

THE INFLUENCE OF PLACE ATTACHMENT, MOTIVATIONS FOR USE,
AND LITTER ON CAMPERS' EVALUATIONS
OF SITE CONDITIONS

by

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ABSTRACT

Ecological and social impacts from recreational use may influence the quality of outdoor recreation experiences and the sustainability of recreation resources. Campsites are an important outdoor recreation resource where social and ecological impacts are often highly concentrated. Effective recreation resource management, particularly in high-use popular outdoor recreation areas, requires understanding current ecological conditions, and users' perceptions of those conditions. However, as a management and research community, we continue to be unclear about two fundamental concepts related to users' perceptions of campsite conditions: 1) how place attachment and motivations for use influence campers' evaluations of ecological impacts, namely the acceptability of campsite conditions, and 2) how the presence of litter (relative to other ecological impacts) influences those evaluations of campsite conditions. Therefore, the purpose of this study was to evaluate the relationships between place attachment, motivations for use, the presence of litter, and campers' evaluations of campsite conditions. Using a Normative Approach and visual methods, the researcher administered a questionnaire to campers ($n=234$) in the Uinta-Wasatch-Cache National Forest (Utah). Results indicate that place dependence and motivations for use did not influence campers' evaluations of site conditions, but campers who reported that litter more negatively influenced their experience also reported lower levels of acceptability with degraded site conditions. Furthermore, as campers' place identity increased, their acceptability of conditions also

increased. These findings convey that place attachment and motivations for use may not substantially influence campers' judgment regarding conditions, but the presence of litter is potentially highly influential.

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CHAPTER 1

INTRODUCTION

Thesis Outline

This thesis contains three chapters. Chapter 1 is an introduction to the thesis and provides a background for the study that briefly 1) explains factors (e.g., litter, place attachment, motivations for use) that may influence campers' evaluations of site conditions, 2) presents the problems that exist when attempting to identify influences on campers' evaluations of site conditions, and 3) provides the significance of knowing campers' evaluations of site conditions.

Chapter 2 was developed for submission to the *Journal of Outdoor Recreation and Tourism*. This chapter provides an in-depth literature review that supports using place attachment, motivations for use, and the presence of litter as potential predictors for campers' evaluations of conditions. This chapter describes a questionnaire and research process that captured and evaluated campers' perceptions of social and ecological aspects. The chapter also provides results that describe how place attachment, motivations for use, and ecological aspects influence campers' evaluation of site conditions.

Chapter 3 was developed for Pleasant Grove Ranger District and elaborates on questionnaire results to provide detailed descriptive statistics for each section in the questionnaire. Descriptive statistics of demographics, campers' evaluation of site

conditions, past-use history, place attachment, motivations for use, and ecological impacts are included in this chapter, and offer support for decision making. In addition, a condition class assessment for each of the dispersed campsites included in this study is provided in Chapter 3.

Brief Introduction

The research reported here was conducted in American Fork Canyon of the Uintah-Wasatch-Cache National Forest and focused on integrating the ecological impacts to campsites with social factors (e.g., place attachment, motivations) to inform management decisions. Additionally, this research elucidates the importance of using visual methods to identify normative standards for site conditions, and how place attachment, motivations for use, and the presence of litter influence those standards.

The study area within American Fork Canyon was Forest Road #085 (Holman Flat), which is a popular destination for outdoor recreation. However, its popularity often leads to two different management issues. First, outdoor recreation at Holman Flats causes ecological and visual impacts such as vegetation loss, soil compaction, multiple fire rings, and litter. Second, these ecological and visual impacts can degrade the quality of the visitor experience (Manning, Lawson, Newman, Budruk, Valliere, Laven, & Bacon, 2004; Van Riper, Manning, & Reigner, 2010). However, research has shown that outdoor recreationists tend to underestimate the level of resource degradation compared to experts (Floyd, Jang, & Noe, 1997; Moore, Leung; Matisoff, Dorwart, & Parker, 2012). To address these challenges, it was necessary to identify recreationists' standards (or norms) for site conditions and what influences those standards. In addition, it is necessary to identify whether social factors, namely, place attachment, and motivations

for use, influence campers' evaluations of site conditions (Kyle, Graefe, Manning, & Bacon, 2004; White, Virden, & Van Riper, 2008). Studies show that recreationists' perceptions of site conditions are influenced not only by the objective conditions they encounter (e.g., ecological conditions) but also potentially by more subjective factors, such as place attachment and motivations (D'Antonio, 2010). Therefore, the purpose of this study was twofold: (1) to examine the relationships between place attachment, motivations for use, and campers' evaluations of site conditions; and (2) to examine the role of litter (relative to the presence and influence of other ecological impacts) on campers' evaluations of site conditions.

Background

Many studies investigating standards of site conditions in recreation areas specify that campers rarely complain about poor ecological conditions (with the exception of litter). For example, Hammitt and Bixler (1994) conducted a study in three southeast national parks and found that recreationists were not observant of ecological impacts and that impacts had little influence on the quality of visitor experiences. A different study in Minnesota's Boundary Waters Canoe Area highlighted that campers seldom commented on campsite impacts (Manning et al., 2004).

It has been noted in various studies, however, that litter was an exception to the impacts that recreationists notice (Van Riper et al., 2010). Litter, a visual impact, has often been classified and measured along with other ecological impacts (e.g., vegetation loss, soil compaction, tree damage, root exposure) and is regarded as having the most impact on visitors' acceptability of site conditions (Floyd et al., 1997; Hammitt & Bixler, 1994; Manning et al., 2004).

More recent research investigating standards of site conditions have included other variables that were not previously measured. Including these variables, such as place attachment and motivations for use, is important because social variables may contribute to how recreationists perceive impacts (Kyle et al., 2004; White, Hall, & Farrell, 2001). Incorporating such variables will continue to inform how subjective human-environment interactions are potentially influential on recreationists' decisions and evaluation of site conditions at popular recreation areas (D'Antonio, 2010).

Place attachment and motivations for use are specific social aspects that were used in this study to understand how campers evaluate site conditions. Research has shown that place attachment may influence recreationists' evaluations of different recreation resource impacts. For example, a study on the Appalachian Trail concluded that hikers with higher place attachment were generally more aware of ecological impacts born from recreation use, such as vegetation trampling and soil loss (Kyle et al., 2004). Also, hikers with greater place attachment possessed stronger opinions concerning the acceptability for specific conditions (Kyle et al., 2004). However, this was only one study and the literature is inconclusive regarding the relationships between place attachment and evaluations of site conditions at popular outdoor recreation areas.

In addition to place attachment, recreationists' motivations to use a specific area may influence their evaluations of site conditions. For example, a study focusing on recreationists' motivations for using the Allegheny National Forest showed that first-time users were focused on nature itself, whereas repeat recreationists used the area for escape (Graefe, Thapa, Confer, & Absher, 2000). Identifying motivations is necessary for understanding why recreationists use an area, why recreationists keep coming back, and

how they perceive impacts in an area (Graefe et al., 2000). To fully understand visitor acceptability of site conditions, it was thus deemed critical to evaluate how motivations influence visitor perceptions.

Problem

Research has shown that when recreation impacts degrade the environment, the quality of the visitor experience may also degrade (Laven, Manning, & Krymkowski, 2005; Leung & Marion, 1999; Manning et al., 2004; Manning, Leung, & Budruk, 2005; Marion & Reid, 2007). Managers are aware and recognize severe impacts along Forest Road #085 but may be unaware of how recreationists perceive these impacts. Therefore, it was necessary to investigate what is “unacceptable or undesired” by recreationists who use this area to make informed management decisions (Shelby, Vaske, & Harris, 1988, p. 246). To further assist managers in evaluating Forest Road # 085, it was necessary to understand recreationists’ acceptability of site conditions.

The other major problem is less management-centric but equally important. The literature has been inconclusive about how social factors, namely, place attachment and motivations for use, influence recreationists’ evaluations of site conditions. Research has shown that recreationists may seek some ecological impacts because they facilitate desirable camping conditions, such as bare ground to place a tent (White et al., 2001). In short, more research is needed in terms of identifying how social factors influence campers’ evaluation of site conditions.

Conversely, if some ecological impacts are desired, litter has almost always had a negative influence on the visitor experience (Floyd et al., 1997; Van Riper et al., 2010; White et al., 2008). However, research has been inconclusive in identifying how litter

influences campers' evaluations of site conditions relative to the presence and influence of other ecological impacts. For this reason, it was deemed necessary to evaluate campers' standards of site conditions based on the presence of litter when other ecological impacts (e.g., vegetation and soil loss) are also present.

Overall Significance

Research evaluating recreationists' standards for campsite conditions has produced inconsistent results in terms of overnight camping. These inconsistencies in research are potentially caused by different types of recreationists' or awareness levels of campsite conditions. For instance, research has shown that there are often no complaints about existing conditions even when conditions were quite severe (Van Riper et al., 2010). However, other research has suggested that the quality of outdoor experiences can deteriorate due to severe impacts such as soil and vegetation loss (Laven et al., 2005; Leung & Marion, 1999; Manning et al., 2004; Manning et al., 2005; Marion & Reid, 2007). In short, results in literature have supported both views that severe site impacts do in fact degrade the quality of the visitor experience, and that severe site impacts have no effect on the quality of the visitor experience (Floyd et al., 1997; Hammitt et al., 1994; Van Riper et al., 2010). Given this current fragmentation in the literature, it was deemed important to contribute new findings that might shed additional light on these contradictions.

Overall Research Questions

The guiding research question for this study were "What effect does place attachment and motivations for use have on campers' evaluation of site conditions?" and

“How does the presence of litter in relation to other recreation-born ecological impacts, influence campers’ evaluation of site conditions?”

Definitions

- **Campers:** recreationists who stay overnight using a designated site as their living quarters during the duration of their stay (Manning, 2011).
- **Ecological impacts:** human-caused impacts to the natural environment including but not limited to vegetation loss, soil compaction, multiple fire rings, tree damage, root exposure, soil excavations, rock displacement, human waste, and litter (Deng et al., 2003).
- **Motivations for use:** the factors that motivate a recreationist to use a particular area (Manning, 2011).
- **Normative Approach:** a research approach to assess recreationists’ shared belief about important aspects of their experiences, including an area’s resources, and standards for acceptable or unacceptable conditions (Vaske, Shelby, Graefe, & Heberlein, 1986).
- **Place attachment:** an emotional bond a person has with a place (Eder & Arnberger, 2012).
- **Recreationists:** general visitors to the area for the purpose of recreating (includes various groups of users; Manning, 2011).
- **Standards (or ‘norms’):** recreationists’ shared belief about important aspects of their experiences, including an area’s resources, and standards for acceptable or unacceptable conditions (Vaske, Shelby, Graefe, & Heberlein, 1986).

- **Visual methods:** assessing recreationists' evaluations of social and ecological conditions by using photographs and/or videos depicting varying level of impacts (Laven, Manning, & Krymkowski, 2005).

CHAPTER 2

THE INFLUENCE OF PLACE ATTACHMENT, MOTIVATIONS FOR USE, AND LITTER ON CAMPERS' EVALUATIONS OF ECOLOGICAL SITE CONDITIONS

Introduction

Outdoor recreation often results in ecological impacts, which may influence the quality of outdoor recreation experiences and the sustainability of recreational resources (Hardiman & Burgin, 2010; Van Riper, Manning, & Reigner, 2010). Because recreation use is often highly concentrated, impacts are often highly concentrated as well (Deng, Qiang, Walker, & Zhang, 2003; White, Hall, & Farrell, 2001). Such concentrated use and associated impacts often result in conspicuous evidence of human use and visual impact problems (Martin, McCool, & Lucas, 1989). These potential impacts on the quality of the outdoor recreation experience and associated resources have left managers with the laborious task of striking an equilibrium between providing access to recreation areas and protecting resources that recreationists seek to enjoy (Moyle & Croy, 2007; Vistad, 2003).

To manage this conundrum effectively, managers must objectively understand current conditions of a resource and recreationists' perceptions of those conditions (Vistad, 2003; White et al., 2001). This is important because managers are more likely to have lower tolerance levels for ecological impacts than recreationists and visitor support

is often necessary if managers want to enact change (Manning, Leung, & Budruk, 2005; Shelby & Shindler, 1992; Vistad, 2003). Furthermore, managers are often unaware of how recreationists perceive ecological impacts and what recreationists deem unacceptable or desirable (Budruk, Stanis, Schneider, & Heisey, 2008; Needham & Rollins, 2005). Moreover, recreationists may have strong standards (or ‘norms’) regarding preferred and acceptable conditions, which cannot be predicted or assumed by managers (Manning, 2011).

Condition preferences, and what ‘ought to be,’ are often referred to as norms, which are shared beliefs among a group of users about important aspects of their experiences, including site conditions, and standards for what conditions are acceptable (Shelby, Vaske, & Donnelly, 1996). Understanding norms in outdoor recreation is beneficial because users’ preferences, expectations, and evaluations of conditions can be identified, and managers can use this information for managing ecological and social conditions (Heywood, 1996; McDonald, 1996; Needham & Rollins, 2005). For example, a study in Arches National Park measured crowding norms and a range was established for how many people could be present at Delicate Arch at one time. Such a determination about an acceptable condition is referred to as a ‘normative standard’ (Manning & Freimund, 2004; Shelby et al., 1996). Once normative standards for social and ecological conditions have been identified, managers can tailor management practices to attend to visitor preferences while protecting resources that recreationists seek to enjoy (Manning et al., 2004; Shelby et al., 1992).

Oftentimes, it is not enough to simply identify normative standards (Heywood, 1996). Researchers and managers must also identify salient factors that influence the

normative standards. These factors may include social factors, such as recreationists' place attachment and motivations for use. Place attachment is the emotional bond a person has with a place (Eder & Arnberger, 2012; Manning, 2011; White et al., 2001), and motivations for use are what motivates a recreationist to use a particular area (Graefe, Thapa, Confer, & Absher, 2000; Manning, 2011). Incorporating place attachment and motivations for use into studies that aim to identify normative standards may increase collective understanding of the factors that influences recreationists' evaluation of site conditions (Kyle et al., 2004).

However, as a research community, we continue to be unclear about two fundamental concepts related to ecological impacts and recreationists' perceptions of those impacts, including their normative standards (Van Riper et al., 2010; White et al., 2001). First, the literature is inconclusive about how place attachment and motivations for use influence normative standards for campsite conditions (D'Antonio, 2010; Kyle, Graefe, Manning, & Bacon, 2004; Manning, 2011; White, Virden, & Van Riper, 2008). If researchers had a clearer understanding of these relationships, managers may be armed with new information for data-driven solutions. For example, motivations for use may vary in different locations as recreationist in one area may have strong motives for solitude, whereas recreationists in another area may have strong motives for convenience. Such differences may influence recreationists' normative standards for campsite conditions. Furthermore, understanding human subjective experiences of place is necessary to identify appropriate management strategies as solutions may be site-specific (Manning, 2011). Ultimately, identifying how place attachment influences normative standards for ecological conditions may provide additional information to understand

how recreationists assess ecological impacts (Eder & Arnberger, 2012; Manning, 2011; White et al., 2008).

Second, although it is known that litter is the recreational impact most recognized and most unacceptable to recreationists, it is unclear how litter influences normative standards relative to the presence and influence of other ecological impacts, such as soil and vegetation loss, tree damage, and increased fire rings (Deng et al., 2003; Hillery, Nancarrow, Griffin, & Syme, 2001). If researchers and managers had a greater understanding of how litter influences recreationists' evaluations of conditions relative to other ecological impacts, different approaches could be used to manage litter and ecological impacts more effectively (Heywood & Murdock, 2001).

Therefore, the purpose of this study was twofold: (1) to examine the relationship between place attachment, motivations for use, and campers' normative standards for site conditions; and (2) to examine the influence of litter (relative to the presence and influence of other ecological impacts) on campers' normative standards for site conditions.

Literature Review

Many studies in outdoor recreation have come to different conclusions regarding recreationists' perceptions of site conditions. To highlight this point, the following literature provides background on how place attachment, motivations for use, and ecological impacts may or may not influence recreationists' normative standards for site conditions. The literature review concludes with four primary research questions that appear unanswered in previous studies.

Place Attachment

Place attachment is how attached a person is to a specific place (Eder & Arnberger, 2012) and is formally defined as the “emotional bond between a person and a place” (Manning, 2011, p. 258). When a recreationist develops an attachment to a specific place, they are “likely to possess stronger opinions concerning appropriate conditions for specific settings” (Kyle et al., 2004, p. 216). Place attachment plays an important role when studying human-environment interactions as it provides an understanding of the bond that a person has with a place (Budruk et al., 2008; White et al., 2008).

The literature is inconclusive regarding how place attachment influences evaluations of wild land recreational impacts, including recreationists’ acceptability of campsite conditions (White et al., 2008). There are also very few studies that have explored how place attachment influences normative standards for assessing site conditions. However, in one study of recreationists in wilderness, it was found that greater levels of place attachment were associated with greater sensitivity to ecological impacts, sight and sound intrusions, and encounters with other hikers (Williams, Patterson, Roggenbuck, & Watson, 1992).

Similarly, a study on the Appalachian Trail evaluated how hikers’ place identity and place dependence influenced evaluations of conditions. Place identity is an individual’s personal identity connected to the environment and place dependence focuses on the goals or functional reasons that an individual connects to a specific place (Manning, 2011; White et al., 2008). Kyle et al. (2004) concluded that hikers with higher place identity were more aware of both social and ecological impacts. Results also

suggested that when place identity increased, evaluations of site conditions were more negative, whereas when place dependence increased, evaluations of site conditions were less negative (Kyle et al., 2004).

Conversely, place attachment has also been found insignificant relative to recreationists' evaluations of recreational conditions. For example, recreationists in the Molalla River Recreation Corridor and Table Rock Wilderness in Oregon evaluated ecological impacts from recreation use, and there was no significant relationship between place attachment and evaluations of recreational impacts (White et al., 2008). In sum, there are no definite conclusions about place attachment's influence on recreationists' normative standards for site conditions. Therefore, it is important to continue to investigate this relationship in new settings, while also searching for other explanations, such as recreationists' motivations for use.

Motivations for Use

Motivations for use are necessary to identify recreationists' reasons for visiting a particular area (Manning, 2011; Needham & Rollins, 2005). Motivations assist researchers and managers in understanding why recreationists recreate (Marin, Newman, Manning, Vaske, & Stack, 2011). Motivation evaluations also assist in identifying commonalities among different recreationists that may only exist at a specific location (Graefe, Thapa, Confer, & Absher, 2000; Manning, 2011).

The literature investigating motivations for use has also been inconclusive regarding how motivations for use influence evaluations of wild land recreational impacts, including recreationists' acceptability of campsite conditions. Similar to place attachment, the inconclusive findings may be due to lack of research that has investigated

how motivations for use influence normative standards (Manning, 2011; Needham & Rollins, 2005). Additionally, most of the research focuses on motivations themselves rather than how motivations influence subjective site evaluations.

However, a few studies have evaluated how motivations influence normative standards. For example, a study at Adirondack Park in New York found that climbers whose motives involved a greater value of wilderness were more concerned about ecological impacts (Monz, Smith, & Knickerbocker, 2005). A different study at Muir Woods National Monument investigated visitor motives by presenting different sounds to recreationists to identify if they had high motives for experiencing quiet while at the Monument (Marin et al., 2011). The results of this study indicated that motivation, in connection with sounds, was important to recreationists and the results provided a rationale for some management decisions.

Litter

Litter is the most recognized and most unacceptable impact to recreationists, but it is unclear how litter influences recreationists' evaluations of site conditions relative to other ecological impacts, such as soil and vegetation loss (Moore et al., 2012; Van Riper et al., 2010). It also remains unclear how to best measure norms for ecological impacts, as some impacts being measured may not be the impacts that positively or negatively influence evaluations of site conditions (Manning, 2011). For example, loss of vegetation accompanies tent camping and when litter is present, impacts to vegetation may be overlooked. However, litter has been classified as a universal norm, but it has been difficult to identify whether ecological impacts, other than litter, influence evaluations of sites conditions (Manning, 2011, p. 145). Recreationists often recognize litter and it may

bias their evaluations of site conditions based on how much litter is present; therefore, recreationists may not notice other ecological impacts present at the site (Manning et al., 2004).

Heywood and Murdock (2001) investigated litter using visual methods. When litter stood alone and was measured without other ecological impacts present, recreationists reported a strong norm against littering. Specifically, the only acceptable photograph shown was one with no litter (Heywood & Murdock, 2001). Litter has been proven to negatively influence the visitor experience; however, it is unclear how ecological impacts other than litter influence the visitor experience.

One perspective is that recreationists do perceive and are disturbed by impacts. For example, Roggenbuck, Williams, and Watson (1993) confirmed that ecological impacts negatively influenced visitor experiences. Shafer and Hammitt (1995) also concluded that damage to vegetation and trees may diminish the quality of recreation experiences. Climbers at Adirondack Park also identified litter, in addition to tree damage, and vegetation loss, as influencing their experience (Monz et al., 2005).

A second perspective, however, suggests that ecological impacts at a recreation site may not negatively influence the visitor experience (Shelby, Vaske, & Harris, 1988; White et al., 2001). For example, a study in the Blue Mountains of Australia indicated that the majority of the population was aware of vegetation loss, but most recreationists did not perceive that vegetation loss had a negative impact on their experience (Hardiman & Burgin, 2010). A different study at the summit of Cascade Mountain in New York indicated that about one-half of recreationists noticed recreational resource damage, but a majority of those who noticed the damage judged impacts to be slight, when current

conditions were deemed extensive by managers (Van Riper et al., 2010).

Related, a study in the Boundary Waters Canoe Area found that recreationists rarely mentioned campsite impacts other than litter, while a study in Montana's Selway-Bitterroot Wilderness Area reported that recreationists were generally satisfied with existing site conditions despite extensive impacts to the area (Manning et al. 2004). This perspective shows that impacts do not necessarily negatively influence visitor experiences and that many recreationists are in fact choosing 'wear and tear' sites because they might be desirable for other reasons (Shelby & Shindler, 1992). This suggests that ecological impacts may even be a necessity for recreationists because they are likely to choose campsites based on what is needed for overnight camping, such as bare ground, which is beneficial for recreationists using tents (Daniels & Marion, 2006). In other words, impacts may positively or negatively influence the quality of visitor experiences. This may lead to different results potentially caused by a number of factors such as types of recreation area and types of recreationists using the same area (Shelby et al., 1988).

Visual Methods

Researchers have helped managers identify recreationists' normative standards using visual methods (Bullock & Lawson, 2007; Krymkowski, Manning, & Valliere, 2009). Visual methods typically help assess recreationists' evaluations of social and ecological conditions by using photographs depicting varying levels of impacts (Laven, Manning, & Krymkowski, 2005; Manning, Valliere, Wang, & Jacobi, 1999). The use of photographs has been found more useful in determining normative standards because they are suggestive surrogates when classifying different impact levels (Hull & Stewart,

1992; Newman, Marion, & Cahill, 2001). The use of photographs for identifying normative standards thoroughly represents conditions being potentially important to recreationists (Manning & Freimund, 2004; White et al., 2001).

Visual methods are helpful to measure recreationists' perceptions of ecological impacts because computer-altered photographs can show a range of different conditions (Manning et al., 2004; Needham & Rollins, 2005). For example, a recent study investigated recreationists' perceptions of ecological impacts in the Bear Lake Road Corridor of Colorado's Rocky Mountain National Park and computer-altered photos were used to determine visitor standards for vegetation loss and proliferation of visitor-created trails (D'Antonio, 2010). This study concluded that recreationists were most perceptive of ecological impacts resulting from inappropriate behavior and results were used to develop normative standards (D'Antonio, 2010).

Normative Approach

The Normative Approach is a research approach that suggests that recreationists may have shared beliefs about important aspects of their experiences, including an area's resources, and standards for what constitutes acceptable or unacceptable conditions. Researchers and managers refer to these shared beliefs, and what 'ought to be,' as 'norms' (Vaske, Shelby, Graefe, & Heberlein, 1986). Understanding what recreationists deem as acceptable social and ecological conditions can help land managers identify standards for a given location (Manning, 2011), which can be judged against objective markers (e.g., use levels, soil loss).

Norms for physical, social, and managerial conditions are often derived from the Normative Approach, which incorporates indicators and standards. An indicator is a

“measurable manageable variable that helps define the quality of a recreation experience. A standard of quality is the minimum acceptable condition of indicator variables” (Manning, 2011, p.137). For example, an indicator that has been used in crowding studies is ‘number of people encountered on a trail’ with an associated standard, such as ‘10’ (Manning, 2011). However, the Normative Approach also often uses ‘evaluative dimensions’ other than ‘acceptability’ (Manning, 2007) to determine potential standards. For example, respondents might also be asked to report a norm based on the conditions they would ‘prefer to experience’, the conditions they think ‘managers should maintain’, and the conditions that are so bad that they would ‘no longer visit the area’ (i.e., displacement; Manning, 2011).

The Normative Approach has helped formulate standards for the number of snorkelers to the Great Barrier Reef (Inglis, Johnson, & Ponte, 1999); encounters among snorkelers, divers, and boats at coral reef sites in the Florida Keys (Loomis, Anderson, Hawkins, & Paterson, 2008); frequency of ferry service to Boston Harbor Islands (Manning, Leung, & Budruk, 2005); vehicles driving on the beach at Cape Cod National Seashore (Hallo & Manning, 2009); and coastal scenic roads and attraction sites at Acadia National Park (Hallo, Manning, & Valliere, 2005).

Research Questions

The literature reveals a gap in understanding how place attachment, motivations, and litter influence recreationists’ normative evaluations of recreation site conditions. Consequently, this study aimed to answer two primary research questions to fill this gap.

1. What is the influence of place attachment and motivations on campers’ normative standards for site conditions?

2. How does the presence of litter influence campers' normative standards for site conditions when numerous ecological impacts are also present?

Description of Research Location

To contextualize the research questions, it is necessary to provide a description of the study area. Forest Road # 085-Holman Flat, which is an unimproved road, is located in American Fork Canyon within the Uinta-Wasatch-Cache National Forest in Utah County near American Fork, Utah (see Figure 2.1). Forest Road # 085-Holman Flat



Figure 2.1 Map of Forest Road # 085-Holman Flat

(F.R. 085) has yearly seasonal road closures and access is generally allowed from late May to early November. The road is designated for multiple-use, including hiking, horseback riding, mountain biking, motorcycling, ATV use, and camping. Overnight dispersed camping is allowed and most campsites have received severe impacts from recreational use (Marshall, 2016).

Methods

Instrument

To answer the research questions, researchers administered paper questionnaires to campers on F.R. 085 that contained questions related to five computer-altered photos of varying levels of campsite impacts and conditions typical along F. R. 085 (see Figure 2.2). Respondents viewed all the photos one at a time in random order (Gibson, Newman, Lawson, Frstrup, Benfield, Bell, & Nurse, 2014).

While completing the questionnaire, campers evaluated campsite conditions across the five photographs using a 9-point Likert scale (-4 as “very unacceptable” and +4 as “very acceptable,” while 0 was neutral; as recommended by Manning, 2011). Campers then answered questions related to the photographs to identify the campsite conditions a) they preferred, b) the level of impact managers should allow, c) the level of impact they would tell a friend or family member about, d) the level of impact at which they would no longer use the site, and e) the current conditions of their campsite (Manning 2005). All of the components in the questionnaire were created using standard metrics and previously validated procedures (D’Antonio, 2010; Eder & Arnberger, 2012; Graefe et al., 2000; Hammitt & Bixler, 1994; Kyle et al., 2004; Manning et al., 2004).

Additionally, the questionnaire incorporated a 9-point Likert scale addressing the

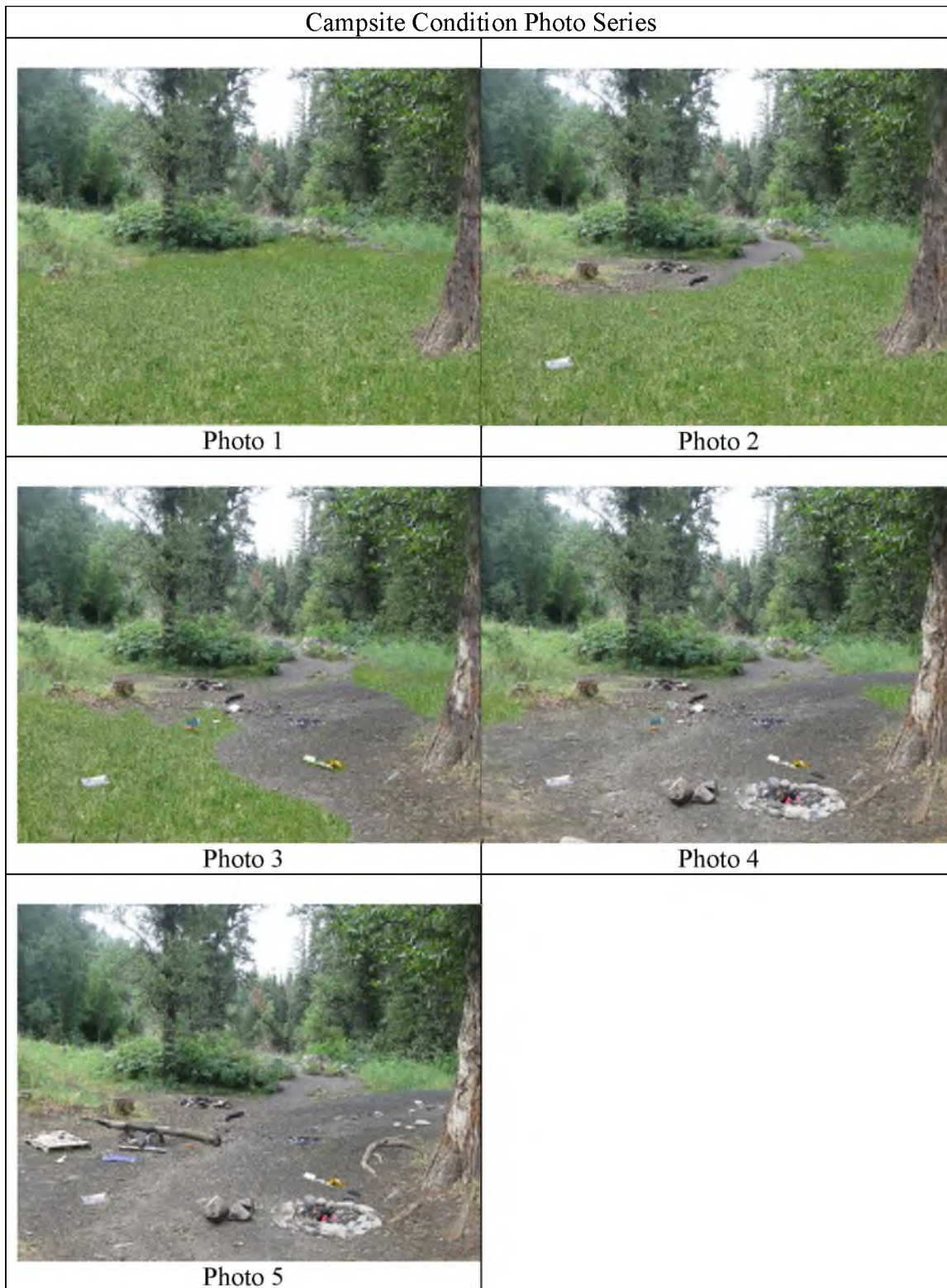


Figure 2.2 Study photographs of campsite impacts conditions at F.R.085.

influence of specific campsite impacts on campers' experience (-4 = negative influence; and +4 = positive influence). The impacts included were loss of vegetation, compacted soil, tree damage, multiple fire rings, human waste, litter, satellite sites, site diameter, and root exposure. Place attachment and motivations for use were also measured using a 9-point Likert scale, consisting of eight items representing the dimensions of identity and dependence (-4 = low attachment; and +4 = high attachment). Campers were asked to rate their agreement with place attachment statements (Kyle et al., 2004; Manning, 2011). To identify motivations for use, four domains were prioritized for this study: social, nature, equipment, and convenience. They were all measured by level of importance on a 9-point Likert scale (-4 not important at all and +4 extremely important; Manfreda, Driver, & Tarrant, 1996). The questionnaire concluded with demographic questions derived from U.S. Census Bureau categories and a three item past-use experience index (Schreyer, Lime, & Williams, 1984).

Sampling

To ensure representativeness, participants along F.R. 085 were selected by a stratified random probability sampling approach where 1 person (over 18) from each camping group in the 34 sites was asked to participate. Sampling occurred during peak season (May to August 2015).

Analysis

A multistep process was used to analyze responses. First, standard calculations were used to evaluate data distribution, verify multivariate normality, and identify statistical outliers (Tabachnick & Fidell, 2001). Second, using EQS 6.1, fit indices, factor

loadings, measurement variance, and item independence for place attachment and motivations were assessed using Confirmatory Factor Analysis (CFA; Byrne, 2008). Third, using SPSS 22.0, a majority of the research questions were evaluated using a social norm curve, descriptive statistics, and means testing. The Potential for Conflict Index (PCI²) was used to evaluate ‘norm crystallization,’ or in this case, the level of agreement regarding campers’ evaluation of site conditions (Vaske, Beaman, Barreto, & Shelby, 2010). The PCI² spans from 0 (minimal agreement) to 1 (maximum agreement) and was used to describe the variable’s central tendency and dispersion using visuals incorporated into the social norm curve. Finally, using factor scores derived from the CFA and multiple regressions, the influence of place attachment, motivations, and campsite impacts on campers’ evaluations of site conditions was assessed.

Results

Description of the Sample

During data collection, 274 campers were approached and 234 elected to participate in the study, yielding a response rate of 86 % (6.2 % confidence interval at the 95 % confidence level). A majority of campers reported residing in Utah County (43.2 %) and Salt Lake County (47.2 %). The sample was evenly distributed between males (45%) and females (52.4%), and most reported to be Caucasian (80.5%). The median age of campers was 34 with 71.3 % reporting that they had attended at least some college or more (14 % of the sample had a graduate degree). Most campers (84.3%) reported making less than \$149,999 in household income annually. The primary activities for recreationists were camping (43.7%), and 4X4 recreation (13.2%). More than half of the campers reported that they have been camping in the area 3 years or less (59.4 %),

visiting an average of 1-3 times per year (78.3 %), and staying 1-3 days per visit (82.4 %).

Campers' Evaluation of Site Conditions

Campers' evaluation of the site conditions using the photo series in Figure 2.2 revealed decreased acceptability levels as site conditions became more degraded (see Figure 2.3). Campers deemed conditions unacceptable between Photos 2 and 3, with preferred conditions between Photos 1 and 2.

Campers indicated that management action was necessary in Photo 3, and that conditions in Photo 4 would influence them to tell a friend or family member about degradation. Campers also reported that Photo 5 displayed conditions so unacceptable that they would no longer use the site.

PCI² levels were as follows: Photo 1 (PCI²=0.07), Photo 2 (PCI²=0.54), Photo 3 (PCI²=0.42), Photo 4 (PCI²=0.18), and Photo 5 (PCI²=0.11), which suggest there is a strong level of agreement for Photo 1, Photo 4, and Photo 5. However, Photo 2 and Photo 3 show moderate disagreement. This level of agreement indicates the amount of consensus regarding campsite condition norms (norm crystallization; Krymkowski et al., 2009). These findings indicate that campers at F.R. 085 generally agreed on acceptability levels of each photograph with moderate levels of norm crystallization (or agreement) for Photos 2 and 3.

The shape of the social norm curve in Figure 2.3 reveals two important points. First, the curve is relatively pronounced, indicating that norms for campsite conditions are perhaps well-formed in this population. Manning (2007) indicates that evaluating the

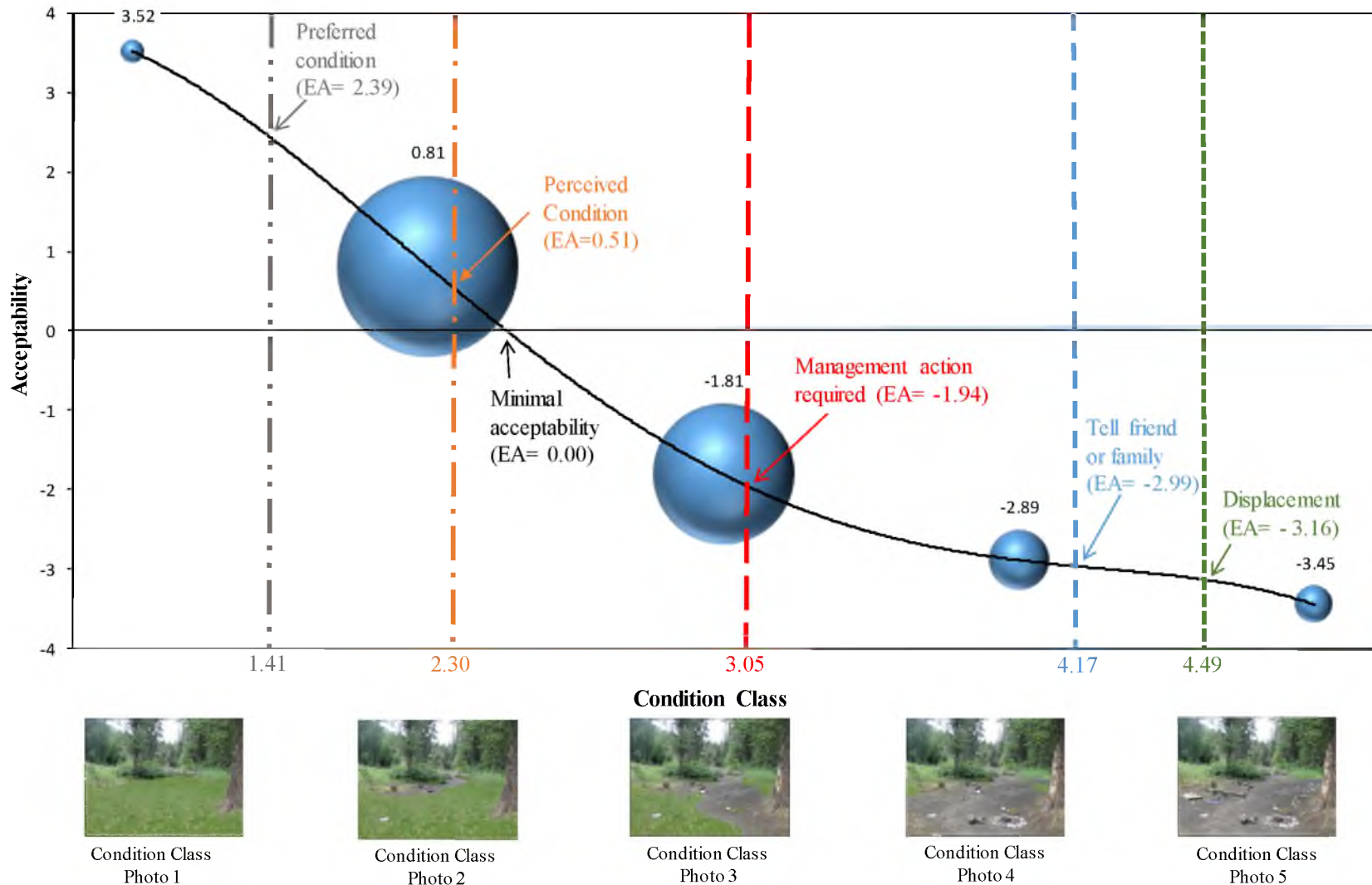


Figure 2.3 Social norm curve with condition class acceptability for litter. EA=estimated acceptability of conditions based on ratio relationships.

Note. The size of the ball denotes the norm crystallization (PCI^2), or in this case, the level of campers' agreement regarding the evaluation of a photograph. The PCI^2 ranges from 0 (minimum) to 1 (maximum) agreement level.

amplitude of the curve and the distance above and below the neutral point on the norm evaluation scale is one indicator of norm intensity or norm salience. It appears that for Holman Flat campers, the norm salience or intensity might be quite high, as indicated by the relatively far-reaching curve above and below the neutral line as displayed in Figure 2.3. Second, the ‘minimal acceptable level’ for conditions falls between Photos 2 and 3, indicating that relatively little impact may be unacceptable to campers in this study.

The Influence of Place Attachment on Normative Standards

Campers visiting F.R.085 expressed moderate levels of place attachment ($M=1.89$; $SD=0.78$), identify strongly with the area ($M=2.05$; $SD=1.86$), and report moderate place dependence ($M=1.31$; $SD=2.17$) (see Table 2.1). Multiple regression results indicate that campers’ levels of place identity positively predicted their acceptability rating of the photographs ($F = 2.56$; $p < 0.05$; $R^2 = 0.05$).

However, this finding was only significant for Photos 3 ($\beta = 0.21$; $t = 2.06$; $p < 0.05$) and 4 ($\beta = 0.29$; $t = 2.48$; $p < 0.05$) and only accounted for 5% of the variance. In other words, as campers’ place identity increases, their acceptability of current conditions (Photo 3 and 4) increases as well, which may indicate that those with high place identity also approve of current conditions. Conversely, campers’ levels of place dependence did not significantly predict their acceptability rating of any photos depicting varying levels of campsite conditions. Furthermore, campers’ levels of place identity or place dependence did not influence their ratings for preferred conditions, management action, discussing impacts with family or friends, or displacement due to degraded conditions ($p > 0.05$). Overall, these findings suggest that place identity has some influence on campers’ normative evaluations of site conditions (although minimal).

Table 2.1. *Factor loadings, item means, standard deviations, and fit indices for campers' place identity and place dependence*

Dimensions and items ^a	λ	Mean (<i>SD</i>)
Place identity	-	2.05 (1.86)
I identify strongly with this area	0.78	1.95 (1.83)
This area is very special to me	0.92	1.90 (1.89)
I am very attached to this area	0.93	1.67 (1.98)
This area means a great deal to me	0.95	1.94 (1.93)
Place dependence	-	1.31 (2.17)
This area is the best place for the recreation activities I like to do	0.77	1.80 (2.03)
I enjoy doing recreation activities in this area more than in any other location	0.92	1.31 (2.15)
Participating in recreation activities in this area is more important to me than doing them in any other area	0.93	0.77 (2.13)
No other place can compare to this area for the types of recreation activities I do	0.83	0.64 (2.27)
Standardized estimate between dimensions = 0.71		
CFI = 0.988; NNFI = 0.979; RMSEA = 0.066; SB χ^2 (<i>df</i>) = 35.51* (16); SRMR = 0.027		

Notes. ^a Rated as agreement on a 9-point Likert scale (-4 = completely disagree, +4 = completely agree); λ = standardized factor loading; CFI = Comparative Fit Index; *df* = degrees of freedom; NNFI = Non-Normed Fit Index; Reliability coefficient RMSEA = Root Mean Square Error of Approximation; SB χ^2 = Satorra-Bentler Scaled Chi-Square; *SD* = standard deviation; SRMR = Standardized Root Mean Squared Residual; * $p < 0.05$

The Influence of Motivations for Use on Normative Standards

When motives for use were examined among the study's participants (see Table 2.2), four motivation domains were used to identify their reasons for using the area. The scores of the four motivation domains were: to enjoy nature ($M=3.43$; $SD=1.01$), convenience ($M=2.84$; $SD=1.26$), to be with similar people ($M=2.68$; $SD=1.55$), and to use equipment ($M=0.03$, $SD=2.23$). Although most of these motivation domains except for 'equipment,' appear relatively salient for the study population, multiple regression results indicate that campers' levels and types of motivations did not significantly predict their acceptability rating of any photographs ($p > 0.05$). Campers' levels and types of motivations did not influence their ratings for preferred conditions, management action, discussing impacts with family or friends, or displacement due to degraded conditions ($p > 0.05$). With regard to place dependence, the motivation results suggest that the influence of motives to a) recreate with similar people, b) enjoy nature, c) use equipment, and d) experience convenience on campers' normative evaluation of site conditions was limited and not statistically significant.

The Influence of Ecological Impacts on Normative Standards

Campers perceived human waste ($M= -2.89$; $SD=2.13$) and litter ($M=-2.69$; $SD=1.99$) had the most negative impact on their experience (see Table 2.3), followed by loss of vegetation ($M= -1.28$; $SD=2.07$), existence of satellite sites ($M= -1.16$; $SD=1.92$), tree damage ($M= -1.13$; $SD=1.93$), root exposure ($M= -0.37$; $SD=1.38$), and multiple fire rings ($M= -0.16$; $SD=1.96$). Conversely, compacted soil ($M=0.05$; $SD=1.75$) had no influence on visitor experience and site diameter ($M=0.33$; $SD=2.41$) positively influenced the visitor experience. Unlike the motivation results, multiple regression

Table 2.2 *Factor loadings, item means, standard deviations, and fit indices for campers' motivation to use Forest Road #085*

Dimensions and items ^a	λ	Mean ^a (<i>SD</i>)
Nature	-	3.43 (1.01)
To view the scenery	0.88	3.05 (1.31)
To be close to nature	0.80	3.24 (1.19)
To view scenic beauty	0.83	3.18 (1.34)
To enjoy the smells and sounds of nature	0.77	3.34 (1.05)
Convenience	-	2.84 (1.26)
Easy to get to	0.71	2.60 (1.78)
Low cost	0.72	3.08 (1.46)
Relatively free of rules	0.79	1.91 (2.09)
Short driving distance	0.64	2.64 (1.77)
Social	-	2.68 (1.55)
To be with friends	0.71	2.35 (1.87)
To be with members of your group	0.76	2.71 (1.68)
To be with people who have similar values	0.72	2.01 (2.16)
To be with others who enjoy the same things	0.53	2.73 (1.78)
Equipment	-	0.03 (2.23)
To use your equipment	0.67	1.58 (2.30)
To talk to others about your equipment	0.71	-0.75 (2.52)
To compare my equipment with others ^b	0.72	-1.17 (2.50)
To test and use your equipment	0.74	0.61 (2.59)

CFI = 0.922; NNFI = 0.912; RMSEA = 0.64; $SB\chi^2$ (*df*) = 173.39* (94); SRMR = 0.071

Notes. ^a Rated as agreement on a 9-point Likert scale (-4 = not important at all, +4 = extremely important); λ = standardized factor loading; CFI = Comparative Fit Index; *df* = degrees of freedom; NNFI = Non-Normed Fit Index; RMSEA = Root Mean Square Error of Approximation; $SB\chi^2$ = Satorra-Bentler Scaled Chi-Square; *SD* = standard deviation; SRMR = Standardized Root Mean Squared Residual; * $p < 0.05$

Table 2.3. *Item means and standard deviations for campsite impacts that influence campers' experience*

Campsite impacts	Mean ^a (SD)
Human waste	-2.89 (2.13)
Litter	-2.69 (1.99)
Loss of vegetation	-1.28 (2.07)
Another campsite connected to your site (satellite site)	-1.16 (1.92)
Tree damage	-1.13 (1.93)
Root exposure	-0.37 (1.38)
Multiple fire rings	-0.16 (1.96)
Compacted soil	0.05 (1.75)
Site diameter	0.33 (2.41)

Notes. ^a Rated as agreement on a 9-point Likert scale (-4 = negatively influences my experience, +4 = positively influences my experience); * $p < 0.05$

analyses revealed that litter's negative influence on the camping experience predicted campers' acceptability rating of some photographs ($F = 7.45$; $p < 0.05$; $R^2 = 0.09$). This finding was most pronounced for Photos 4 ($\beta = 0.16$; $t = 2.12^*$) and 5 ($\beta = 0.17$; $t = 2.01$) but was not significant for Photos 1, 2, and 3. This finding suggests that campers who reported that litter more negatively influenced their experience also reported lower levels of acceptability with the degraded conditions displayed in Photos 4 and 5. However, the influence of other site impacts on campers' experience (e.g., human waste, vegetation loss, root exposure) did not significantly predict campers' acceptability rating of each of the photographs ($p > 0.05$). This finding suggests that study respondents might be concentrating on the degree of litter in each photograph instead of other ecological impacts, such as root exposure and vegetation loss.

Discussion and Recommendations for Future Research

While other studies have investigated recreationists' standards for ecological impacts, there has been a limited number of studies that have evaluated how campers' place attachment and motivations for use influence their evaluation of site conditions. In addition, effective environmental resource management requires understanding both current conditions and users' perceptions of current conditions as a basis for sound management practices. Therefore, this study evaluated how place attachment and motivations for use influenced campers' evaluations of ecological impacts, related to the acceptability of campsite conditions, and how the presence of litter (relative to the presence of other ecological impacts) influenced their normative evaluations of ecological conditions.

The study results indicate that place dependence and motivations for use did not

influence campers' normative standards, but campers' who reported that litter more negatively influenced their experience also reported lower levels of acceptability with degraded conditions. Results also indicate that campers with high place identity tended to rate current conditions as more acceptable. These findings provide many points for discussion.

Study Limitations and Confounding Variables

Study limitations and confounding variables that unfolded throughout the research process were:

1. Recreational vehicles (RV) and trailers were left behind to informally 'reserve' sites. This limited the number of respondents approached at these sites.
2. Number of sites approached for respondent participation increased several times throughout data collection in which recreationists previously at these sites were not approached. This was mainly due to the high number of RV and trailers left behind and campers staying for long periods of time.
3. Data collection occurred during peak season (May-August); therefore, off-season recreationists may not be represented.
4. Most of the respondents in the study are recreationists that have used the area for 3 years or less. This suggests potential displacement of recreationists who have used this area beyond this time length.
5. Different recreationists user types were not investigated (e.g., ATV, motorcycle, RV, camping, fishing) and may have different normative standards for site conditions.

6. Conflict of different recreation user types were not investigated and may or may not influence results of this study.

Campers' Evaluation of Site Conditions

In the photos used in this study, Photo 1 signified pristine campsite conditions, whereas Photo 5 represented highly degraded conditions. There was high agreement in visitor responses; Photo 1 was preferred and Photo 4 and 5 were very unacceptable. Disagreements among campers occurred for Photos 2 and 3 as the level of acceptability varied as indicated by higher PCI² levels. This indicates strong condition preferences between pristine and severe impacts among campers in this area in which a norm for current conditions has been established and currently exists (Shelby, Vaske, & Donnelly, 1996). Specifying these norms provides assistance to managers by informing potential management practices to attend to visitor preferences while protecting recreation resources (Manning et al., 2004; Shelby et al., 1992). Some management practices that may be necessary based on these norms include site mitigation, site closure, or site recovery through different approaches such as minimizing litter or intersite displacement.

Future research might identify whether random or chronological photo order is most effective for studying campers' evaluations of site conditions as different subjects in outdoor recreation have been more effective with random photo order. For example, in crowding studies, random photo order is effective because the photos focus on number of people at one time (Manning, 2011). However, when studying campers' evaluations of site conditions, a lot of impacts are being viewed at one time. It is unknown what respondents are perceiving and evaluating when there is more than one impact present in a given photo (Manning, 2011).

Among the different impacts addressed in the study, litter was the only impact that influenced campers' evaluations of campsite conditions (Moore et al., 2012; Van Riper et al., 2010). Similarly, the Manning et al. (2004) study concluded that recreationists were satisfied with site conditions except for litter. Also, Heywood and Murdock's (2001) study established that when litter stood alone and was measured without other impacts, recreationists reported a strong norm against littering. Therefore, in this current study, campers' normative standards for site conditions may be heavily influenced by the presence of litter rather than campsite conditions as a whole (Vaske et al., 1986). These results contribute to recreation resource management as it was identified that litter had the only influence on recreationists' normative standards. Additionally, recreationists were able to identify that litter does in fact negatively influence their experience.

However, recreationists may not be noticing other impacts when litter is present as literature has suggested that ecological impacts such as vegetation loss and tree damage negatively influenced recreationists experiences (Roggenbuck et al., 1993; Shafer & Hammitt, 1995). Additionally, climbers at Adirondack Park identified that litter, in addition to other ecological impacts, negatively influenced recreationists experiences (Monz et al., 2005). In fact, several studies revealed that a majority of recreationists were aware and noticed impacts but had no influence on their experience (Hardiman & Burgin, 2010; Van Riper et al., 2010). This suggests that management should use processes for litter control as it may eliminate unnecessary influence on recreationists and minimize further damage to ecological resources. As part of this process, interpretation services should emphasize how recreation impacts the

environment and what recreationists can do to minimize their impact.

It may also be valuable to separate litter from other campsite impacts when measuring campers' evaluations of those conditions (Heywood & Murdock, 2001). Studies focusing on campsite conditions could be replicated using different variables to identify different influences that are present and identifying what should be incorporated into the photos. This will allow managers to focus on specific impacts that influence recreationists and eliminate bias when evaluating campsite conditions. Particularly, separating variables is also necessary because research remains inconsistent in relation to what ecological impacts positively or negatively influence the visitor experience (Roggenbuck et al., 1993; Shafer & Hammitt, 1995; Shelby et al., 1988; White et al., 2001).

Nonetheless, to replicate this study and increase generalizability of the findings, other considerations should be taken into account when extending this research. First, the use of visual methods in outdoor recreation research can be further developed by separating unnatural impacts (e.g., litter, vandalism, human waste) and ecological impacts (e.g., soil compaction, vegetation loss, tree damage) when incorporating visual methods (Heywood & Murdock, 2001; Hull & Stewart, 1992; Manning & Freimund, 2004; Newman et al., 2001). If possible, a useful approach would be to identify the impacts needed to be measured and solely measure those impacts using visual methods rather than using many impacts as a whole, since one specific impact may bias how recreationists evaluate campsite conditions (Laven et al., 2005; Valliere et al., 1999). To strengthen such research, the next approach would be to replicate this study by administering two separate questionnaires to identify the normative standards for litter

and normative standards for ecological impacts to see if the results would be the same. Replicating this study would also further validate the use of visual methods for measuring normative standards to identify if only one or multiple variables should be measured to accurately assess campers' evaluations of impacts.

Social Factors

The results also indicate that campers visiting F.R. 085 are attached to the area and report high motives to socialize, enjoy nature, and experience convenience. In contrast, campers have low motives to use equipment. To support campers' condition preferences and gain a better understanding of why certain norms have been established, place attachment was measured against campers' evaluations of site conditions. Place identity had some influence on campers' evaluations of site conditions, whereas place dependence had no influence. In other words, as campers' place identity increased, their acceptability of current conditions increased as well. This indicates that those with high place identity also have an affinity for current conditions and are potentially more accepting of degraded conditions.

If current conditions change, it may negatively influence campers' place identity and they may have to reestablish identity somewhere else (i.e., displacement). Thus, it may be important to maintain current conditions along F.R. 085. However, study results have revealed that a majority of the respondents are new to the area and have been using this area for a short time (3 years or less). This suggests that over time as conditions have degraded, some campers might be leaving the area. Past recreationists did not show up in study results and there is no way to identify or measure whether these recreationists were displaced. However, recreation and disperse camping has been allowed in this area for

many years so it is known that recreationists have used this area; it is a matter of knowing where they went and why they left.

Another speculative cause for displacement may be recreation conflict. To reduce recreation conflict, it may be necessary to encourage recreationists who want natural settings to go elsewhere while equipment users use F.R. 085, as this area has already received severe impact. However, this also encourages displacement for a specific group of recreationists not using equipment, such as ATVs.

Directly opposite from this study, the Kyle et al. (2004) findings suggest that those with higher place identity were more aware of ecological impacts and evaluations of ecological conditions were more negative. However, the Kyle et al. (2004) study focused on hikers, which may have had other factors involved that may not apply to campers. Williams et al. (1992) supports this view as greater place attachment was associated with greater sensitivity to impacts in hikers. However, there was no relationship between place attachment and ecological impacts for river recreationists of the Molalla River Recreation Corridor (White et al., 2008). This reinforces literature as it suggests that results may be site-specific in relation to a specific area or type of user as norms may vary based on these factors or other unknown variables such as recreation conflict.

In this current study, place dependence and motivation had no influence on campers' evaluation of site conditions. This finding is opposite of other studies that concluded that place identity and place dependence both influenced evaluations of site conditions (White et al., 2008). Additionally, campers were highly motivated to use the area for recreation, but their place dependence had no impact on their evaluation of site

conditions. The Kyle et al. (2004) study concluded that those with high place dependence evaluated site conditions less negatively, suggesting that place identity and place dependence should continue to be measured as separate items as results continue to vary. Inconsistencies continue to exist for motivations for use as a factor that influences evaluations of site conditions. For example, climbers of Adirondack Park in New York who had greater values of wilderness were more concerned about ecological impacts, whereas study results showed no relationship between motivations for use and evaluations of site conditions. The study results are similar to some literature in which there was very minimal influence from place identity but overall results were unable to support the inconsistencies of how place attachment and motivation for use contributed to campers' evaluation of site conditions (Budruk et al., 2008, Kyle et al., 2004; Manning, 2011). Therefore, research remains inconclusive regarding how social factors such as place dependence and motivations for use influence normative standards for site conditions (White et al., 2008).

Management Implications

Understanding how campers perceive and evaluate campsite conditions is necessary for managers to create effective plans and policies to address campsite impacts. Recreationists visiting F.R. 085 may not be aware of degraded campsite conditions. Campers' evaluations of campsite conditions can help managers formulate management strategies and actions. Litter, for example, may require relatively more attention than managers thought. Not only did the study uncover that litter was problematic in terms of camper experiences, litter may lead to further campsite impacts. For example, when campers see litter, they may contribute to the impact (thinking it is okay to litter), or

avoid the impact through displacement to a different site or area. However, litter is tangible and manageable when compared to other ecological impacts that may never recover due to high concentrations of recreationists visiting this area (Manning et al., 2004). Ecological impacts such as loss of vegetation would require site recovery, which would necessitate site closure. This would displace campers and potentially cause them to seek new sites, which would then create more impact in the area. In sum, because litter is tangible and highly disturbs recreationists' experiences, managers can focus on addressing management strategies based on inappropriate, avoidable impacts caused by recreationists (D'Antonio, 2010).

There are several approaches for managers to consider regarding litter based on the results of this study. First, given that the majority of campers are local residents (90%), managers might consider emphasizing a 'pack it in, pack it out' approach from *Leave No Trace* principles to minimize impacts from litter and human waste. The use of an educational approach would stress the importance of 'leave no trace' practices (Manning, 2011). With this educational approach, interpretation services should adjust their focus to emphasize how recreation impacts the environment and what recreationists can do to minimize their impact. A suggested approach to accomplish this may be having the Forest Service facilitate volunteer clean up days at sites along F.R. 085 while simultaneously educating recreationists about the importance of 'pack it in, pack it out' and not leaving litter behind. This would also provide an opportunity for managers to establish relationships with recreationists in the area and may also encourage recreationists to assess their own behavior and recognize the stewardship behavior of others.

Second, direct management practices, such as fines, may be less effective as a large percentage of recreationists are first-time campers in the area (44 %). For first-time visitors, it is important to educate and provide information about the proper way to use the area so they can learn and apply what they learned. This also allows for new generations of users to establish new norms for the area. Since long-time visitors to the area have established different norms that may be hard to change, they may require more direct management practices because they are not keeping the area clean. Imposing fines and increasing surveillance might help eliminate the excessive amount of litter left by veteran campers.

Based on results of this study, here are several other possible management strategies for consideration:

- Managers might consider keeping current dispersed campsites available for recreationists to prevent further impact to other areas that would become impacted if recreationists were denied campsites due to recovery or closure.
- Recognizing that campers have high place attachment, managers might consider guaranteeing consistent maintenance, clean up, and education to sustain recreationist expectations and to prevent displacement.
- Because campers were strongly motivated to be with family and friends, to be surrounded by nature, and to experience convenience, managers might consider closing F.R. 085 to camping trailers and recreational vehicles and providing opportunities for equipment users elsewhere.

Conclusion

Recreation areas provide the public with opportunities to interact with their natural environment. Litter, however, often leads to extensive ecological impacts which may influence the quality of outdoor recreation experiences and sustainability of recreational resources. In this study, social factors had no influence on campers' evaluation of site conditions even when they were highly attached and had strong motives to use the area. Ecological impacts also had no influence on campers' evaluations of site conditions with the exception of litter. Understanding recreationists' subjective reasons for evaluating site conditions may potentially assist in preventing further degradation of site conditions, benefit managers, and enhance the quality of recreation of recreation experiences.

CHAPTER 3

FOREST ROAD #085-HOLMAN FLAT RESEARCH SUMMARY

This section was developed for the Pleasant Grove Ranger District and provides detailed descriptive statistics of each section in the questionnaire. This section contains results for: demographics, camper evaluation of site conditions, past-use history, place attachment, motivations for use, and ecological impacts. The results offer support for decision making regarding the management of Forest Road #085 (F.R. 085).

Management Recommendations

- Given that the majority of campers are local residents (90 %), and almost half of the campers using this area are first-time visitors (44 %), managers might consider emphasizing a “pack it in, pack it out” approach from *Leave No Trace* to minimize impacts from litter and human waste. This is important since campers express that litter and human waste negatively influence their experiences.
- Unquestionably, the average camper evaluated their campsite to have minimal or very little impact (Photo 2 and 3) even when site conditions were identified as being severely degraded based on the objective condition class index. Managers might consider keeping current dispersed campsites available for recreationists to prevent further impact to other areas that would become impacted if recreationists were denied campsites due to recovery or closure.

- Recognizing that campers have high place attachment, and that campers strongly identify with this area, managers might consider guaranteeing consistent maintenance, clean up, and education to maintain expectations of recreationists to and to prevent displacement.
- Because campers are strongly motivated to be with family and friends, to be surrounded by nature, and to experience convenience (e.g., low cost, short distance), rather than being motivated to use equipment, managers might consider closing F.R. 085 to camping trailers and recreational vehicles and providing opportunities for equipment users elsewhere. Observations by researchers have shown that those with equipment often leave them at campsites unoccupied for days, denying opportunities for other campers.
- Campers are not consistently using the fire pits established at the sites. Fire pits are being constructed, enlarged, and moved around within site boundaries. This is causing campers to move sleeping quarters elsewhere in the site, causing unnecessary impact to the environment and the visitor experience. Therefore, due to this intrasite displacement, it is necessary to consider increasing the durability of the site by installing permanent fire rings in the popular sites.
- One of the leading complaints from recreationists in this area was related to the number of people leaving their personal equipment to informally 'reserve' their campsite. Many of these informally 'reserved' sites with personal equipment were left through the summer, leaving limited choices for others who want to use the area to camp. Consequently, emphasizing that sites must be occupied may be required to allow for other campers to have a positive experience.

- General enforcement in the area should be increased afterhours and on weekends. Several times as the researcher drove past sites, she witnessed people pulling out a tree by strapping the tree to the back of a truck. When U.S.F.S. representatives or law enforcement are present and seen more often during afterhours, it may lessen this inappropriate behavior, increase safety for recreationists, and protect unnecessary damage to resources.
- Due to the safety of all users of F.R. 085, a sign should be installed at the beginning of this road emphasizing lower speed limits on the first portion of this road where the majority of the dispersed sites exist. This will minimize accidents and ‘dust clouds’ near campsites. If the sign is not enough, then the U.S.F.S. might consider speed patrol during high-use days.

Method

The author of this thesis developed a five-page questionnaire with 18 questions that was distributed during the peak season from May to August 2015. The sample was intended to be representative of campers along F. R. 085. Most questions were closed-ended, and used a 9-point Likert scale. This thesis author and volunteers distributed questionnaires (including consent cover letter) to campers on-site through stratified random probability sampling where 1 person (over 18) from each group of the 34 sampling sites was asked to voluntarily participate. The questionnaire is included in Appendix A, the participant consent cover letter in Appendix B, the sampling calendar in Appendix C, and campsite condition photos used in the questionnaire in Appendix D.

In addition, ecological measurements were captured in the summer of 2014 to evaluate campsite conditions. A dispersed campsite observation sheet (see Appendix E)

was created to track these changes over time. A condition class index was developed to observe changes during the summer of 2015 (Frissell, 1978). The condition class index is located in Appendix F.

Results

Researchers approached 274 campers and collected a total of 234 questionnaires over a 3-month period, yielding a response rate of 86 %. This sample is representative of those who camp along F.R. 085. Descriptive statistics used for this section are included in Appendix G.

Demographics

This section refers to questions 11 through 16 on the questionnaire. The median age for campers was 34, with ages ranging from 18-69 years old. Sixty-two percent of the campers aged from 18 to 40. The percentage of male campers was 45%, whereas 52% were female. Ninety-eight percent of respondents reported living in Utah, with the majority living in Salt Lake County (47%) and Utah County (43%). The proportion of campers with some college education or more was 71%, while 14 % had a graduate degree. The majority of campers self-identified as “White” (81%), while 5% self-identified as “Hispanic,” and 7% self-identified as “Other.” The greater part of the respondents reported making less than \$149,999 (84.3 %) in household income annually, with 11% of the respondents reporting an income under \$25,000. Overall, campers at F.R. 085 are White, middle class, young adults who live along the Wasatch Front and have access to the area.

Past-use History

This section assessed campers' previous use of the area (question 1a through 1d). Nearly half of overnight campsite recreationists were camping at F.R. 085 for the first time (44%). The greater part of the respondents reported that they have been using F.R. 085 for 3 years or less (59%). This finding suggests that some displacement may have already occurred at Holman Flats. Respondents also reported visiting 1-3 times per year (78 %) and each overnight camping trip is 1-3 days on average (82%). Respondents reported their main activities to be: camping (44%), 4X4 (13%), relaxing (13%), hiking (10%), fishing (9%), river/lake (3%), and other (8%). Respondents' secondary activities were hiking (27%), fishing (19%), 4X4 (13%), river/lake (12%), camping (8%), relaxing (7%), fire (4%), and other (11%).

Campers Evaluation of Campsite Conditions

This section addresses questions 2 through 7 on the questionnaire, which identified campers' perceptions of campsite conditions and associated ecological impacts (see Figure 3.1). While viewing each campsite condition photograph, campers were asked to identify the number that indicated the level of acceptability (-4 = very unacceptable, and +4 = very acceptable). The respondents reported that Photo 1 ($M=3.52$, $SD=1.34$), and Photo 2 ($M=0.81$, $SD=2.58$) portrayed acceptable campsite conditions. However, Photo 3 ($M= -1.81$, $SD=2.38$), Photo 4 ($M= -2.89$, $SD=1.71$), and Photo 5 ($M= -3.45$, $SD=1.38$) portrayed unacceptable campsite conditions. In other words, as campsite conditions worsen across photographs, campers' report decreased acceptability of conditions. The following results describe respondents' photo choice for different

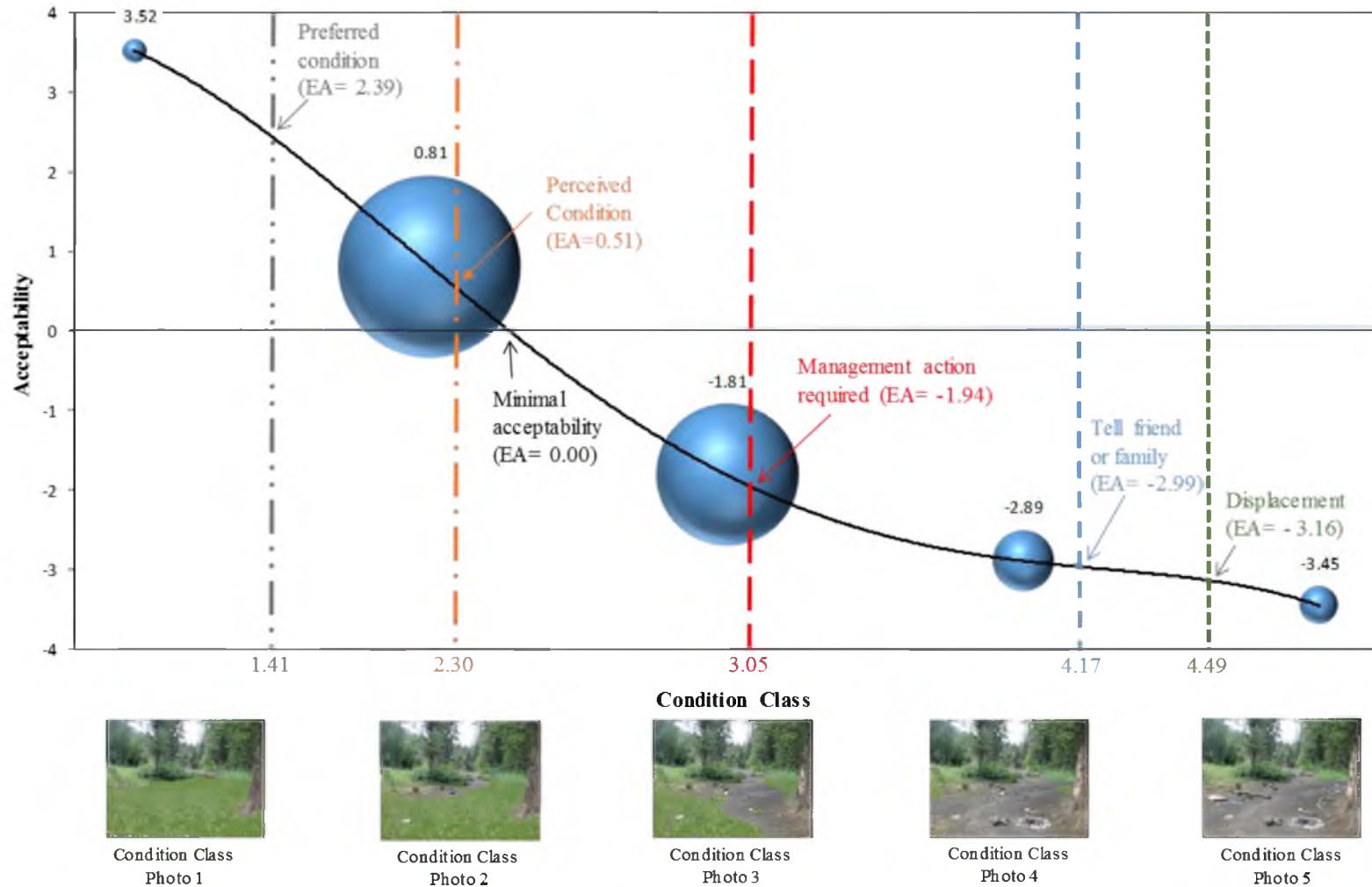


Figure 3.1 Social norm curve with condition class acceptability for litter. EA=estimated acceptability of conditions based on ratio relationships.

Note. The size of the ball denotes the norm crystallization (PCI^2), or in this case, the level of campers' agreement regarding the evaluation of a photograph. The PCI^2 ranges from 0 (minimum) to 1 (maximum) agreement level.

circumstances. The means are based on estimated photograph numbers and not acceptability levels. They are as follows: campsites conditions you prefer to see ($M_{\text{photo}}=1.41$; between Photo 1 and Photo 2), highest level of impact managers of the area should allow ($M_{\text{photo}}=3.05$, Photo 3), conditions so unacceptable you would tell a friend or family about conditions ($M_{\text{photo}}=4.17$, Photo 4), conditions so unacceptable you would no longer use the site ($M_{\text{photo}}=4.49$; between Photo 4 and Photo 5), and displays current conditions of campsite you occupy ($M_{\text{photo}}=2.30$; between Photo 2 and Photo 3). Campers' prefer very little impact to their campsites (Photo 1) but are willing to tolerate severe impacts before being displaced (Photo 4 and Photo 5). Also, when impacts reach severe levels, campers are likely to tell family and friends. However, the average camper evaluated their current site to have minimal or very little impact (Photo 2 and Photo 3), even when site conditions were classified as severely impacted based on the condition class index.

Place Attachment

This section refers to items 15 through 22 (Question 9), which measured campers' place attachment. Place attachment is how attached a camper is to a specific place (Eder & Arnberger, 2012). The responses for this section were based on a 9-point Likert scale, with -4 = completely disagree, and +4 = completely agree.

The 8 items in the place attachment section form a scale that is intended to measure campers' attachment to place. The place attachment scale includes two dimensions: place identity, described as the recreationists' personal relationship to the environment through individual identity (items 15, 16, 17, 18 on questionnaire), and place dependence, described as goals and functional reasons that connect an individual to

a place (items 19, 20, 21, 22 on questionnaire).

The mean score for place identity was 2.05 ($SD=1.86$), and place dependence was 1.31 ($SD=2.17$). All items were rated positively by at least 88% of respondents. The items that were rated most highly were “I identify strongly with this area” ($M=1.95$; $SD=1.83$), and “this area means a great deal to me” ($M=1.94$; $SD=1.93$). The lowest rated items (but still rated positive overall) were “no other place can compare to this area for the types of recreation activities I do” ($M=0.64$; $SD=2.27$), and “participating in recreation activities in this area is more important to me than doing them in any other area” ($M=0.77$; $SD=2.13$). In general, campers who use this area have moderately high place attachment ($M=1.89$; $SD=0.79$).

Motivations for Use

This section refers to items 23 through 38 (Question 10), which were connected to the stem question “Reason to use this section of Forest Road #085...” The responses were based on a 9-point Likert scale, with -4 = not important at all, and +4 = extremely important.

The 16 items in this section form a scale (Recreation Experience Preference-REP) that is intended to ascertain the recreation preferences of campers. The modified REP scale used in this study includes four motivational dimensions: 1) similar people, described as an emphasis on being with friends and people with similar interests (items 23, 27, 31, 38 on questionnaire); 2) enjoying nature, which includes the themes on enjoying scenery and general nature experiences (items 26, 30, 33, 37 on questionnaire); 3) using equipment, described as a motivation to use equipment for their own benefit or for social reasons such as talking about their equipment (items 24, 29, 32, 35 on

questionnaire); and 4) convenience, identified by questions related to low cost and easy access (items 25, 28, 34, 36 on questionnaire).

For the four motivation domains, respondents' average scores were: enjoy nature ($M=3.43$; $SD=1.01$), convenience ($M=2.84$; $SD=1.26$), social ($M=2.68$; $SD=1.55$), and equipment ($M=0.03$; $SD=2.23$). All domains were rated positive except the equipment domain, which was neutral (most campers are not motivated to use for equipment). More information about the REP can be found in Driver (1983), attached as Appendix H.

Ecological Impacts

This section addresses items 6 to 14 (question 8), and refers to how campsite impacts influence recreationists' camping experience. Respondents were asked to respond according to a 9-point Likert scale, with -4 = negatively influences my experience, and +4 = positively influences my experience.

The items that negatively influence campers' experience are: human waste ($M= -2.89$; $SD=2.13$), litter ($M= -2.69$; $SD=1.99$), loss of vegetation ($M= -1.28$; $SD=2.07$), another campsite connected to your site ($M= -1.16$; $SD=1.92$), and tree damage ($M= -1.13$; $SD=1.93$). Root exposure ($M= -0.37$; $SD=1.38$), multiple fire rings ($M= -0.16$; $SD=1.96$), and site diameter ($M=0.33$; $SD=2.41$) were rated to have no influence on campers' experiences. Compacted soil ($M=0.05$; $SD=1.75$) also had no influence on camper experience.

Condition Class Assessment

Ecological impacts occur from recreational use, which may influence the quality of the recreation experience and the sustainability of the resource. The condition class

index is beneficial for identifying actual conditions of campsites, which is useful for monitoring sites overtime. A comprehensive map used in the study displays condition class numbers for each of the 34 sites (see Figure 3.2). Each condition class was detailed to aide condition class levels displayed on the map (see Figure 3.3; Figure 3.4; Figure 3.5; Figure 3.6).

A majority of the sites are class 3 and 4 in which use is extensive throughout the peak season. Most of those in class 2 have had equipment left in sites for long periods of time, and have thus eliminated use.

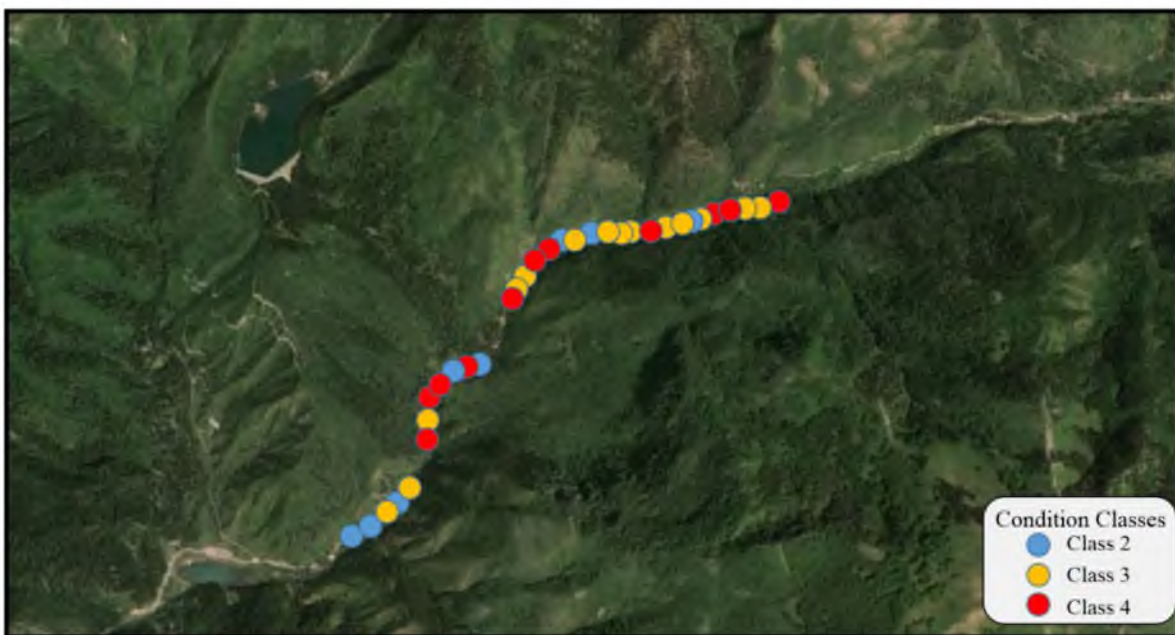


Figure 3.2 Condition Class Index Map



Figure 3.3 Condition class 1. Minimal impact to ground vegetation, soil exposure, and litter; No fire rings or satellite sites. No impact radius visible. No root or tree damage.



Figure 3.4 Condition class 2. Light impact noticeable through ground vegetation, soil exposure, and litter; Fire ring visible and stable; No satellite sites. Impact radius remains stable. No root damage, minimal tree damage.



Figure 3.5 Condition class 3. Moderate impact noticeable through vegetation, soil exposure, and litter; Fire ring unstable and satellite sites may exist. Impact radius increases. Root exposure and tree damage identified.



Figure 3.6 Condition class 4. High impact noticeable through vegetation, soil exposure, and litter; Several fire rings, satellite sites and increased radius of impact. Widespread root exposure and tree damage.

APPENDIX A

STUDY QUESTIONNAIRE

Visitor Perceptions of Campsite Conditions

Important questions for people camping along Forest Road #085



The purpose of this study is to examine visitors' perceptions of campsite conditions along the first mile of Forest Road #085 with the intent of providing information for campsite management decisions.

After you complete this questionnaire, please return it to the field researcher
All responses are confidential and anonymous
Thank you for your cooperation

Conducted by



Researcher use only:

Site Number: _____ Time _____ Date _____ Survey Staff _____ Respondent number _____

SECTION 1: YOUR PAST USE OF THIS AREA

The following questions ask about Forest Road #085, also known as ‘Holman Flat.’ The map below is provided to help you understand the area we refer to as “this section of Forest Road #085.”



1. Please tell us about *your past experience* on this section of Forest Road #085.
 - a. Including this visit, approximately how times in the last year (12 months) have you visited this section of Forest Road #085? _____ # of visits in the last year
 - b. Including this year, how many years (total) have you used this section of Forest Road # 085? _____ # of years
 - c. On average, how many days do you spend camping along section of Forest Road #085 during each visit? _____ # of days
 - d. During this current visit, what are the main activities you have engaged in, or intend to engage in along this section of Forest Road #085?

Primary activity: _____

Secondary activity: _____

SECTION 2: OPINIONS ABOUT CAMPSITE CONDITIONS

2. We would like to know your opinions about campsite conditions along this section of Forest Road #085. To judge this, we have a series of photographs in the binder that display different campsite conditions. Please circle the number that indicates the acceptability of the campsite conditions displayed in each of the five photographs. A rating of -4 means the conditions displayed in the photograph are ‘very unacceptable,’ and a rating of +4 means the conditions are ‘very acceptable.’ (circle one number for each photograph using the categories below)

	Very Unacceptable	Unacceptable	Moderately Unacceptable	Slightly Unacceptable	Neither acceptable or unacceptable	Slightly Acceptable	Moderately Acceptable	Acceptable	Very Acceptable
Photo 1	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 2	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 3	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 4	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 5	-4	-3	-2	-1	0	+1	+2	+3	+4

3. Which photograph most closely displays the campsite conditions that you prefer to see?

Photo number: _____

4. Which photograph displays the highest level of impact that managers of the area should allow? In other words, at what point should managers’ take action to protect the campsite from being more impacted?

Photo number: _____

OR

None of the photographs display a high enough level of impact that the managers of the area should take action

5. Which photograph displays the campsite conditions that are so unacceptable that you would tell a friend or family member about the conditions?

Photo number: _____

OR

None of the photographs are so unacceptable that I would tell a friend or family member

6. Which photograph displays the campsite conditions that are so unacceptable that you would no longer use the site for camping? (if none of the photographs represent this condition, you may indicate that)

Photo number: _____

OR

None of the photographs are so unacceptable that I would no longer use the site for camping

7. Which photograph most closely displays the current conditions of the campsite you occupy?

Photo number: _____

8. Below is a list of different ‘impacts’ that could appear at a campsite. Please circle the number that indicates how the following campsite impacts influence your camping experience. A rating of -4 means the campsite impact ‘negatively influences your experience,’ a rating of +4 means the campsite impact ‘positively influences your experience,’ and a rating of 0 means the campsite impact ‘does not influence your experience’ positively or negatively. (*circle one number per row*)

	Negatively influences my experience ←				Does not influence my experience			→ Positively influences my experience	
	-4	-3	-2	-1	0	1	2	3	4
Loss of vegetation	-4	-3	-2	-1	0	1	2	3	4
Compacted soil	-4	-3	-2	-1	0	1	2	3	4
Tree damage	-4	-3	-2	-1	0	1	2	3	4
Multiple fire rings	-4	-3	-2	-1	0	1	2	3	4
Human waste	-4	-3	-2	-1	0	1	2	3	4
Litter	-4	-3	-2	-1	0	1	2	3	4
Another campsite connected to your site	-4	-3	-2	-1	0	1	2	3	4
Space of overall impact at site	-4	-3	-2	-1	0	1	2	3	4
Root exposure	-4	-3	-2	-1	0	1	2	3	4

SECTION 3: REASONS TO USE THIS AREA

9. Below is a set of statements describing visitors' relationship and feelings about the area along this section of Forest Road #085 (referred to below as the "area" or "here"). Please circle the number that indicates your agreement with the following statements. A rating of -4 means you 'completely disagree' with the statement and a rating of +4 means you 'completely agree' with the statement.

Statement	Completely disagree ← → Completely agree
I identify strongly with this area	-4 -3 -2 -1 0 1 2 3 4
This area is very special to me	-4 -3 -2 -1 0 1 2 3 4
I am very attached to this area	-4 -3 -2 -1 0 1 2 3 4
This area means a great deal to me	-4 -3 -2 -1 0 1 2 3 4
This area is the best place for the recreation activities I like to do	-4 -3 -2 -1 0 1 2 3 4
I enjoy doing recreation activities in this area more than any other location	-4 -3 -2 -1 0 1 2 3 4
Participating in recreation activities in this area is more important to me than doing them in any other area	-4 -3 -2 -1 0 1 2 3 4
No other place can compare to this area for the types of recreation activities I do	-4 -3 -2 -1 0 1 2 3 4

10. Below is a list of reasons that some people use this section of Forest Road #085. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road #085. A rating of -4 means the reason is 'not important at all' and a rating of +4 means the reason is 'extremely important.' (*Circle one number for each row*)

Reason to use this section of Forest Road #085	Not Important at all ← → Extremely Important
To be with friends	-4 -3 -2 -1 0 1 2 3 4
To use your equipment	-4 -3 -2 -1 0 1 2 3 4
Easy to get to	-4 -3 -2 -1 0 1 2 3 4
To view the scenery	-4 -3 -2 -1 0 1 2 3 4
To be with members of your group	-4 -3 -2 -1 0 1 2 3 4
Low cost	-4 -3 -2 -1 0 1 2 3 4
To talk to others about your equipment	-4 -3 -2 -1 0 1 2 3 4
To be close to nature	-4 -3 -2 -1 0 1 2 3 4
To be with people who have similar values	-4 -3 -2 -1 0 1 2 3 4
To compare my equipment with others	-4 -3 -2 -1 0 1 2 3 4
To view scenic beauty	-4 -3 -2 -1 0 1 2 3 4
Relatively free of rules	-4 -3 -2 -1 0 1 2 3 4
To test and use your equipment	-4 -3 -2 -1 0 1 2 3 4
Short driving distance	-4 -3 -2 -1 0 1 2 3 4
To enjoy the smells and sounds of nature	-4 -3 -2 -1 0 1 2 3 4
To be with others who enjoy the same things you do	-4 -3 -2 -1 0 1 2 3 4

SECTION 4: ABOUT YOU

11. What is your zip code? _____

12. In what year were you born? _____

13. What is your gender? (*check one*) Male Female

14. What is the highest level of school you have completed? (*check one*)

- Less than high school Some college Graduate or professional degree
 Some high school Two-year college graduate Do not wish to answer
 High school graduate Four-year college graduate

15. What is your race/ethnicity? (*check all that apply*)

- American Indian or Alaska Native Hawaiian or Pacific Islander Other
 Asian Hispanic or Latino/Latina Do not wish to answer
 Black or African American White

16. Which category best describes your total household income in U.S. dollars during 2014 before taxes? (*check one*)

- Less than \$24,999 \$50,000 to \$74,999 \$150,000 to \$199,999
 \$25,000 to \$34,999 \$75,000 to \$99,999 \$200,000 or more
 \$35,000 to \$49,999 \$100,000 to \$149,999 Do not wish to answer

17. What would you like to change about how Forest Road #085 is managed?

18. Also, please provide any additional comments about your experience in American Fork Canyon.

<p><i>Thank you for your help!</i> If you have questions regarding this study, please contact: Matthew Brownlee, Ph.D. matthew.brownlee@hsc.utah.edu 801-585-7239 University of Utah</p>

APPENDIX B

PARTICIPANT CONSENT COVER LETTER

Consent Form for Forest Road # 085 Visitors Survey

We are inviting you to participate in a research study titled “Visitor perceptions of campsite conditions on Forest Road # 085-Holman Flat of Uinta-Wasatch-Cache National Forest” conducted by the University of Utah. The purpose of this research is to examine visitors’ perceptions of campsite conditions along Forest Road # 085 with the intent of providing information for campsite management decisions.

Your participation will involve completing an anonymous and voluntary questionnaire and answering questions related to your perception of campsite conditions on Forest Road # 085. The amount of time required for your participation will be approximately 10-15 minutes. No involvement in the research after your completion of the questionnaire will be requested or required.

There are no known benefits to you that would result from your participation in this research, however, we hope results of this study will improve society’s understanding of visitor perceptions of campsite conditions and provide recommendations for managers to improve the area.

We will do everything we can to protect your privacy. We do not have access to and are not requesting your personal information, such as your name, address, or any other identifiers that would connect you to the study. You were selected to participate in the study by the use of a random sampling technique. Data from the paper questionnaire will be entered into an electronic database and saved in an encrypted file that is only accessible by the University of Utah.

Your participation in this research study is voluntary. You may choose not to participate and you may withdraw your consent to participate at any time. You will not be penalized in any way should you decide not to participate or to withdraw from this study.

Contact information: If you have any questions, complaints or concerns about this study or if you feel you have been harmed by this research, please contact Dr. Matthew Brownlee at the University of Utah at 801-585-7239 or at matthew.brownlee@hsc.utah.edu.

Contact the Institutional Review Board (IRB) if you have questions regarding your rights as a research participant. Also, contact the IRB if you have questions, complaints or concerns which you do not feel you can discuss with the investigator. The University of Utah IRB may be reached by phone at (801) 581-3655 or by e-mail at irb@hsc.utah.edu.

By returning this questionnaire, you are giving your consent to participate. Thank you.



APPENDIX C

SAMPLE CALENDER

Dispersed Campsite Sampling Schedule

May-15

Sample Dates

Date	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total
	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	
Site 1		Sample date					Sample date		Holiday			Dispersed Campsite Observation		Sample date	
Site 2		Sample date							Sample date				Sample date		
Site 3		Sample date					Sample date		Holiday				Sample date		
Site 4		Sample date							Sample date				Sample date		
Site 5		Sample date					Sample date		Holiday				Sample date		
Site 6		Sample date							Sample date				Sample date		
Site 7				Sample date			Sample date		Holiday				Sample date		
Site 8				Sample date					Sample date				Sample date		
Site 9				Sample date			Sample date		Holiday				Sample date		
Site 10				Sample date					Sample date				Sample date		
Site 11				Sample date			Sample date		Holiday				Sample date		
Site 12				Sample date					Sample date				Sample date		

 Holiday

 Dispersed Campsite Observation

 Sample date

First dispersed campsite observation will occur when gate opens, approximately May 13, 2015

Also only sites chosen for observation will be observed (only 6 sites, not 12)

Dispersed Campsite Sampling Schedule

Jun-15

Sample Dates

Date	30	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	27	Total	
	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Mon	Tues	Wed	Thurs	Fri	Sat		
Site 1			Sample date					Sample date		Dispersed Campsite Observation				Sample date					Sample date					Sample date	Dispersed Campsite Observation		Sample date			
Site 2			Sample date							Dispersed Campsite Observation	Sample date			Sample date		Sample date					Sample date					Dispersed Campsite Observation		Sample date		
Site 3								Sample date		Dispersed Campsite Observation				Sample date						Sample date					Sample date	Dispersed Campsite Observation		Sample date		
Site 4			Sample date							Dispersed Campsite Observation	Sample date			Sample date		Sample date					Sample date					Dispersed Campsite Observation		Sample date		
Site 5			Sample date					Sample date		Dispersed Campsite Observation				Sample date						Sample date					Sample date	Dispersed Campsite Observation		Sample date		
Site 6			Sample date							Dispersed Campsite Observation	Sample date			Sample date		Sample date					Sample date					Dispersed Campsite Observation		Sample date		
Site 7				Sample date				Sample date		Dispersed Campsite Observation			Sample date							Sample date					Sample date	Dispersed Campsite Observation		Sample date		
Site 8				Sample date						Dispersed Campsite Observation	Sample date			Sample date		Sample date					Sample date					Dispersed Campsite Observation		Sample date		
Site 9				Sample date				Sample date		Dispersed Campsite Observation			Sample date							Sample date					Sample date	Dispersed Campsite Observation		Sample date		
Site 10								Sample date		Dispersed Campsite Observation	Sample date			Sample date		Sample date					Sample date					Dispersed Campsite Observation		Sample date		
Site 11								Sample date		Dispersed Campsite Observation			Sample date							Sample date					Sample date	Dispersed Campsite Observation		Sample date		
Site 12				Sample date						Dispersed Campsite Observation	Sample date			Sample date		Sample date					Sample date					Dispersed Campsite Observation		Sample date		

■ Dispersed Campsite Observation
 ■ Sample date

Dispersed Campsite Sampling Schedule

Jul-15

Sample Dates

Date	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Mon	Tues	Wed	Thurs	Fri
Site 1																				
Site 2																				
Site 3																				
Site 4																				
Site 5																				
Site 6																				
Site 7																				
Site 8																				
Site 9																				
Site 10																				
Site 11																				
Site 12																				

 Holiday

 Dispersed Campsite Observation

 Sample date

18	19	20	21	22	23	24	25	26	27	28	29	30	31	110	Total
Sat	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	
█				█	█	█		█						█	
█				█	█	█		█						█	
█				█	█	█		█						█	
█			█	█	█	█		█			█			█	
█			█	█	█	█		█			█			█	
█			█	█	█	█		█			█			█	
█			█	█	█	█		█			█			█	

Dispersed Campsite Sampling Schedule

Aug-15

Sample Dates

Date	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Total	
	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	Mon	Tues	Wed	Thurs	Fri	Sat		
Site 1		Sample date	Dispersed Campsite Observation	Sample date						Sample date					Sample date				Dispersed Campsite Observation	Sample date			
Site 2										Sample date				Sample date							Sample date		
Site 3		Sample date		Sample date						Sample date					Sample date						Sample date		
Site 4										Sample date				Sample date						Dispersed Campsite Observation	Sample date		
Site 5		Sample date	Dispersed Campsite Observation	Sample date						Sample date					Sample date								
Site 6				Sample date						Sample date				Sample date							Sample date		
Site 7		Sample date									Sample date				Sample date		Sample date						
Site 8														Sample date				Sample date					
Site 9		Sample date													Sample date		Sample date						
Site 10														Sample date									
Site 11		Sample date													Sample date		Sample date						
Site 12			Dispersed Campsite Observation											Sample date						Dispersed Campsite Observation			

 Dispersed Campsite Observation

 Sample date

APPENDIX D

COMPUTER-ALTERED PHOTOGRAPHS

Campsite Condition Photo Series



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



APPENDIX E

DISPERSED CAMPSITE OBSERVATION SHEET

Forest Road # 085 Dispersed Campsite Observation Sheet

Site Number: _____ Site Name: _____ GPS Coordinates: _____

Verbal Description: _____

Date: _____

Picture ID # _____

Photographic Sketch of Site _____

% Ground Cover loss: 0 1 2 3 4 5 6 _____
(0=<1%; 1=1-5%; 2=6-25%; 3= 26-50%; 4= 51-75%; 5=76-95%; 6=96-100%)

Tree Damage: None Slight Moderate Severe N/A _____

Hatchet Mark # _____

None, no damage; Slight, broken or cut small branches, one nail, few scars; Moderate, numerous small trunk scars or nails or one moderate scar; Severe, trunk scar with many penetrated into inner wood, any complete girdling of tree; N/A not applicable with no trees.

Root Exposure: None Slight Moderate Severe N/A _____

None, no roots; Slight, typical exposure; Moderate, top half of many major roots exposed more than one foot from base of tree; Severe, three-quarters or more of major roots exposed more than one foot from base of tree; N/A not applicable.

Fire Ring #: _____ **Diameter:** _____

Satellite Site # _____ **Diameter:** _____

Soil Excavations and Trenches: None 1 or 2 2-4 >4 # _____
None; 1 or 2; 2-4 and show slight erosion; >4 some show gullies

Rock Displacement: None 1-5 >5 no constructions >5 with constructions _____
None; 1-5 small rocks moved, no tables or seats; >5 rocks moved no constructions; >5 rocks moved with constructions

Litter: None Little Some Much # _____
None (No waste) little= Less than handful some=less than quart bag Much=More than bagful

Human Waste: None Some Much # _____
None (No waste visible) some= few distinct samples (<5) Much=Many distinct examples (>5)

Toilet Paper: None 1-2 3-4 >4 # _____

Occupied? Y N # _____ **Diameter of Impact:** _____

Comments:

Forest Road # 085 Dispersed Campsite Observation Sheet

Site Number: _____ Site Name: _____ GPS Coordinates:

Verbal Description:

Site Map

Photographic Sketch/Total Campsite Area

Additional Comments, observations, and notes

APPENDIX F

CONDITION CLASS INDEX

Condition Class	Visible Indicators	Description
Class 1	Minimal impact to ground vegetation, soil exposure and litter; No fire rings or satellite sites. No impact radius visible. No root or tree damage.	Minimally damaged riparian area. Riparian area is stable and is not identified as a campsite. Loose soil or flattened vegetation may exist but no observable impact. No root or tree damage.
Class 2	Light impact noticeable through ground vegetation, soil exposure, and litter; Fire ring visible and stable; No satellite sites. Impact radius remains stable. No root damage, minimal tree damage.	Lightly damaged riparian campsite. Riparian campsite is distinguishable. Site loses ground vegetation, soil exposure with no gullies present. Litter remains under a handful <10. One fire ring remains the size and in the same location with ground vegetation deteriorated around fire ring and center of activity use. No satellite sites develop. Re-growth of some vegetation. Impact radius remains consistent. No root exposure, minimal marks on trees <5 hatchet marks.
Class 3	Moderate impact noticeable through vegetation, soil exposure, and litter; Fire ring unstable and satellite sites may exist. Impact radius increases. Root exposure and tree damage identified.	Moderately damaged riparian campsite. Riparian campsite has ground vegetation and soil exposure with possible gullies with site being more than 50% barren. Litter exceeds a handful <30. Fire ring may grow in width and height and new fire rings form. Recognizable satellite site may exist <1. Impact radius increases and ground vegetation is lost on most of site with vegetation present in some areas. Identifiable root exposure, tree damage with nail marks, hatchet marks >10.

Class 4	High impact noticeable through vegetation, soil exposure, and litter; Several fire rings, satellite sites and increased radius of impact. Widespread root exposure and tree damage.	Highly damaged riparian campsite. Riparian campsite has ground vegetation with a loss at >70% making site almost barren. Soil erosion, tree damage, root exposure, and gullies are present. Litter is almost always present and exceeds >30. Always more than one fire ring present, changing moving locations within site. Satellite site exist most of the time and exceed >1. Radius of impact exceeds >70% of the site. Roots exposed in several places, tree damage with nails marks, hatchet marks >20.
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APPENDIX G

DESCRIPTIVE STATISTICS

Visitor Perceptions of Campsite Conditions Questionnaire

Descriptive statistics provided below are based on the questionnaire for this study (see Appendix A). The first part provides specific elements consisting of: valid number of respondents, missing numbers of respondents, mean, median, standard deviation, range, minimum and maximum values for each item in the questionnaire. The second part provides these components: valid, frequency, percent, valid percent and cumulative percent. They are provided for each item in the questionnaire.

To correctly interpret the first part of the descriptive statistics provided below, definitions are as follows:

- Valid: cases without any missing values (e.g., how many respondents appropriately responded to the question).
- Missing: missing values (e.g., respondent who didn't complete question or within range asked in the question).
- Mean: average of all valid numbers for a specific item being measured.
- Median: the middle number of all the numbers for a specific item being measured.
- Std. Deviation: the extent of dispersion of values for a specific item being measured.
- Range: difference in numbers from highest and lowest values for a specific item being measured.
- Minimum: lowest value for specific item being measured.
- Maximum: highest value for specific item being measured.

		1b. Including this year, how many years (total) have you used this section of Forest Road # 085?	1c. On average, how many days do you spend camping along section of Forest Road #085 during each visit?	1d. During this current visit, what are the main activities you have engaged in, or intend to engage in along this section of Forest # 085? Primary Activity	1d. During this current visit, what are the main activities you have engaged in, or intend to engage in along this section of Forest # 085? Secondary Activity
N	Valid	231	232	231	211
	Missing	3	2	3	23
	Mean	6.84	3.01	2.74	4.12
	Median	2.00	2.00	2.00	4.00
	Std. Deviation	9.689	2.707	1.986	2.056
	Range	54	19	6	7
	Minimum	1	1	1	1
	Maximum	55	20	7	8

	2. Please circle the number that indicates the acceptability of the campsite conditions displayed in each of the five photographs. Photo 1	2. Please circle the number that indicates the acceptability of the campsite conditions displayed in each of the five photographs. Photo 2	2. Please circle the number that indicates the acceptability of the campsite conditions displayed in each of the five photographs. Photo 3	2. Please circle the number that indicates the acceptability of the campsite conditions displayed in each of the five photographs. Photo 4	2. Please circle the number that indicates the acceptability of the campsite conditions displayed in each of the five photographs. Photo 5	
N	Valid	226	226	226	226	226
	Missing	8	8	8	8	8
	Mean	3.52	.81	-1.81	-2.89	-3.45
	Median	4.00	2.00	-3.00	-4.00	-4.00
	Std. Deviation	1.344	2.583	2.375	1.716	1.376
	Range	8	8	8	8	8
	Minimum	-4	-4	-4	-4	-4
	Maximum	4	4	4	4	4

	3. Which photograph most closely displays the campsite conditions that you prefer to see?	4. Which photograph displays the highest level of impact that managers of the area should allow?	5. Which photograph displays the campsite conditions that are so unacceptable that you would tell a friend or family member about the conditions?	6. Which photograph displays the campsite conditions that are so unacceptable that you would no longer use the site for camping?	7. Which photograph most closely displays the current conditions of the campsite you occupy?
N Valid	229	216	202	158	221
Missing	5	18	32	76	13
Mean	1.41	3.05	4.17	4.49	2.30
Median	1.00	3.00	5.00	5.00	2.00
Std. Deviation	.693	1.337	1.058	.835	1.045
Variance	.481	1.788	1.119	.697	1.092
Range	4	4	4	4	4
Minimum	1	1	1	1	1
Maximum	5	5	5	5	5

	8. Please circle the number that indicates how the following campsite impacts influence your camping experience. Loss of Vegetation	8. Please circle the number that indicates how the following campsite impacts influence your camping experience. Compacted Soil	8. Please circle the number that indicates how the following campsite impacts influence your camping experience. Tree Damage	8. Please circle the number that indicates how the following campsite impacts influence your camping experience. Multiple Fire Rings	8. Please circle the number that indicates how the following campsite impacts influence your camping experience. Human Waste
N Valid	225	222	222	217	222
Missing	9	12	12	17	12
Mean	-1.28	.05	-1.13	-.16	-2.89
Median	-2.00	.00	-1.00	.00	-4.00
Std. Deviation	2.070	1.748	1.931	1.956	2.132
Range	8	8	8	8	8
Minimum	-4	-4	-4	-4	-4
Maximum	4	4	4	4	4

	8. Please circle the number that indicates how the following campsite impacts influence your camping experience. Litter	8. Please circle the number that indicates how the following campsite impacts influence your camping experience. Satellite Site	8. Please circle the number that indicates how the following campsite impacts influence your camping experience. Site Diameter	8. Please circle the number that indicates how the following campsite impacts influence your camping experience. Root Exposure
N Valid	224	225	224	226
Missing	10	9	10	8
Mean	-2.69	-1.16	.33	-.37
Median	-3.00	-1.00	.00	.00
Std. Deviation	1.988	1.916	2.416	1.377
Range	8	8	8	8
Minimum	-4	-4	-4	-4
Maximum	4	4	4	4

		8. Overall Place Attachment	8. Place Identity	8. Place Dependence
N	Valid	223	224	226
	Missing	11	10	8
Mean		1.89	2.05	1.31
Median		2.00	2.00	1.00
Std. Deviation		.787	1.861	2.164
Range		2	8	8
Minimum		1	-4	-4
Maximum		3	4	4

		9. Please circle the number that indicates your agreement with the following statement. I identify strongly with this area	9. Please circle the number that indicates your agreement with the following statement. This area is very special to me	9. Please circle the number that indicates your agreement with the following statement. I am very attached to this area	9. Please circle the number that indicates your agreement with the following statement. This area means a great deal to me
N	Valid	225	227	226	227
	Missing	9	7	8	7
Mean		1.95	1.90	1.67	1.94
Median		2.00	2.00	2.00	2.00
Std. Deviation		1.882	1.887	1.980	1.932
Range		8	8	8	8
Minimum		-4	-4	-4	-4
Maximum		4	4	4	4

		9. Please circle the number that indicates your agreement with the following statement. This area is the best place for recreation activities I like to do	9. Please circle the number that indicates your agreement with the following statement. I enjoy doing recreation activities in this area more than others	9. Please circle the number that indicates your agreement with the following statement. Participating in recreation activities in this area is more important	9. Please circle the number that indicates your agreement with the following statement. No other place can compare to this area
N	Valid	227	227	226	227
	Missing	7	7	8	7
	Mean	1.80	1.31	.77	.64
	Median	2.00	1.00	.00	.00
	Std. Deviation	2.034	2.148	2.131	2.266
	Range	8	8	8	8
	Minimum	-4	-4	-4	-4
	Maximum	4	4	4	4

		10. Social Motivation	10. Equipment Motivation	10. Nature Motivation	10. Convenience Motivation
N	Valid	222	216	222	223
	Missing	12	18	12	11
	Mean	2.68	.03	3.43	2.84
	Median	3.00	.00	4.00	3.00
	Std. Deviation	1.549	2.227	1.017	1.260
	Variance	2.400	4.957	1.034	1.586
	Range	8	8	7	7
	Minimum	-4	-4	-3	-3
	Maximum	4	4	4	4

	10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To be with friends	10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To use your equipment	10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. Easy to get to	10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To view the scenery	10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To be with members of your group
N Valid	227	227	227	226	226
Missing	7	7	7	8	8
Mean	2.35	1.58	2.60	3.05	2.71
Median	3.00	2.00	3.00	4.00	3.00
Std. Deviation	1.869	2.290	1.781	1.314	1.688
Range	8	8	8	8	8
Minimum	-4	-4	-4	-4	-4
Maximum	4	4	4	4	4

	10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. Low cost	10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To talk to others about your equipment	10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To be close to nature	10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To be with people who have similar values	10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To compare my equipment with others
N Valid	226	221	227	223	225
Missing	8	13	7	11	9
Mean	3.08	-.75	3.24	2.01	-1.17
Median	4.00	.00	4.00	3.00	.00
Std. Deviation	1.460	2.517	1.199	2.158	2.500
Range	7	8	7	8	8
Minimum	-3	-4	-3	-4	-4
Maximum	4	4	4	4	4

	10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To view scenic beauty	10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. Relatively free of rules	10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To test and use your equipment	10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. Short driving distance	10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To enjoy the smells and sounds of nature	10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To be with others who enjoy the same things
N Valid	224	226	223	225	226	227
Missing	10	8	11	9	8	7
Mean	3.18	1.91	.61	2.64	3.34	2.73
Median	4.00	3.00	.00	3.00	4.00	3.00
Std. Deviation	1.338	2.092	2.592	1.765	1.047	1.774
Range	8	8	8	8	6	8
Minimum	-4	-4	-4	-4	-2	-4
Maximum	4	4	4	4	4	4

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To correctly interpret the second part of the descriptive statistics provided below, definitions are as follows:

- Valid: cases without any missing values (e.g., value of given response, for example in 1. Past-use history, the different valid numbers are the number of times campers' use this area).
- Frequency: number of times a specific value falls into specific category.
- Percent: total percent of values that fall into specific category.
- Valid Percent: percentage of values that fall into specific category without missing values.
- Cumulative Percent: percent of each region from top to bottom, resulting in 100%.

1. Past-use History

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	25	10.7	10.9	10.9
	4	25	10.7	10.9	21.7
	5	27	11.5	11.7	33.5
	6	17	7.3	7.4	40.9
	7	19	8.1	8.3	49.1
	8	10	4.3	4.3	53.5
	9	8	3.4	3.5	57.0
	10	11	4.7	4.8	61.7
	11	4	1.7	1.7	63.5
	12	4	1.7	1.7	65.2
	13	6	2.6	2.6	67.8
	14	11	4.7	4.8	72.6
	15	4	1.7	1.7	74.3
	16	4	1.7	1.7	76.1
	17	4	1.7	1.7	77.8
	18	5	2.1	2.2	80.0
	19	5	2.1	2.2	82.2
	20	2	.9	.9	83.0
	22	1	.4	.4	83.5
	23	3	1.3	1.3	84.8
	24	4	1.7	1.7	86.5
	25	2	.9	.9	87.4
	26	2	.9	.9	88.3

29	4	1.7	1.7	90.0
30	1	.4	.4	90.4
32	2	.9	.9	91.3
33	1	.4	.4	91.7
34	2	.9	.9	92.6
35	2	.9	.9	93.5
37	1	.4	.4	93.9
38	1	.4	.4	94.3
39	1	.4	.4	94.8
41	1	.4	.4	95.2
43	2	.9	.9	96.1
44	1	.4	.4	96.5
45	1	.4	.4	97.0
50	1	.4	.4	97.4
55	1	.4	.4	97.8
57	1	.4	.4	98.3
63	1	.4	.4	98.7
65	1	.4	.4	99.1
73	1	.4	.4	99.6
81	1	.4	.4	100.0
Total	230	98.3	100.0	
Missing System	4	1.7		
Total	234	100.0		

1a. Including this visit, approximately how times in the last year (12 months) have you visited this section of Forest Road # 085?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	101	43.2	43.7	43.7
	2	52	22.2	22.5	66.2
	3	28	12.0	12.1	78.4
	4	13	5.6	5.6	84.0
	5	8	3.4	3.5	87.4
	6	6	2.6	2.6	90.0
	8	4	1.7	1.7	91.8
	9	2	.9	.9	92.6
	10	7	3.0	3.0	95.7
	11	1	.4	.4	96.1
	12	2	.9	.9	97.0
	14	1	.4	.4	97.4
	15	1	.4	.4	97.8
	20	2	.9	.9	98.7
	25	1	.4	.4	99.1
	30	1	.4	.4	99.6
	40	1	.4	.4	100.0
	Total	231	98.7	100.0	
Missing	System	3	1.3		
Total		234	100.0		

1b. Including this year, how many years (total) have you used this section of Forest Road # 085?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	82	35.0	35.5	35.5
	2	35	15.0	15.2	50.6
	3	20	8.5	8.7	59.3
	4	2	.9	.9	60.2
	5	18	7.7	7.8	68.0
	6	3	1.3	1.3	69.3
	7	3	1.3	1.3	70.6
	8	5	2.1	2.2	72.7
	9	2	.9	.9	73.6
	10	24	10.3	10.4	84.0
	11	2	.9	.9	84.8
	14	1	.4	.4	85.3
	15	6	2.6	2.6	87.9
	18	2	.9	.9	88.7
	19	1	.4	.4	89.2
	20	9	3.8	3.9	93.1
	21	1	.4	.4	93.5
	24	2	.9	.9	94.4
	25	1	.4	.4	94.8
	29	1	.4	.4	95.2
	30	2	.9	.9	96.1
	35	1	.4	.4	96.5
	40	4	1.7	1.7	98.3
	42	1	.4	.4	98.7
	47	1	.4	.4	99.1
	50	1	.4	.4	99.6
	55	1	.4	.4	100.0
	Total	231	98.7	100.0	
Missing	System	3	1.3		
Total		234	100.0		

1c. On average, how many days do you spend camping along section of Forest Road #085 during each visit?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	47	20.1	20.3	20.3
	2	76	32.5	32.8	53.0
	3	68	29.1	29.3	82.3
	4	18	7.7	7.8	90.1
	5	5	2.1	2.2	92.2
	7	4	1.7	1.7	94.0
	8	2	.9	.9	94.8
	9	1	.4	.4	95.3
	10	2	.9	.9	96.1
	11	2	.9	.9	97.0
	14	6	2.6	2.6	99.6
	20	1	.4	.4	100.0
	Total	232	99.1	100.0	
Missing	System	2	.9		
Total		234	100.0		

1d. During this current visit, what are the main activities you have engaged in, or intend to engage in along this section of Forest # 085? Primary Activity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Camping	101	43.2	43.7	43.7
	4X4	31	13.2	13.4	57.1
	Hiking	24	10.3	10.4	67.5
	Fishing	21	9.0	9.1	76.6
	Relaxing	29	12.4	12.6	89.2
	River/lake	7	3.0	3.0	92.2
	Other	18	7.7	7.8	100.0
	Total	231	98.7	100.0	
Missing	System	3	1.3		
Total		234	100.0		

1d. During this current visit, what are the main activities you have engaged in, or intend to engage in along this section of Forest # 085? Secondary Activity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Camping	17	7.3	8.1	8.1
	4X4	27	11.5	12.8	20.9
	Hiking	56	23.9	26.5	47.4
	Fishing	39	16.7	18.5	65.9
	Relaxing	14	6.0	6.6	72.5
	River/lake	26	11.1	12.3	84.8
	Fire	8	3.4	3.8	88.6
	Other	24	10.3	11.4	100.0
	Total	211	90.2	100.0	
Missing	System	23	9.8		
Total		234	100.0		

2. Please circle the number that indicates the acceptability of the campsite conditions displayed in each of the five photographs.

Photo 1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4 = very unacceptable	3	1.3	1.3	1.3
	-3	1	.4	.4	1.8
	-1	2	.9	.9	2.7
	0	6	2.6	2.7	5.3
	1	3	1.3	1.3	6.6
	2	5	2.1	2.2	8.8
	3	25	10.7	11.1	19.9
	4 = very acceptable	181	77.4	80.1	100.0
	Total	226	96.6	100.0	
Missing	System	8	3.4		
Total		234	100.0		

**2. Please circle the number that indicates the acceptability of the
campsite conditions displayed in each of the five photographs.**

Photo 2

-4 = very unacceptable 4 =very acceptable		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	11	4.7	4.9	4.9
	-3	29	12.4	12.8	17.7
	-2	16	6.8	7.1	24.8
	-1	28	12.0	12.4	37.2
	0	4	1.7	1.8	38.9
	1	17	7.3	7.5	46.5
	2	31	13.2	13.7	60.2
	3	66	28.2	29.2	89.4
	4	24	10.3	10.6	100.0
	Total	226	96.6	100.0	
Missing	System	8	3.4		
Total		234	100.0		

**2. Please circle the number that indicates the acceptability of the
campsite conditions displayed in each of the five photographs.**

Photo 3

-4 = very unacceptable 4 =very acceptable		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	70	29.9	31.0	31.0
	-3	53	22.6	23.5	54.4
	-2	26	11.1	11.5	65.9
	-1	23	9.8	10.2	76.1
	0	4	1.7	1.8	77.9
	1	22	9.4	9.7	87.6
	2	9	3.8	4.0	91.6
	3	11	4.7	4.9	96.5
	4	8	3.4	3.5	100.0
	Total	226	96.6	100.0	
Missing	System	8	3.4		
Total		234	100.0		

2. Please circle the number that indicates the acceptability of the campsite conditions displayed in each of the five photographs.

Photo 4

-4 = very unacceptable 4 =very acceptable		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	114	48.7	50.4	50.4
	-3	59	25.2	26.1	76.5
	-2	23	9.8	10.2	86.7
	-1	10	4.3	4.4	91.2
	0	4	1.7	1.8	92.9
	1	3	1.3	1.3	94.2
	2	7	3.0	3.1	97.3
	3	5	2.1	2.2	99.6
	4	1	.4	.4	100.0
	Total	226	96.6	100.0	
Missing	System	8	3.4		
Total		234	100.0		

2. Please circle the number that indicates the acceptability of the campsite conditions displayed in each of the five photographs.

Photo 5

-4 = very unacceptable 4 =very acceptable		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	175	74.8	77.4	77.4
	-3	26	11.1	11.5	88.9
	-2	7	3.0	3.1	92.0
	-1	7	3.0	3.1	95.1
	0	2	.9	.9	96.0
	1	3	1.3	1.3	97.3
	2	3	1.3	1.3	98.7
	3	2	.9	.9	99.6
	4	1	.4	.4	100.0
	Total	226	96.6	100.0	
Missing	System	8	3.4		
Total		234	100.0		

3. Which photograph most closely displays the campsite conditions that you prefer to see?

1 = pristine 5 = high impact		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	152	65.0	66.4	66.4
	2	66	28.2	28.8	95.2
	3	6	2.6	2.6	97.8
	4	3	1.3	1.3	99.1
	5	2	.9	.9	100.0
	Total	229	97.9	100.0	
Missing	System	5	2.1		
Total		234	100.0		

4. Which photograph displays the highest level of impact that managers of the area should allow?

0 = none 1 = pristine 5 = high impact		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	21	9.0	9.7	9.7
	2	73	31.2	33.8	43.5
	3	47	20.1	21.8	65.3
	4	24	10.3	11.1	76.4
	5	51	21.8	23.6	100.0
	Total	216	92.3	100.0	
Missing	0	13	5.6		
	System	5	2.1		
	Total	18	7.7		
Total		234	100.0		

5. Which photograph displays the campsite conditions that are so unacceptable that you would tell a friend or family member about the conditions?

0 = none 1 = pristine 5 = high impact		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6	2.6	3.0	3.0
	2	9	3.8	4.5	7.4
	3	35	15.0	17.3	24.8
	4	46	19.7	22.8	47.5
	5	106	45.3	52.5	100.0
	Total	202	86.3	100.0	
Missing	0	27	11.5		
	System	5	2.1		
	Total	32	13.7		
Total		234	100.0		

6. Which photograph displays the campsite conditions that are so unacceptable that you would no longer use the site for camping?

0 = none 1 = pristine 5 = high impact		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	2	.9	1.3	1.3
	2	1	.4	.6	1.9
	3	20	8.5	12.7	14.6
	4	30	12.8	19.0	33.5
	5	105	44.9	66.5	100.0
	Total	158	67.5	100.0	
Missing	0	67	28.6		
	System	9	3.8		
	Total	76	32.5		
Total		234	100.0		

7. Which photograph most closely displays the current conditions of the campsite you occupy?

1 = pristine 5 = high impact		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	42	17.9	19.0	19.0
	2	117	50.0	52.9	71.9
	3	25	10.7	11.3	83.3
	4	28	12.0	12.7	95.9
	5	9	3.8	4.1	100.0
	Total	221	94.4	100.0	
Missing	System	13	5.6		
Total		234	100.0		

8. Please circle the number that indicates how the following campsite impacts influence your camping experience.

Loss of Vegetation

-4 = negative influence 4 = positive influence		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	35	15.0	15.6	15.6
	-3	34	14.5	15.1	30.7
	-2	46	19.7	20.4	51.1
	-1	33	14.1	14.7	65.8
	0	48	20.5	21.3	87.1
	1	3	1.3	1.3	88.4
	2	11	4.7	4.9	93.3
	3	6	2.6	2.7	96.0
	4	9	3.8	4.0	100.0
	Total	225	96.2	100.0	
Missing	System	9	3.8		
Total		234	100.0		

**8. Please circle the number that indicates how the following
campsite impacts influence your camping experience.**

Compacted Soil

-4 = negative influence 4 = positive influence		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	8	3.4	3.6	3.6
	-3	11	4.7	5.0	8.6
	-2	14	6.0	6.3	14.9
	-1	24	10.3	10.8	25.7
	0	112	47.9	50.5	76.1
	1	10	4.3	4.5	80.6
	2	21	9.0	9.5	90.1
	3	11	4.7	5.0	95.0
	4	11	4.7	5.0	100.0
	Total	222	94.9	100.0	
Missing	System	12	5.1		
Total		234	100.0		

**8. Please circle the number that indicates how the following
campsite impacts influence your camping experience.**

Tree Damage

-4 = negative influence 4 = positive influence		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	26	11.1	11.7	11.7
	-3	34	14.5	15.3	27.0
	-2	30	12.8	13.5	40.5
	-1	50	21.4	22.5	63.1
	0	58	24.8	26.1	89.2
	1	5	2.1	2.3	91.4
	2	5	2.1	2.3	93.7
	3	5	2.1	2.3	95.9
	4	9	3.8	4.1	100.0
	Total	222	94.9	100.0	
Missing	System	12	5.1		
Total		234	100.0		

**8. Please circle the number that indicates how the following
campsite impacts influence your camping experience.**

Multiple Fire Rings

-4 = negative influence 4 = positive influence		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	12	5.1	5.5	5.5
	-3	16	6.8	7.4	12.9
	-2	20	8.5	9.2	22.1
	-1	30	12.8	13.8	35.9
	0	84	35.9	38.7	74.7
	1	14	6.0	6.5	81.1
	2	19	8.1	8.8	89.9
	3	8	3.4	3.7	93.5
	4	14	6.0	6.5	100.0
	Total	217	92.7	100.0	
Missing	System	17	7.3		
Total		234	100.0		

**8. Please circle the number that indicates how the following
campsite impacts influence your camping experience.**

Human Waste

-4 = negative influence 4 = positive influence		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	141	60.3	63.5	63.5
	-3	36	15.4	16.2	79.7
	-2	11	4.7	5.0	84.7
	-1	7	3.0	3.2	87.8
	0	9	3.8	4.1	91.9
	1	3	1.3	1.4	93.2
	2	1	.4	.5	93.7
	3	1	.4	.5	94.1
	4	13	5.6	5.9	100.0
	Total	222	94.9	100.0	
Missing	System	12	5.1		
Total		234	100.0		

**8. Please circle the number that indicates how the following
campsite impacts influence your camping experience.**

Litter

-4 = negative influence 4 = positive influence		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	110	47.0	49.1	49.1
	-3	50	21.4	22.3	71.4
	-2	26	11.1	11.6	83.0
	-1	12	5.1	5.4	88.4
	0	9	3.8	4.0	92.4
	1	4	1.7	1.8	94.2
	2	1	.4	.4	94.6
	3	3	1.3	1.3	96.0
	4	9	3.8	4.0	100.0
	Total	224	95.7	100.0	
Missing	System	10	4.3		
Total		234	100.0		

**8. Please circle the number that indicates how the following
campsite impacts influence your camping experience.**

Satellite Site

-4 = negative influence 4 = positive influence		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	25	10.7	11.1	11.1
	-3	32	13.7	14.2	25.3
	-2	46	19.7	20.4	45.8
	-1	40	17.1	17.8	63.6
	0	57	24.4	25.3	88.9
	1	6	2.6	2.7	91.6
	2	4	1.7	1.8	93.3
	3	7	3.0	3.1	96.4
	4	8	3.4	3.6	100.0
	Total	225	96.2	100.0	
Missing	System	9	3.8		
Total		234	100.0		

		12. What is your age?	13. What is your gender?	14. What is the highest level of school you have completed?	15. What is your race/ethnicity?	16. Which category best describes your total household income in U.S. dollars during 2014 before taxes?
N	Valid	224	229	230	231	228
	Missing	10	5	4	3	6
	Mean	36.81	1.50	4.75	6.03	4.34
	Median	34.00	2.00	4.00	6.00	4.00
	Std. Deviation	12.147	.551	1.571	.920	2.425
	Range	54	2	7	7	8
	Minimum	15	0	1	1	1
	Maximum	69	2	8	8	9

9. Place Attachment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strong attachment	82	35.0	36.8	36.8
	Moderate attachment	83	35,5	37.2	100.0
	Low attachment	58	24,8	26,0	62.8
	Total	223	95.3	100.0	
Missing	System	11	4.7		
Total		234	100.0		

9. Place Identity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low identity	2	.9	.9	.9
	-3	9	3.8	4.0	4.9
	-2	2	.9	.9	5.8
	-1	4	1.7	1.8	7.6
	0	21	9.0	9.4	17.0
	1	39	16.7	17.4	34.4
	2	36	15.4	16.1	50.4
	3	53	22.6	23.7	74.1
	High identity	58	24.8	25.9	100.0
	Total	224	95.7	100.0	
Missing	System	10	4.3		
Total		234	100.0		

9. Place Dependence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low dependence	7	3.0	3.1	3.1
	-3	12	5.1	5.3	8.4
	-2	6	2.6	2.7	11.1
	-1	17	7.3	7.5	18.6
	0	26	11.1	11.5	30.1
	1	51	21.8	22.6	52.7
	2	26	11.1	11.5	64.2
	3	39	16.7	17.3	81.4
	High dependence	42	17.9	18.6	100.0
	Total	226	96.6	100.0	
Missing	System	8	3.4		
Total		234	100.0		

9. Please circle the number that indicates your agreement with the following statement. I identify strongly with this area

-4 = completely disagree 4 = completely agree		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	4	1.7	1.8	1.8
	-3	3	1.3	1.3	3.1
	-2	4	1.7	1.8	4.9
	-1	5	2.1	2.2	7.1
	0	40	17.1	17.8	24.9
	1	24	10.3	10.7	35.6
	2	43	18.4	19.1	54.7
	3	42	17.9	18.7	73.3
	4	60	25.6	26.7	100.0
	Total	225	96.2	100.0	
Missing	System	9	3.8		
Total		234	100.0		

9. Please circle the number that indicates your agreement with the following statement. This area is very special to me

-4 = completely disagree 4 = completely agree		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	3	1.3	1.3	1.3
	-3	3	1.3	1.3	2.6
	-2	6	2.6	2.6	5.3
	-1	4	1.7	1.8	7.0
	0	44	18.8	19.4	26.4
	1	28	12.0	12.3	38.8
	2	40	17.1	17.6	56.4
	3	36	15.4	15.9	72.2
	4	63	26.9	27.8	100.0
	Total	227	97.0	100.0	
Missing	System	7	3.0		
Total		234	100.0		

9. Please circle the number that indicates your agreement with the following statement. I am very attached to this area

-4 = completely disagree 4 = completely agree		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	5	2.1	2.2	2.2
	-3	3	1.3	1.3	3.5
	-2	7	3.0	3.1	6.6
	-1	3	1.3	1.3	8.0
	0	56	23.9	24.8	32.7
	1	26	11.1	11.5	44.2
	2	40	17.1	17.7	61.9
	3	27	11.5	11.9	73.9
	4	59	25.2	26.1	100.0
	Total	226	96.6	100.0	
Missing	System	8	3.4		
Total		234	100.0		

9. Please circle the number that indicates your agreement with the following statement. This area means a great deal to me

-4 = completely disagree 4 = completely agree		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	5	2.1	2.2	2.2
	-3	3	1.3	1.3	3.5
	-2	3	1.3	1.3	4.8
	-1	5	2.1	2.2	7.0
	0	44	18.8	19.4	26.4
	1	22	9.4	9.7	36.1
	2	42	17.9	18.5	54.6
	3	38	16.2	16.7	71.4
	4	65	27.8	28.6	100.0
	Total	227	97.0	100.0	
Missing	System	7	3.0		
Total		234	100.0		

9. Please circle the number that indicates your agreement with the following statement. This is the best place for recreation activities I like to do

-4 = completely disagree 4 = completely agree		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	4	1.7	1.8	1.8
	-3	5	2.1	2.2	4.0
	-2	10	4.3	4.4	8.4
	-1	7	3.0	3.1	11.5
	0	37	15.8	16.3	27.8
	1	26	11.1	11.5	39.2
	2	31	13.2	13.7	52.9
	3	50	21.4	22.0	74.9
	4	57	24.4	25.1	100.0
	Total	227	97.0	100.0	
Missing	System	7	3.0		
Total		234	100.0		

9. Please circle the number that indicates your agreement with the following statement. I enjoy doing recreation activities in this area more than others

-4 = completely disagree 4 = completely agree		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	8	3.4	3.5	3.5
	-3	7	3.0	3.1	6.6
	-2	8	3.4	3.5	10.1
	-1	11	4.7	4.8	15.0
	0	55	23.5	24.2	39.2
	1	25	10.7	11.0	50.2
	2	32	13.7	14.1	64.3
	3	36	15.4	15.9	80.2
	4	45	19.2	19.8	100.0
	Total	227	97.0	100.0	
Missing	System	7	3.0		
Total		234	100.0		

9. Please circle the number that indicates your agreement with the following statement. Participating in recreation activities in this area is more important

-4 = completely disagree 4 = completely agree		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	11	4.7	4.9	4.9
	-3	10	4.3	4.4	9.3
	-2	9	3.8	4.0	13.3
	-1	7	3.0	3.1	16.4
	0	85	36.3	37.6	54.0
	1	21	9.0	9.3	63.3
	2	29	12.4	12.8	76.1
	3	22	9.4	9.7	85.8
	4	32	13.7	14.2	100.0
	Total	226	96.6	100.0	
Missing	System	8	3.4		
Total		234	100.0		

9. Please circle the number that indicates your agreement with the following statement. No other place can compare to this area

-4 = completely disagree 4 = completely agree		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	16	6.8	7.0	7.0
	-3	8	3.4	3.5	10.6
	-2	18	7.7	7.9	18.5
	-1	9	3.8	4.0	22.5
	0	67	28.6	29.5	52.0
	1	22	9.4	9.7	61.7
	2	34	14.5	15.0	76.7
	3	23	9.8	10.1	86.8
	4	30	12.8	13.2	100.0
	Total	227	97.0	100.0	
Missing	System	7	3.0		
Total		234	100.0		

10. Social Motivation Domain

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	low social motivation	2	.9	.9	.9
	-3	3	1.3	1.4	2.3
	-2	2	.9	.9	3.2
	-1	3	1.3	1.4	4.5
	0	6	2.6	2.7	7.2
	1	19	8.1	8.6	15.8
	2	40	17.1	18.0	33.8
	3	68	29.1	30.6	64.4
	high social motivation	79	33.8	35.6	100.0
	Total	222	94.9	100.0	
Missing	System	12	5.1		
Total		234	100.0		

10. Equipment Motivation Domain

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	low equipment motivation	16	6.8	7.4	7.4
	-3	25	10.7	11.6	19.0
	-2	15	6.4	6.9	25.9
	-1	28	12.0	13.0	38.9
	0	29	12.4	13.4	52.3
	1	42	17.9	19.4	71.8
	2	30	12.8	13.9	85.6
	3	23	9.8	10.6	96.3
	high equipment motivation	8	3.4	3.7	100.0
	Total	216	92.3	100.0	
Missing	System	18	7.7		
Total		234	100.0		

10. Nature Motivation Domain

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	low nature motivation	1	.4	.5	.5
	-1	2	.9	.9	1.4
	0	4	1.7	1.8	3.2
	1	3	1.3	1.4	4.5
	2	13	5.6	5.9	10.4
	3	58	24.8	26.1	36.5
	high nature motivation	141	60.3	63.5	100.0
	Total	222	94.9	100.0	
Missing	System	12	5.1		
Total		234	100.0		

10. Convenience Motivation Domain

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	low convenience motivation	1	.4	.4	.4
	-2	1	.4	.4	.9
	-1	3	1.3	1.3	2.2
	0	5	2.1	2.2	4.5
	1	21	9.0	9.4	13.9
	2	38	16.2	17.0	30.9
	3	72	30.8	32.3	63.2
	high convenience motivation	82	35.0	36.8	100.0
	Total	223	95.3	100.0	
Missing	System	11	4.7		
Total		234	100.0		

10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To be with friends

-4 = not important 4 = extremely important		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	7	3.0	3.1	3.1
	-3	1	.4	.4	3.5
	-2	3	1.3	1.3	4.8
	-1	3	1.3	1.3	6.2
	0	22	9.4	9.7	15.9
	1	18	7.7	7.9	23.8
	2	38	16.2	16.7	40.5
	3	60	25.6	26.4	67.0
	4	75	32.1	33.0	100.0
	Total	227	97.0	100.0	
Missing	System	7	3.0		
Total		234	100.0		

10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To use your equipment

-4 = not important 4 = extremely important		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	17	7.3	7.5	7.5
	-3	2	.9	.9	8.4
	-2	5	2.1	2.2	10.6
	-1	3	1.3	1.3	11.9
	0	45	19.2	19.8	31.7
	1	16	6.8	7.0	38.8
	2	43	18.4	18.9	57.7
	3	41	17.5	18.1	75.8
	4	55	23.5	24.2	100.0
	Total	227	97.0	100.0	
Missing	System	7	3.0		
Total		234	100.0		

10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. Easy to get to

-4 = not important 4 = extremely important		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	2	.9	.9	.9
	-3	3	1.3	1.3	2.2
	-2	7	3.0	3.1	5.3
	-1	4	1.7	1.8	7.0
	0	15	6.4	6.6	13.7
	1	13	5.6	5.7	19.4
	2	29	12.4	12.8	32.2
	3	62	26.5	27.3	59.5
	4	92	39.3	40.5	100.0
	Total	227	97.0	100.0	
Missing	System	7	3.0		
Total		234	100.0		

10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To view the scenery

-4 = not important 4 = extremely important		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	1	.4	.4	.4
	-2	1	.4	.4	.9
	-1	1	.4	.4	1.3
	0	13	5.6	5.8	7.1
	1	9	3.8	4.0	11.1
	2	31	13.2	13.7	24.8
	3	55	23.5	24.3	49.1
	4	115	49.1	50.9	100.0
	Total	226	96.6	100.0	
Missing	System	8	3.4		
Total		234	100.0		

10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To be with members of your group

-4 = not important 4 = extremely important		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	2	.9	.9	.9
	-3	3	1.3	1.3	2.2
	-2	3	1.3	1.3	3.5
	0	23	9.8	10.2	13.7
	1	11	4.7	4.9	18.6
	2	28	12.0	12.4	31.0
	3	56	23.9	24.8	55.8
	4	100	42.7	44.2	100.0
	Total	226	96.6	100.0	
Missing	System	8	3.4		
Total		234	100.0		

10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. Low cost

-4 = not important 4 = extremely important		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-3	1	.4	.4	.4
	-2	2	.9	.9	1.3
	-1	4	1.7	1.8	3.1
	0	18	7.7	8.0	11.1
	1	5	2.1	2.2	13.3
	2	17	7.3	7.5	20.8
	3	47	20.1	20.8	41.6
	4	132	56.4	58.4	100.0
	Total	226	96.6	100.0	
Missing	System	8	3.4		
Total		234	100.0		

10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To talk to others about your equipment

-4 = not important 4 = extremely important		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	58	24.8	26.2	26.2
	-3	15	6.4	6.8	33.0
	-2	11	4.7	5.0	38.0
	-1	6	2.6	2.7	40.7
	0	70	29.9	31.7	72.4
	1	21	9.0	9.5	81.9
	2	15	6.4	6.8	88.7
	3	11	4.7	5.0	93.7
	4	14	6.0	6.3	100.0
	Total	221	94.4	100.0	
Missing	System	13	5.6		
Total		234	100.0		

10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To be close to nature

-4 = not important 4 = extremely important		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-3	1	.4	.4	.4
	-2	2	.9	.9	1.3
	0	9	3.8	4.0	5.3
	1	4	1.7	1.8	7.0
	2	25	10.7	11.0	18.1
	3	56	23.9	24.7	42.7
	4	130	55.6	57.3	100.0
	Total	227	97.0	100.0	
Missing	System	7	3.0		
Total		234	100.0		

10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To be with people who have similar values

-4 = not important 4 = extremely important		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	10	4.3	4.5	4.5
	-3	2	.9	.9	5.4
	-2	6	2.6	2.7	8.1
	-1	3	1.3	1.3	9.4
	0	35	15.0	15.7	25.1
	1	16	6.8	7.2	32.3
	2	37	15.8	16.6	48.9
	3	37	15.8	16.6	65.5
	4	77	32.9	34.5	100.0
	Total	223	95.3	100.0	
Missing	System	11	4.7		
Total		234	100.0		

10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To compare my equipment with others

-4 = not important 4 = extremely important		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	74	31.6	32.9	32.9
	-3	16	6.8	7.1	40.0
	-2	9	3.8	4.0	44.0
	-1	7	3.0	3.1	47.1
	0	78	33.3	34.7	81.8
	1	12	5.1	5.3	87.1
	2	7	3.0	3.1	90.2
	3	8	3.4	3.6	93.8
	4	14	6.0	6.2	100.0
	Total	225	96.2	100.0	
Missing	System	9	3.8		
Total		234	100.0		

10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To view scenic beauty

-4 = not important 4 = extremely important		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	2	.9	.9	.9
	-2	2	.9	.9	1.8
	-1	1	.4	.4	2.2
	0	9	3.8	4.0	6.3
	1	3	1.3	1.3	7.6
	2	24	10.3	10.7	18.3
	3	57	24.4	25.4	43.8
	4	126	53.8	56.3	100.0
Total		224	95.7	100.0	
Missing	System	10	4.3		
Total		234	100.0		

10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. Relatively free of rules

-4 = not important 4 = extremely important		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	6	2.6	2.7	2.7
	-3	5	2.1	2.2	4.9
	-2	7	3.0	3.1	8.0
	-1	3	1.3	1.3	9.3
	0	45	19.2	19.9	29.2
	1	15	6.4	6.6	35.8
	2	28	12.0	12.4	48.2
	3	52	22.2	23.0	71.2
4	65	27.8	28.8	100.0	
Total		226	96.6	100.0	
Missing	System	8	3.4		
Total		234	100.0		

10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To test and use your equipment

-4 = not important 4 = extremely important		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	30	12.8	13.5	13.5
	-3	9	3.8	4.0	17.5
	-2	8	3.4	3.6	21.1
	-1	4	1.7	1.8	22.9
	0	61	26.1	27.4	50.2
	1	25	10.7	11.2	61.4
	2	19	8.1	8.5	70.0
	3	28	12.0	12.6	82.5
	4	39	16.7	17.5	100.0
	Total	223	95.3	100.0	
Missing	System	11	4.7		
Total		234	100.0		

10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. Short driving distance

-4 = not important 4 = extremely important		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	2	.9	.9	.9
	-2	8	3.4	3.6	4.4
	-1	5	2.1	2.2	6.7
	0	21	9.0	9.3	16.0
	1	9	3.8	4.0	20.0
	2	26	11.1	11.6	31.6
	3	55	23.5	24.4	56.0
	4	99	42.3	44.0	100.0
	Total	225	96.2	100.0	
Missing	System	9	3.8		
Total		234	100.0		

10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To enjoy the smells and sounds of nature

-4 = not important 4 = extremely important		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-2	1	.4	.4	.4
	0	8	3.4	3.5	4.0
	1	5	2.1	2.2	6.2
	2	20	8.5	8.8	15.0
	3	56	23.9	24.8	39.8
	4	136	58.1	60.2	100.0
	Total	226	96.6	100.0	
Missing	System	8	3.4		
Total		234	100.0		

10. Please circle the number that indicates how important each reason is to you in relation to why you recreate on Forest Road # 085. To be with others who enjoy the same things

-4 = not important 4 = extremely important		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-4	4	1.7	1.8	1.8
	-3	1	.4	.4	2.2
	-2	4	1.7	1.8	4.0
	-1	1	.4	.4	4.4
	0	21	9.0	9.3	13.7
	1	13	5.6	5.7	19.4
	2	27	11.5	11.9	31.3
	3	44	18.8	19.4	50.7
	4	112	47.9	49.3	100.0
	Total	227	97.0	100.0	
Missing	System	7	3.0		
Total		234	100.0		

11. What is your zip code?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	1.3	1.3	1.3
46005	1	.4	.4	1.7
77346	1	.4	.4	2.1
80220	1	.4	.4	2.6
84003	21	9.0	9.0	11.5
84004	2	.9	.9	12.4
84005	4	1.7	1.7	14.1
84010	1	.4	.4	14.5
84020	5	2.1	2.1	16.7
84032	1	.4	.4	17.1
84037	1	.4	.4	17.5
84042	4	1.7	1.7	19.2
84043	22	9.4	9.4	28.6
84044	4	1.7	1.7	30.3
84045	5	2.1	2.1	32.5
84047	3	1.3	1.3	33.8
84052	1	.4	.4	34.2
84057	13	5.6	5.6	39.7
84058	5	2.1	2.1	41.9
84062	14	6.0	6.0	47.9
84065	1	.4	.4	48.3
84070	4	1.7	1.7	50.0
84074	1	.4	.4	50.4
84075	1	.4	.4	50.9
84081	9	3.8	3.8	54.7
84084	3	1.3	1.3	56.0
84087	1	.4	.4	56.4
84088	4	1.7	1.7	58.1
84090	1	.4	.4	58.5
84092	2	.9	.9	59.4
84093	2	.9	.9	60.3
84094	3	1.3	1.3	61.5
84095	10	4.3	4.3	65.8

84096	5	2.1	2.1	67.9
84097	5	2.1	2.1	70.1
84098	1	.4	.4	70.5
84104	1	.4	.4	70.9
84106	2	.9	.9	71.8
84107	3	1.3	1.3	73.1
84115	3	1.3	1.3	74.4
84116	3	1.3	1.3	75.6
84117	2	.9	.9	76.5
84118	8	3.4	3.4	79.9
84119	9	3.8	3.8	83.8
84120	6	2.6	2.6	86.3
84121	4	1.7	1.7	88.0
84123	2	.9	.9	88.9
84124	1	.4	.4	89.3
84128	1	.4	.4	89.7
84129	4	1.7	1.7	91.5
84401	1	.4	.4	91.9
84403	1	.4	.4	92.3
84404	1	.4	.4	92.7
84601	4	1.7	1.7	94.4
84604	1	.4	.4	94.9
84606	2	.9	.9	95.7
84621	1	.4	.4	96.2
84651	1	.4	.4	96.6
84660	2	.9	.9	97.4
84663	1	.4	.4	97.9
84770	1	.4	.4	98.3
84949	1	.4	.4	98.7
85018	1	.4	.4	99.1
85339	1	.4	.4	99.6
91913	1	.4	.4	100.0
Total	234	100.0	100.0	

12. What is your age?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18	5	2.1	2.3	2.3
	19	6	2.6	2.7	5.0
	20	3	1.3	1.4	6.4
	21	3	1.3	1.4	7.7
	22	4	1.7	1.8	9.5
	23	4	1.7	1.8	11.4
	24	2	.9	.9	12.3
	25	5	2.1	2.3	14.5
	26	8	3.4	3.6	18.2
	27	9	3.8	4.1	22.3
	28	10	4.3	4.5	26.8
	29	9	3.8	4.1	30.9
	30	7	3.0	3.2	34.1
	31	9	3.8	4.1	38.2
	32	8	3.4	3.6	41.8
	33	13	5.6	5.9	47.7
	34	7	3.0	3.2	50.9
	35	6	2.6	2.7	53.6
	36	1	.4	.5	54.1
	37	9	3.8	4.1	58.2
	38	5	2.1	2.3	60.5
	39	1	.4	.5	60.9
	40	7	3.0	3.2	64.1
	41	3	1.3	1.4	65.5
	42	8	3.4	3.6	69.1
	43	4	1.7	1.8	70.9
	44	2	.9	.9	71.8
	45	6	2.6	2.7	74.5
	46	3	1.3	1.4	75.9
	47	5	2.1	2.3	78.2
	48	2	.9	.9	79.1
	49	6	2.6	2.7	81.8
	50	4	1.7	1.8	83.6

51	3	1.3	1.4	85.0
52	2	.9	.9	85.9
53	2	.9	.9	86.8
54	4	1.7	1.8	88.6
55	5	2.1	2.3	90.9
56	2	.9	.9	91.8
57	4	1.7	1.8	93.6
58	3	1.3	1.4	95.0
59	3	1.3	1.4	96.4
61	2	.9	.9	97.3
62	1	.4	.5	97.7
63	3	1.3	1.4	99.1
68	1	.4	.5	99.5
69	1	.4	.5	100.0
Total	220	94.0	100.0	
Missing				
15	1	.4		
17	3	1.3		
System	10	4.3		
Total	14	6.0		
Total	234	100.0		

13. What is your gender?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Other	6	2.6	2.6	2.6
	Male	103	44.0	45.0	47.6
	Female	120	51.3	52.4	100.0
	Total	229	97.9	100.0	
Missing	System	5	2.1		
Total		234	100.0		

14. What is the highest level of school you have completed?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than high school	2	.9	.9	.9
	Some high school	8	3.4	3.5	4.3
	High school graduate	48	20.5	20.9	25.2
	Some college	59	25.2	25.7	50.9
	Two-year college graduate	27	11.5	11.7	62.6
	Four-year college graduate	48	20.5	20.9	83.5
	Graduate or professional degree	33	14.1	14.3	97.8
	Do not wish to answer	5	2.1	2.2	100.0
	Total	230	98.3	100.0	
Total		234	100.0		

15. What is your race/ethnicity?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Native	4	1.7	1.7	1.7
	Asian	1	.4	.4	2.2
	Hispanic	11	4.7	4.8	6.9
	White	186	79.5	80.5	87.4
	other	16	6.8	6.9	94.4
	Do not wish to answer	13	5.6	5.6	100.0
	Total	231	98.7	100.0	
Missing	System	3	1.3		
Total		234	100.0		

16. Which category best describes your total household income in U.S. dollars during 2014 before taxes?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than \$ 24,999	25	10.7	11.0	11.0
	\$25,000 to \$34,999	31	13.2	13.6	24.6
	\$35,000 to \$49,999	35	15.0	15.4	39.9
	\$50,000 to \$74,999	52	22.2	22.8	62.7
	\$75,000 to \$99,999	23	9.8	10.1	72.8
	\$100,000 to \$149,999	26	11.1	11.4	84.2
	\$150,000 to \$199,999	2	.9	.9	85.1
	\$200,000 or more	2	.9	.9	86.0
	Do not wish to answer	32	13.7	14.0	100.0
Total	228	97.4	100.0		
Total	234	100.0			

APPENDIX H

DRIVER (1983)

RECREATION EXPERIENCE PREFERENCE DOMAINS, SCALES AND CORE STATEMENTS

B. L. Driver and his associates developed the Recreation Experience Preference Scales.

Driver, B.L. (1983). *Master list of items for Recreation Experience Preference scales and domains*. Unpublished document. USDA Forest Service, Fort Collins, CO: Rocky Mountain Forest and Range Experiment Station.

1983 Master List of Items for Recreation Experience Preference Scales and Domains (incorporating findings by Roggenbuck, results of the 1980 Fort Collins area study, analysis done at Yale by Gregoire, and attempts to resolve questions raised by Cooksey in the 1977 Item Pool List.

A: ACHIEVEMENT/STIMULATION

1. Reinforcing Self-image

- a. *To gain a sense of self-confidence.
- b. *To develop a sense of self-pride.
- c. To increase your feelings of self-worth.
- d. To show yourself you could do it.
- e. To help you feel like a better person.
- f. To increase your feelings of self-importance.
- g. To feel like a better person for doing it.
- h. To test the extent to which I can do it.

2. Social Recognition

- a. *To have others think highly of you for doing it.
- b. *To show others you can do it.
- c. To have others recognize and admire you for doing it.
- d. To have others see you do things you are good at.
- e. To do something that impresses others.
- f. To make a good impression on others.
- g. To do something impressive.
- h. To be recognized for doing it.
- i. To receive compliments on my skills and abilities.
- j. To be seen by others doing it.

3. Skill Development

- a. *To become better at it.
- b. * To develop your skills and abilities.
- c. To improve your skills.
- d. To be challenged.
- e. To feel like I have achieved something when through.

- f. To remind myself that I have the skills to do it.
- g. To try to achieve a high standard in it.
- h. To see if I could do it.

4. Competence Testing

- a. *To test your abilities.
- b. *To learn what you are capable of.

5. Excitement

- a. *To have thrills.
- b. *To experience excitement.
- c. To experience a lot of action.
- d. To have a stimulating and exciting experience.
- e. To experience the fast paced nature of things.
- f. To feel exhilaration.
- g. To get all charged up.
- h. To experience the exciting events that always happen here.
- i. To cause things to happen.

6. Endurance

- a. ***To test your endurance.
- b. ***To rely on your wits and skills.
- c. ***To gain a sense of accomplishment.

7. Telling Others

- a. ***To tell others about the trip.
- b. ***To have others know that you have been there.

B: AUTONOMY/LEADERSHIP

1. Independence

- a. *To feel my independence.
- b. *To be on my own.

2. Autonomy

- a. *To be my own boss.
- b. *To be free to make your own choices.
- c. **To be obligated to no one.
- d. **To do things your own way.
- e. To think for myself.
- f. To be at a place where I can make my own decisions.

3. Control-Power

- a. *To control things.
- b. *To be in control of things that happen.
- c. To have a chance to have control over things.
- d. To be more in control here.
- e. To be in charge of what's happening.
- f. To have a chance to feel in charge of what's happening.
- g. To be in command of a situation.
- h. To put yourself in a position of power or authority.
- i. To manipulate things.

C: RISK TAKING

1. Risk Taking

- a. *To take risks.
- b. *To chance dangerous situations.
- c. To experience the uncertainty of not knowing what will happen.
- d. To experience the risks involved.

D: EQUIPMENT

1. Equipment

- a. *To use your equipment.
- b. *To talk to others about [your/our] equipment.
- c. To test and use your equipment.
- d. To compare my equipment with others.

E: FAMILY TOGETHERNESS

1. Family Togetherness

- a. *To do something with your family.
- b. *To bring your family closer together.
- c. To do something the family could do together.
- d. To get the family together more.
- e. To realize a good experience for the family.
- f. To do what my children wanted me to.
- g. To do something the entire family would like.
- h. To get the family together for a while.
- i. To do something so the family could spend more time together.
- j. To do something my spouse or associate wanted me to.

F: SIMILAR PEOPLE

1. Being with Friends
 - a. *To be with members of [your/our] group.
 - b. *To be with friends.
 - c. To do things with your companions.
 - d. To enjoy the company of people who came with me.

2. Being with similar people
 - a. *To be with [others/people] who enjoy the same things you do.
 - b. *To be with people having similar values.
 - c. To be with people who have similar interests.
 - d. To be with people who are enjoying themselves.

G: NEW PEOPLE

1. Meeting New People
 - a. *To talk to new and varied people.
 - b. *To meet other people in the area.
 - c. To meet new people.
 - d. To meet other people.
 - e. To build friendships with new people.
 - f. To see new faces.

2. Observing Other People
 - a. *To be with and observe other people using the area.
 - b. *To observe other people in the area.
 - c. To observe the other people.

H: LEARNING

1. General Learning
 - a. *To develop [your/my] knowledge of things [here/there].
 - b. *To learn more about things [here/there].
 - c. To find out about things here.
 - d. To understand things here better.

2. Exploration
 - a. *To experience new and different things.
 - b. *To discover something new.
 - c. To find out about things.
 - d. To explore the area.

- e. To explore things.
- f. To see new and different things.
- g. To experience the unknown.
- h. To experience a sense of discovery involved.

3. Geography of Area

- a. *To get to know the lay of the land.
- b. *To learn about the topography of the land.

4. Learn About Nature

- a. *To study nature.
- b. *To learn more about nature.
- c. To learn more about natural settings.
- d. **To gain a better appreciation of nature.

I: ENJOY NATURE

1. Scenery

- a. *To view the scenery.
- b. *To view the scenic beauty.
- c. To enjoy the scenery.
- d. To observe the scenic beauty.
- e. To take in the scenic beauty.
- f. To look at the pretty view.
- g. To observe the scenic beauty.

2. General Nature Experience

- a. *To be close to nature.
- b. *To enjoy the smells and sounds of nature.
- c. To take in the natural surroundings.
- d. To be in a natural setting.
- e. To be where things are natural.
- f. To obtain a feeling of harmony with nature.

J: INTROSPECTION

1. Spiritual

- a. *To develop personal, spiritual values.
- b. *To grow and develop spiritually.
- c. To reflect on personal religious values.
- d. To reflect on your religious or other spiritual values.
- e. To be in closer touch with higher spiritual values.

- f. To get a greater sense of spiritual being.

2. Introspection

- a. *To think about your personal values.
- b. *To think about who you are.
- c. To help you understand better what your life is all about.
- d. To learn about yourself.
- e. To learn more about yourself.
- f. To rebuild the world in my mind.
- g. To think about how I would like the world to be.
- h. To think new thoughts.
- i. To paint things in my mind like an artist.

K: CREATIVITY

1. Creativity

- a. *To be creative.
- b. *To do something creative such as sketch, paint, take photographs.
- c. To put some thoughts or ideas together.
- d. To create something new or different.
- e. To gain a new perspective on life.

L: NOSTALGIA

1. Nostalgia

- a. *To think about good times you've had in the past.
- b. *To bring back pleasant memories.
- c. To reflect on past memories.
- d. To recall past satisfactions.
- e. To gain an experience I can look back on.

M: PHYSICAL FITNESS

1. Exercise-Physical Fitness

- a. *To get exercise.
- b. *To keep physically fit.
- c. To improve [my/your] physical health.
- d. To help keep you in shape physically.
- e. To feel good after being physically active.
- f. To tone up my muscles.

N: PHYSICAL REST

1. Physical Rest
 - a. *To relax physically.
 - b. *To rest physically.
 - c. To take it easy physically.
 - d. To give my body a rest.

O: ESCAPE PERSONAL-SOCIAL PRESSURES

1. Tension Release
 - a. *To help get rid of some clutched-up feelings.
 - b. *To help release or reduce some built up tensions.
 - c. To help reduce some frustrations [I/you] have been feeling.
 - d. To release or reduce tension.
 - e. To help get rid of some anxieties.
 - f. To help get rid of some up-tight feeling.

2. Slow Down Mentally
 - a. *To have your mind move at a slower pace.
 - b. *To give your mind a rest.
 - c. To recover from [my/your] usual hectic pace.
 - d. To have your mind slow down for awhile.
 - e. To have a break from being too busy mentally.

3. Escape Role Overloads
 - a. *To get away from the usual demands of life.
 - b. *To avoid everyday responsibilities for awhile.
 - c. To reduce the feeling of having too many things to do.
 - d. To get away from some of the expectations people have of me back home.
 - e. To rest awhile from the feeling of being overloaded at home or work.
 - f. To get away from the demands of other people.
 - g. To feel less tied down for awhile.

4. Escape Daily Routine
 - a. *To have a change from your daily routine.
 - b. *To have a change from everyday life.
 - c. To do something different from what [I/you] do back home.
 - d. To have a change of pace from everyday life.
 - e. To add some variety to my daily routine.
 - f. To have a change from your everyday self.

P: ESCAPE PHYSICAL PRESSURE

1. Tranquility
 - a. *To experience tranquility.
 - b. *To experience solitude.
 - c. To experience the peace and calm.
 - d. To experience surroundings that are soothing.
 - e. To experience the calming and healing setting.
 - f. To sense a feeling of balance in things around me.
 - g. To enjoy the quietness and beauty.
 - h. To be where it is quiet.

2. Privacy
 - a. *To feel isolated.
 - b. *To be alone.
 - c. To get away from other people.
 - d. To have more privacy than you have back home.

3. Escape Crowds
 - a. *To be away from crowds of people.
 - b. *To experience more elbow room.
 - c. To get away from crowded situations for awhile.
 - d. To experience the open space.
 - e. To [seek/enjoy] distant or unobstructed views.
 - f. To get away from civilization for awhile.
 - g. I thought there would be less confusion here.

4. Escape Physical Stressors
 - a. *To get away from the clatter and racket back home.
 - b. *To get away from noise back home.
 - c. To get away from the ugly scenes back home.
 - d. To get away from the bright lights back home for awhile.
 - e. To escape the pollution back home for awhile.
 - f. To get away from other people.

Q: SOCIAL SECURITY

1. Social Security
 - a. *To be near considerate people.
 - b. *To be with respectful people.
 - c. To be with considerate people.
 - d. To be with fairly honest people
 - e. To be where things are fairly safe.
 - f. To be with people who are nice to each other.

R: ESCAPE FAMILY

1. Escaping Family
 - a. *To be away from the family for awhile.
 - b. *To escape the family temporarily.
 - c. To be without the family for awhile.

S: TEACHING-LEADING OTHERS

1. Teaching-Sharing Skills (Sharing Knowledge/Directing Others)
 - a. *To teach your outdoor skills to others.
 - b. *To share what you have learned with others.
 - c. To share your skill and knowledge with others.
 - d. To help others learn about things here.
 - e. To teach others about things here.

2. Leading Others (Sharing Knowledge/Directing Others)
 - a. *To help direct the activities of others.
 - b. *To lead other people.
 - c. To show others what to do.

T: RISK REDUCTION

1. Risk Moderation
 - a. *To be near others who could help if you need them.
 - b. *To know others are nearby.

2. Risk Avoidance
 - a. *To be sure of what will happen to you.
 - b. *To avoid the unexpected.

U: TEMPERATURE

3. Temperature
 - a. *To get away from the heat.
 - b. *To experience a nicer temperature.
 - c. To have more agreeable temperatures.
 - d. To be where it is cooler.

*Denote core items for that scale.

**New item from the 1980 Fort Collins study, as analyzed by Cooksey. Undesignated items have had scale membership confirmed by several empirical studies, especially the large 1976 Michigan and Pennsylvania studies as reported in the 1977 listing and description of the item pool at that time.

***Items appeared in the 1980 Fort Collins study, but scales have not yet been well tested.

SOME NOTES BY BEV DRIVER:

(1). Asterisks designate the two core items of each scale, and several evaluations have shown that mean scores and standard deviations differed very little between the responses of the SAME subjects to the two (core) item scales and the full-item scales. Those evaluations also showed very little difference between two-core and full-items scale scores and standard deviations when the subjects' responses were compared by many splits of those data by social, demographic, and other defining variables. So, the two core-items can be used to help keep the length of the survey instrument shorter.

(2) Scales within a particular domain intercorrelate higher than with scales in other domains. That is why the scales are grouped within domains that tap the same general psychological construct. Nevertheless, scales within a domain do tap different themes and remain somewhat statistically independent. If one desired to study only the general theme of a particular domain, it is suggested that one item from several scales within a domain be used to develop a "scale" for that domain.

(3). There has been much confusion, and even misrepresentation, about what the scales attempt to measure. Early developmental work was based on the concept that recreation participation helps people meet their psychological needs or traits. That conceptual foundation was soon abandoned after very little, to no, empirical association was found between responses to the REP scales and same subjects' responses to several standardized tests/instruments that have been used widely to measure psychological strength of psychological needs or traits. As far as I am concerned, the REP scales measure the degree of satisfaction realized from the psychological experiences tapped by the REP scales and does so ONLY for recreationists who have had PAST experience in engaging in the particular activity or activities being studied. I place little value on use of the scales to measure motivation of first-time users unless the REP scales are used after participation to measure perceived importance of the experiences (or degree of satisfaction realized from the experiences) when the subjects are asked to recall the experiences AFTER they have participated. Therefore, I suggest the scales NOT be used to ask first-time participants how much they EXPECT to realize chosen REP experiences/themes. In summary, I believe the scales measure the salient dimensions of

demands for experiences for those respondents whose realized the experiences from participating is specific recreation activities before.

(5). I have done NO developmental work on the REP scales since about 1982, and several additional themes have emerged about recreation experiences that are not covered by the scales, including exhilaration, more specific dimensions of learning such as about heritage/historical sites and resources, perceived freedom, loss of consciousness of time, nurturing local community cohesion, being in essentially an undisturbed-by-human setting or environment, and so on. I mention this to encourage users of the REP scales to add items to tap these themes if they are germane.

(6). I have never published a paper that describes in detail how the REP scales were developed or explains results of each of the many reliability and validity tests that were done. The scales are best described in the following two readily available publications.

Driver, B.L., Tinsley, H.E., & Manfredro, M.J. (1991). The paragraphs about leisure and Recreation Experience Preference Scales: Results from two inventories designed to assess the breadth of the perceived psychological benefits of leisure. In B.L. Driver, P.J. Brown, & G.L. Peterson (Eds.), *Benefits of Leisure* (pp. 263-287). State College, PA: Venture.

Manfredro, M.J., Driver, B.L., and Tarrant, M.A. (1996). Measuring leisure motivation: A meta-analysis of the Recreation Experience Preference Scales. *Journal of Leisure Research*, 28, 188-213.

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