For those models it seems there is something else in the recreational experience that might help to explain those detracting elements different than the factors included in this study.

The results for the model to explain “a lot of hikers” as a detracting element corroborated the results of Shelby et al. (1983). In that study, researchers explored the individual and combined effects of encounters, expectations, and preferences on perceived crowding. Their results confirmed that recreationists experience crowding not only when they come into contact with other recreationists, but also when contacts exceed their expectations and preferences. In fact, in the present study, preferences on the number of encounters with others was identified as one of the most significant factors (β=.526) in identifying “a lot of hikers” as a detractor. Those results suggested that hikers desiring to see fewer people were more likely to identify “a lot of hikers” as a detracting element from their experiences.

Other significant predictors of crowding were the personal factors age (β=-.097), and the motivation items solitude (β=.154), excitement (β=-.130), desire of seeing wildlife (β=.096), easy access (β=-.107), and meet new people (β=-.162). The results suggested that setting conditions were not significant predictors of the detracting element “a lot of hikers”. However, motivational factors such as solitude, desire of seeing wildlife and easy access are directly related with situational factors under influence of managerial decisions.

Moreover, descriptive statistics confirmed “a lot of hikers” as a detracting element for the recreational experiences of 48% of the hikers sampled. Hall, Johnson & Cole (2007) comment that in high use places, the number of other people is more frequently perceived to be a problem than the behavior of other visitors (despite visitors comments that many encounters are positive and that inconsiderate behavior makes encounters particularly problematic). In that study, crowding was a negative influence for 30% of the interview participants during the high use days. Thus, the results of the present study suggested that the presence of crowding issues in some of the trails studied is a fact that deserves attention, especially for Avalanche Lake and Highline trails where most of the visitors sampled (53% and 52% respectively) reported have identified “a lot of others hikers” as detracting from their experiences.

This study was also designed to identify the influence of personal and situational factors in the use of coping responses. However, despite the evidence of the use of coping mechanisms in the descriptive data, additional statistical analyses failed to identify a robust model to explain most of the

variance in use the use of coping by influence of the personal and situational factors included in this study. Similar results have been obtained in the coping models tested by Schuster and associates (2003, 2006). Those researchers did not find statistically significant relationships at the .05 levels to explain coping responses although they used the instruments and theories employed previously by Miller (1997) and Schneider (1995), and research in other disciplines which had produced significant results. However, models tested by Schuster and associates attempted to define a stress-coping model which was a different approach than the one used in this research. This may be an alert that coping responses are complex constructs that depend on the specific person employing it, thus it may be difficult to try to explain those coping responses by statistical models. Perhaps, other tools that allow analyzing individuals personalities and backgrounds could be more helpful in this regard.

Contrary to the results found by Hoss & Brunson (2000), where the researchers found little evidence of product shift in the interviews conducted to wilderness visitors. The descriptive results of the present study demonstrated that product shift and rationalization were frequent coping strategies used by hikers in GNP (88% and 91% of the hikers identifying some detractor reported have used those strategies respectively). Moreover, although the results of the adjusted R^2 were not statistically robust, the model tested to explain that coping mechanisms was able to explain a 19.4% of the variance in the use of the product shift strategy as dependent variable of personal and situational factors studied. The use of that strategy may help to explain why visitors are satisfied with their recreational experiences obtained in the park in spite of the increased use levels and subsequent overcrowding detected.

Contrastingly, displacement strategies have been widely reported in the recreational literature depending on variables such as use levels, crowding or number of people encountered (Manning & Valliere, 2001; Miller & McCool, 2003; Hall & Cole, 2007, 2010), and other factors including previous experience, place of residence, motivations, and geographic features of the site (Peden & Schuster, 2004). Nevertheless, the results obtained in the present study did not support a relationship between displacement and the variables use levels, crowding, number of people encounters, previous experience, and location, which were supported in previous studies. However, this study confirmed that place of

residence, and motivations were significant predictors of displacement strategies as found by Peden & Schuster (2004). In addition, other variables that had not been reported in the recreation literature such as gender, and wildlife encounters were found significant to displacement strategies.

Hall, Johnson & Cole (2007) concluded that the impact of encounters and use of coping mechanisms depended on the circumstances of the encounter and the group. Findings of this study reported no association of group type and use of coping strategies. However, sharing the experience with their friends or family members and spending time together was a personal factor that influenced significantly the identification of detracting elements (β=-.063 in "a lot of hikers" regression model) and use of coping responses (β=-.378 in "the situation was suitable after all" regression model).

Hall, Johnson & Cole (2007) also suggested that future studies of coping need to be conducted in conjunction with monitoring of actual visitor use estimations to better understand what factors contribute to the use of coping mechanisms. This was attempted in the present study with the inclusion of information from trail monitoring regarding number of people in the trails and use levels as a mean to understand coping responses. The results of the analysis did not support a relation between the variables created from trail monitoring information and use of coping mechanisms. However, visitors hiking during light use levels were systematically excluded from the sample which could have affected the variability of the data to explain significant differences in the use of coping responses by use level.

This study hypothesized relationships between trails use levels and coping responses, and between number of encounters identified and coping responses. This study attempted to confirm Kuentzel & Heberlein (1992) suggestion that there is a hierarchy of coping strategies. Their model proposed that different coping strategies parallel different levels of perceived impact: with increasing impact, a visitor will shift from a non-coping state to adopt a cognitive coping strategy, then to a within-site behavioral coping strategy before finally leaving a site altogether. However, the results of this study did not find enough evidence to support the significant differences in the use of coping responses by use levels and number of encounters. Similar results were obtained by Johnson & Dawson (2004); researchers found that

respondents differences in use or non-use of behavioral coping mechanisms was not statistically significant among the use intensity levels.

Despite the lack of support found for the hypothesized relationships between coping mechanisms used, and use levels and number of detractors experienced, additional analyses of variance yield to identify wildlife encounters as an important factor which influences the use of cognitive coping responses such as rationalization and product shift. Previous studies conducted by Miller (1997) and Nikolaeva (2012) identified desire of observing or encountering wildlife as one of the most important motivations to hike in GNP. This study not only confirmed that encounters with wildlife was an important motivation and a factor appealing the recreation experiences of the majority of the hikers sampled, but wildlife encounters also were identified as a factor that helps visitors to have favorable thoughts about the recreation experiences obtained in spite of the detracting elements identified.

To sum up, the results obtained regarding identification of crowding as a detracting element from the recreational experiences confirmed the results reported previously in the outdoor recreation literature. Those results contribute to better understand the incidence of crowding for the recreational experiences provided in the park. It can be also concluded that while coping is consistently occurring, the use of coping mechanisms depend mostly on factors different than what was studied here or what has generally been reported in the outdoor recreation literature. Wildlife encounters was a factor that demonstrated having influence in the use cognitive coping responses and needs to keep explored in future research. Perhaps, other factors such as personality, lack of awareness of the situations to be found (or the contrary, complete awareness), lack of options, no particular reason to visit or strong attachment to the place, among other factors, might be better predictors of coping use. Miller (1997) suggested that not only are there strong attachments to National Parks, but visitors to these areas often make large investments of time and money pursuing recreational goals in these areas which may influence how visitors cope with negative experience elements. These factors might be included in future research as well.

Limitations

The current study had several limitations that need to be discussed:

First, the sample instrument presented some limitations related with the type of questions employed and the length of the instrument itself. The type of questions asked to the visitors, especially the ones that were used as dependent variables in the regression models, were mostly categorical questions. That limited the variability of scores in the variables of interest which could have constrained the results in the models. For example, level of experienced which had been identified in as significant predictor of detracting elements and coping responses, was measured as a dichotomous variable (yes or no) in this study. However, Miller (1997) and Hall & Cole (2007) had measured this variable with number of previous visits to the park. Thus, type of measurements is an important consideration for instrument design.

In addition, the survey instrument was designed to assess several issues related with recreational experiences in GNP. Those issues were transportation system and parking lot use, detracting elements, and coping responses. All those issues, although important for park management, made the instrument long, limiting perhaps the quality and amount of responses. Moreover, the sampled approach chosen required visitors to respond the survey on site. Most of the refusals argue that they were tired after finishing their hike or they were with children and the survey was too long for them to answer it.

The sampling schedule used in this study present an additional limitation. Hikers sampled were approached during midmorning, noon and afternoon hours which correspond to moderate to intensive levels hours of the day in all the locations. This was done to ensure a large enough sample size for the study. However, visitors hiking during light use levels were systematically excluded from the sample. This, in fact, could have affected the findings related with use level and their implications to explaining detracting elements and use of coping responses. Light use levels might have helped to understand better whether visitors employed temporal displacement (visiting in early or late hours of the day) to avoiding the detracting elements identified. In that regard, one of the hikers sampled commented: “we come early

in the morning to avoid crowds" (Survey#2586). Thus, temporal displacement is happening in some trails in the park but needs to be better assessed.

Another limitation was related with the lack of previous information related with detracting elements "overflights" and "non-natural sounds". Those detracting elements have not been studied in detail in the past and there is a lack of understanding about the factors that might negatively alter the recreational experiences of hikers in the park. Additional measurements are necessary to understand the factors that influence the identification of those detractors.

There was also lack of theoretical basis to generate a robust explanation about the relationship between using cognitive coping responses and encountering wildlife while hiking. The results provided by this study are pioneer in the recreational literature concerned to coping studies. More research in this matter is required to understand deeply these research results.

Information from trail monitoring needs to keep improving. More days of data collection are needed to better understand use patterns on the trails studied. In addition, the actual number of people found in the trail while visitors sampled were hiking need be transformed in number of actual encounters. The number of actual encounters would be useful to assess the correspondence of preferences and expectations met, and the influence of those encounters in the identification of detracting elements, especially crowding, and the use of coping mechanisms.

Finally, the results of this study are limited at those trails what were studied. Generalization of those findings to other trails within the GNP, and other protected areas are limited by the type of information collected regarding trail conditions. Such a limitation, however, can only be addressed through future research that allow for comparisons among the locations studied.

Implications for management

In spite of these limitations, the study findings provided valuable information for park management. Beginning in 2005, GNP managers implemented an ongoing study to monitor visitors use, and shuttle experience. The results have confirmed an increment in the use level of the trails studied.

Thus, it was pertinent to evaluate in which extent the conditions on the trails are so undesirable or unexpected for visitors that they have to employ coping responses to deal with those situations. The data from this study was expected to provide information that would help park managers to identify a set of considerations on trail use so that appropriate management actions could be implemented. The following section will try to address the main implications that are hoped to contribute to park management. They are derived from the descriptive and hypotheses test results.

While all of the variables included in this study represent areas for continued monitoring, the results do not indicate that a large management problem currently exists, at least as far as the majority of current visitors are concerned. What it is happening in the park regarding detracting elements and use of coping responses can be explains as follows:

Most of the hikers at the park have expectations aligned with the conditions currently presented; 58.5% of the hikers sampled said they had expected about the same amount of people they saw. However, a majority of hikers sampled (59.5%) would have liked to have seen fewer people. As a result of that confrontation between preferences and actual encounters, “a lot of other hikers” was the most common detracting element found (72% of the hikers experiencing detracting elements). Nevertheless, people still have satisfactory experiences in the park. That can be explained by the fact that most of the hikers experiencing a detracting element (80%) would usually use some coping mechanism to reduce the negative effect generated for the detractor evidenced. A cognitive coping mechanism, either rationalization (91% of those using a coping mechanisms) or product shift (88%) would be used to change their thoughts about the situation and consider it in positive terms. That may be why for visitors looking for solitude, seeing few hikers and enjoying pristine natural settings, crowding may be considered an appropriate outcome. The coping mechanisms they would usually employ may have helped visitors to keep having enjoyable experiences in the park in spite of the evidence of dramatic increases of use levels on some of the trails.

Management efforts to attend this situation, especially as increased use is expected, should include actions to guide the aspects of the recreational experience that can be influenced through

managerial actions. Preferences, and moreover, use of coping mechanisms are not highly affected by management considerations because they are choices that depend of the specific person. However, expectations and detracting elements are two aspects of the recreational experience that could be managed through several actions. Managing visitor expectations should include improving information and education programs to inform visitors about the conditions that would be possibly encountered in the trails. This will help visitors to define and accommodate their expectations to the actual conditions in the trails, and perhaps will allow them to avoid the need for coping responses. Continued monitoring of the trail conditions is necessary to better inform to the public about trail conditions.

Moreover, the results of this study suggested that type of wildlife encounters is a factor that influences the use of cognitive coping strategies. Natural resources along the trails located within the corridors should be managed to allow safe travel and a high quality experience while recognizing that park trails are critical biological habitats and wildlife travel corridors. Park managers should consider strategies to mitigate disruptions of visitation levels in wildlife populations as a mean to help people to alleviate effects of possible detractors found. Park managers also need to identify conflicts between visitors and wildlife. So far habituation and food conditioning are the negatives human-wildlife interactions identified basis on personal observations of the researcher. Those conflicts should be managed by exploring a range of strategies, beginning with education and information.

Additionally, although the situation is not problematic currently due in part to the use of coping mechanisms, park managers need to keep track of possible disruptions between the desire for solitude and high use levels. Managers need to be attentive to undesirable change in trail use and visitors reactions. Monitoring will help managers to perceive adverse changes in conditions that affect recreational experiences.

In the trails that were studied with this research, it was found that some visitors have been temporal, spatial, and activity displaced. Within this context, the object of interest is to find what specific group has been displaced and what type of group managers want to displace. The results generated in this study indicate that visitors looking for challenge, excitement and encountering wildlife, and visitors from

Montana, are more likely to be displaced. However, there is much more that remains unexplained about the specific groups of visitors that have been displaced than it could be explained with this study. In spite of those results, park managers should define the type of desired recreational conditions in various areas and, thus, the type of visitor expectations that are appropriate for those areas. As recommended by Hall, Seekamp, & Cole (2010), "managers must make these subjective judgments based on a thorough analysis of regional supply and demand for different recreational opportunities, along with consideration of natural resource preservation needs". Managers should guarantee a wide range of opportunities for diverse user groups.

In addition to the coping items employed to evaluate the use of coping responses, repeat hikers at the park were asked to list which areas they visited less due the presence of three common undesirable conditions: too many people, restrictive regulations on recreation use, and environmental impacts. Using the same questions format, Hall & Cole (2010) found that over the six-year time frame they examined wilderness areas in Oregon, displacement as a result of increased restriction was more pronounced than the displacement of visitors as a result of increased crowding/impact. In the present study at GNP, displacement due restrictive regulations on recreation use, and environmental impacts was not a frequent mechanism utilized. However, there is a considerable percent of repeat hikers (30%) that mentioned they have been displaced due to overcrowding; mostly from Avalanche Lake and Logan Pass. Thus, crowding is an issue that should be attended in the park. Furthermore, the type of regulations attempted to implement in GNP through a future management plan for the GTSR corridor need to be analyzed in terms of the number and type of visitors that could be displaced by those regulations.

Hikers were also asked what they would most likely have done if they learned that the trail they hiked had been closed that day. That question intended to assess the likelihood of displacement decisions hikers would use if the detracting element comes from an action implemented by the park managers. The results from the three scenarios suggested that most of the hikers sampled would stay within the corridor (75.83%), either hiking a trail close by (41.9%) or hiking a trail accessible by the shuttle (33.9%). This information although useful for GTSR corridor planning it needs to be complemented. It is necessary to

identify what are the places where people will go in case park managers decided to limit access to some trails. Park managers need to be attentive about movements of people within and outside the GTSR corridor, and especially, about environmental impacts caused for those movements.

The results from the analysis of others detracting elements suggest that there are moderate problems as perceived by the overall sample. Overflights and non-natural sounds have been identified as a negative impact on the experience, especially because visitors did not expect them in the backcountry. In that regard, a visitor comment: “overflights and helicopters are always detractors no matter what trail” Survey#165, and another visitor noted: “motorcycles grossly loud and not compatible with natural settings” Survey#2568. In fact, overflights are seen as an element that negatively impacts the pristine dimension of the GNP experience. Similarly, motorcycles are seen as an element that disrupts the peacefulness of the park. Perhaps, managers should consider initiating actions oriented to control noise pollution, and evaluate the effect of those actions in the perceptions of the visitors.

Finally, park managers are challenged to manage an area which provides visitors with high quality experiences while park resources are protected. However, visitor experiences are a complex phenomenon influenced by a variety of factors. Some visitors may want trails where they find “remoteness” and “solitude”, while others want the same trails as “crowded” and “easy”. For example, a visitor sampled at The Loop wrote “seeing lots of other hikers added greatly because I feel safer with lots of people around” Survey#2302; however, 28% of the hikers sampled at The Loop were detracted by seeing “a lot of other hikers”. Thus, it can be concluded that the trails within this study represent a variety of settings and experiences. Park managers should define strategies oriented to provide the experiences desired by different groups. Nevertheless, the conditions currently encountered in the trails studied did not provide reasons to consider independent management regimes for each trail. This should be considered and addressed within the context of corridor planning efforts once managers define the type of recreation opportunities attempted to supply in each trail.

Future research

Future research in displacement should examine the effects of trail closure or limit use on trails and activities substitutes within the park. This study provided the basis to identify what the possible reactions of visitors would be when their preferred trails were closed by managerial decisions. However, it is necessary to assess the substitutes for the most visited trails in the park, what other activities besides hiking would visitors do, and more important, that other areas are in risk to receive the visitors displaced. This information will be very valuable for corridor planning.

Preferences that respondents had regarding visitor encounters rates provided evidence that they were significant predictors to identify crowding as a detracting element. It would be interesting to evaluate the relationship between visitors expectations and preferences with actual conditions encounter levels to assess their correspondence with detractor identification.

In addition, wildlife encounters were found being useful in the identification of detracting elements and the use of coping responses. Thus, it is necessary to keep exploring wildlife and its value to reduce the effect of detracting experiences. For example, visitors could be asked how important it was for them to have seen the animals they encountered while hiking. That information could be included in future models performed to identify factors influencing detracting elements identified and coping responses used.

Other aspects related with wildlife populations that should be considered in future research are those attempted to understand conflicts generated by hikers and wildlife interactions, and wildlife populations responses to those conflicts. The conflicts could be whether wildlife populations are experiencing stress or discomfort due to interactions with humans, or whether they are displaced from otherwise suitable habitats due to human activity, and what other short and long-term effects recreation activities have on the wildlife.

Further studies of coping in GNP should assess the relation between coping and place attachment (or its related concepts such as destination loyalty, or commitment, among others). That theory suggests that when visitors develop high commitment to a place, they are less likely to change their destination

when they find alternatives. Therefore, place attachment might be considered an important concept to explain the use of coping responses, and more specifically, visitors decisions regarding changes of preferred hiking destinations. This could indicate why visitors in GNP keep having satisfactory recreation experiences or why they have not been displaced out of the park in spite of the detracting elements identified. This proposal may be supported by comments like "I live in Whitefish and have friends with kids visiting. [I] wanted to take them into Avalanche for the views. Nothing except trail closure would stop me" Survey#115. This comment implies a strong attachment of this person with the place, and at the same time, provides insight of why this person has not been displaced from Avalanche in spite of that this trial is mostly perceived as crowded.

Additionally, coping needs repeated measures and longitudinal data to be fully understood. Methods that allow researchers to track for long periods the movements and changes of visitors behaviors can contribute to defining conclusive indicators and information of how visitors respond to the detractors. Therefore, the methods employed to asses coping should be used in connection with other tools like monitoring of visitor use and resource conditions to have a better understanding of the factors that contribute to the use of coping mechanisms.

Finally, coping has to be seen more as a response to a process than an event. The on-site sample approach employed in this study allowed hikers be questioned during the course of their recreational activity. However, the data collected contain information of a particular point in time which may not be representative of the whole visitor personality and/or its recreational experience. Coping studies need measures to link up with a whole person, who has particular expectations and intentions, belief systems, specific background and a lifestyle. Coping process measures may be more meaningful and useful if the researchers seek more about the persons whose coping thoughts and actions in specific contexts are being studied. In that regard, the use of longitudinal studies jointly with qualitative and quantitative approaches could be helpful tools.

Conclusion

This study provided an analysis of visitors perceptions and behaviors regarding crowding and other detracting elements from the recreational experiences in four trails along the GTSR corridor. Additionally, this study identified coping strategies that visitors use to deal with the detracting elements found during their hiking experiences in those same trails. This study also offered evidence of the effect of encounter with wildlife populations and use of cognitive coping responses. Thus, this research provided a baseline of information regarding detracting elements identified and coping responses used that will allow park managers to anticipate changes in park use and mitigate unforeseen impacts to visitor experiences, park values, and key biophysical attributes.

Appendix 1 Survey instrument

Survey # _____

Glacier National Park – Hiker Survey

Thank you for agreeing to help Glacier National Park!
Your input is important to park management. Response to this request is voluntary. While you are not required to respond, your cooperation is needed to make the survey results comprehensive, accurate, and timely. This survey is sponsored by the National Park Service, and the information will be used to understand the visitor use and the perceptions of recreation management at Glacier National Park

Please answer the following questions about your hike today in GNP.

1. Did you have a specific hiking destination?
   - ❑No
   - ❑Yes

   b. If **YES**, what was your planned destination _____

   c. How long were you walking (estimated hours)?_____

   d. Did you use the shuttle service to facilitate your hike?
   - ❑No
   - ❑Yes

2. Did you leave a car in another location to allow you to hike only one way?
   - ❑ No (Go ➔ to question 3)
   - ❑ Yes

   a. If you **left a car somewhere else** in the park, where did you leave your car?
      - ☐ Logan Pass
      - ☐ St. Mary Falls
      - ☐ The Loop
      - ☐ Siyeh Bend
      - ☐ Sunrift Gorge
      - ☐ Apgar Transit Station
      - ☐ Sun Point
      - ☐ Gunsight Pass Trailhead
      - ☐ Fish Creek Campground
      - ☐ St. Mary Visitor Center/St. Mary Campground
      - ☐ Rising Sun
      - ☐ Sprague Creek Campground
      - ☐ Rising Sun Boat Dock
      - ☐ Avalanche Campground/ Picnic Area
      - ☐ Lake McDonald Lodge
      - ☐ Other: _____

3. Did you plan to take an overnight trip in the backcountry?

☐ No (Go ➔ to question 4)

☐ Yes

a. If **YES**, Did you plan to stay in? (Check all that apply)

☐ A Chalet

☐ A campground

☐ Undesignated site

4. When did you learn about this hike?

❒ After you arrived at GNP

❒ Before you arrived at GNP

5. When did you decide to take this hike? (Check ONLY one)

❒ After you arrived at GNP and learned about the shuttle

❒ After you arrived at GNP but without knowledge of the shuttle

❒ Before you arrived at GNP but with knowledge of the shuttle

❒ Before you arrived at GNP but without knowledge of the shuttle

6. Have you taken a hike of this length or longer in Glacier before?

❒ No

❒ Yes

Which trail (s): _____

Have you taken this same hike before?

❒ No (Go ➔ to question 7)

❒ Yes

If **yes**, did you use the shuttle on a previous hike?

❒ No

❒ Yes

7. How important was each of the following **reasons for taking this hike** in Glacier National Park today?

	Very Unimportant		Neither Important nor Unimportant		Very Important
To experience challenge	1	2	3	4	5
Solitude	1	2	3	4	5
To develop my skills	1	2	3	4	5
For escape routine and relaxation	1	2	3	4	5
Feel a sense of accomplishment	1	2	3	4	5
Spend time with friends or family	1	2	3	4	5
Feel close to nature	1	2	3	4	5
Excitement or exhilaration	1	2	3	4	5
For introspection and spirituality	1	2	3	4	5
For peace and quiet	1	2	3	4	5
See wildlife	1	2	3	4	5
Safe, easy access	1	2	3	4	5
To enjoy the scenery	1	2	3	4	5
Exercise	1	2	3	4	5
To meet new people	1	2	3	4	5

8. It is occasionally necessary for Glacier managers to close a trail due to wildlife presence or other concerns. People often find out about closures at the visitor centers, on the shuttle or at the trailhead. If the trail you hiked today had been closed, **what would you most likely have done if you learned about the closure whil**e:

At the park entrance? (Please, choose one)	**While riding the shuttle? (Please, choose one but only if you rode the shuttle)**	**At the trailhead? (Please, choose one)**
❒ Selected another trail close to the one you hiked ❒ Hiked another trail along the Going to the Sun Road ❒ Asked park managers (at the entrance or a Visitor Center) to recommend an alternative hike ❒ Visited a different part of the park such as the North Fork or Many Glacier ❒ Chose to do something other than hike today ❒ Other, please explain _____ _____	❒ Selected another trail close to the one you hiked ❒ Hiked another trail you could access via the shuttle ❒ Asked park managers (at a Visitor Center) to recommend an alternative hike ❒ Visited a different part of the park such as the North Fork or Many Glacier ❒ Chose to do something other than hike today ❒ Other, please explain _____ _____	❒ Selected another trail close to the one you hiked ❒ Hiked another trail along the Going to the Sun Road ❒ Asked park managers (at a Visitor Center) to recommend an alternative hike ❒ Visited a different part of the park such as the North Fork or Many Glacier ❒ Chose to do something other than hike today ❒ Other, please explain _____ _____

9. Please indicate how the following items **affected the quality** of your hiking experience in GNP

	Detracted greatly	Detracted somewhat	No effect	Added somewhat	Added greatly	Did not experience
Seeing a lot of other hikers	1	2	3	4	5	N/A
Seeing very few other hikers	1	2	3	4	5	N/A
Pristine natural areas surrounding the trail	1	2	3	4	5	N/A
Non-natural sounds, such as automobile noise	1	2	3	4	5	N/A
Airplane over-flights	1	2	3	4	5	N/A
Encountering wildlife	1	2	3	4	5	N/A
Experiencing solitude	1	2	3	4	5	N/A
Concern about bears	1	2	3	4	5	N/A

If you selected 1 (detracted greatly) or 2 (detracted somewhat) on the detractions above, please go ➔ to question 10.
Otherwise go ➔ to question 11.

10. Please indicate how each of the following items describes **your usual response to detractors** from your experience like those you encountered on the trail today.

Response	Do Not Use/ Not Applicable	Use Somewhat	Use Quite a Bit	Use a Great Deal
Realized that if I visit this trail in the future, visiting at a different season would help me to avoid this condition or situation.	0	1	2	3
Realized that if I visit this trail in the future, visiting at a different time of day would help me to avoid this condition or situation.	0	1	2	3
Decided that I would come back to the Park at the same season but would do a different activity to avoid this condition or situation.	0	1	2	3
Realized that visiting different trails of the Park would allow me to avoid this condition or situation.	0	1	2	3
Told myself that there was nothing I could do about it, so I just enjoyed the experience for what it was.	0	1	2	3
Realized that the condition or situation I experienced was really suitable after all.	0	1	2	3
Decided that for this trail, the condition or situation was what it should be.	0	1	2	3
Decided to talk with Park personnel about the condition or situation.	0	1	2	3

11. Please tell us **which and how many animals** you observed while hiking today:

Name of the specie:	# of animals of each specie observed:
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

12. Approximately **how many other hikers**, excluding those in your group, did you see during your hike?

- ❒ none
- ❒ 1-10 other hikers
- ❒ 11-20 other hikers
- ❒ 21-30 other hikers
- ❒ 31-40 other hikers
- ❒ 41-50 other hikers
- ❒ More than 50 other hikers

Relative to the number of hikers you saw during your hike**, what had you expected**?

❒ Expected more
❒ Expected about the same
❒ Expected fewer
❒ I did not know what to expect

Overall, **would you have liked** to have seen more or fewer people on the trail today?

❒ More people
❒ Fewer people
❒ The number of people does not matter

13. Is this your **first trip** to Glacier National Park?

❒ No.
❒ Yes. (Go ➔ to question 17)

14. Are there any areas in Glacier that **you visit less often** or at different times because there are **too many people** there?

❒ No. (Go ➔ to question 15)
❒ Yes. Which areas in Glacier National Park? (List specific destinations)

_____
_____

15. Are there any areas in Glacier that **you visit less often** because **regulations on recreation use** are too restrictive?

❒ No. (Go ➔ to question 16)
❒ Yes. Which areas in Glacier National Park? (List specific destinations)

_____
_____

16. Are there any areas in Glacier that **you visit less often** because the **natural environment** has been too highly impacted by recreational use?

❒ No.
❒ Yes. Which areas in Glacier National Park? (List specific destinations)

_____
_____

We would like to know a little about you. Please answer the following questions about you and your personal group. Your personal group refers to members of your immediate travel party, such spouse, family, friends, etc. This does not include any larger, organized groups you may be traveling with, such as school, church, scouts, and tour groups.

17. Do you live in the United States or Canada?

☐Yes
What is your home state/ province _____
What is your zip code/postal code_____
☐No, What country do you live in? _____

18. On this visit, **what kind of personal group** (not guided tour/educational/other organized group) were you with? (please check only one response)

- ☐ Alone
- ☐ Family
- ☐ Friends
- ☐ Family and Friends
- ☐ Business associates
- ☐ Other (please specify _____)

19. On this visit, **how many people** are in your personal group, including yourself?

_____ number of people

20. On this visit, **how many children** are in your personal group?

____ Children under six years old
____ Children six to nine years old
____ Children 10 to 18 years old

21. On this visit, were you and your personal group with the following type of groups? Please check the yes or no.

Commercial guided tour	☐No	☐Yes
Educational group (school, etc.)	☐No	☐Yes
Other organized group (church, business, etc.)	☐No	☐Yes

22. Do you plan to/ did you visit Waterton Lakes National Park in Canada as part of this trip?

- ❒ No
- ❒ Yes

Thank you for your participation!

Appendix 2 Sampling schedule

DATE	DAY	WEST SIDE		EAST SIDE	
		AM/PM	LOCATION	AM/PM	LOCATION
6/19/2012	Tuesday			AM	Sunrift Gorge
6/20/2012	Wednesday	PM	Avalanche		
6/22/2012	Friday	PM	The Loop	PM	Sunrift Gorge
6/23/2012	Saturday	PM	Avalanche	PM	Sunrift Gorge
6/26/2012	Tuesday			PM	Sunrift Gorge
6/28/2012	Thursday	PM	Avalanche	PM	Sunrift Gorge
6/30/2012	Saturday	PM	The Loop	PM	Sunrift Gorge
7/4/2012	Wednesday	PM	Avalanche	PM	Sunrift Gorge
7/10/2012	Tuesday	PM	The Loop		
7/22/2012	Sunday	PM	Avalanche		
7/28/2012	Saturday	PM	The Loop	PM	Sunrift Gorge
7/29/2012	Sunday	PM	Highline		
8/2/2012	Thursday	PM	Highline		
8/3/2012	Friday	PM	The Loop	PM	Sunrift Gorge
8/4/2012	Saturday	PM	Highline		
8/5/2012	Sunday	AM	The Loop	PM	Sunrift Gorge
8/6/2012	Monday	PM	Highline		
8/9/2012	Thursday			PM	Sunrift Gorge
8/10/2012	Friday	PM	The Loop		
8/11/2012	Saturday	PM	Avalanche		
8/12/2012	Sunday	PM	Highline		
8/13/2012	Monday	PM	The Loop	PM	Sunrift Gorge
8/16/2012	Thursday	PM	The Loop		
8/17/2012	Friday	AM	Highline		
8/18/2012	Saturday	AM	Highline	PM	Sunrift Gorge
8/19/2012	Sunday	AM	The Loop		
8/20/2012	Monday	AM	Avalanche		

Appendix 3 Table of zero-order correlations, means and standard deviations for detracting elements.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Det. 1	Det. 2	Det. 3
1. Location	1	-.05	-.04	.08*	.08*	.09*	.024	.08*	-.07	-.02	.066	.039	.057	.060	.024	.011	.013	-.01	.20**	.12**	-.02	-.10*	-.09*	.061	-.04	-.36*	-.01	.088	.11*
2. Gender		1	.035	-.03	-.03	.035	.002	.12**	.11**	.12**	.08*	.036	.008	.13**	.18**	.08*	.09*	-.04	.000	-.01	.060	.027	-.00	-.01	.056	.066	.015	-.02	.000
3. Age			1	-.07	.004	-.01	-.07*	-.04	-.04	-.08*	-.16**	.056	-.03	-.06	.07*	-.09*	-.00	.042	-.03	-.06	.026	-.03	-.09*	-.09*	-.02	-.03	-.07	-.03	.038
4. Challenge				1	.39**	.49**	.21**	.60**	.11**	.25**	.46**	.22**	.26**	.24**	.020	.21**	.32**	.18**	.044	.11*	-.10*	.008	.012	-.10*	-.02	.062	-.09*	.037	-.07
5. Solitude					1	.35**	.38**	.28**	.10**	.27**	.32**	.35**	.56**	.30**	.12**	.23**	.25**	.13**	.001	-.00	.035	.047	-.08*	-.04	-.08	-.02	.007	.005	.019
6. Develop skills						1	.14**	.45**	.025	.13**	.31**	.27**	.24**	.19**	.11**	.036	.22**	.27**	.072	.09*	.003	-.01	-.09*	-.04	-.12	.051	-.07	.056	-.03
7. Escape&Relax							1	.37**	.34**	.50**	.40**	.29**	.50**	.34**	.17**	.50**	.44**	.002	-.01	.045	.016	.043	-.04	-.05	.020	.022	.023	.038	-.01
8. Accomplishm.								1	.27**	.41**	.54**	.26**	.31**	.35**	.14**	.34**	.43**	.12**	.08*	.12**	-.04	-.04	.024	-.01	-.02	.12**	-.08*	-.02	-.08
9. Time w/ family									1	.45**	.30**	.11**	.14**	.27**	.15**	.42**	.37**	-.06	.035	-.02	.007	-.03	-.05	.19**	.13**	.038	-.02	-.03	-.06
10. Close to nat.										1	.51**	.32**	.40**	.45**	.19**	.69**	.53**	-.03	.022	.012	.002	-.00	.061	-.05	.041	.088	-.00	-.02	.023
11. Excitement											1	.40**	.42**	.40**	.17**	.45**	.45**	.15**	.12**	.12**	-.01	-.01	.015	-.03	.015	.12**	-.11*	-.05	-.04
12. Introspection												1	.56**	.26**	.18**	.18**	.31**	.20**	.09*	.072	-.00	-.05	-.11*	-.02	-.03	.11*	-.13*	-.01	.026
13. Peace													1	.41**	.26**	.35**	.36**	.17**	.035	.007	-.02	.007	-.05	-.11*	-.02	.030	-.04	.020	.045
14. Wildlife watch														1	.28**	.45**	.35**	.11**	.16**	.17**	.017	.060	.08*	-.05	-.08	.075	-.00	.037	-.02
15. Easy access															1	.20**	.25**	.19**	-.02	-.04	-.01	-.03	-.04	-.06	.017	.000	-.09*	-.05	-.03
16. Scenery																1	.58**	-.09*	.040	.008	-.02	.044	.020	-.07	.039	.10*	.054	.027	.047
17. Exercise																	1	.08*	.073	.081	-.01	-.03	-.06	-.09*	.027	.053	-.02	-.03	-.06
18. Meet people																		1	.024	.016	-.03	-.09*	-.07	-.01	-.05	.073	-.24*	-.06	-.06
19. Type wildlife																			1	.28**	.036	.027	-.05	.027	-.12*	.18**	-.00	.026	.059
20. # Animals																				1	-.02	.069	-.02	-.01	-.11*	.27**	.031	-.04	-.06
21. Expectations																					1	.25**	-.04	.012	.032	.061	.21**	-.03	.053
22. Preferences																						1	.09*	-.04	.019	.13**	.54**	.147	.16**
23. First trip																							1	-.12*	.062	.035	-.03	-.02	-.09*
24. Group type																								1	.048	.044	.019	.008	.006
25. Use Level																									1	.13**	.008	-.08	.025
26. # People Enc.																										1	.025	-.01	-.09
Detractor (1,2,3)																											1	1	1
n	765	759	763	719	730	726	738	729	741	750	739	733	737	744	732	746	746	736	704	576	751	744	752	765	765	494	723	610	540
Means	2.52	0.46	2.97	3.22	3.06	2.72	4.05	3.67	4.07	4.35	3.78	3.22	3.57	3.85	3.11	4.58	4.12	2.22	2.57	9.09	2.92	2.79	0.53	2.3	3.38	232	3.42	3.34	3.5
St Dev	1.55	0.50	1.11	1.17	1.22	1.16	1.04	1.16	1.26	0.99	1.10	1.21	1.15	1.09	1.22	0.91	1.06	1.15	0.85	11.5	0.87	1.47	0.50	0.76	0.68	151	0.89	1.24	0.91

* Correlation is significant at the .05 level (two-tailed)

** Correlation is significant at the .01 level (two-tailed)

Appendix 4 Ordinary least squared regression estimates for detracting elements (complete models).

	Detractor 1: A lot of hikers (***Adj. R^2 = .404***)		**Detractor 2: Non-natural sounds** (***Adj. R^2 = .061***)		**Detractor 3: Overflights** (***Adj. R^2 = .023***)	
	Beta	**Sig.**	**Beta**	**Sig.**	**Beta**	**Sig.**
Location	-.015	.768	.158	.021	.140	.068
Gender	.014	.762	.044	.477	.061	.382
Age	-.101	.031*	-.019	.768	.098	.158
Challenge	-.074	.209	.026	.753	-.176	.057
Solitude	.146	.013*	-.018	.823	.121	.178
Develop skills	-.049	.394	.043	.587	.102	.248
Escape & Relax	.015	.805	.142	.079	.074	.429
Accomplishment	.039	.531	-.019	.828	-.002	.979
Time w/ family	-.065	.232	.109	.133	.053	.503
Close to nature	.054	.411	-.020	.818	-.107	.289
Excitement	-.128	.037*	-.156	.058	-.067	.455
Introspection	-.099	.115	-.004	.961	.011	.905
Peace	.007	.918	.037	.691	.016	.882
Wildlife watching	.103	.064	.084	.272	-.018	.830
Easy access	-.110	.024*	-.155	.022	-.031	.671
Scenery	.005	.935	-.123	.142	.026	.784
Exercise	.020	.735	.059	.441	-.009	.923
Meet people	-.161	.001*	-.016	.811	.041	.585
Type wildlife	.026	.600	-.010	.884	.073	.341
# Animals Enc.	-.033	.501	-.110	.101	-.065	.393
Expectations	-.029	.524	-.111	.078	-.009	.900
Preferences	.537	.000*	.220	.001	.168	.021
First trip	-.057	.236	-.083	.195	-.039	.591
Group type	-.024	.624	-.103	.117	-.074	.309
Use Level	.006	.895	-.131	.046	.008	.910
# People Enc.	.004	.946	.107	.128	-.031	.694

Note: *Significance at $p < .05$ (two-tailed tests)

Appendix 5 Table of zero-order correlations, means and standard deviations for coping elements.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Location	1	-.05	-.03	.083*	.079*	.090*	.02	.079*	-.07	-.02	.07	.04	.06	.06	.02	.01	.01	-.01	-.01	.088*
2. Gender		1	.04	-.03	-.03	.04	.00	.122**	.112**	.121**	.080*	.04	.01	.128**	.175**	.079*	.090*	-.04	.01	-.01
3. Age			1	-.07	.004	-.013	-.073*	-.044	-.044	-.075*	-.16**	.056	-.034	-.058	.073*	-.092*	-.002	.042	-.067	-.031
4. Challenge				1	.393**	.492**	.213**	.596**	.105**	.249**	.457**	.219**	.263**	.238**	.020	.209**	.323**	.175**	-.092*	.037
5. Solitude					1	.350**	.379**	.280**	.097**	.271**	.322**	.354**	.563**	.298**	.123**	.225**	.247**	.134**	.007	.005
6. Develop skills						1	.142**	.449**	.025	.128**	.311**	.274**	.239**	.192**	.114**	.036	.219**	.271**	-.073	.056
7. Escape&Relax							1	.366**	.344**	.503**	.398**	.291**	.499**	.340**	.172**	.504**	.440**	.002	.023	.038
8. Accomplishment								1	.267**	.407**	.538**	.261**	.305**	.348**	.142**	.341**	.426**	.122**	-.084*	-.018
9. Time w/ family									1	.445**	.296**	.107**	.140**	.270**	.154**	.417**	.372**	-.058	-.019	-.026
10. Close to nature										1	.514**	.323**	.397**	.452**	.189**	.690**	.525**	-.030	-.002	-.017
11. Excitement											1	.398**	.415**	.397**	.167**	.451**	.452**	.150**	-.11**	-.054
12. Introspection												1	.557**	.256**	.183**	.176**	.314**	.198**	-.13**	-.008
13. Peace													1	.411**	.255**	.347**	.360**	.171**	-.035	.020
14. Desire wildlife														1	.280**	.447**	.353**	.110**	-.004	.037
15. Easy access															1	.198**	.251**	.185**	-.085*	-.051
16. Scenery																1	.579**	-.085*	.054	.027
17. Exercise																	1	.078*	-.015	-.027
18. Meet people																		1	-.24**	-.056
19. A lot of hikers																			1	.219**
20. Non-natural sounds																				1
21. Overflights																				
22. Type wildlife																				
23. # Animals Enc.																				
24. Expectations																				
25. Preferences																				
26. First trip																				
27. Montana																				
28. Group type																				
29. Use Level																				
30. # People Enc.																				
31.Coping mechanisms																				
n	765	759	763	719	730	726	738	729	741	750	739	733	737	744	732	746	746	736	723	610
Means	2.52	.46	2.97	3.22	3.06	2.72	4.05	3.67	4.07	4.35	3.78	3.22	3.57	3.85	3.11	4.58	4.12	2.22	3.42	3.34
St Dev	1.55	0.50	1.11	1.17	1.22	1.15	1.04	1.16	1.26	0.99	1.10	1.21	1.15	1.09	1.22	0.91	1.06	1.15	0.89	1.24

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix 5 Table of zero-order correlations, means and standard deviations for coping elements (part 2).

	21	22	23	24	25	26	27	28	29	30	C-1	C-2	C-3	C-4	C-5	C-6	C-7	C-8
1. Location	.106*	.198**	.117**	-.02	-.101**	-.087*	.078*	.06	-.04	-.362**	.06	.00	.03	.05	.103*	.102*	.09	.00
2. Gender	.00	.00	-.01	.06	.03	.00	.00	.00	.06	.07	.04	.04	.06	.03	.08	.00	-.02	-.06
3. Age	.038	-.025	-.059	.026	-.027	-.085*	-.046	-.087*	-.018	-.026	-.038	-.008	-.026	-.014	-.001	-.027	-.052	-.006
4. Challenge	-.072	.044	.106*	-.095*	.008	.012	-.071	-.101**	-.016	.062	.090	.071	-.026	-.008	.017	.076	.090	-.050
5. Solitude	.019	.001	-.005	.035	.047	-.076*	-.017	-.036	-.076*	-.020	.069	.092	-.019	-.001	-.013	.047	.061	.025
6. Develop skills	-.032	.072	.094*	.003	-.007	-.088*	.002	-.044	-.119**	.051	.069	.064	.007	.013	.065	.118*	.064	-.007
7. Escape&Relax	-.005	-.009	.045	.016	.043	-.043	-.003	-.050	.020	.022	.010	-.019	-.003	-.078	-.037	.014	.020	-.027
8. Accomplishment	-.080	.082*	.123**	-.039	-.038	.024	-.065	-.014	-.022	.119**	.012	-.001	-.037	-.009	.027	.009	.018	-.038
9. Time w/ family	-.057	.035	-.016	.007	-.028	-.047	.086*	.188**	.129**	.038	-.045	-.021	-.042	-.108*	.007	-.041	-.002	-.045
10. Close to nature	.023	.022	.012	.002	-.002	.061	-.066	-.052	.041	.088	-.021	.053	-.017	-.148**	.004	-.003	.013	.011
11. Excitement	-.036	.118**	.119**	-.011	-.006	.015	-.028	-.034	.015	.120**	-.017	-.022	-.043	-.081	-.015	-.002	.008	-.023
12. Introspection	.026	.086*	.072	-.004	-.051	-.112**	.036	-.018	-.028	.106*	-.026	-.010	-.016	-.030	-.005	.033	.037	-.021
13. Peace	.045	.035	.007	-.015	.007	-.048	-.076	-.114**	-.015	.030	.013	.001	-.063	-.085	.000	.027	.059	-.011
14. Desire wildlife	-.016	.159**	.166**	.017	.060	.083*	-.091*	-.049	-.077*	.075	-.054	-.048	-.034	-.045	-.010	.024	-.013	-.010
15. Easy access	-.031	-.019	-.036	-.011	-.031	-.041	.036	-.059	.017	.000	-.047	-.042	-.049	-.129**	.011	-.061	-.027	-.012
16. Scenery	.047	.040	.008	-.016	.044	.020	.020	-.065	.039	.098*	-.036	.009	-.006	-.113*	-.028	-.006	-.022	.015
17. Exercise	-.059	.073	.081	-.007	-.034	-.058	.050	-.093*	.027	.053	-.047	.003	.018	.007	.065	.032	.016	.015
18. Meet people	-.075	.024	.016	-.027	-.093*	-.070	.026	-.006	-.054	.073	-.077	.001	-.095	-.039	.049	.048	.052	-.056
19. A lot of hikers	.220**	-.003	.031	.208**	.543**	-.025	.002	.019	.008	.025	.004	.048	-.017	.049	.045	-.008	-.043	.041
20. Non-natural sounds	.495**	.026	-.036	-.027	.147**	-.018	-.009	.008	-.079	-.007	-.025	-.046	-.021	-.042	.038	.010	.028	.014
21. Overflights	1	.059	-.059	.053	.161**	-.091*	.001	.006	.025	-.086	.008	-.052	.046	-.027	-.122*	.016	.018	.037
22. Type wildlife		1	.275**	.036	.027	-.050	.022	.027	-.115**	.184**	.024	-.049	-.001	.051	.086	.117*	.109*	-.108*
23. # Animals Enc.			1	-.016	.069	-.021	.031	-.009	-.109**	.266**	.002	.040	-.082	.010	.134*	.090	.086	-.092
24. Expectations				1	.250**	-.042	.082*	.012	.032	.061	-.007	.062	.047	-.023	.036	.015	.023	.061
25. Preferences					1	.091*	-.077*	-.035	.019	.130**	.010	.030	-.077	.066	.035	.003	.019	-.049
26. First trip						1	-.432**	-.122**	.062	.035	-.041	.005	-.045	-.019	.006	-.073	-.027	-.013
27. Montana							1	.206**	-.034	.014	-.036	-.090	.053	-.024	-.015	.024	.029	-.049
28. Group type								1	.048	.044	-.045	-.074	.058	.035	.065	.072	.085	-.061
29. Use Level									1	.125**	.063	.008	.003	.018	-.034	.026	.006	.037
30. # People Enc.										1	.064	.036	-.102	.093	-.032	.019	-.033	-.079
31.Coping mechanisms											1	1	1	1	1	1	1	1
n	540	704	576	751	744	752	689	765	765	494	424	426	423	419	434	425	426	418
Means	3.50	2.57	9.09	2.92	2.79	.53	.17	2.30	3.38	232.19	2.08	2.21	1.69	2.42	2.96	2.34	2.57	1.34
St Dev	0.91	0.85	11.48	0.87	1.47	0.50	0.38	0.76	0.67	151.44	0.99	1.02	0.92	1.06	1.06	1.02	1.02	0.70

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix 6 Ordinary least squared regression estimates for coping mechanisms employed in GNP.

	Visit at Different Season				Visit at Different Time of the Day				Do a Different Activity				Hike a Different Trail			
	Complete Model (*Adj. R^2 = .016*)		Parsimony Analysis (*Adj. R^2 = .119*)		Complete Model (*Adj. R^2 = .013*)		Parsimony Analysis (*Adj. R^2 = .128*)		Complete Model (*Adj. R^2 = .009*)		Parsimony Analysis (*Adj. R^2 = .113*)		Complete Model (*Adj. R^2 = -.043*)		Parsimony Analysis (*Adj. R^2 = .117*)	
	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.
Location	.077	.523			.004	.972			-.095	.445			.059	.624		
Gender	.217	.044*	.175	.056	.034	.749			.136	.213	.199	.029*	.178	.109	.121	.137
Age	-.202	.065	-.218	.026*	.154	.151	.143	.112	-.074	.489			.023	.838		
Challenge	.215	.143	.234	.023*	.108	.457	.216	.022*	.329	.027*	.217	.032*	.035	.817		
Solitude	.033	.803			.025	.846			-.122	.350			-.019	.886		
Develop skills	-.046	.745			.080	.569			.143	.318			-.135	.365	-.150	.124
Escape&Relax	-.272	.074	-.237	.075	-.070	.642	-.088	.438	-.150	.324	-.104	.354	-.119	.447	-.136	.193
Accomplishment	.111	.472			.064	.677			-.125	.419			.249	.120	.260	.026*
Time w/ family	.066	.570			.196	.094	.131	.169	-.096	.431			-.004	.972		
Close to nature	.035	.832			.080	.594	.161	.197	.139	.365	.173	.160	-.047	.763		
Excitement	-.069	.646			-.167	.269			-.303	.048*	-.293	.012*	-.227	.139	-.267	.012*
Introspection	.027	.871			-.075	.643			.032	.840			.124	.446		
Peace	.175	.364	.188	.101	.076	.688			.102	.591			-.117	.539		
Wildlife watching	-.131	.325			-.278	.031*	-.307	.004*	-.103	.427	-.160	.149	-.047	.724		
Easy access	-.017	.875			.194	.076	.218	.018*	.151	.172	.129	.178	-.085	.447		
Scenery	.230	.127	.225	.054	.161	.277	.130	.294	.258	.086	.182	.124	.027	.859		
Exercise	-.155	.218	-.172	.120	-.155	.217	-.139	.205	.080	.530			.103	.429	.053	.584
Meet people	-.197	.111	-.204	.052	.057	.643			-.180	.147			.130	.304	.120	.168
A lot of hikers	.007	.960	.001	.993	.343	.011*	.308	.005*	.065	.635	.049	.615	.057	.683		
Non-natural s.	-.152	.212	-.178	.095	.019	.874			-.093	.441	-.126	.211	-.173	.167	-.232	.015*
Overflights	.221	.080	.234	.033*	-.083	.504	-.046	.629	.183	.147	.243	.017*	.152	.248	.172	.075
Type wildlife	.134	.256	.106	.290	.133	.262	.110	.266	.128	.289	.152	.124	.130	.290	.090	.294
# Animals Enc.	-.003	.982	.003	.979	.236	.033*	.261	.006*	.058	.597	.025	.784	-.077	.502		
Expectations	.050	.660			.177	.112	.183	.050*	.104	.351			-.078	.492	-.104	.228
Preferences	-.009	.943			-.195	.143	-.111	.314	-.059	.660			.225	.105	.237	.012*
First trip	-.164	.204	-.191	.065	.043	.736			-.022	.865			.123	.352		
Montana	-.185	.108	-.150	.133	-.193	.095	-.199	.028*	-.038	.743			-.159	.186	-.209	.011*
Group type	-.015	.901			-.087	.453			.326	.007*	.213	.021*	.026	.827		
Use Level	.083	.475	.125	.189	.040	.734			.063	.601			-.014	.913		
# People Enc.	.053	.672	.021	.830	-.106	.394	-.097	.281	-.224	.072	-.166	.066	-.001	.991	.000	.998

Note: *Significance at p< .05 (two-tailed tests)

Appendix 6 Ordinary least squared regression estimates for coping mechanisms employed in GNP (Part 2).

	Nothing I could do, just enjoy it				The situation was really suitable				The situation was what it should be				Talk with park personnel			
	Complete Model (Adj. R2 = .030)		Parsimony Analysis (*Adj. R^2 = .190*)		Complete Model (Adj. R2 = .007)		Parsimony Analysis (*Adj. R^2 = .194*)		Complete Model (Adj. R2 = -.034)		Parsimony Analysis (*Adj. R^2 = .134*)		Complete Model (Adj. R2 = -.126)		Parsimony Analysis (*Adj. R^2 = .071*)	
	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.
Location	-.016	.890			.098	.415	.135	.140	.038	.755			-.054	.674	-.131	.093
Gender	.275	.009	.206	.011*	.008	.936			.086	.429	.126	.140	-.015	.896		
Age	-.051	.620			-.005	.964			-.068	.535	-.084	.329	-.087	.442	-.126	.079
Challenge	-.223	.100	-.260	.007*	-.079	.586	-.039	.701	.027	.858			.098	.523		
Solitude	-.081	.516			-.122	.350	-.120	.249	-.041	.759			.109	.434	.120	.119
Develop skills	.068	.611	.186	.040*	.147	.298	.179	.059	.040	.782	.149	.108	.112	.455	.141	.101
Escape_Relax	-.059	.703	.062	.518	-.061	.688			-.082	.597	-.024	.830	-.143	.394	-.216	.020*
Accomplishment	.136	.356			-.048	.755			.054	.731			-.168	.308	-.036	.706
Time w/ family	.020	.872			-.377	.002	-.378	.000*	-.195	.113	-.169	.064	-.133	.307	.001	.985
Close to nature	.035	.817			.115	.445	.198	.103	.312	.045	.307	.005*	.058	.725		
Excitement	-.231	.113	-.130	.190	-.235	.114	-.237	.027*	-.245	.106	-.213	.056	.166	.301	.140	.145
Introspection	.038	.802			-.077	.623			.056	.729			-.103	.539		
Peace	.015	.933			.285	.124	.173	.117	.152	.418	.140	.201	.065	.742		
Wildlife watching	.115	.369	.157	.072	.139	.281	.116	.198	-.090	.492			-.021	.879		
Easy access	-.082	.433			.097	.369			-.103	.350	-.140	.111	.031	.785		
Scenery	-.031	.841			.223	.131	.190	.080	.125	.406			.158	.336	.175	.064
Exercise	.117	.368			-.019	.879			-.023	.858			.053	.701		
Meet people	.010	.928			.026	.827			-.003	.979			-.185	.149	-.179	.013*
A lot of hikers	-.060	.641	.069	.421	.027	.840			-.126	.358			-.010	.946		
Non-natural sounds	.129	.262	.186	.044*	-.018	.881			.060	.621			-.065	.609		
Overflights	-.094	.433	-.201	.028*	.111	.376	.091	.272	-.004	.977	-.008	.924	.072	.588		
Type wildlife	.074	.512			-.022	.852			.003	.978			-.118	.349	-.074	.309
# Animals Enc.	.085	.425	.146	.069	.139	.206	.141	.097	.349	.002	.317	.000*	.017	.886		
Expectations	-.015	.885			-.060	.585			-.014	.901			.037	.754		
Preferences	.047	.715			-.017	.895			.078	.566			.010	.945		
First trip	-.059	.630			-.091	.477	-.107	.241	-.035	.790			.056	.682	-.085	.273
Montana	-.029	.795			.037	.747	.003	.975	.014	.904	.050	.559	-.005	.968	-.022	.770
Group type	.036	.734	.109	.179	-.046	.693			.096	.416	.133	.125	.075	.531		
Use Level	.006	.959			.012	.922			-.001	.996			.070	.578		
# People Enc.	-.192	.100	-.203	.012*	.016	.896	.005	.954	-.087	.483	-.084	.316	-.132	.317	-.158	.045*

Note: *Significance at p< .05 (two-tailed tests)

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