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ASSESSMENT OF PUBLIC LAND VALUES AND A COMPARISON AMONGST  
NONRESIDENT OUTDOOR RECREATIONISTS IN MONTANA

By

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B.S. Recreation Management, University of Montana, Missoula, Montana, 2009

Thesis

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for the degree of

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in Recreation Management

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## ABSTRACT

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Recreation Management

Assessment of Public Land Values and a Comparison Amongst Nonresident Outdoor Recreationists in Montana

Chairperson: Norma P. Nickerson

Recent data shows that three quarters of nonresident vacationers to Montana are primarily attracted to characteristics of public lands such as national parks, mountains and forests, and open space. Thirty-five percent of Montana is public land, therefore understanding what values those visitors have for these public lands is very important and has not been analyzed in previous research. This study used panel survey methodology to identify a set of respondents who are not Montana residents but have visited the state. One component of the study used Borrie, Freimund, and Davenport's National Parks Values Scale and Winter's Natural Area Values Scale, as a basis for determining value statements. A mean value score for each of the 41 value statements relevant to Montana's public lands was identified. The study also identified recreation activity participation and public land visitation. A priori segmentation of user groups based on participation of these activities developed three cluster groups: non-motorized active, motorized, and passive. An analysis of variance identified value differences between the groups. Results indicate most respondents agreed with the value statements from the two scales. However, when the clustered groups were compared, there were 17 value items that showed significant differences. Using the Bonferroni post hoc test, the greatest differences were found between the non-motorized active and passive groups. With nonresident vacationers of 5.1 million visitors per year, identifying the values nonresident visitors have for Montana's public lands are important for understanding how values influence destination decision-making, how values influence recreation activity participation, and how tourism marketers can use values when developing marketing strategies.

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And... in loving memory of Otis.

# TABLE OF CONTENTS

LIST OF TABLES .....	vi
LIST OF FIGURES .....	vi
CHAPTER 1: INTRODUCTION .....	1
Purpose.....	2
Research Questions:.....	3
Limitations .....	3
CHAPTER 2: LITERATURE REVIEW .....	4
Values .....	4
Values and Natural Areas .....	8
Relevant Values Scales .....	10
<i>National Parks Values Scale</i> .....	11
<i>Natural Area Values Scale</i> .....	11
Recreation Participation and Natural Area Values .....	12
Justification for This Study.....	14
CHAPTER 3: METHODS .....	17
Sampling Frame .....	17
Response Rate.....	19
Questionnaire .....	19
Analysis .....	22
CHAPTER 4: RESULTS .....	25
Research Question 1: What are the public lands used by nonresident visitors to Montana and who are they?.....	25
Demographics .....	26
Research Question 2: What values do nonresident visitors hold for public lands in Montana? .....	30
Research Question 3: Are there significant differences in public land values between nonresident recreationists? .....	35
CHAPTER 5: DISCUSSION AND CONCLUSION .....	44
Discussion.....	44
<i>Research Question 1: What are the public lands used by nonresident visitors to Montana and who are they?</i> .....	44
<i>Research Question 2: What values do nonresident visitors hold for public lands in Montana?</i> .....	45

*Research Question 3: Are there significant differences in public land values between nonresident recreationists?*..... 49

Limitations ..... 60

Future Research ..... 61

Conclusions..... 63

REFERENCES ..... 64

Appendix..... 68

## LIST OF TABLES

Table 1: Response Rates and Completion Rate .....	19
Table 2: Public Land visitation of nonresident visitors to Montana.....	26
Table 3: Demographics for the Panel Survey Respondents of this study .....	28
Table 4: Comparison of Demographics between Panel Respondents and Nonresident Visitors .	29
Table 5: National Parks Values Scale .....	32
Table 6: Natural Area Values Scale.....	34
Table 7: Recreation Activity Participation on Montana Public Lands and Waters .....	36
Table 8: Recreation User Type Segments by Activity.....	37
Table 9: Differences between activity groups in the National Parks Values Scale items (mean scores for each activity group).....	39
Table 10: Differences between activity groups in the Natural Area Values Scale items (mean scores for each activity group).....	41
Table 11: Three Differences between Motorized and Active Groups .....	42
Table 12: Nine Differences between Motorized and Passive Groups .....	42
Table 13: Thirteen Differences between Active and Passive Groups.....	43
Table 14: Three Differences between Motorized and Active Groups .....	54
Table 15: Nine Differences between Motorized and Passive Groups .....	55
Table 16: 11 Value Statements where the Motorized Group differed from either the Active or Passive Group .....	56
Table 17: Thirteen Differences between Active and Passive Groups.....	57
Table 18: Value Items Showing No Significant Difference between the Recreation Segments on the National Parks Values Scale .....	59
Table 19: Value Items Showing No Significant Difference between the Recreation Segments on the Natural Area Values Scale .....	60

## LIST OF FIGURES

Figure 1: Values.....	7
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## CHAPTER 1: INTRODUCTION

A majority of vacationers visit Montana for the national parks, mountains and forests, and open space found in abundance in the state. Data shows that for 73 percent of nonresident vacationers to Montana, those characteristics are their primary attraction. Understanding what values those visitors have for these places has previously not been uncovered (Institute, 2012). This connection between natural areas and the nonresident visitor has implications in the areas of land management, state tourism promotion, and policy. McIntyre, Yuan, Payne, and Moore (2004) found people develop bonds with natural places which is evident in the fact that 78 percent of groups who visited Montana in 2012 were repeat visitors (Institute, 2012).

These places hold meanings for visitors and “encompass values attached to natural places” (McIntyre et al., 2004). Values are “the most deep-rooted and central elements in a person’s system of attitudes and beliefs” (Bengston, Web, and Fan, 2004). Winter and Lockwood (2004) identified studies that examined values, natural areas, and vacation destination decision-making: Pizam and Calatrone (1987) found that both personal and social values influence decision-making of tourist destinations, whereas Juric, Cornwell, and Mather (2002) found values relate to motivation of the activities tourists select. Winter & Lockwood (2004) also found that values influence destination decision-making and provide researchers with ways to segment a tourist market for marketing strategies and communications.

Montana has a diverse landscape of mountains, forests, prairies, and grasslands where much of this diversity is on public lands. Thirty-five percent of Montana’s landbase is public. These public lands include: U.S. Forest Service, National Park Service, Bureau of Land Management, State of Montana lands, designated Wilderness, wild and scenic rivers, wildlife preserves, tribal lands, other types of public land, and land management agencies.



The Institute for Tourism and Recreation Research (Institute, 2012) data shows that nonresidents are attracted to Montana for the natural areas the state provides (Institute, 2012). It is important to understand their values towards those lands. With research showing that values are an important component of land management decisions, policy, and planning (Tanner, Freimund, Borrie, and Moisey, 2008), this study will help make the connection between land management agencies, policy, and the tourism industry to provide areas that reflect the values held by visitors to Montana.

Public lands in Montana provide for a diverse opportunity for recreation activities. ITRR data for nonresident visitors in 2012 shows the top activities visitors participated in: 67 percent of nonresident visitors participated in scenic driving while in Montana; 40 percent participated in wildlife watching; 39 percent in nature photography; and 37 percent in day hiking. These are just a few of the recreational activities in which visitors participated. In addition to activities, data shows that those visitors were not only attracted to Montana's public lands as previously shown; they were also attracted to Montana for recreational opportunities: 17% for fishing, 5% for hunting, and an additional 5% for skiing or snowboarding (Institute, 2012). Understanding values nonresident visitors hold for these lands and the recreation activities in which they participate can make additional contributions to decision-making in natural resource management, policy, and visitor management.

### **Purpose**

The purpose of this study was to assess public land values held by Montana visitors and compare values between groups of outdoor recreation participants. Research shows that visitors to Montana are attracted to natural areas, but do they visit because they value these places (Institute, 2012)? This study used two previously developed value scales related to natural areas

(Borrie et al., 2002; Winter and Lockwood, 2007). Recreation activities listed on the National Visitor Use Monitoring (NVUM) utilized by the United States Forest Service (USDA Forest Service, 2011) were used in this study. Previous research shows values are held for natural areas at any given time; however, it also shows that “relationships with forests continue to evolve” (Bengston et al., 2004). This study was built on previous research and examines a specific look at values, recreation participation, and Montana’s public lands.

### **Research Questions:**

This study of nonresident visitors to Montana addressed the following research questions:

R1: What public lands are used by nonresident visitors to Montana and who are they?

R2: What values do nonresident visitors hold for public lands in Montana?

R3: Are there significant differences in public land values between nonresident recreationists?

### **Limitations**

This study is limited to: (1) Nonresidents of Montana who agreed to participate in Montana travel and recreation surveys via joining an online research panel conducted by ITRR; (2) panel members who have visited Montana; and (3) NVUM, the recreation activities list used by the Forest Service.

## CHAPTER 2: LITERATURE REVIEW

This chapter reviews the literature important to this study. It starts with a broad overview of values then looks more closely at values and how they relate to natural areas and public lands. The next section of this chapter identifies the scales used in this study for measuring values followed by a look at traveler characteristics and recreation participation specifically relating to natural area values. The chapter concludes with justifications for this research.

### **Values**

Values have been studied across a wide spectrum of fields from psychology to economics including natural areas, recreation, and wildlife (Seymour, Curtis, Pannell, Allan, and Roberts 2010). Throughout these disciplines, values have been defined in many ways. According to Seymour et al. (2010), values are defined as “specific modes of conduct or guiding principles that influence our choices and actions” (p.142). Values have also been defined as something socially assigned to both people and places (Borrie, Freimund, and Davenport, 2002). Yankelovich (1991) used a definition that values are what “reflect an individual’s ideals and goals” (p.123). In addition, values are seen as influencing attitudes where values are the “product of assigning relative importance” (Borrie et al., 2002, p.43). Rokeach (1973) defined value as “an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence” (p.5).

McIntyre et al. (2004) defined values as “discursive constructions which are continuously being contested and reconstructed through political dialogue (p.285). In addition to this dialogue, McIntyre et al. (2004) identified three perspectives in the valuation process. One is through social utility where “valuation is a rational, goal directed behavior” that applies to the greater

good (McIntyre et al., 2004, p.286). There is also social cohesiveness where values are viewed “as objects that exist within society as shared entities individuals ascribe to various values based on their membership of certain groups” (McIntyre et al., 2004, p.286). Social discourse is the third way McIntyre et al. (2004) saw the valuation process, and it is where “values are seen as an integral part of the structures of institutions of societies” (p.286). With this perspective, values depend on who is asked, when, and under what circumstances. In addition to context, values are broken into different types: held, instrumental (use and non-use), bequest, existence, option, intrinsic, and assigned.

Held values are principles and ideas important to people. They are subjective ideas of behavior and other qualities within individuals and they are conceptual in their definition (Lockwood, 1999). Instrumental values are broken into both use and non-use. Use values are related to tangible, extractive resources (including recreation). Non-use values are “related to satisfaction from knowing that a site is preserved in a certain condition irrespective of potential use” (Winter and Lockwood, 2005, p.271).

In identifying particular types of values and natural areas, Winter (2007) used a definition from Adamowicz (1995) that defined instrumental values as “those related to the benefits that natural areas provide for human beings through direct extractive uses such as logging and mining, and through indirect or passive non-use” (p.601). Some of those non-use values included bequest value that “refers to an altruistic motive to pass on natural areas to the humans of future generations” (Winter, 2007, p.601). This type of value “foregoes use to preserve the heritage of future generations” (Winter and Lockwood, 2005, p.271).

The idea of existence values builds on bequest values. These refer to a value that “relates to a benefit that humans obtain by knowing that a natural place continues to exist” (Winter, 2007,

p.601). These are values that could be held by individuals who have never visited or may never visit a particular place but hold values of those areas regardless. Just knowing those places exist and that they will continue to exist in their natural state is often enough. This included describing an option value as having the opportunity to visit an area in the future that may never be exercised (Krutilla, 1967).

A combination of instrumental values can lead to intrinsic values. “For something to be intrinsically valuable, it must be an end in itself” (Lockwood, 2005). Winter and Lockwood (2005) discussed intrinsic values of natural areas as “an end in themselves, independent of any benefit to human use” (p.271). With diverse types of values that can be held, Callicott (1994) and Gebhardt & Lindsey (1995) made the case that values are not mutually exclusive.

Values existed simultaneously even in cases where values were in opposition to other values (Winter & Lockwood, 2005). For example, just within instrumental values, one could value an area (i.e., Forest Service district) for both timber harvesting (use value) and recreation in the same location (Winter & Lockwood, 2005). In addition to values held simultaneously, Lockwood (2005) identified that value integration “is necessary to consider two or more values, either by type or between holders, in the construction of a decision” (p.8).

Value integration was made up of types that included, but were not limited to, current and future use values and existence values. Current and future use values related to being able to actually use or visit an area; however, existence values referred to simply knowing something is there and not necessarily currently using it or wanting to use it in the future.

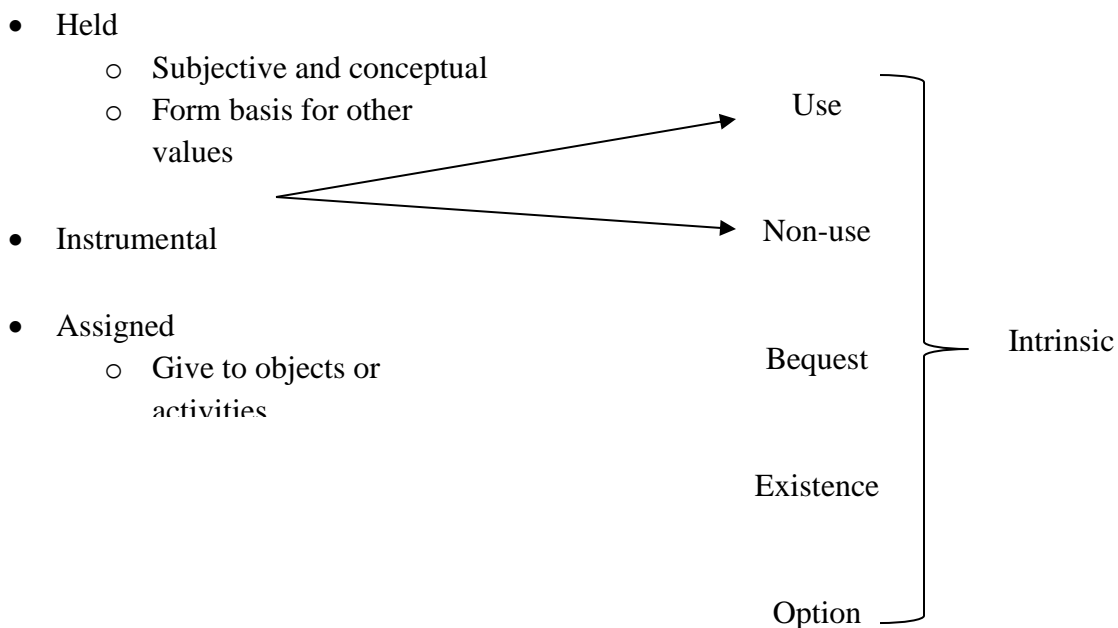
Numerous studies examined assigned values (Curtis & Robertson, 2003; Curtis, Race, Sample, McDonald, 2008; Lockwood, 1999). These were defined as the values that individuals attach to physical places, goods, and services. They have become a good way to identify values

when looking at particular sites and locations (Lockwood, 1999). Lockwood (2005) identified assigned values as those which are given to objects or activities. While assigned value is known mostly for use within economics, it is becoming more common in natural resource management and research. Seymour et al. (2010) examined how assigned values can relate to “specific natural places” (p.142).

Brown (1984) stated that when someone assigns value to an object, they are “...in some way expressing the importance or worth of the object relative to one or more other objects (p.223).” In other words, assigned values deal with relative valuation or particular natural places, attributes or phenomena...” (p. 143). There are many benefits of knowing values of natural places, including assigned values, on both site specific as well as regional scales that can influence management and policy decisions (Seymour et al., 2010).

The concept of values has been shown to be broad and studied in a range of fields. Figure 1 provides a visual to help understand the different types of values, how values can be related, and how through value integration, values can be combined and built upon.

**Figure 1: Values**



## **Values and Natural Areas**

According to Lockwood (2005), values should be considered when making natural area management decisions. Values influence people's interests in natural areas (Winter, 2007). They influence attitudes and behaviors and can make a collection of values, or a value orientation, become indicators of an individual's environmental concerns.

Many studies identified "the investigation of values as a necessary component of natural resource management" (Borrie et al., 2002, p.42). For example: (1) Myers and Close (1998) examined values as a critical component to decision-making; (2) Jakes (1998) identified values as a way for decision makers to understand expectations the public holds for land management regarding desired future use and conditions of those resources; (3) Proctor (1998) used knowledge of the public's values as a way to help "environmental managers understand the range of perspectives they should expect among the public as well as identify possible shared values that can build upon forging consensus" (p.348); (4) Kuentzel and Dennis (1998) found how different constituencies value amenities offered from natural resources differently; and (5) More, Averill & Stevens (1996) argued that ignored values in decision-making cause problems in natural areas, and these issues were "as much value based as they are fact-based" (p.400).

Understanding values of natural areas is an important component to visitor management. English, Marcoullier, and Cordell (2000) identified that demand for services provided by protected areas has increased as well as the diversity of constituencies identified by McKinney and Harmon (2004) leading to a more complex practice of visitor management (Tanner et al., 2008). Understanding the values visitors held helped with the increased complexity of visitor management. This complexity also existed when identifying terms used to identify natural areas. One example is the concept of wildlands. This term refers to not just wilderness but most public lands that have little development (Rolston, 1985). The term wildlands almost exclusively

appears in academic literature and does not appear to have a clear definition, therefore literature has cited the term natural areas for a better understanding (Winter and Lockwood, 2005).

Identifying values and land use has incorporated everything from economics to wildlife. Rolston (1985) examined how values come into play when looking at land use decisions and decisions about nature more broadly. Rolston (1985) looked at how economic values were becoming more important than some more traditionally held values of how humans view nature; however, the article also showed a trend away from a focus on the economic value of places, because “such categories as existence, option, and bequest values promise to package up a fuzzy assortment...but as values grow intangible, social, and ecosystemic, the individual’s capacity to price them becomes progressively poorer” (p. 35).

For example, Stevens, Echeverria, Glass, Hager, and More (1991) found that the value of wildlife was an important component to natural resource management. Even just viewing wildlife was identified as a use value. Not only do users value wildlife for use, there is an existence value in wildlife where those who don’t actually use it still have an interest in it and see value in it. Again the notion of intrinsic value resonated in wildlife and natural resource management where it is enough to just know that these resources are available without having any direct benefit to humans (Stevens et al., 1991).

In addition to Stevens et al. (1991), Fulton, Manfredo, and Lipscomb (1996) identified wildlife value orientations. Fulton et al. (1996) defined values as “fundamental cognitions which serve as a foundation for attitudes and beliefs” (p.25). That definition was used to identify how values contribute to the cognitive hierarchy structure. Values were then used to analyze wildlife value orientations which were defined as “the patter of direction and intensity among a set of basic beliefs regarding wildlife” (Fulton et al., 1996, p.28). In relation to natural areas and



values, the authors determined that “wildlife values orientations are important because they are determinants of attitudes, which in turn help explain patterns of human intentions” (Fulton et al., 1996, p.42). These intentions and resulting behaviors from wildlife valuation impacted the broader influence values have on intentions and behaviors in nature (Fulton et al., 1996).

Furthermore, Manfredo, Teel, and Henry (2009) identified that values are an important component to understanding best practices when environmental problems were addressed. This included the importance of incorporating values, specifically within wildlife valuation, to enhance the understanding of the environment and society as a dynamic, changing system. Values were analyzed as an important piece of understanding past, current, and future behaviors in natural environments (Manfredo et al., 2009).

Encompassing values and the overall impact they have on natural areas, McIntyre et al. (2004) determined that people value “places because they symbolize something, because they have histories and memories associated with them, because they are interwoven in the stories we tell ourselves and others about who we are, and because they are rhetorical methods of making arguments for managing a place in one way or another” (285). Other studies identified values seen in an environmental context as “direct and indirect qualities of natural systems that are important to the evaluator” and over the years it has become important to include values in natural resource planning” (p.286) (Borrie et al., 2002; McFarlane and Boxall 2000; Brown and Reed 2000; and Satterfield 2002).

### **Relevant Values Scales**

Two studies have focused on values in natural areas (Borrie et al., 2002 and Winter, 2007). These studies each developed and tested scales for value assessment and are discussed below.

### ***National Parks Values Scale***

One example of a context-specific approach to natural area specific values is a study that measured visitors' perceived values of Yellowstone National Park (Borrie et al., 2002). The scale was based on a literature review of the national park idea. Henneberger's research on national parks (1996) was used to develop the particular wording for the scale (Borrie et al. 2002). This scale identified value items and the importance level of those values. The researchers used factor and cluster analysis to identify different group-types of visitors to Yellowstone. McCool (1983) identified "while important values are clearly preserved within national park boundaries, the perceived purpose of the parks may change over time" (Borrie et al., p.41). This was evident when the National Park Service had to adjust itself to include the addition of ideals and values of the Wilderness Act of 1964. Since the initial implementation of the National Parks Values Scale, it has been utilized in full and partial form in a variety of contexts. For example, Saxen (2008) used the scale to evaluate values with soundscapes and Oschell, Tanner, and Nickerson (2009) used the scale in a study based on Glacier National Park visitors' values.

### ***Natural Area Values Scale***

Winter and Lockwood (2005) developed the Natural Areas Value Scale to measure "the relative strengths of individual's intrinsic, non-use, use, and recreation values for natural areas" (p.270). The authors used the value theory Rokeach (1979) developed to show how behavior is influenced by values to identify the importance of values toward protected areas. Results from that study showed that "stronger intrinsic values have a positive effect on conservation preferences and the level of personal sacrifices people are prepared to make for those preferences, while stronger use values have the opposite effect" (Winter and Lockwood, 2005, p.276).

The Natural Area Values Scale has been used to look at a range of values from use to recreation to spirituality (Winter, 2007). For example, Winter (2007) used the scale to look at levels of environmental concern for three groups: tourists, recreationists, and the general public. In this study, respondents were intercepted on-site at national parks (outside of the United States). The results found that the scale was a reliable and satisfactory measure of values for natural areas (Winter, 2007).

Winter and Lockwood (2004) included an extensive literature review to develop the Natural Area Values scale, which allows this study to build off their previous review. In the existing literature, values were measured looking at visitors to particular types of areas (i.e., just national parks or broader forest regions). In addition, most studies implemented questionnaires on-site limiting the findings to respondents who had visited the sites in question. These natural area values identified by Winter and Lockwood (2004) were used to look more in-depth at a broader group of individual characteristic and activities in which those individuals participate.

### **Recreation Participation and Natural Area Values**

In order to understand current and potential future values of recreation, and thus potential management implications on recreation lands, one must “explicitly recognize and incorporate such values” (Jackson, 1986, p.3). Jackson (1986) found that “values are usefully measured as attitudes to the environment” (p.1). Research showed that values influence recreation behavior. As Jackson (1986) described, different recreation activities can be influenced by different value types (i.e., hunting and fishing are influenced by use values). When the public was looked at through different orientations (i.e., consumer versus conservationist) value orientations were then expressed through recreation preferences and participation (Jackson, 1986). A study by Dunlap and Heffernan (1975) looked at different recreation activity participation and how that influences

environmental attitudes. The study compared attitudes between appreciative recreationists (e.g. cross country skiing and hiking), consumptive recreation activities (e.g. hunting and fishing), and mechanized recreation (e.g. snowmobiling).

Jackson (1986) also identified that looking at recreation values instead of socioeconomic factors was a better way to understand recreation participation and values related to the environments where those activities take place. This Jackson (1986) says examined “the rapidity of social change and the growing complexity of society (p.4). Jackson (1986) identified that values are relevant for understanding participation in outdoor recreation. It is not just enough to look at general values of environmental concern. It is necessary to look at natural area concerns specific to a place (Jackson, 1986). Jackson (1986) also discussed the “new environmental paradigm.” Where this approach has been found to look more at beliefs than values, it did, however, identify that recreation preference may be traced to larger societal values.

Andereck, Vogt, Larkin, and Freye (2001) looked at different recreation user groups: motorized, non-motorized, and mixed users of both types. While motorized and non-motorized users were both found to differ on their respective forms of recreation (and access to it), motorized users tended to have a higher concern for the environmental quality of a trail. Motorized users supported non-motorized trails just as much as the non-motorized users. Andereck et al. (2001) found that recreation users identified with similar users and evaluated other users based on their recreation participation. While this study focused on recreation conflict between user groups, the underlying values users have for areas remained an important component. Differing values lead to other types of recreation conflict not just when comparing motorized and non-motorized users. While it has been found that there is also overlap amongst

use, some users are not solely motorized or non-motorized but participate in recreation activities that are in both groups (Andereck et al., 2001).

While motorized and non-motorized users are often the center of recreation conflict research (Shilling, Boggs, and Reed, 2012), understanding the underlying values recreation user groups hold for the spaces that provide for these activities is becoming more important in the literature. Conflict between uses was based on conflicting values. Environmental effects from all types of uses have become a concern for land managers and planners. For example, a study by Shilling et al. (2012) suggested that recreation user conflict can be reduced by investing time in a process to understand the root cause of these conflicts.

Recreation activities occur in a variety of locations; however, outdoor recreation is prevalent on a range of public lands including federal, state, and locally managed areas. The dominant type of public land in an area changes depending on the geographic location being considered (Oberle, 2004). In addition to the broad range of types of public land, there are examples of private lands being set aside and turned over to public use (Oberle, 2004). In the West, 69 percent of land is public and these lands often border population centers. In addition to understanding the values that may lie at the root of recreation conflict, the wide range of public land classification and complexity of public land management may contribute to the lack of knowledge by visitors regarding which public lands are visited for recreation (Oberle 2004).

### **Justification for This Study**

This study focused on Montana's public lands and those visitors who have been to Montana at least once. The study examined all natural areas when measuring values and followed up by asking about public lands visited to verify that these visitors have visited Montana's public lands. However, it has been stated that many people do not know if or what

type of public land they are visiting. They simply know they are on public lands. Paul Schullery (1995) suggested that land management identification, even the national park idea, is an issue and why that might be the case:

“The American public has never received an adequate introduction to the National Park idea. To them, or to most of them, the parks are little more than grassy Disneylands, and the name park has no more meaning to them than forest or monument or any other titles the federal government has bestowed upon its holdings” (Borrie et al., 2002, p.73)

Borrie et al. (2002) identified that technical solutions to park management issues are limited and therefore should be supplemented by understanding human values. Therefore, this study has the potential to inform natural resource managers of the values held by their constituents as 10.8 million nonresidents visited Montana in 2012 with the majority of those visitors attracted to the natural areas Montana has to offer (Institute, 2012).

According to Tanner et al. (2008), “the importance of values for protected area management and governance is relatively uncontested” (p.378). This study is of particular importance because it looks at natural area values over a range of types of lands. “Although the (national parks) values scale was developed within the context of national parks, the values underlying the scale items also pertain to broader discussions of protected areas” (Tanner et al., 2008, p.389). Even with using this scale across a range of areas, Tanner et al. (2008) still identified an unanswered question of their research: “whether visitors are drawn to areas that reflect their values or whether they simply assign different values to different places in different contexts” (p.389). By intercepting respondents online and not on-site, there is an opportunity for this to be addressed. The National Parks Values Scale along with a modified Natural Areas

Values Scale will be a good assessment of the values these individuals hold, if any, for natural areas in Montana.

The literature showed that economic measures have proven to be effective for policy and decision-making (Schuster, Tarrant, & Watson, 2003); however, it has also shown that “only direct uses can be reduced to wholly economic terms” (Rolston, 1985). By increasing research on values that expands beyond just economic values, it will be possible to show the true value of the lands that provide for recreation. It is not in the activity itself that leads to value, but the entire leisure experience. Understanding the values that nonresident recreation visitors to Montana have can help add to the underrepresented social values those visitors hold (Schuster et al., 2003). This study will build on the existing literature that looks at recreation participation and environmental values.

## CHAPTER 3: METHODS

This chapter discusses the methods used to implement the research study. The sampling frame addresses how the respondents were selected and further received the survey. The development of the questionnaire is discussed followed by the response rate for the study. The section ends with a discussion of the methods of analysis.

### **Sampling Frame**

To identify natural area values of nonresidents, this study used a survey panel to implement an online questionnaire. The Institute for Tourism and Recreation Research at the University of Montana (ITRR) has been developing a survey panel since July 1, 2009. Obtaining panelists for the research panel has been conducted in three ways: (1) individuals intercepted throughout the state of Montana for the nonresident tourism research study conducted by ITRR are asked if they would like to participate in future studies; (2) visitors to various tourism promotional websites for the state of Montana and local convention and visitor bureaus can simply click on a button located on these sites to join the research panel; (3) current panelists can ‘refer a friend’ and those friends can join the panel.

This panel uses software developed by Survey Analytics, a nationally recognized research firm. ITRR purchased the survey software; however, as previously mentioned, ITRR recruits all its own panel members and implements all its own questionnaires in-house. The benefits of panel research are much like other online survey techniques including low cost for survey implementation, a relatively quick response time, little need for data cleaning, and ease of exporting into analysis programs like the Statistical Package for the Social Sciences (SPSS). Another perk of using a panel to implement the questionnaire is that it will assign a unique I.D.



to each panel member. The panel can then send a reminder to all members who have not responded on a date specified by the researcher.

Some drawbacks to panel research include the likelihood that your participants are internet-savvy individuals, and may represent a particular demographic. Also, with ITRR's panel in particular, panel membership does include survey bias due to how panelists are recruited (see list of three ways panelists are recruited on previous page). However, the panel does provide for a convenient sample. Survey saturation is not a concern as ITRR sends at most two surveys per month to its members.

The ITRR panel consists of both Montana residents as well as nonresidents. For this study, the term nonresident refers to an individual whose permanent residence is not Montana. All of the nonresident panel members have either already visited Montana, have looked into travel sites promoting Montana as a vacation destination, or have been made aware of the panel by a friend who has visited the state or a Montana travel site. To encourage the members to complete surveys, panelists are offered an incentive for participating in panel surveys. They are given 20 points for each survey completed. With each 20 points they earn, their name is entered into a drawing for a \$1,000 VISA gift card.

On May 30, 2012 the survey invitation was sent to all the ITRR panel members. Only nonresidents were asked to complete the survey. At that time, there were 3,510 panel members. Invitations are a unique link sent to the panel member's email address they provided when they joined the panel. The invitation included an incentive for the respondent to earn 40 points (double the typical amount) for completion of the survey. On June 6, 2012 a reminder was sent to those members who had not yet completed the survey.

## **Response Rate**

Response rates for panel surveys have been discussed in the literature regarding online surveys. Online surveys are implemented off-site and tend to have lower response rates than surveys done on-site (Davis, Thompson, & Schweizer, 2012). Since the development of panel survey methodology, there has been a need for standardizing formulas and terminology needed to calculate metrics for this type of implementation (Callegaro & Disogra, 2008). Response rates and completion rates are important metrics to calculate for panel surveys. The response rate for online panel surveys encompasses the view rate, participation rate, and completion rate (Callegaro & Disogra, 2008). The “response rate is based on the people who have accepted the invitation to the survey and started to complete the survey” (Callegaro & Disogra, 2008, p. 1011). The completion rate is “calculated as the proportion of those who have started, qualified, and then completed the survey” (Callegaro & Disogra, 2008, p. 1011). This survey panel uses a voluntary opt-in approach. With this approach, completion rates are the most valid rate to calculate (Callegaro & Disogra, 2008).

Thirty days after the initial mailing of the survey link, data collection was ended. Of the members who received the invitation (3,510), 782 viewed and started it, and 679 completed it. The response rate of 22 percent is based on the 782 out of 3,510 panel members who viewed and started the survey. The completion rate was 77 percent and was calculated using the 521 people who completed the survey. This was the final usable sample (Table 1).

**Table 1: Response Rates and Completion Rate**

<b>Rate Type</b>	<b>%</b>
Response Rate	22%
Completion Rate	77%

The study results only reflect nonresidents who have visited Montana. Nonresidents who have not visited Montana completed the survey as well; however, the sample size was too small

and therefore only nonresident visitors to Montana were included in the results. The average time it took a respondent to complete the survey was nine minutes.

### **Questionnaire**

To identify natural area values held by nonresident visitors to Montana, a questionnaire was developed and sent to all panel members. The first question to nonresident panel members asked if they had visited Montana.

The questionnaire (Appendix 1) included: (1) whether or not the respondent has visited Montana; (2) items from the National Park Values Scale (Borrie et al., 2002); (3) items from the Natural Area Values Scale (Winter, 2004); (4) recreation participation questions using a set of recreation activities used in the National Visitor Use Model (NVUM) (USDA, Forest Service, 2012); (5) public lands the respondent has visited; and (6) demographic information.

Both instruments use a six-point Likert scale ranging from strongly disagree to strongly agree. Additional items have been added to the scales because as the National Parks Values scale developers state, “continued development of the scale may increase the amount of variance explained and help assess the values prescribed to different parks and regions” (Borrie et al., 2002, p.47). Since this study is looking at not just park lands, these additional items may help to broaden the statements to other types of lands. A comprehensive list of public land types was provided to identify “yes,” “no,” or “don’t know” if they have visited the different types of lands.

The additional scale items come from other studies that were implemented in Montana (Ellard, Nickerson, and Dvorak, 2009; Adams, Carson, Clark, Gracie, Grau, McBride, Oschell, Tanner, and Valentine, 2004.) Ellard et al. (2009) conducted interviews with visitors to Montana about the vacation experiences. These interviews resulted in a set of terms or phrases the visitors associated with Montana. This study uses some of those terms to make the scale items more

relevant to Montana and its characteristics. These terms include: open space, elbow room, feelings of freedom, and spiritual connections. In addition to making the scale more Montana-relevant, additional scale items were added to include characteristics outside of only National Park Service terms.

Not all of the scale items from the initial scales were used. Due to the length of the questionnaire, the length of the statements, and amount of thought it took for each statement while taking online surveys, some scale items were left out. The National Parks Values scale used in this study incorporated all but two of the original scale items. The omitted items were: (1) a display of natural curiosities; and (2) a family or individual tradition. This study added eight additional values statements to this scale: (1) social places; (2) places that make me feel good; (3) Places that provide open space; (4) places that give me elbow room; (5) places that provide for a variety of natural areas; (6) places that provide a feeling of freedom; (7) places that evoke a spiritual and/or religious connection in me; and (8) places that provide income.

From the Natural Area Values Scale, this study used one scale item from the different value types Winter (2007) identified: intrinsic, recreation, spiritual, use, and non-use. This was used to develop a subset of statements from the Natural Area Values Scale. Additional scale items were added to be more Montana-relevant that also fell within these categories to develop a modified Natural Area Values Scale for this study. The additional items included: (1) It does not matter to me whether a natural area is publicly or privately owned; (2) Even just driving Montana's roads and highways makes me feel connected to the land; (3) I don't have to go into the backcountry to feel a sense of value for Montana's public lands; (4) I can distinguish between private lands and public lands while driving in Montana; (5) If I were unable to use Montana's public lands, I would still enjoy them; (6) If I were unable to use Montana's public lands, I

would support their existence; (7) I value Montana for its access to public lands; (8) Montana public lands are valuable.

### **Analysis**

Data was exported to SPSS from the panel software. Descriptive statistical analysis was used to examine frequencies for demographics, the public land values section (based on the modified National Parks Values Scale and Natural Area Values Scale), public land visitation, recreation activity participation, and total recreation participation.

A priori segmentation was used to segment respondents into groups based on their recreation participation. A priori segmentation is an effective way to group participants together (Boley and Nickerson, 2012). A traditional cluster analysis was performed; however, the grouping that emerged was not a clean way to look at the data. Cluster analysis did not provide distinct and easily identifiable segments due to the list of activities. Nearly everyone participated in wildlife watching, relaxing, viewing natural features, and driving for pleasure. It is difficult to separate those activities from other sets of activities in which respondents participated.

Therefore, a priori segmentation provided a common sense approach to activity groupings.

Each respondent was placed into a segment based on their participation in the activities for each group. Activities similar in style of recreation were grouped together. The three recreation segments were: motorized only (referred to as motorized), non-motorized active (referred to as active), and passive. Previous studies have found it more reliable to look at participants of activities compared to participants of other activities rather than looking at participants versus non-participants (Jackson, 1986). The motorized group included all who participated in any of the following activities: OHV (off-highway vehicle) use, motorized trail activity, snowmobiling, motorized water activity, and/or other motorized activity. If the

respondent participated in any of the above activities, they became a member of the “motorized” group even if they also participated in recreation activities outside of this group. If a respondent answered “yes” that they did participate in an activity, they were assigned a “1” for that activity. If they did not select “yes” there was not an option to select “no,” and therefore was no way to distinguish between “no” and missing. Those respondents were assigned a zero score. The frequency values displayed in the results only reflect those who selected “yes” that they did participate in that activity.

If the respondent received a “1” for any activity in the motorized category, they were not placed into either of the two remaining segments. The “active” group included those who participated in any of the following categories: fishing, hunting, gathering, hiking, backpacking, horseback riding, bicycling, downhill skiing, cross country skiing, and non-motorized water activity. Again, if they received a one for any activity in this category, they could not be placed into the third segment. The third and final group is the “passive” activities including: developed camping, primitive camping, nature center activities, nature study, viewing wildlife, viewing natural features, visiting historical sites, picnicking, and driving for pleasure. Even though driving for pleasure is a motorized activity, it is not an active motorized activity as those in the motorized group. In Montana primitive camping often times refers to camping with a vehicle but not necessarily in a designated campground. Many public lands in Montana are open to this sort of primitive camping.

One way ANOVA (analysis of variance) was used to examine the differences between the recreation groups for each of the value scale items. The Bonferroni post hoc test at the .05 level was used in the analysis of variance testing to determine where significant differences exist.

The Bonferroni test was chosen because the sample sizes for each of the three groups are not equal and this test allowed for liberal comparison between groups (Vaske, 2008, p. 383-384).

## CHAPTER 4: RESULTS

The results are organized first by public land visitation and the demographics of the sample followed by results of public land values which identified the values nonresident visitors hold for Montana's public lands. Frequencies and mean scores were conducted for each of the value statements for both scales (National Parks Values Scale and the modified Natural Area Values Scale). Then recreation activity participation was identified followed by the number of respondents in each recreation activity cluster. The section concludes with identifying differences between each segment for each of the values statements where differences were found.

### **Research Question 1: What public lands are used by nonresident visitors to Montana and who are they?**

This section examined which of Montana's public lands the participants in this study have visited (Table 2) and the demographics of the respondents (Table 3). National Park System Lands and National Forests and Grasslands make up the bulk of nonresident visitation to public lands in Montana. Lands within the National Park system had the highest percentage of visitation at 93 percent. Six percent of respondents said "no" they did not visit, and two percent selected that they did not know if they visited that type of public land. Seventy-two percent of respondents visited national forests and grasslands, ten percent did not, and 18 percent did not know.

Visitation significantly declined for the remaining types of public lands. Thirty-eight percent of nonresident visitors went to a Montana state park (excluding fishing access sites), 32 percent did not, and 30 percent did not know. Twenty-eight percent of respondents visited national wildlife refuges while 28 percent did not, and the remaining 34 percent did not know.



Twenty-eight percent of respondents also went to a Montana fishing access site, 58 percent did not, and 14 percent did not know if they had been to this type of public land. Only 26 percent of respondents visited Bureau of Land Management sites while 23 percent did not and 51 percent did not know if they had visited these lands.

U.S. Army Corps of Engineer lands were also visited by 26 percent, not visited by 36 percent, and 38 percent of nonresident visitors did not know if they had visited this type of public land. Montana Department of Natural Resource lands were only visited by nine percent of nonresident visitors, not visited by 28 percent of the respondents, and a high of 64 percent did not know. Bureau of Reclamation lands were the last type of public lands nonresident visitors were asked if they had visited. Nine percent said yes, 33 percent said no, and 58 percent did not know if they had been on Bureau of Reclamation lands.

**Table 2: Public Land visitation of nonresident visitors to Montana**

<b>Public Land</b>	<b>N</b>	<b>Yes</b>	<b>No</b>	<b>Don't Know</b>
National Park System	473	93%	6%	2%
National Forests or Grasslands	472	72%	10%	18%
Montana State Parks (excluding fishing access sites)	459	38%	32%	30%
National Wildlife Refuges	463	28%	28%	34%
Montana Fishing Access Sites	459	28%	58%	14%
Bureau of Land Management	460	26%	23%	51%
U.S. Army Corps of Engineer (i.e., lakes)	452	26%	36%	38%
Montana Department of Natural Resources	457	9%	28%	64%
Bureau of Reclamation (i.e., lakes)	450	9%	33%	58%

### **Demographics**

This section provides additional descriptive information about the respondents in the form of demographics. The sample was made up of 55 percent male and 45 percent female respondents. Their ages ranged from 20 to 87 with a mean age of 55. Table 3 shows the additional demographic information including age ranges, education, residence, and household

income. The largest group was 51-65 years old which represented 45 percent of the sample. Education levels represented in the sample included everything from some high school through doctorate or professional degrees. The highest represented education level was a Bachelors degree with 34 percent of respondents reporting that level of education.

Respondents represented 46 U.S. states and the District of Columbia, seven Canadian provinces, and five other foreign countries. Respondents from Idaho, Washington, and Alberta each represented six percent of the total. Four percent of respondents were from Minnesota, California, Texas and Colorado each. Florida, Oregon, and Wisconsin each represented three percent of respondent residences.

The income ranges for the sample fell into each of the response categories: Nineteen percent of respondents make less than \$50,000 (US Dollars). The highest frequency of income level for respondents was 25 percent who make more than \$50,000 but less than \$75,000. Twenty-two percent earn more than \$75,000 but less than \$100,000. Twenty percent of respondents make more than \$100,000 but less than \$150,000, and a combined 14 percent make either \$150,000 to \$200,000 or greater.

Table 4 is a comparison between demographic questions asked in the panel survey and demographic data from ITRR's 2012 nonresident visitor study (Institute, 2012). This table shows that the panel respondents and the nonresident visitors to Montana during 2012 are very similar in age, residence, and income. The mean age for the panel survey is one year younger for the nonresident survey while the age range for the nonresident visitor is a little wider: 18-94 for the nonresident respondents versus 20-87 for the panel respondents.

**Table 3: Demographics for the Panel Survey Respondents of this study**

<b>Age (mean = 55; range = 20-87)</b>	<b>N</b>	<b>%</b>
20-35	46	10%
36-50	97	22%
51-65	201	45%
66-87	100	23%
<b>Education</b>	<b>N</b>	<b>%</b>
Some high school	3	<1%
High school diploma or equivalent (GED)	35	8%
Some college	93	21%
Associates degree	42	9%
Bachelors degree	151	34%
Masters degree	75	17%
Doctorate or professional degree	48	11%
<b>Residence of Respondents</b>	<b>N</b>	<b>%</b>
Idaho	34	6%
Washington	33	6%
Alberta, Canada	31	6%
Minnesota	23	4%
California	20	4%
Texas	19	4%
Colorado	18	4%
Florida	15	3%
Oregon	14	3%
Wisconsin	14	3%
All other states with 2% or less: AL, AK, AZ, AR, CT, District of Columbia, GA, HI, IL, IN, IA, KS, KY, LA, MD, MA, MI, MS, MO, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, PA, RI, SC, SD, TN, UT, VT, VA & WY	194	36%
All other Canadian provinces represented: British Columbia, Manitoba, Ontario, Prince Edward Island & Saskatchewan	19	4%
Overseas countries represented: France, Germany, Israel, Sweden & United Kingdom	6	<1%
<b>Annual Household Income (US Dollars)</b>	<b>N</b>	<b>%</b>
Less than \$50,000	78	19%
\$50,000 to less than \$75,000	106	25%
\$75,000 to less than \$100,000	93	22%
\$100,000 to less than \$150,000	82	20%
\$150,000 to less than \$200,000	26	6%
\$200,000 or greater	34	8%

**Table 4: Comparison of Demographics between Panel Respondents and Nonresident Visitors**

Panel Survey Study Respondents		2012 MT Nonresident Visitor Study	
<b>Gender</b>			
Male	55%	Male	56%
Female	45%	Female	44%
<b>Age</b>			
Mean= 55		Mean= 56	
Range= 20-87		Range= 18-94	
<b>Top Residence</b>			
Idaho	6%	Idaho	10%
Washington	6%	Washington	10%
Alberta, Canada	6%	Wyoming	8%
Minnesota	4%	Alberta, Canada	8%
California	4%	North Dakota	6%
Texas	4%	California	5%
Colorado	4%	Utah	4%
Florida	3%	Colorado	4%
Oregon	3%	Minnesota	4%
Wisconsin	3%	Oregon	3%
		Texas	3%
<b>Annual Household Income (US Dollars)</b>			
Less than \$50,000	19%	Less than \$50,000	21%
\$50,000 to less than \$75,000	25%	\$50,000 to less than \$75,000	23%
\$75,000 to less than \$100,000	22%	\$75,000 to less than \$100,000	21%
\$100,000 to less than \$150,000	20%	\$100,000 to less than \$150,000	20%
\$150,000 to less than \$200,000	6%	\$150,000 to less than \$200,000	8%
\$200,000 or greater	8%	\$200,000 or greater	8%

\*data is from ITRR report builder, 2012 Nonresident Traveler Characteristics

The residences represented on the panel seem to be more diverse with the highest percentage of residence at six percent for Idaho, Washington, and Alberta, Canada, while the top two residences for the Montana nonresident visitor study represent 20 percent of the respondents. However, eight of the top residences represented on the panel are in the top residences (three percent of the respondents or higher) in the nonresident visitor statistics. The only states not represented in the top residences for the panel members that are represented in the top tier of

nonresident visitors are Wyoming and North Dakota. From the ITRR report builder which generates data from the Montana nonresident survey results, it is evident that the main purpose for Wyoming and North Dakota residents is passing through and business which may result in less interest in participation on the travel and recreation research panel (Institute, 2012). Income for respondents on both studies is very similar with any differences being within two percentage points of the other study.

### **Research Question 2: What values do nonresident visitors hold for public lands in Montana?**

Survey respondents were asked to think about the extent to which they valued certain aspects of Montana's public lands. They were asked to use a Likert scale to select their level of agreement with each statement from strongly disagree (1), disagree (2), somewhat disagree (3), somewhat agree (4), agree (5), to strongly agree (6). The results of the scale items are organized with the highest mean score at the top of the table followed by each descending value. The first table looks at value statements from the National Parks Values Scale (Table 5) where respondents were asked to what extent they agreed with each statement in terms of "I value Montana's public lands as..." The items for the first scale detail qualities that public lands in Montana should have. The mean scores for the values statements ranged from 4.03 to 5.75 showing that respondents at a minimum "somewhat agree" with the values statements.

The highest mean score was 5.75 with 79 percent of the respondents strongly agreeing that Montana's public lands should be places of scenic beauty. The next five values statements all received over 60 percent of respondents strongly agreeing that Montana's public lands should be places that provide a variety of natural areas, places that make me feel good, places everyone should see at least once, places for wildness, and places that provide for open space. The mean scores for those five items ranged from 5.52 to 5.6 (Table 5).

With most of the respondents still on the agreement end of the scale, the mean score decreases somewhat as there is more variety within the responses. Symbols of Montana's identity, places that give me 'elbow room,' wildlife sanctuaries, places that provide a feeling of freedom, places that protect fish and wildlife habitat, places for the enjoyment of people, places for all living things to exist, places for recreational activities, and sites to renew my sense of personal well-being all still have at least fifty percent of the respondents strongly agreeing with each statement. However, the range of mean scores is between 5.33 and 5.45 with eight to 14 percent of the respondents only somewhat agreeing to those values statements. The next five values statements still have at most 49 percent of the respondents strongly agreeing with Montana's public lands being places for education about nature, historic resources, tourist destinations, protectors of threatened and endangered species, and places for scientific research and monitoring with a mean score of at least a five.

The remaining values statements had a mean score of less than five, but still on the agree side of the scale. However, the average score is brought down by some respondents being on the disagree end of the scale. The previous scale items have had no more than three percent of the respondents on the disagreement end of the scale. Starting with the value statement that Montana's public lands should be for reserves of natural resources, at least twelve percent of respondents are on the disagree end of the scale (eight percent somewhat disagree with three percent disagreeing and one percent strongly disagreeing) (Table 5).

In total, eight value items fell below a mean of five including Montana's public lands as sacred places, places that evoke a spiritual and/or religious connection in me, social places,

economic resources, places to develop my skills and abilities, places to be free from society and its regulation, and places that provide income.

**Table 5: National Parks Values Scale**

I value Montana's public lands as...	SD (1)	D (2)	SwD (3)	SwA (4)	A (5)	SA (6)	Mean
Places of scenic beauty	<1%	0%	<1%	1%	20%	79%	5.75
Places that provide a variety of natural areas	0%	0%	<1%	3%	32%	64%	5.60
Places that make me feel good	<1%	0%	1%	6%	31%	63%	5.55
Places everyone should see at least once	<1%	<1%	1%	9%	23%	66%	5.53
Places for wildness	0%	0%	<1%	8%	30%	62%	5.53
Places that provide open space	0%	<1%	<1%	7%	33%	60%	5.52
Symbols of Montana's identity	0%	<1%	1%	8%	34%	56%	5.45
Places that give me 'elbow room'	0%	0%	1%	9%	33%	56%	5.44
Wildlife sanctuaries	1%	<1%	1%	9%	30%	58%	5.43
Places that provide a feeling of freedom	0%	<1%	2%	9%	32%	56%	5.42
Places that protect fish and wildlife habitat	<1%	1%	1%	11%	31%	56%	5.41
Places for the enjoyment of people	0%	1%	1%	9%	39%	51%	5.37
Places for all living things to exist	<1%	1%	2%	9%	35%	53%	5.36
Places for recreational activities	<1%	<1%	2%	11%	36%	51%	5.35
Sites to renew my sense of personal well-being	0%	1%	2%	14%	31%	53%	5.33
Places for education about nature	<1%	<1%	1%	15%	35%	49%	5.30
Historic resources	<1%	<1%	<1%	18%	33%	49%	5.28
Tourist destinations	0%	1%	1%	14%	39%	46%	5.28
Protectors of threatened and endangered species	<1%	1%	2%	15%	32%	49%	5.24
Places for scientific research and monitoring	0%	1%	3%	16%	42%	39%	5.15
Reserves of natural resources	1%	3%	8%	15%	32%	42%	4.97
Sacred places	1%	4%	7%	26%	28%	34%	4.79
Places that evoke a spiritual and/or religious connection in me	2%	4%	9%	28%	23%	34%	4.68
Social places	<1%	3%	9%	36%	31%	21%	4.55
Economic resources	3%	3%	10%	32%	32%	19%	4.46
Places to develop my skills and abilities	1%	3%	13%	38%	28%	18%	4.41
Places to be free from society and its regulation	6%	10%	16%	24%	20%	24%	4.13
Places that provide income (i.e., mining, logging, grazing)	6%	9%	14%	31%	25%	15%	4.03

SD= strongly disagree; D= disagree; SwD= somewhat disagree; SwA= somewhat agree; A= agree; SA= strongly agree. 1= strongly disagree; 2= disagree; 3= somewhat disagree; 4= somewhat agree; 5= agree; 6= strongly agree

Frequencies and means on the modified Natural Area Values Scale are shown in Table 6. For each item on this scale, respondents were asked the extent of agreement with each statement. Some of the items in this scale ask the respondent to think of how they personally use the lands versus the more broad statements about public lands in the first scale. The range of mean scores for this scale was more dispersed than the National Parks Values Scale with a low score of 3.07 to a high score of 5.60 on a six point Likert Scale.

Four statements had a mean greater than five. Sixty-six percent of the respondents strongly agreed with the first statement that Montana's public lands are valuable (m=5.60) and had the highest mean score. The next highest frequency for strongly agreeing was that viewing the scenery while driving Montana's roads and highways is of value to the respondent. Eighty-nine percent of the respondents either agreed or strongly agreed with that statement.

The remaining statements on the modified Natural Area Values Scale lend a more diverse range of responses which is evident as the mean score drops to a high of 5.20. Five statements had means in the four point range and were still on the agreement end of the scale; however, the dispersion of agreement is less enthusiastic and more luke-warm. Those five statements include: even just driving Montana's roads and highways makes me feel connected to the land, I don't have to go into the backcountry to feel a sense of value for Montana's public lands, valuing the natural environment is part of my spiritual and/or religious beliefs, if I were unable to use Montana's public lands I would still support their existence, and Montana's public lands are valuable because they produce wood products, jobs, and income for people.

The final four statements have mean scores from 3.40 down to 3.07. These final statements in the bottom portion of the mean scores are all personal statements: if I were unable to use Montana's public lands, I would still enjoy them; I can distinguish between private lands



and public lands while driving in Montana; if I were unable to recreate on Montana’s public lands, I think they could be used for other things; and it does not matter to me whether a natural area is publicly or privately owned. A high of 15 percent of respondents strongly disagreed that, “It does not matter to me whether a natural area is publicly or privately owned.” The more personal statements and negatively worded scale items resulted in a lower mean score.

**Table 6: Natural Area Values Scale**

<b>To what extent do you agree or disagree with the following?</b>	<b>SD (1)</b>	<b>D (2)</b>	<b>SwD (3)</b>	<b>SwA (4)</b>	<b>A (5)</b>	<b>SA (6)</b>	<b>Mean</b>
Montana public lands are valuable.	<1%	0%	<1%	5%	29%	66%	5.60
Viewing the scenery while driving Montana’s roads and highways is of value to me.	0%	<1%	<1%	11%	41%	48%	5.36
I value Montana for its access to public lands.	0%	1%	2%	13%	47%	38%	5.20
I need to know that untouched natural areas exist in Montana.	<1%	3%	5%	18%	31%	43%	5.05
Even just driving Montana’s roads and highways makes me feel connected to the land.	<1%	2%	5%	33%	37%	24%	4.75
I don’t have to go into the backcountry to feel a sense of value for Montana’s public lands.	1%	3%	7%	23%	45%	22%	4.74
Valuing the natural environment is part of my spiritual and/or religious beliefs.	4%	9%	9%	27%	26%	25%	4.38
If I were unable to use Montana’s public lands, I would support their existence.	5%	6%	15%	23%	29%	21%	4.29
Montana’s public lands are valuable because they produce wood products, jobs, and income for people.	2%	7%	11%	37%	31%	13%	4.27
If I were unable to use Montana’s public lands, I would still enjoy them.	11%	18%	22%	26%	17%	6%	3.40
I can distinguish between private lands and public lands while driving in Montana.	3%	21%	31%	27%	14%	3%	3.38
If I were unable to recreate on Montana’s public lands, I think they could be used for other things.	12%	16%	25%	28%	16%	5%	3.33
It does not matter to me whether a natural area is publicly or privately owned.	15%	23%	25%	18%	16%	4%	3.07

SD= strongly disagree; D= disagree; SwD= somewhat disagree; SwA= somewhat agree; A= agree; SA= strongly agree. 1= strongly disagree; 2= disagree; 3= somewhat disagree; 4= somewhat agree; 5= agree; 6= strongly agree

**Research Question 3: Are there significant differences in public land values between nonresident recreationists?**

Respondents were asked to select all of the activities in which they participated on Montana's public lands (Table 7). Viewing wildlife was the most frequently participated activity (75 percent of respondents). More than half but less than three quarters of respondents selected participating in relaxation, viewing natural features, driving for pleasure, hiking, and viewing historical sites. Forty-eight percent of respondents participated in picnicking and 40 percent selected developed camping as an activity they had done on Montana public lands. Less than one third of respondents participated in each of the activities of nature center activities, fishing, resort use, and primitive camping ranging from 26 to 32 percent.

Twenty percent of respondents participated in backpacking on public lands, 18 percent of respondents participated in both non-motorized water activities and nature study, while 16 percent participated in some other activity not listed. Fifteen percent of respondents participated in horseback riding and 13 percent participated in both downhill skiing or snowboarding and bicycling. Motorized water activity was reported by 12 percent of respondents and 11 percent participated in hunting. Off highway vehicle use and cross country skiing both represented eight percent of activities in which respondents participated. Snowmobiling, gathering natural products, and motorized trail activity were the most specific activities with the least amount of participation with seven percent participating in each. That was followed by other non-motorized activity and other motorized activity that received six percent of respondent participation and three percent respectively.

**Table 7: Recreation Activity Participation on Montana Public Lands and Waters**

Activity List	N	Yes
Viewing wildlife	389	75%
Relaxing	381	73%
Viewing natural features	368	71%
Driving for pleasure	353	68%
Hiking	330	63%
Viewing historical sites	316	61%
Picnicking	252	48%
Developed camping	210	40%
Nature center activities	164	32%
Fishing	150	29%
Resort use	142	27%
Primitive camping	134	26%
Backpacking	106	20%
Non-motorized water activity	95	18%
Nature study	92	18%
Some other activity	82	16%
Horseback riding	77	15%
Downhill skiing/snowboarding	68	13%
Bicycling	66	13%
Motorized water activity	63	12%
Hunting	57	11%
Off highway vehicle use	39	8%
Cross-country skiing	39	8%
Snowmobiling	38	7%
Gathering natural products	38	7%
Motorized trail activity	37	7%
Other non-motorized	31	6%
Other motorized activity	17	3%

After identifying participation in the recreation activities, the respondents were placed into activity segments (Table 8). The active group had the highest number of individuals with 57 percent of the respondents being grouped here. The active group was followed by the motorized activity group with 25 percent of respondents and the passive group had the fewest respondents with 17 percent. The passive group was the remaining segment individuals could be placed in when eliminating respondents based on activities. The motorized group was the first group respondents could be placed into based on their activity participation. The respondents in this

group could have also participated in activities in the other two groups whereas respondents in the passive group could not have participated in any activity in either of the other two groups (motorized or active).

**Table 8: Recreation User Type Segments by Activity**

<b>Segments</b>	<b>N</b>	<b>%</b>
Active (fishing, hunting, gathering, hiking, backpacking, horseback riding, bicycling, downhill skiing/boarding, cross-country skiing, non-motorized water activities)	257	57%
Motorized (off-highway vehicle (OHV ) use, motorized trail activity, snowmobiling, motorized water activity, other motorized activity)	114	25%
Passive (developed camping, primitive camping, nature center activities, nature study, viewing wildlife, viewing natural features, visiting historic sites, picnicking, driving for pleasure)	77	17%

One-way analysis of variance (ANOVA) identified differences between the groups and each value statement from both values scales (Tables 9 and 10). The National Parks Values Scale had twelve statements with differences between the groups, and the modified Natural Area Values Scale identified six statements where differences between the groups existed. The statistical significance ( $p < .05$ ,  $p < .01$ , or  $p < .001$ ) is noted on each table for each statement with significant difference. Bonferroni post hoc tests were used to note the differences between the groups. These differences are noted with superscripts after the mean score for each group.

The same pattern of difference existed for six of the value statements on the scale where there was no difference between the groups of motorized and active, but the passive group had significant difference in their values from both the motorized and active groups. These included: places of scenic beauty; sites to renew my sense of personal well-being; places that provide open space; places that make me feel good; places that provide a variety of natural areas; and places that provide a feeling of freedom.

Valuing Montana’s public lands as historic resources only showed a difference between the active and motorized recreationists. Motorized and passive were not different as well as

active and passives having no difference (Table 9). Even though the mean scores for both the active and passive groups are the same, the significant differences between those and the motorized group only exist for the active group. The cause for this is that the results show a difference in the distribution of the responses for each group. The motorized group shows no difference between either the active or passive group when valuing Montana's public lands as places for wildness. Here the difference exists between the active and passive groups. Similar differences are shown between the activity groups with the value statement looking at Montana's public lands as symbols of Montana's identity: the motorized group shows no statistical difference from either the passive or active group, but the active and passive groups show statistical difference.

Finally, differences were found between the motorized and passive recreationists in valuing public lands for recreation activities and valuing public lands that give elbow room. There was no difference between the motorized group and the active group as well as no difference between the active group and the passive group.

The superscripts in Table 9 and Table 10 show the significant differences within groups derived from the post hoc tests. A superscript with the same letter corresponds to no difference; however, letters that do not match a superscript in the same row note a difference between those groups' values. For example, when looking at the value item "places of scenic beauty," the motorized and active groups do not have significant difference and therefore share a superscript of "a." However, the passive group has significant difference from both the motorized and active groups and therefore has a superscript of "b" in that it does not match up with the "a" in the previous two columns.

**Table 9: Differences between activity groups in the National Parks Values Scale items (mean scores for each activity group)**

I value Montana's public lands as...	Motorized	Active	Passive	F-test
Places of scenic beauty	5.84 <sup>a</sup>	5.80 <sup>a</sup>	5.54 <sup>b</sup>	8.200***
Sites to renew my sense of personal well-being	5.41 <sup>a</sup>	5.43 <sup>a</sup>	5.03 <sup>b</sup>	7.591***
Places that provide open space	5.60 <sup>a</sup>	5.56 <sup>a</sup>	5.28 <sup>b</sup>	6.587**
Places that make me feel good	5.62 <sup>a</sup>	5.62 <sup>a</sup>	5.27 <sup>b</sup>	9.873***
Places that provide a variety of natural areas	5.72 <sup>a</sup>	5.62 <sup>a</sup>	5.36 <sup>b</sup>	9.782***
Places that provide a feeling of freedom	5.56 <sup>a</sup>	5.44 <sup>a</sup>	5.17 <sup>b</sup>	6.101**
Historic resources	5.52 <sup>a</sup>	5.23 <sup>b</sup>	5.23 <sup>ab</sup>	5.168**
Places for wildness	5.51 <sup>ab</sup>	5.62 <sup>a</sup>	5.37 <sup>b</sup>	4.725**
Symbols of Montana's identity	5.42 <sup>ab</sup>	5.56 <sup>a</sup>	5.32 <sup>b</sup>	4.513*
Places for recreational activities	5.49 <sup>a</sup>	5.34 <sup>ab</sup>	5.19 <sup>b</sup>	3.146*
Places that give me elbow room	5.60 <sup>a</sup>	5.44 <sup>ab</sup>	5.22 <sup>b</sup>	6.366**
Places that provide income (i.e., mining, logging, grazing)	4.19	3.84	4.24	3.813*
Wildlife sanctuaries	5.46	5.50	5.28	2.340
Places everyone should see at least once	5.59	5.52	5.38	1.550
Places that protect fish and wildlife habitat	5.46	5.46	5.28	1.611
Places for education about nature	5.43	5.33	5.20	1.934
Places for the enjoyment of people	5.39	5.42	5.33	.443
Places for all living things to exist	5.31	5.41	5.25	1.284
Protectors of threatened and endangered species	5.27	5.26	5.21	.117
Places for scientific research and monitoring	5.19	5.21	5.11	.462
Tourist destinations	5.29	5.25	5.29	.175
Reserves of natural resources for future use	5.07	4.94	5.03	.540
Sacred places	4.88	4.84	4.70	.564
Social places	4.62	4.53	4.60	.334
Economic resources	4.54	4.35	4.70	2.982
Places to develop my skills and abilities	4.59	4.38	4.28	2.314
Places to be free from society and its regulation	4.20	4.07	4.09	.301
Places that evoke spiritual and/or religious connection in me	4.69	4.79	4.51	1.455

\*p<.05 \*\*p<.01 \*\*\*p<.001; Scale: 1= strongly disagree; 2= disagree; 3= somewhat disagree; 4= somewhat agree; 5= agree; 6= strongly agree; Superscripts note differences within the groups derived from post-hoc test.

The last value statement in this scale, regarding public lands as places that provide income, showed a significant difference between the groups; however, the post hoc test did not note enough differences within the groups to be significant. In summary, there are four different

combinations of differences between the groups identified within the National Parks Values scale items.

The Natural Area Values Scale between the activity groups showed four combinations of differences (Table 10). For both the statements of “it does not matter to me whether a natural area is publicly or privately owned” and “Montana public lands are valuable,” the active groups’ values are different from the passive group; however, the motorized groups’ values are the same as the active groups and the passive groups.

The values are different for the motorized and active group but are the same for the motorized and passive group for the statement: “if I were unable to use Montana’s public lands, I would support their existence.” In addition, with this value statement there are no differences in values between the active and passive groups. The statement “I value Montana for its access to public land,” showed differences between the both the motorized and passive groups as well as the active group; however, there was no difference between the values for the motorized and active groups.

The last differences between groups are with the value statement that “Montana’s public lands are valuable because they produce wood products, jobs, and income for people.” The difference here lies between the active group and both the motorized and passive groups whereas there is no difference between the motorized and passive group.

**Table 10: Differences between activity groups in the Natural Area Values Scale items (mean scores for each activity group)**

To what extent do you disagree or agree with the following?	Motorized	Active	Passive	F-test
It does not matter to me whether a natural area is publicly or privately owned.	2.97 <sup>ab</sup>	2.97 <sup>a</sup>	3.46 <sup>b</sup>	3.949*
If I were unable to use Montana's public lands, I would still enjoy them.	3.34 <sup>ab</sup>	3.34 <sup>a</sup>	3.78 <sup>b</sup>	3.077*
Montana public lands are valuable.	5.63 <sup>ab</sup>	5.63 <sup>a</sup>	5.42 <sup>b</sup>	.026*
If I were unable to use Montana's public lands, I would support their existence.	4.06 <sup>a</sup>	4.44 <sup>b</sup>	4.23 <sup>ab</sup>	3.036*
I value Montana for its access to public lands.	5.32 <sup>a</sup>	5.21 <sup>a</sup>	4.90 <sup>b</sup>	7.124***
Montana's public lands are valuable because they produce wood products, jobs, and income for people.	4.46 <sup>a</sup>	4.11 <sup>b</sup>	4.47 <sup>a</sup>	5.089**
Even just driving Montana's roads and highways makes me feel connected to the land.	4.83	4.70	4.90	1.693
Viewing the scenery while driving Montana's roads and highways is of value to me.	5.38	5.33	5.43	.630
I don't have to go into the backcountry to feel a sense of value for Montana's public lands.	4.68	4.70	4.92	1.537
I can distinguish between private lands and public lands while driving in Montana.	3.40	3.35	3.58	1.180
If I were unable to recreate on Montana's public lands, I think they could be used for other things.	3.30	3.35	3.42	.186
Valuing the natural environment is part of my spiritual and/or religious beliefs.	4.46	4.47	4.21	1.066
I need to know that untouched natural areas exist in Montana.	5.05	5.10	4.83	1.953

\*p<.05 \*\*p<.01 \*\*\*p<.001; Scale: 1= strongly disagree; 2= disagree; 3= somewhat disagree; 4= somewhat agree; 5= agree; 6= strongly agree; Superscripts note differences within the groups derived from post-hoc test.

In summary, there were three differences between the motorized and active groups (Table 11); nine differences between the motorized and passive (Table 12); and 13 differences between the active and passive groups (Table 13).

When comparing the motorized and active groups, the motorized group had a higher mean score for two of the statements: (1) I value Montana's public lands as places of scenic



beauty; and (2) Montana’s public lands are valuable because they produce wood products, jobs, and income for people. The active group had a higher mean score for the statement if I were unable to use Montana’s public lands I would still support their existence (Table 11).

**Table 11: Three Differences between Motorized and Active Groups**

<b>Value Statement</b>	<b>Motorized</b>	<b>Active</b>
I value Montana’s public lands as places of scenic beauty.	+	
If I were unable to use Montana’s public lands I would still support their existence.		+
Montana’s public lands are valuable because they produce wood products, jobs, and income for people .	+	

+ group with the higher mean score

Comparing the differences between the motorized and passive groups shows that the motorized group had a higher mean score for eight of the nine statements (Table 12). The only statement that the passive group had a higher mean score for was if I were unable to use Montana’s public lands, I would still enjoy them.

**Table 12: Nine Differences between Motorized and Passive Groups**

<b>Value Statement</b>	<b>Motorized</b>	<b>Passive</b>
I value Montana’s public lands as places of scenic beauty.	+	
I value Montana’s public lands as places for recreational activities.	+	
I value Montana’s public lands as sites to renew my sense of personal well-being.	+	
I value Montana’s public lands as places that provide open space.	+	
I value Montana’s public lands as places that make me feel good.	+	
I value Montana’s public lands as places that give me elbow room.	+	
I value Montana’s public lands as places that provide a variety of natural areas.	+	
I value Montana’s public lands as places that provide a feeling of freedom.	+	
If I were unable to use Montana’s public lands, I would still enjoy them.		+

+ group with the higher mean score

The comparison of mean scores between the active and passive groups had the highest number of differing means of the three group analysis. The active group had a higher mean

score for ten of the thirteen statements (Table 13): (1) I value Montana’s public lands as places of scenic beauty; (2) I value Montana’s public lands as places for wildness; (3) I value Montana’s public lands as symbols of Montana’s identity; (4) I value Montana’s public lands as sites to renew my sense of personal well-being; (5) I value Montana’s public lands as places that provide open space; (6) I value Montana’s public lands as places that make me feel good; (7) I value Montana’s public lands as places that provide a variety of natural areas; (8) I value Montana’s public lands as places that provide a feeling of freedom; (9) I value Montana for its access to public land; and (10) Montana public lands are valuable. The passive group had a higher mean score for three of the statements: (1) It does not matter to me whether a natural area is publicly or privately owned; (2) If I were unable to use Montana’s public lands, I would still enjoy them; and (3) Montana’s public lands are valuable because they produce wood products, jobs, and income for people.

**Table 13: Thirteen Differences between Active and Passive Groups**

<b>Value Statement</b>	<b>Active</b>	<b>Passive</b>
I value Montana’s public lands as places of scenic beauty.	+	
I value Montana’s public lands as places for wildness.	+	
I value Montana’s public lands as symbols of Montana’s identity.	+	
I value Montana’s public lands as sites to renew my sense of personal well-being.	+	
I value Montana’s public lands as places that provide open space.	+	
I value Montana’s public lands as places that make me feel good.	+	
I value Montana’s public lands as places that provide a variety of natural areas.	+	
I value Montana’s public lands as places that provide a feeling of freedom.	+	
It does not matter to me whether a natural area is publicly or privately owned.		+
If I were unable to use Montana’s public lands, I would still enjoy them.		+
I value Montana for its access to public lands.	+	
Montana’s public lands are valuable because they produce wood products, jobs, and income for people.		+
Montana public lands are valuable.	+	

+ group with the higher mean score

## CHAPTER 5: DISCUSSION AND CONCLUSION

### **Discussion**

The following section discusses findings from the study, recommendations for future research, and ends with conclusions.

### ***Research Question 1: What public lands are used by nonresident visitors to Montana and who are they?***

It was important to evaluate the types of public lands nonresident visitors to Montana use to confirm that the survey respondents do indeed use public lands. In addition, while people can hold values toward public lands, understanding the types of public lands used provides insight into the respondent. To add further insight, demographics of the respondent were identified.

The nonresident visitors were most likely to visit national parks and forest lands. Visitation to other types dropped significantly after that and many did not know if they had been on public lands. With 64 percent of nonresident visitors not knowing if they visited Montana Department of Natural Resource lands, 58 percent not knowing about Bureau of Reclamation lands, and another 51 percent not knowing if they visited BLM land, it would be interesting to look at those who strongly agreed with the statement that “it does not matter to me whether a natural area is publicly or privately owned” and/or the statement that “I can distinguish between public and private lands in Montana.”

Looking at the percentage of nonresident visitors to these public lands may also inform tourism promotion agencies. There appears to be an on-going dialogue between the tourism industry and land management agencies regarding promotion of the state of Montana and the resulting impacts on public lands. The results showing that 93 percent of these nonresident

visitors went to national park system lands could mean that visitors are more aware of national parks in Montana than recreation opportunities on national forest lands for example.

The Jackson (1986) study identified that using environmental attitudes is an important component when looking at recreation conflict. Therefore, understanding these values and attitudes can help land managers in understanding and managing recreation conflict. In addition, the differences in means found when looking at the values statement ‘if I were unable to use Montana’s public lands, I would still enjoy them’ suggests that the motorized group most disagrees with this statement (mean score of 4.06). While they would still enjoy them (this score is still on the somewhat agree end of the scale), they are similar to active groups and similar to the passive group. However, the active and passive groups have a significant difference in means with this statement. Andereck et al. (2001) found that the motorized group places less importance on access to public lands than non-motorized groups and found non-motorized users to stand out as distinctly different from both motorized and mixed-use groups. Therefore the findings from this study and Andereck et al. (2001) may suggest land managers should concentrate on providing recreation opportunities for those activities in the “active” group over the other two recreation clusters.

***Research Question 2: What values do nonresident visitors hold for public lands in Montana?***

The respondents were asked on a six point Likert scale their level of agreement with 28 statements closely based on the National Parks Values Scale and an additional 13 statements from the modified Natural Area Values Scale. In general, respondents had a high level of agreement with the values statements. The qualities exhibited by national parks and other public lands are shown to be valued by nonresident visitors to Montana, especially when looking at scale items from the National Parks Values Scale. This held true when the respondents were

considering all of Montana's public lands and not just asking them to focus on what national parks provide as in the Borrie et al. (2002) study.

Montana's public lands as places of scenic beauty received the highest mean score. Based on the literature and previous research as to what attracts nonresidents to Montana, it is no surprise that those individuals were attracted to Montana for such things value that quality (Institute, 2012, and Ellard et al., 2009). Jackson (1986) also found it necessary to look at values concerning a specific place instead of asking about general values. The values scales in this study asked the respondents to specifically consider Montana when reading each value statement.

Natural areas, places that make me feel good, places everyone should see at least once, places for wildness, and places that provide for open space all came in after scenic beauty in rank of mean scores. With the literature stating that values evolve (Bengston et al., 2004), these items scoring so high reassure the use of the additional scale items derived from the Ellard et al. (2009) study that broadened the National Parks Value Scale items based on interviews of nonresident visitors to northwest Montana. By including language that was found to evoke feelings and values specific to Montana from the Ellard et al. (2009) study including terms like elbow room, and freedom, the scale items became more Montana-relevant, again supporting Jackson's (1986) research that shows values are more meaningful when they are place-specific.

The remainder of the scale items were still on agree to strongly agree side of the scale; however, it appears to be evident that some respondents do consider more than just national parks when valuing public lands. The highest score for disagreement at this point in the results is when looking at Montana's public lands as reserves of natural resources. This could be interpreted as having disagreement because people do not want them used for natural resource extraction in the future or because they feel that we should be using natural resources from

public lands at this time. It does not appear that all respondents look to Montana's public lands for sacredness or spiritual qualities (Ellard et al., 2009). Again, where there is greater diversity on the scale, there is opportunity for interpretation in the range of uses for Montana's public lands.

Places to develop skills and abilities and being free from society were both a low mean score on the scale. Nonresidents who visit Montana's public lands may be overwhelmed at the vastness of opportunity and challenge those areas provide and may not take risks in developing skills and abilities that they might take on public lands closer to home. Another potential explanation for this lower mean score is reflected in the demographics where the mean age is in the 50's and may convey less likelihood to take risk. The lowest mean score on this scale was from the statement that Montana's public lands are places that should provide income (i.e., mining, logging, grazing). Twenty-nine percent of the respondents disagreed with this statement on some level. In areas where public lands are few and far between, they may not be seen as areas used for extractive resources. Could this mean that they should be preserved for recreation and enjoyment instead?

The Natural Area Values Scale items were longer statements and some may have required a deeper level of thought from the respondent than the shorter, concise statements in the National Parks Values Scale. When asked if Montana's public lands were valuable, 66 percent strongly agreed. The following statements in descending order of means all had a higher percentage of "agree" than "strongly agree" which leads to lower means than the previous scale. Viewing the scenery while driving Montana's roads and highways is of value to me, I value Montana for its access to public lands, I need to know that untouched natural areas exist in Montana, even just driving Montana's roads and highways makes me feel connected to the land,

and I don't have to go into the backcountry to feel a sense of value for Montana's public lands all scored a mean above 4.74. These activities can be done by nonresident visitors to Montana without specifically accessing public lands. Most visitors are able to participate in these things even if their primary destination in Montana is not a national park, forest service area, state park or the like.

The following statement related to public lands and spirituality. Surprisingly, with a mean score of 4.38, most of the respondents at least somewhat agree that valuing the natural environment is part of their spiritual and/or religious beliefs. The idea of setting aside lands for spiritual connections can be traced back to John Muir in the early 1900's or all the way back to wilderness being mentioned in the Old Testament 245 times (Schuster et al., 2003). This also supports using the additional scale items related to spirituality from the Ellard et al. (2009) study relating to dimensions of the Montana vacation experience. Using both scales and looking at the mean responses from both related to spirituality shows diversity within the sample itself.

The value statement related to use of Montana's public lands is worded somewhat differently than the previous statements: If I were unable to use Montana's public lands, I would still support their existence. This directly relates to the existence value discussed in the literature (Winter, 2007). The agreeable mean score for "If I were unable to use Montana's public lands I would still enjoy them," reaffirms the literature (Nickerson et al., 2003; Borrie et al., 2002; Winter & Lockwood, 2004) that sometimes just knowing these places are there, not necessarily using them, is often enough. Similarly, scale items that public lands provide for open spaces, being able to view those open spaces without accessing the lands, and the like, point to an existence value.

It seems that recreation may be a high value for Montana's public lands as more than 50 percent of the respondents at least somewhat disagreed with the value statement that public lands could be used for other things if visitors were unable to recreate on them. This is an important finding for the recreation activity cluster groups that were derived based on the recreation activity participation questions. In addition, the final scale item may be related to this as well. Respondents had the highest level of disagreement, and therefore the lowest mean score of 3.07, with the statement that it does not matter to me whether a natural area is publicly or privately owned. This does seem to matter to nonresident visitors to Montana. Perhaps if there were not public lands open for recreation, these individuals would not choose Montana as their destination.

***Research Question 3: Are there significant differences in public land values between nonresident recreationists?***

A comparison of recreation activities the panel members participated in closely resemble the recreation activities that all nonresident visitors participate in (Institute, 2012). The list of activities provided for the two surveys (2012 MT nonresident survey and this study) lists different activities; however, some of the top activities for the panel (viewing wildlife, driving for pleasure, hiking, and fishing to name a few) are high on both lists as far as participation by nonresident visitors. As Andereck et al. (2001) found, "understanding the differences between various types of recreation user groups is key to planning for and managing resources to meet needs and achieve social, environmental and economic benefits (p. 62). As Shilling et al. (2012) found, if conflict is based on values then understanding those values first can minimize conflict (e.g. using values for recreation trail designation).

Most respondents participated in recreation activities that were passive in nature. However, when the respondents were segmented into the activity groups, passive had the least



amount of respondents at 17 percent. This is due to the fact that if they participated in passive activities but also participated in any activity that was motorized or active, they were not allocated to the passive group. Separating out the respondents by using a priori segmentation and then only allowing the respondents to be a member in one group (e.g. if they participated in any motorized activity, they could not be included in the active or passive groups and the same with active participation members weren't included in the passive group) has been shown to be a more effective way of clustering recreation users. Jackson (1986) found that other methods resulted in double-counting respondents who selected participation in more than one activity.

The "active" group had the highest percent of respondents when the respondents were placed into activity groups. These activities included fishing, hunting, gathering, hiking, backpacking, and other activities that required skill (therefore driving for pleasure or visiting historic sites typically do not take a certain level of knowledge or physical ability). The motorized activity cluster had the next highest number of respondents at 25 percent. This group had the least number of activities but based on recreation participation and literature on recreation groups and types, motorized recreationists tend to be a particular group with specific ideals and values (Shilling et al., 2012). Therefore, if the respondent participated in any of these activities (off highway vehicle use, motorized trail activity of any kind, snowmobiling, motorized water activity, or other motorized activity), they were not included in either the active or passive group.

The one-way ANOVA on the activity segments with the values statements resulted in eleven differences between the groups for the National Parks Values Scale and six differences between groups for the Natural Area Values Scale. It was important to look at where statistical significance occurred between the groups, but also where similar values existed. Finding values

statements where all three recreation groups have similar mean scores may help understand nonresident visitors' values of Montana's public lands in which they agree.

While the results section noted which values statements had differences in means, the results discussed here look at the combination of differences. Values statements that could be interpreted as more "passive" themselves, for example places of scenic beauty, well-being, open space, feel good, variety of natural areas, and freedom, and access to public lands (general) all have the same differences between groups. The motorized and active groups showed no difference but are both different from the passive group. The motorized and active groups have similar values with these statements while, the passive group has a significantly different value for these statements.

The other combination of differences in means that appears frequently in the analysis of variance between the activity clusters within the values statements is where the motorized group is similar to the active group and the passive group but the active and passive groups are different from one another. This pattern exists for public lands as: places for wildness, symbols of Montana's identity, it does not matter whether an area is publicly or privately owned, and that Montana public lands are valuable. In this situation, the motorized and active groups have similar values which might have to do again with an access issue to partake in the activities in their recreation cluster. The passive activity group is not similar to the active group but is similar to the motorized group with these value statements.

There are only two value statements where motorized and passive groups are similar but the motorized and active groups are different where at the same time the active and passive groups are the same. These differences exist with the values statements regarding Montana's

public lands as historic resources and being unable to use Montana's public lands would still lead to support for them.

Another combination where more than one value statement had the same similarities and differences within the groups is where the motorized and active groups are the same and the active groups and the passive groups are the same but the motorized and passive groups are different. This holds true for the value statements: places for recreational activities and places that give me elbow room. The visitors who participate in motorized activities and active activities are perhaps more likely to need areas that provide for recreational activities and elbow room than respondents who are more passive recreationists.

The last combination noting significant differences only occurs with one value statement regarding Montana's public lands: Montana's public lands are valuable because they produce wood products, jobs, and income for people. The differences in this value statement exist between both the motorized and passive groups with the active group. The motorized and passive groups show no significant difference with each other, but they both show a difference with the active group. The means were higher for the motorized and passive group.

The resulting significant differences and similarities between the recreation cluster groups show how different these groups' values are for Montana's public lands, but it also shows some similarities between the groups that may not have been evident before this study. The Jackson (1986) study also found differences between recreation user groups, but used a different means of comparing activities. For example, appreciative (hiking), consumptive (hunting), and mechanized (snowmobiling) showed both similarities and differences as did this study. This supports the approach to clustering activities to find both similarities and differences in recreation participation. That study, however, did find regardless of the types of activities

participated in that “outdoor recreation participation is more strongly related to attitudes toward specific aspects of the environment necessary for pursuing such activities than to attitudes toward more distant environmental issues” (Jackson, 1968). This again supports looking at values and recreation participation specifically related to Montana.

While it is widely known in recreation literature that motorized users tend to stand out from other user groups (Andereck et al., 2001; Schilling et al., 2012), the motorized group had the highest means for 16 of the values scale items. This confirms the findings in the Andereck et al. (2001) study that showed the motorized group having higher means on that scale for value items as well when looking at recreation use. While motorized activities are often looked at as not necessarily environmentally friendly, the recreationists in this study and the Andereck et al. (2001) study tended to have stronger values for these areas than the other segments. However, Schilling et al. (2012) found that motorized recreationists tend to report lower levels of conflict with other user groups. This may lead one to assume that with lower reported conflicts that motorized recreationists have less intense values for the lands they recreate on; however, the Schilling et al. (2012) study showed that motorized recreationists had the highest mean score for the values statements. Another reason could be that active (but non-motorized) recreationists have higher values for things not measured (i.e., silence, solitude, etc.).

Andereck et al. (2001) found that as recreationists identify themselves with a group of users, their perceptions of users of a group by non-users of that group develop. This is confirmed with regards to recreation and using Montana’s public lands in this study. Based on the Andereck et al. (2001) study, one may think that the motorized and non-motorized (active) groups would have stronger opinions when looking at the values statement ‘if I were unable to recreate on Montana’s public lands I would still enjoy them.’ The motorized group had a mean of 3.30 and

the non-motorized “active” had a mean of 3.35. The passive group here had a mean of 3.42 perhaps having less of an attachment to recreation and public lands. This may be due to the fact that the passive group has less of an identity within itself (a mixed or leftover group of activities) than either the motorized or active group.

Overall there were three differences between the motorized and active groups (Table 14). This comparison (motorized and active) had the least number of significant differences. A large number of the recreation activities listed in the “active” group are what are often characterized in other studies and the “non-motorized.” The small number of differences shows that these groups may not be all that different in their values of Montana’s public lands. Perhaps both of these user groups value the public lands for providing opportunities for the recreation activities in which they participate. For land managers and recreation planners, this could be a significant finding.

**Table 14: Three Differences between Motorized and Active Groups**

<b>Value Statement</b>	<b>Motorized</b>	<b>Active</b>
I value Montana’s public lands as places of scenic beauty	+	
If I were unable to use Montana’s public lands I would still support their existence		+
Montana’s public lands are valuable because they produce wood products, jobs, and income for people	+	

+ group with the higher mean score

There were nine differences between the motorized and passive groups (Table 15). The mean values scores for the motorized group were higher than the passive for all of the above items except the one value statement that comes from the Natural Area Values scale, “If I were unable to use Montana’s public lands, I would still enjoy them.” This statement had a lower mean score for the motorized group which actually means they more strongly disagree with that statement leading one to understand that being able to use public lands is valuable to the

motorized group. Perhaps this is due to the fact that public lands are not required for the recreation activities in the passive group and therefore they are less likely to value those items.

**Table 15: Nine Differences between Motorized and Passive Groups**

<b>Value Statement</b>	<b>Motorized</b>	<b>Passive</b>
I value Montana’s public lands as places of scenic beauty	+	
I value Montana’s public lands as places for recreational activities	+	
I value Montana’s public lands as sites to renew my sense of personal well-being	+	
I value Montana’s public lands as places that provide open space	+	
I value Montana’s public lands as places that make me feel good	+	
I value Montana’s public lands as places that give me elbow room	+	
I value Montana’s public lands as places that provide a variety of natural areas	+	
I value Montana’s public lands as places that provide a feeling of freedom	+	
If I were unable to use Montana’s public lands, I would still enjoy them		+

+ group with the higher mean score

The literature often focuses on the differences (and conflicts) between motorized and non-motorized recreation groups, however, the results of this study only found a total of eleven out of the 41 value statements where the motorized group had differences from either the active or the passive groups (Table 16).

That means that there were thirty value statements between the two scales where the motorized group had no significant difference between either the active or passive groups. That points to quite a bit of similarity in values and can be seen as huge implications for land managers. Focusing on these similarities instead of finding the differences between the groups could be an area that may lead to successful implementation of multiple use agency requirements.

**Table 16: Eleven Value Statements where the Motorized Group differed from either the Active or Passive Group**

<b>Value Statement</b>	<b>Motorized</b>
I value Montana’s public lands as places of scenic beauty	A
If I were unable to use Montana’s public lands I would still support their existence	A
Montana’s public lands are valuable because they produce wood products, jobs, and income for people	A
I value Montana’s public lands as places of scenic beauty	P
I value Montana’s public lands as places for recreational activities	P
I value Montana’s public lands as sites to renew my sense of personal well-being	P
I value Montana’s public lands as places that provide open space	P
I value Montana’s public lands as places that make me feel good	P
I value Montana’s public lands as places that give me elbow room	P
I value Montana’s public lands as places that provide a variety of natural areas	P
I value Montana’s public lands as places that provide a feeling of freedom	P
If I were unable to use Montana’s public lands, I would still enjoy them	P

A (active) or P (passive) notes which group the motorized segment differs from.

Lastly, there were 13 differences between the active and passive groups (Table 17).

These two groups had the highest number of significant differences in values statements. It might be assumed that since the literature shows such a dichotomy between motorized and non-motorized groups that based on the recreation activity segments in this study, the active and passive groups would not have the greatest number of significant differences in the value statements. This is an interesting outcome. For all but three of the value statements the mean was higher for the active group than the passive. Two of the scale items where the means were lower: (1) it does not matter to me whether a natural area is publicly or privately owned and (2) if I were unable to use Montana’s public lands I would still enjoy them. This occurred with the same result in the previous section where the lower the mean meant a higher level of value (disagreement with the value statement meant a higher level of value). Therefore, the active group has a higher level of value for Montana’s public lands than the passive group. With the passive and motorized comparison, this could similarly suggest that the active group needs

public lands to participate in the recreation activities in that cluster. The passive group also had a higher mean when looking at Montana’s public lands being valuable for producing wood products, jobs, and income for people. It appears the active group may have a more narrow idea of uses for Montana’s public lands than the passive group.

**Table 17: Thirteen Differences between Active and Passive Groups**

<b>Value Statement</b>	<b>Active</b>	<b>Passive</b>
I value Montana’s public lands as places of scenic beauty	+	
I value Montana’s public lands as places for wildness	+	
I value Montana’s public lands as symbols of Montana’s identity	+	
I value Montana’s public lands as sites to renew my sense of personal well-being	+	
I value Montana’s public lands as places that provide open space	+	
I value Montana’s public lands as places that make me feel good	+	
I value Montana’s public lands as places that provide a variety of natural areas	+	
I value Montana’s public lands as places that provide a feeling of freedom	+	
It does not matter to me whether a natural area is publicly or privately owned		+
If I were unable to use Montana’s public lands, I would still enjoy them		+
I value Montana for its access to public lands	+	
Montana’s public lands are valuable because they produce wood products, jobs, and income for people		+
Montana public lands are valuable	+	

+ group with the higher mean score

In summary, it may have been hypothesized that the motorized group would be the most different from the other recreation activity segments based on previous literature (Andereck et al., 2011). However, the outcome of this study shows that motorized and active recreation groups value Montana’s public lands more than those recreationists who participate in only passive activities. This may lead public land managers to focus on providing opportunities for motorized and active recreationists over the more “front-country” activities that are categorized in the passive group in this study. In addition, individuals who hold values for an area tend to support it



even if they do not use it. As mentioned previously, just knowing it is there is enough for some individuals to support its existence. Tourism promoters and policy makers should use this knowledge of public land values by recreation type to increase support for maintaining their product: Montana's public lands.

In addition to looking at the differences between the groups, an area that promoters and land managers can focus on is to find the similarities amongst the recreation groups and visitors to public lands. Table 18 shows the value statements where there was no significant difference between the three recreation segments on the National Parks Values Scale. While there is some variation in the mean scores, for each item on this scale, the mean is on the agreement end of the scale. These seventeen items where similarities existed included valuing Montana's public lands as: (1) places that provide income; (2) wildlife sanctuaries; (3) places that everyone should see at least once; (4) places that protect fish and wildlife habitat; (5) places for education about nature; (6) places for the enjoyment of people; (7) places for all living things to exist; (8) protectors of threatened and endangered species; (9); places for scientific research and monitoring; (10) tourist destinations; (11) reserves of natural resources; (12) sacred places; (13) social places; (14) economic resources; (15) places to develop my skills and abilities; (16) places to be free from society and its regulation; and (17) places that evoke a spiritual and/or religious connection in me.

**Table 18: Value Items Showing No Significant Difference between the Recreation Segments on the National Parks Values Scale**

<b>I value Montana’s public lands as...</b>	<b>Motorized</b>	<b>Active</b>	<b>Passive</b>
Places that provide income (i.e., mining, logging, grazing)	4.19	3.84	4.24
Wildlife sanctuaries	5.46	5.50	5.28
Places everyone should see at least once	5.59	5.52	5.38
Places that protect fish and wildlife habitat	5.46	5.46	5.28
Places for education about nature	5.43	5.33	5.20
Places for the enjoyment of people	5.39	5.42	5.33
Places for all living things to exist	5.31	5.41	5.25
Protectors of threatened and endangered species	5.27	5.26	5.21
Places for scientific research and monitoring	5.19	5.21	5.11
Tourist destinations	5.29	5.25	5.29
Reserves of natural resources for future use	5.07	4.94	5.03
Sacred places	4.88	4.84	4.70
Social places	4.62	4.53	4.60
Economic resources	4.54	4.35	4.70
Places to develop my skills and abilities	4.59	4.38	4.28
Places to be free from society and its regulation	4.20	4.07	4.09
Places that evoke spiritual and/or religious connection in me	4.69	4.79	4.51

Mean scores shown from a scale of: 1= strongly disagree; 2= disagree; 3= somewhat disagree; 4= somewhat agree; 5= agree; 6= strongly agree.

The similarities for the modified Natural Area Values Scale are shown in Table 19 where there was no significant difference between the three recreation segments. All but one item (valuing the natural environment is part of my spiritual and/or religious beliefs) from this list of the items with similarity of values between the three recreation groups were Montana-specific statements. The managers and promoters can look to these statements to find common-ground between these groups when looking specifically at Montana’s public land values.

The Montana-specific value items that show similarities between the groups on this scale are these six items” (1) even just driving Montana’s roads and highways makes me feel connected to the land; (2) viewing the scenery while driving Montana’s roads and highways is of value to me; (3) I don’t have to go into the backcountry to feel a sense of value for Montana’s

public lands; (4) I can distinguish between private lands and public lands while driving in Montana; (5) if I were unable to recreate on Montana’s public lands, I think they could be used for other things; and (6) I need to know that untouched natural areas exist in Montana.

**Table 19: Value Items Showing No Significant Difference between the Recreation Segments on the Natural Area Values Scale**

<b>To what extent do you disagree or agree with the following?</b>	<b>Motorized</b>	<b>Active</b>	<b>Passive</b>
Even just driving Montana’s roads and highways makes me feel connected to the land.	4.83	4.70	4.90
Viewing the scenery while driving Montana’s roads and highways is of value to me.	5.38	5.33	5.43
I don’t have to go into the backcountry to feel a sense of value for Montana’s public lands.	4.68	4.70	4.92
I can distinguish between private lands and public lands while driving in Montana.	3.40	3.35	3.58
If I were unable to recreate on Montana’s public lands, I think they could be used for other things.	3.30	3.35	3.42
Valuing the natural environment is part of my spiritual and/or religious beliefs.	4.46	4.47	4.21
I need to know that untouched natural areas exist in Montana.	5.05	5.10	4.83

Mean scores shown from a scale of: 1= strongly disagree; 2= disagree; 3= somewhat disagree; 4= somewhat agree; 5= agree; 6= strongly agree.

Promoters should focus on attracting those visitors with similar values to similar activities. For land managers, with the large number of visitors to the state, value consideration in the planning stage for agencies should be a critical component. This could contribute to a more longitudinal approach to planning. The promoters and managers should work together to attract those visitors with similar values to the same types of public lands.

**Limitations**

Initial limitations of this study, including a convenient sample using the ITRR research panel, were discussed earlier in the paper. After analysis, results, and discussion some other limitations of this study were revealed.

As previously discussed, the literature shows it is important to make the values Montana-specific and therefore additional scale items were added. However, due to the method of data collection (an online questionnaire), the length of the questionnaire was important to keep in mind. We did not want to lose the interest of the panel in knowing that attention spans can dwindle with longer surveys. Therefore, some statements were removed from both the National Parks Values Scale and the Natural Area Values Scale. If time, or rather length of the questionnaire, was not an issue, it may have been more beneficial to include all of the original scale items and then add items to those original scales. With a different research methodology, it would have been better to use all scale items from both scales for maximum reliability and validity for both scales.

### **Future Research**

There are additional ways to look at the data from this study. Since the activity segments had already been developed to look at a research question from this study, it would be beneficial to look at the differences in activity segments and their use of public lands. For example, which public lands do the motorized users visit most frequently? The demographics of each of the segments might also be of interest to land managers and tourism industry professionals. This would allow for even greater distinction between the three groups beyond their values for Montana's public lands.

It may not be enough to just compare activity groups. As Devall and Harry (1981) point out, it may be useful to cluster recreation by looking at their environmental obtrusiveness. In particular, looking at the values that were addressed in this study, the amount of impact an activity has on the environment might be another in-depth way to segment the activities and then look at the value differences (and similarities) from there.

Going the other way from doing additional analysis on the segments, it may be beneficial to look at each activity and the mean scores not in groups. While clusters did not fall out initially (therefore a priori segmentation was done), Andereck et al. (2001) found that activities that are more similar than motorized versus non-motorized (for example hiking and mountain biking which are both non-motorized) have shown conflict to exist between these groups and differences in attitudes. It would be interesting to look at the mean score differences for each activity to see if there are differences within those user groups that were clustered for this study.

Another way to look at the values by activity group would be to ask the respondent to identify themselves by the recreation activity they most identify with (whether it be the one they spend the most time on or the activity they identify themselves by most). Then ask them to respond to the value statements in that frame of mind (i.e., “as an OHV user, I value Montana’s public lands as...”).

A qualitative component to this data would be a nice addition. A literature review was used to develop the scales, but what do these concepts mean to each person? For example, the respondent could elaborate on what “wildness” means to them. Asking each person to define how they interpret the whole concept of values. In this study, respondents were allowed to self-define values because values come from within and are therefore unique to each person; therefore, values could be defined differently for each individual.

Perhaps values are not even the right way to be looking at what is important. Should we instead be focusing on what makes up the experience first? Identify what is important about these places and then examine it from a different angle. For example, some research questions could be: (1) is the environmental quality of a place more important to one recreation activity group than another? (2) Do you value the environmental quality of a place more as a hiker than a

dirt biker? (3) Is it important to have wildflowers to look at or is that not necessary? (4) Is it more the experience than the physical presence of things that is important (or that you value more)?

## **Conclusions**

The results from this study developed even more support for the idea that land managers and tourism professionals need to be working together. Tourism and recreation is a large part of Montana's economy (Institute, 2012) and public land makes up one-third of Montana's land-base, therefore understanding the values that visitors have for Montana's public lands can help land managers and tourism professionals meet the needs of users. Understanding the underlying value instead of solely the demographics of the nonresident visitors to Montana as Jackson (1986) made the case for may help in a more long-term approach to tourism promotion for the state of Montana. As socioeconomic factors tend to change over time, those nonresidents who are attracted to Montana may be more likely to have values that Montana's public lands accommodate.

Public lands at the national level (Forest Service, Park Service, and BLM), rely on federal funding. These monies come from outside the state of Montana where these nonresident visitors reside. This study showed that nonresidents still value Montana's public lands if they were unable to use them which supported existence and bequest values for Montana's public lands. Schuster et al. (2003) may say it best: "it is a constitutional right of all Americans to have their values represented by public policy concerning public land and to have an opportunity to realize desired values on public land...the process of applying social values is a political, academic, and civic process" (p. 364).

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## Appendix

Your participation in this study is completely voluntary. There are no foreseeable risks associated with this project. However, if you feel uncomfortable answering any questions, you can withdraw from the survey at any point. It is very important for us to learn your opinions. Your survey responses will be strictly confidential and data from this research will be reported only in the aggregate. Your information will be coded and will remain confidential. If you have questions at any time about the survey or the procedures, you may contact my advisor: Norma Nickerson, ITRR Director, 406-243-5686 or by email at [itrr@cfc.umt.edu](mailto:itrr@cfc.umt.edu)

Thank you very much for your time and support. Please start the survey now by clicking on the Continue button below.

Kind Regards,  
 Megan Tanner  
 Graduate Student, College of Forestry and Conservation, University of Montana

This survey program does not allow for you to go back to a previous response! Please answer each question as accurately as possible before moving forward.

Is Montana your permanent residence?

1. Yes
2. No

Have you visited Montana?

1. Yes
2. No

Please think about the extent to which you value certain aspects of Montana and its landscape in relation to public lands.

I value Montana's public lands as . . .

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
Places of scenic beauty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wildlife sanctuaries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Places everyone should see at least once	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Places that protect fish and wildlife habitat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Places for education about nature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Historic resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Places for the enjoyment of people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Places for all living things to exist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Places for wildness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Symbols of Montana's identity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Protectors of threatened and endangered species	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Places for recreational activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Places for scientific research and monitoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tourist destinations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sites to renew my sense of personal well-being	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reserves of natural resources for future use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sacred places	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Social places	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Economic resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Places to develop my skills and abilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Places to be free from society and its regulation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Places that provide open space	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Places that make me feel good	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Places that give me elbow room	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Places that provide a variety of natural areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Places that provide a feeling of freedom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Places that evoke spiritual and/or religious connection in me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Places that provide income (i.e., mining, logging, grazing)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

To what extent do you disagree or agree with the following . . .

	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
It does not matter to me whether a natural area is publicly or privately owned	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Even just driving Montana's roads and highways makes me feel connected to the land	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Viewing the scenery while driving Montana's roads and highways is of value to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I don't have to go into the backcountry to feel a sense of value for Montana's public lands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can distinguish between private lands and public lands while driving in Montana	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If I were unable to use Montana's public lands, I would still enjoy them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If I were unable to use Montana's public lands, I would support their existence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If I were unable to recreate on Montana's public lands, I think they could be used for other things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I value Montana for its access to public lands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Valuing the natural environment is part of my spiritual and/or religious beliefs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Montana's public lands are valuable because they produce wood products, jobs, and income for people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I need to know that untouched natural areas exist in Montana	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Montana public lands are valuable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

While in Montana, have you visited National Park System lands? (i.e., parks, battlefields, monuments)

1. Yes
2. No
3. Don't know

Please specify names of Park Service sites visited:

While in Montana, have you visited National Forests or Grasslands?

1. Yes
2. No
3. Don't know

Please specify names of National Forests and/or Grasslands visited:

While in Montana, have you visited National Wildlife Refuges?

1. Yes
2. No
3. Don't know

Please specify names of Wildlife Refuges visited:

While in Montana, have you visited Bureau of Land Management lands?

1. Yes

2. No
3. Don't know

Please specify names of Bureau of Land Management lands visited:

While in Montana, have you visited Montana State Parks? (excluding State Fishing Access Sites)

1. Yes
2. No
3. Don't know

Please specify names of Montana State Parks visited:

While in Montana, have you visited Montana State Fishing Access Sites?

1. Yes
2. No
3. Don't know

Please specify names of State Fishing Access Sites visited:

While in Montana, have you visited Montana Department of Natural Resource lands?

1. Yes
2. No
3. Don't know

Please specify names of State Department of Natural Resource lands visited:

While in Montana, have you visited U.S. Army Corps of Engineer sites? (i.e., lakes)

1. Yes
2. No
3. Don't know

Please specify U.S. Army Corps of Engineer lakes visited:

While in Montana, have you visited Bureau of Reclamation sites? (i.e., lakes)

1. Yes
2. No
3. Don't know

Please specify Bureau of Reclamation lakes visited:

Please select all of the activities you have participated in on Montana public lands:

1. Developed camping
2. Primitive camping
3. Resort use
4. Nature center activities
5. Nature study
6. Viewing wildlife
7. Viewing natural features
8. Viewing historical sites
9. Relaxing
10. Picnicking
11. Off highway vehicle (OHV) use
12. Motorized trail activity
13. Snowmobiling
14. Driving for pleasure
15. Motorized water activity
16. Other motorized activity
17. Non-motorized water activities
18. Fishing
19. Hunting
20. Gathering natural products
21. Hiking/walking
22. Backpacking
23. Horseback riding
24. Bicycling
25. Downhill skiing/snowboarding
26. Cross-country skiing
27. Other non-motorized activities
28. Some other activity

In what U.S. state, Canadian province, or foreign country do you permanently reside?

What is your gender?

1. Female
2. Male

In what year were you born?

What best describes your annual household income? (in USD)

1. Less than \$50,000
2. \$50,000 to less than \$75,000
3. \$75,000 to less than \$100,000
4. \$100,000 to less than \$150,000
5. \$150,000 to less than \$200,000
6. \$200,000 or greater

What is your highest level of education completed?

1. Some high school
2. High school diploma or equivalent (GED)
3. Some college
4. Associates degree
5. Bachelors degree
6. Masters degree
7. Doctorate or professional degree

Thank you for your time!