An Examination of the Motivations, Needs, and Demographics of Mountain Bicyclists in the West Cuesta Ridge Area of the Los Padres National Forest

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ABSTRACT

AN EXAMINATION OF THE MOTIVATIONS, NEEDS, AND DEMOGRAPHICS OF MOUNTAIN BICYCLISTS IN THE WEST CUESTA RIDGE AREA OF THE LOS PADRES NATIONAL FOREST

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Mountain biking has become an increasingly popular sport over the past couple of decades. Despite its popularity, some land managers struggle to understand and keep up with the evolving and heavy use of mountain bikes on their trails. The purpose of this study was to examine the motivations, needs, and demographics of mountain bicyclists in the West Cuesta Ridge Area of the Los Padres National Forest in San Luis Obispo, CA. Data were collected using self-administered questionnaires on site, at two different trailheads. From a sample of 36 subjects, findings included their demographics and preferred trail qualities. The key qualities were reported to be single-track, natural scenery, variety, flow, and technicality. Also researched were the differences in motivational factors between different riding types and skill levels. Overall, the most important motivations included enjoyment, exercise, and natural scenery. Land managers and advocacy groups should use this information as a tool to provide for their end users; and also use this study as a model to conduct similar research in their respective mountain biking areas.

Keywords: West Cuesta Ridge Area, mountain biking, motivations, trails, preferences

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Chapter 1

INTRODUCTION AND REVIEW OF LITERATURE

Background of the Study

Karl von Drais invented the first bicycle in 1816; he rode his "Draisine," an odd-looking two-wheeled mechanism, through the streets of Karlsruhe, Germany (Palmer, 1956). According to Sloane (1988), "factory made bikes in quantity hit the U.S. market around 1867" and "bicycling became an instant fad, an infatuation, virtually a way of life for Americans" (p. 493). However, it wasn't until the 1970s that a group of people decided to take their bikes off-road. Worland (2003) credits groups of riders in Marin County, CA and the southern San Francisco Bay Area with braving the first off-road hills. Worland states that in 1979, Gary Fisher and Charlie Kelley "set up 'MountainBikes,' the first company purely devoted to [mountain bikes]" (pg. 13) after racing trails like "Repack" on Mt. Tamalpais. Their pastime gained momentum over the next couple of decades; the National Sporting Goods Association (as cited in Luthje, Herstatt, & von Hippel, 2006) reported that in the U.S. in 2000, approximately 65% of bicycle equipment sales were mountain bike related. Whether it is the thick, knobby tired bikes, or the ski lifts open during the summer for downhill riders, mountain biking's current popularity is undeniable.

San Luis Obispo County lies just over 200 miles south of the San Francisco Bay Area. The region has many trails and mountain biking areas to choose from. One of the most popular in the County is the West Cuesta Ridge Area of the Los Padres National Forest. West Cuesta Ridge has eight trails with additions currently being constructed

(Central Coast Concerned Mountain Bikers [CCCMB], 2009). The trails accommodate every type of mountain bike rider, except for freestyle riders, who will benefit from the new additions.

Volunteers currently conduct most of the trail work. Volunteer-driven organizations like CCCMB and the Freeride and Sustainable Trails Association (FASTA) are the primarily responsible parties for trail improvement on the Central Coast. Because municipal parks organizations do not have the resources to provide for the changing needs of riders, these advocacy groups work with the public entities to maintain the trails. According to their website,

> The mission of the Central Coast Concerned Mountain Bikers (CCCMB) is to expand the network of sustainable and enjoyable trails in SLO County and to maintain the trails currently in use. Since 1987, we have worked with California State Parks, the National Forest Service, San Luis Obispo City, and San Luis Obispo County in designing and building new trails and in maintaining existing ones. (CCCMB, n.d., Who We Are section, para. 5)

Also mentioned in the website are FASTA's goals; to provide sustainable technical skill areas and "to reduce environmental damage caused by illegal and poorly designed trails" (CCCMB, n.d., Freeride with FASTA section, para. 3).

Despite the abundance of legal, documented trails on the Central Coast, some mountain bikers take to lesser-known, illegal trails in the area. These trails can be built by enthusiasts or may come as an incidental result of work in the area (e.g. firebreaks, unimproved roads). According to the International Mountain Bicycling Association (IMBA) (2008), "if a trail is properly located and constructed, it can handle a variety of

users with minimal impact to the natural world" (IMBA, n.d., Resource Conservation section, para. 2). However, illegal trails are not professionally designed, and therefore pose harm to fragile ecosystems and sensitive landscapes in the West Cuesta Ridge area.

Understanding why mountain bikers select certain trails may provide some insight for managers and volunteer groups who construct and maintain trails. It is important to at least understand the demographics, motivations, and needs of the riders, because riders' preferences may be attributed to a variety of factors. The West Cuesta Ridge Area is known to have illegal trails, and their use may stem from experience not fulfilled from the provided trails. Prior research has examined the effects of trail riding on the environment. Also, many studies and arguments have been made about the legality of trails and the pressure made by various advocacy groups. Although many areas of mountain bike trail management have been examined, organizations like CCCMB and FASTA would benefit from a more specific assessment of the local riders. The purpose of this study was to examine the motivations, needs, and demographics of mountain bicyclists in the West Cuesta Ridge Area of the Los Padres National Forest in San Luis Obispo, CA.

Review of Literature

Research for this review of literature was conducted at Robert E. Kennedy Library on the campus of California Polytechnic State University, San Luis Obispo. In addition to books and other resources, the following online databases were utilized: Academic Search Elite, SPORTDiscus, Hospitality and Tourism Complete, psycINFO, and Proquest. This review of literature is organized into the following topic areas:

classes and motivations of mountain bicyclists, and managing mountain bicyclists.

Classes and motivations of mountain bicyclists. Since its genesis in the 1970s, the sport of mountain biking has evolved into several different variations. Among the many types of riders exist equally diverse motivations. All mountain bikers are not the same, and the following review of literature examines the reasons for such diversity.

Worland (2003) identified seven different types of mountain bikers. The most common types included downhill, cross-country, freestyle, and dirt jumping. Luthje et al. (2006) emphasized the variety and customization of the sport:

> Mountain biking, which casual observers might assume to be a single type of athletic activity, in fact has many subspecialties. The specializations of mountain bikers in the sample involved very different mountain biking terrains, and important variations in riding conditions and riding specializations. (p. 16)

Luthje et al. (2006) focused on the abundance of innovation within the sport; combined with the growth of the sport, this notion depicts a culture of obsessed bicyclists who continually push the boundaries of the sport and its technology. A guide produced by Mountain Biking Magazine editors (as cited in Luthje et al., 2006) explained how bicyclists "kept pushing mountain biking into more extreme environmental conditions and also continuously developed new sports techniques involving mountain bikes" (p. 9). According to Luthje et al. (2006), mountain bikers began jumping off of small structures and crafting their own improvements to their bikes. Manufacturers would catch on to the most popular innovations among riders. And in addition to the unique subgenres of mountain biking, there exists a large number of motivations.

LaChausse (2006) explained, "overall, goal achievement, health concern, and weight concern were ranked as the main reasons why individuals participate in the sport of cycling" (p. 309). Like many other athletes, riders are motivated by the physiological benefits of the sport. LaChausse also showed that motives really differ depending on the level of involvement in the sport. The author found that non-competitive cyclists rode to lose weight and for affiliation reasons, whereas "competitive cyclists were significantly more likely . . . to endorse goal achievement, competition, and recognition as reasons for cycling" (p. 309). When compared to road cycling, LaChause found that mountain bikers were much more likely to find motivation in life meaning rather than competition or goal achievement. Compared to competitive or fitness goals, life meaning can be interpreted as the use of mountain bicycling as an opportunity to reflect and clear one's head. Most cyclists ride for the enjoyment, exercise, and natural setting (Hollenhorst, Schuett, Olson, & Chavez, 1995). According to Chavez (1997):

> In comparing the more avid (Specialists) to the less avid (Generalists) mountain bike riders, it was found that the more avid in this sample were younger, more inclined to participate in adventure activities (caving, rock climbing), and more experienced at all types of camping. (p. 47)

Due to the inherent risks in the aforementioned adventure activities, risk-taking may be a possible motivation for the more involved, younger cyclists. Hollenhorst et al. (1995) stated that the reasons for riding a mountain bike are "as abundant as the diverse riding opportunities that are found in the national forests" (p. 49). In their study of mountain bikers in National Forests, Hollenhorst et al. (1995) found that riders tended to organize informally, but there was a large contingent of organized group rides and races. This

finding may suggest that an individual's motivation to ride may be the social interaction and sense of belonging or association.

Managing mountain bicyclists. As the bike industry grows, so do the responsibilities of recreation managers. Sales and participation rates support this trend (Ransdell, Lucas, & Warner, 2005). According to Ransdell et al.:

> Mountain biking is a relatively new sport that engages and challenges risk-takers. This sport enables adventurers to explore more wilderness and backcountry under human power than ever before by foot. The bike industry has grown quickly in the past three decades and has generated a wide range of equipment to meet the needs and comfort of many varied off-road applications. (para. 26)

The sport has evolved from a risky experiment to a popular hobby (Chavez, Winter, & Baas, 1993). Because of its tremendous growth, land managers and recreational providers should understand experience preferences, hiker-biker relations, and environmental impact. Through examining these major aspects of the sport, managers will be better prepared to preserve their land and enhance the recreational experience.

Experience preferences can vary by rider expertise and terrain type. The New Zealand Department of Conservation (NZDC) (1995) conducted a study examining the experience preferences of all-terrain cyclists. Riders indicated a preference towards "challenging riding, natural forested settings, single-track, speed and excitement experiences, scenery, and general variety in riding conditions" (p. 18). The NZDC found experienced riders sought out faster, more technical routes for the thrill of the risk, while beginners enjoyed the solitude and peace. Chiu and Kriwoken (2003) considered this issue as a potential problem because of the interference of goals. Yet despite the

differences among skill types, most bikers preferred similar designs. Hollenhorst et al. (1995) found that riders generally desired 10-15 mile loops, while the NZDC's research reinforced the notion of 3 hour-long rides. Riders typically wanted trail maps, signs, and mileage markers, but did not want amenities that would interfere with the natural setting. Such interference may obstruct the view or environmental scenery. The researcher also found that most riders preferred routes in native forest and bush. The actual type of trail, once again, caused a divide amongst the experience levels (NZDC, 1995). The NZDC found that experienced riders wanted fast, tight, and twisting single-track while newer riders wanted smooth surfaces with few obstructions and gentle hills. These results coincided with the intended experiences for both types of cyclists (risky, fast riding vs. slow, social, peaceful riding). However, it is important to understand the divide among cyclists is small in comparison to conflicts with other user groups.

The biggest concern with the management of bicyclists could be the hikers and equestrians who may wish to ban bikers from certain trails (Ransdell et al., 2005). Chavez et al. (1993) suggested that management should be a cooperative effort:

> There seems to be some . . . issues regarding conflict between mountain bike riders and various user groups, such as the speed that mountain bikers can attain and the ability to approach with little noise, which can cause accidents or scare animals on the trails. And while the degree of potential conflict has remained manageable thus far, the degree of potential conflict might be controlled by having multiple user groups participate both in trail planning and trail decisions. (p. 34)

Chavez (1997) studied the perceptions of mountain bikers and found that respondents emphasized the importance of trail etiquette when encountering another user on the trail, for example yielding to all other trail traffic. According to Chiu and Kriwoken (2003), the best way to manage these issues is through education, track design, regulations, and enforcement. To help alleviate disruptive, multi-use trail traffic, many trails use signs that depict speed limits and yielding rules (e.g. bikes yield to hikers and equestrians). Simple methods like this may be all it takes to create an awareness of the issue. In order to enforce safe riding, many trail managers have the capability to issue citations and warnings in the event of any violation.

Even if mountain cyclists were completely segregated to their own trails, critics could still raise ecological impact as a concern (White, Waskey, Brodehl, & Foti, 2006). However, "research indicates that this sport is no more damaging than other forms of outdoor recreation, such as hiking, horseback riding, or trail running" (Ransdell et al., 2005, para. 22). Chiu and Kriwoken (2003) reinforced this finding, but added that wet surfaces, steep slopes, and skidding may intensify the adverse effects of off-road cycling. Even though mountain bikers may be the source of some trail degradation, the mountain bike community also provides many volunteers in resource management and trail reconstruction and maintenance (Hollenhorst et al., 1995).

Summary. Hollenhorst et al. (1995) concluded that as mountain biking continues to see a rise in participation rates, land managers must work with all trail users in a cooperative effort to maintain and manage the trails. In order to enhance the experience for riders, managers must understand the types of mountain bike riding and their preferences. Mountain bikers are not all the same and their motivations to ride are as

unique as the bikes themselves; these differences are often seen in the trails they choose to ride. Research shows mountain bikers look for certain preferred attributes in riding areas.

For managers to grasp the new age in extreme sport recreation, they should understand that this sport comes with certain challenges. Hiker and biker relations have become strained in many regions due to disruptive traffic on the trails. In addition, bikes are associated with damaged trails and the sensitive plants around them. The sport attracts people with many reasons to ride, and more riders means the importance of understanding and addressing the effects of these issues is critical.

Purpose of the Study

The purpose of this study was to examine the motivations, needs, and demographics of mountain bicyclists in the West Cuesta Ridge Area of the Los Padres National Forest in San Luis Obispo, CA.

Research Questions

This study attempted to answer the following questions:

1. Is there a difference in the motivations of cross-country vs. downhill mountain bicyclists?
2. How do motivations vary with skill level?
3. Which trails are being utilized?
4. Why do mountain bicyclists prefer certain types of trails?
5. What are the demographics of the mountain bicyclists?

Delimitations

The study was delimited to the following parameters:

1. The subjects of the study were mountain bikers who utilize the West Cuesta Ridge Area.
2. Data were collected to assess the motivations, needs, and demographics of mountain bikers in this area.
3. Data were collected during the winter of 2012.
4. Information for this study was gathered using self-administered, pen-and-paper questionnaires.

Limitations

The study was limited to the following factors:

1. The subjects of the study may have replied with socially acceptable answers that differed from their actual responses.
2. Some data were collected immediately following a ride, which, depending on the experience, may have influenced responses.
3. Data were collected during winter; trail conditions may have influenced the responses or impacted the number of riders on the trail.
4. The researcher's status as a mountain bicyclist may have inadvertently influenced the respondents and the interpretation of the data.
5. The accuracy of some respondents' memory of their last ride may have been influenced by recall bias.
6. The instrument was not tested for reliability or validity.

7. The subjects were chosen using non-probability, convenience-sampling methods.
8. Data collection was conducted only on days when rain was not forecasted.

Assumptions

The study was based upon the following assumptions:

1. It was assumed that respondents answered truthfully and to the best of their ability.
2. It was assumed that all respondents were mountain bikers and were familiar with mountain biking terminology.
3. It was assumed that all respondents had ridden in the West Cuesta Ridge Area of the Los Padres National Forest.

Definition of Terms

The following terms are defined as used in this study:

Cross country mountain bicyclist. one who uses their mountain bike to maneuver uphill and downhill on generally moderate terrain

Downhill mountain bicyclist. one who wears extra protective equipment and uses their mountain bike primarily for moving downhill at particularly fast speeds on all difficulties of terrain

Life meaning. a motive to mountain bike in order to reflect, contemplate, think, and clear one's head

Mountain bicyclist. one who uses a mountain bike on terrain other than pavement or other relatively smooth surfaces

Mountain bike. a non-motorized bicycle with thick, knobby tires and suspension

West Cuesta Ridge area. the region in San Luis Obispo that extends from the Los Padres National Forest to Cal Poly property and contains the following trails: Morning Glory, Shooters, Yewks, The Elevator, Roller Coaster, and Tough and Dirty Slide (West Cuesta Ridge Area of the Los Padres National Forest [Map], 2009)

Chapter 2

METHODS AND PROCEDURES

The purpose of this study was to examine the motivations, needs, and demographics of mountain bicyclists in the West Cuesta Ridge Area of the Los Padres National Forest in San Luis Obispo, CA. This chapter includes a description of subjects studied, the instrument used, the procedures of the study, and the method of data analysis.

Description of Subjects

The population of this study was individuals who have mountain biked in the West Cuesta Ridge Area of the Los Padres National Forest. The exact size of the population was unknown; and the sample size was limited due to the time and location of data collection. The sampling frame was not limited to gender, or any other demographic identifier, except for those under the age of 18. Subjects were selected using convenience sampling.

Description of Instrument

This study was conducted by collecting data through the form of a self-administered, pen-and-paper questionnaire (see Appendix A). The researcher created the questionnaire after analyzing previous studies and gaining input from the Director of Central Coast Concerned Mountain Bikers (CCCMB). The questionnaire opened with a brief description of the study, an estimated time to complete, and a notification of the voluntary and anonymous nature of the research.

The 10-item questionnaire was designed to pose simple questions first, followed by more thought provoking questions, and ended with demographic identifiers. Items one and two were asked to identify the type of rider. Item three was a Likert-type scale, which prompted the respondent to rate the relevance of each mountain biking motivation. Items four through six were asked to understand preferred trail usage and items seven through ten were related to demographics.

To pilot test the instrument, the researcher found eight people who fit the description of the subjects. The researcher distributed the instrument and provided instructions as if it was the actual data collection. Upon receiving the completed questionnaires, the researcher made changes necessary to increase the usability of the instrument and simplify the coding and data interpretation process. After the pilot test, the researcher eliminated an open-ended question that failed to provoke relevant or useful responses.

The instrument and the informed consent letter were reviewed and approved by the Cal Poly Human Subjects Committee. The informed consent letter was made available to all subjects; it indicated the purpose of the study, contact information, and the absence of risks associated with participation (see Appendix B).

Description of Procedures

On October 7, 2011, the researcher met with the Director of CCCMB, a local mountain bike advocacy group. The meeting was arranged after making contact through the email address provided on the organization's website. The researcher discussed a few topics of concern in the area. After gaining a better understanding of some of the more

common mountain bike issues, the researcher decided to conduct a study in the West Cuesta Ridge Area, home to a few popular trails. The researcher generated research questions, from which the questionnaire items were derived. The researcher used two different trailhead locations to distribute the questionnaire: Stenner Creek Road and Poly Canyon Road.

The researcher chose the dates of data collection based on weather conditions and expected traffic on the trails. The researcher chose weekend days without rain, when trails were relatively dry. On Sunday, January 15, 2012, the researcher drove to the gate at the East end of Stenner Creek Road (West Cuesta Ridge Area of the Los Padres National Forest [Map], 2009). From 9:00 a.m. to 12:00 p.m., the researcher distributed a questionnaire to every rider as they reached the gate. On Sunday, January 29, 2012, from 9:00 a.m. to 12:00 p.m. and on February 3, 2012, from 2:00 p.m. to 3:00 p.m. the researcher drove to the gate at the East end of Poly Canyon Road. The researcher distributed a questionnaire to every rider as they reached the gate. During the data collection, the researcher ensured the individual was over 18 years old, stated the purpose of the study, and instructed the participant that participation was voluntary and anonymous and would be used for a Cal Poly senior project. The researcher was available to respond to questions or to provide clarification, and placed the questionnaire in a folder upon its completion. After the data collection, the researcher departed and entered the data in an Excel database.

Method of Data Analysis

The researcher used a Microsoft Excel database to tabulate the data. Once the data were collected in the form of a questionnaire, they were anonymously entered into the database. The data were coded and sorted based on the type of analysis and nature of the question.

The first research question determined any difference in the motivations of downhill and cross-country riders. The instrument's first item identified the respondent's type of riding style. The data collected were analyzed using frequency and percentages. Item three, a Likert-type scale, also addressed this first research question by providing a numerical value rating to various motivations. The scale data were analyzed according to mean and standard deviation. The bivariate analysis involved a T-test.

The second research question determined if motivations varied with skill level. The instrument's second item was used to identify the rider's self-reported skill level. The ordinal data collected from item two were analyzed with frequency and percentages. This research question was addressed using an ANOVA.

The third research question determined which trails were being utilized. Item four identified the favorite trails in the West Cuesta Ridge area and item six asked if illegal trails were being used. Both questions provided nominal data and were analyzed with frequencies and percentages.

The fourth research question determined why people prefer certain types of trails. This was answered by item five, which asked about the respondent's preferred aspects of an ideal trail. Because this question was open-ended, the researcher looked for key words

and themes that were commonly used and sorted answers by similar responses. The data were analyzed using frequencies and percentages.

The fifth research question determined the demographics of mountain bikers. Items seven through ten were used to answer this final research question. Frequencies and percentages were used to analyze the data, except for item ten, which was analyzed with a mean and standard deviation.

Chapter 3

PRESENTATION OF THE RESULTS

The purpose of this study was to examine the motivations, needs, and demographics of mountain bicyclists in the West Cuesta Ridge Area of the Los Padres National Forest in San Luis Obispo, CA. Data were collected on three separate occasions during January and February, 2012. The researcher stood at two different trailheads that were known to access the West Cuesta Ridge Area. The researcher asked every mountain biker (limited to those at least 18 years of age) who passed to participate in the study. After seven hours total of data collection, conducted solely on the trails, the researcher compiled a sample size of 36 participants. The population of this study was unknown; therefore response rate could not be calculated.

Demographics

Data included information on gender, time in residence in the Central Coast, age, and employment status. Of the 36 subjects who participated in the study, there were more males (n=29, 80.56%) than females (n=7, 19.44%). Respondents lived on the Central Coast for an average of 19.29 years with a standard deviation of 15.01 years. Data on age were not collected in exact years, but rather in four different age brackets. The age bracket most represented by subjects of this study was 41 to 61 years of age. For information on all age groups, see Table 1.

Table 1
Age Bracket According to Frequency and Percentage

Age Bracket	*f*	%
18-24	6	16.67
25-40	13	36.11
41-61	14	38.89
62-	2	5.56
Total	35	97.23

Note. One subject did not respond.

Of the 36 respondents, a majority held full time jobs, followed by those who were students. See Table 2 for frequency and percentage of respondents regarding employment status.

Table 2
Employment Status According to Frequency and Percentage

Employment Status	*f*	%
Full-time work	25	69.44
Student	7	19.44
Part-time work	2	5.56
Unemployed	1	2.78
Retired	0	0
Total	35	97.22

Note. One subject did not respond.

Respondents' Motivations

Data were collected to find if motivations differed based on riding type and skill level. Overall, on a scale from one to four (four being very important) respondents marked enjoyment as the primary reason to mountain bike (mean=3.47, SD=.878); compared to competition, which was indicated as the least important motivation (mean=1.86, SD=.931). See Table 3 for the mean and standard deviation of each motivation for all respondents.

Table 3
Motivations According to Mean and Standard Deviation

Motivation	Mean	SD
Exercise	3.47	.878
Social Affiliation	2.20	.964
Life Meaning	3.17	.857
Enjoyment	3.89	.319
Natural Setting	3.75	.604
Competition	1.86	.931
Risk	2.14	.944

Note. Respondents used a Likert-type scale. A rating of 1 means "Not Important" and a rating of 4 means "Very Important".

The sample is represented by mostly cross-country riders (n=30, 83.33%), and some downhill riders (n=4, 11.11%). One respondent used the "other" space to indicate "climbing" as the self-identifiable riding type. This respondents' motivational data will not be included in this section due to the focus of the research question. Their motivations were mostly similar, however the largest differences were noted in social affiliation

(downhill mean=1.67; cross-country mean=2.27), risk (downhill mean=1.67; cross-country mean=2.17), and competition (downhill mean=2.25; cross-country mean=1.80). See Table 4 for a bivariate analysis of the means and standard deviation data for each motivation and riding type.

Table 4
Motivations Based on Riding Type According to Mean and Standard Deviation

	Riding Type		
Motivation	Downhill Mean	Cross-country Mean	P-value*
Exercise	3.00	3.53	.510
Social Affiliation	1.67	2.27	.203
Life Meaning	3.00	3.21	.663
Enjoyment	4.00	3.90	.083
Natural Setting	3.75	3.80	.863
Competition	2.25	1.80	.428
Risk	1.67	2.17	.535

Note. Superscript * indicates significance at an alpha level of .05

Respondents also identified themselves as one of four different skill levels. A majority identified themselves as intermediate (n=21, 58.33%), followed by advanced (n=6, 16.67), expert (n=6, 16.67%), and novice (n=3, 8.33%). Novice riders reported enjoyment as their most important motivational factor (mean=4.00), and marked competition (mean=1.33) and social affiliation (mean=1.33) especially low. Intermediate riders also valued enjoyment (mean=3.91), but responded to natural setting more favorably (mean=4.00). Advanced riders viewed exercise as the most important (mean=3.83), while expert riders regarded enjoyment (mean=4.00) and natural setting as

the most important (mean=4.00). Social affiliation was the closest factor to having a significant difference between the groups' motivations (p-value=.092). See Table 5 for a bivariate analysis of the means and standard deviation data for each motivation and skill level.

Table 5
Motivations Based on Skill Level According to Mean and Standard Deviation

	Skill Level				
Motivation	Novice Mean	Intermediate Mean	Advanced Mean	Expert Mean	P-value*
Exercise	2.67	3.36	3.83	3.33	.433
Social Affiliation	1.33	2.09	3.00	2.50	.092
Life Meaning	3.00	3.36	2.67	3.33	.391
Enjoyment	4.00	3.91	3.83	4.00	.729
Natural Setting	3.66	4.00	3.66	4.00	.095
Competition	1.33	1.82	2.33	1.83	.473
Risk	2.00	2.27	2.17	2.33	.970

Note. Superscript * indicates significance at an alpha level of .05

Trail Use

Of the 36 respondents, a slight majority reported never riding illegal trails (n=21, 58.33%), compared to those who did (n=15, 41.67%). Respondents were asked to indicate their two favorite legal trails in the West Cuesta Ridge Area, however not all subjects provided two responses. By a large percentage, the Morning Glory trail (n=25, 40.98%) was the most popular amongst the sample, followed by the Shooters trail (n=21, 34.43%) (See Table 6).

Table 6
Trail Preference According to Frequency and Percentage

Favorite Trail	*f*	%
Morning Glory	25	40.98
Shooters	21	34.43
The Elevator	6	9.84
Yewks	4	6.56
Tough and Dirty Slide	2	3.28
Roller Coaster	1	1.64
Stenner Creek	1	1.64
Total	60	98.37

Note. Not all subjects provided two responses.

Experience Preferences

Due to the open-ended nature of the questionnaire item, respondents provided a variety of reasons why they preferred certain trails. They were asked to list three aspects that make the ideal trail, so response rate should be three times the sample size, however not all subjects reported three responses. The researcher sorted the many responses and found 22 common themes. The most popular trail aspects were natural setting/scenery (n=12, 12.77%), technicality (n=8, 8.51%), flow (n=8, 8.51%), and single-track (n=8, 8.51%). Table 7 shows the preferred trail aspects as provided by the respondents and sorted by the researcher.

Table 7
Ideal Trail Aspects According to Frequency and Percentage

Trail Aspect	*f*	%
Natural Setting/Scenery	12	12.77
Technicality	8	8.51
Flow	8	8.51
Single-track	8	8.51
Variety	7	7.44
Well-Maintained/Safe	7	7.44
Hills	7	7.44
Smooth	6	6.38
Challenging	4	4.26
Jumps	4	4.26
Uncrowded	3	3.19
Curvy	3	3.19
Fast	3	3.19
Accessible	3	3.19
Long	3	3.19
All Season/Weather	2	2.13
Soft Soil	1	1.06
Good Traction	1	1.06
No Motorcycle Use	1	1.06
Fun	1	1.06
No Dust	1	1.06
No Jumps	1	1.06
Total	94	99.96

Note. Not all subjects provided three responses.

Summary

A majority of this study's respondents were male, full-time workers, ages 25 to 61, who have lived in the Central Coast for about 19 years. A vast majority were intermediate level cross-country riders. They tended to be more motivated by enjoyment, exercise, and the natural setting; competition being of the least importance. There was no significant difference of motivations when riding types or skill levels were compared. A little under half of the respondents reported ever knowingly riding illegal trails. The Morning Glory and Shooters trails were clearly the most popular amongst the sample. The most prominent preferred trail aspects included natural setting/interesting terrain, technicality, flow, and single-track. The following chapter will provide a more in-depth analysis of the findings, as well as conclusions and recommendations.

Chapter 4

DISCUSSION AND CONCLUSIONS

Mountain bicycling has become an increasingly popular sport. Recreation area managers and bicycle advocacy groups need to keep up with the changing preferences of mountain bikers to create the most appealing trail systems and effective maintenance programs. This concluding chapter will include the following: summary of the study, a discussion of the findings including limitations, conclusions based on research questions, and recommendations for related organizations and future research.

Summary

This study was designed to examine the motivations, needs, and demographics of mountain bicyclists in the West Cuesta Ridge Area of the Los Padres National Forest. In order to better understand bicyclists specific to this area, it was important to use this study as a tool to help make decisions regarding the land and its users. Mountain bicyclists are not all alike because they ride for unique motivations with different variations of bikes. And as the industry grows, so does the need for land managers to understand the conditions and experience preferences of their users.

All data were collected in the form of a self-administered, pen-and-paper questionnaire, which was constructed to answer research questions developed under the guidance of the Director of CCCMB. During the months of January and February, 2012, the researcher drove to two different trailheads in the area of the study. The researcher took a convenience sample of all riders who were available to anonymously participate.

The researcher input the data in an Excel database and calculated frequencies, means, and percentages; means were tested for significance using T-tests and ANOVAs.

Of the sample of 36 respondents, most were middle-age males with full-time jobs and over 19 years in residence on the Central Coast. The older demographic was surprising considering the proximity of this survey to a major university. The longer time in residence is a testament to the West Cuesta Ridge trail network, and after years of knowing the area, riders still enjoy the area. A majority were intermediate cross-country riders who were motivated by enjoyment, exercise, and the natural setting. Considering the hilly, wooded, and remote nature of the region, the West Cuesta Ridge Area certainly facilitates cross-country riders driven by those motivations. Respondents preferred the Morning Glory and Shooters trails by a vast majority. These trails exhibited many of the qualities riders regarded as most important, and because these are the two primary trails that start at the top of the ridge, they likely sustain the most traffic.

Discussion

Based on the subjects sampled, mountain bicyclists in the area are mostly older male adults. Despite the proximity of the trails to a major university, most riders were not students. The factors that most motivated these individuals were enjoyment, natural setting, and exercise. If these are the factors that bikers are looking to fulfill, then the West Cuesta Ridge Area may cater to these interests. The trail area is far removed from many structures or city development, which likely contributes to the fulfillment of a chance to ride in a natural setting. From the high elevations that can be reached on the trails, the area offers views that extend across the City to ocean beaches miles away.

Riders likely practice their motivations to exercise and enjoy themselves based on how their favorite trails correspond with their preferred experience preferences.

The trails most appreciated were Morning Glory and Shooters, which exhibit many of the qualities most riders were looking for in a trail. Both trails are fairly rocky and tight with difficult sections, which are aspects that correspond to the needs of riders for technical, single-track trails. The trails in the area also offer a lot of variety, due to the inherent changes in terrain and elevation. While some trails skirt the rocky ridge, others smoothly wind through groves of eucalyptus trees and over wooden platforms. The West Cuesta Ridge Area is quite expansive and encompasses large hills and slopes, which create challenging climbs and fast descents. Riders are clearly motivated by fitness and enjoyment, which are intensified when the slopes of trails increase.

Not as important to mountain bicyclists in the area were competition, risk, and social affiliation. Although some riders regarded these aspects as fairly important, most did not. Most riders in the area may only be recreationally involved; they likely do not ride to compete or fulfill a need for an adrenaline rush. They ride for the intrinsic enjoyment of the setting and the challenging trails. Although these trails may hold some inherent risk, the thrill of facing those dangers is not a reason most people ride.

When attempting to find variations in the motivations of downhill and cross-country riders, no significant differences were found. Yet in that same regard, it is important to notice the similarities in the motivations of riders that are fundamentally different. One would expect downhill riders to pursue the sport for the thrill of the risks inherent at high speeds on steep slopes. However these riders held their motivational factors of exercise, risk, and enjoyment at similar levels to cross-country riders. Whether

this is the same at trail areas in different regions remains unknown, but this area in particular may attract riders with motivations that are only parallel to each other.

The West Cuesta Ridge Area is known to have illegal trail systems. A fairly large percentage reported riding prohibited trails. The reasons people ride these trails is not exactly known, but it may be that they meet the needs of riders who no longer find enjoyment in riding legal trails.

When comparing the results of this study to previous research, there are some findings that have been reinforced. In concurrence with the research by LaChausse (2006), riders marked the motivational factor of exercise as important. And as suggested by Hollenhorst et al. (1995), riders who were more involved (expert) seemed to regard risk as a higher motivational factor slightly more than other skill levels. One motivational factor rating that did not reflect previous research, however, was social affiliation. Hollenhorst et al. (1995) found that riders tended to meet with groups and ride together, but social affiliation was not a strong motivational factor to the riders in this area.

After examining the key trail aspects that riders looked for, it was clear that they did not differ from mountain bicyclists in other studies and locales. The essential themes and elements that were derived from their responses were almost identical to the research conducted by the NZDC (1995). A majority of riders preferred challenges, scenery, single-track, and variety; all of which are qualities which translated to recreation areas across the world. Despite the abundance of these respected trails in the West Cuesta Ridge Area, land managers must continue to deal with illegal riding, a subject that became apparent through this study.

Because such a large percentage reported illegal riding activity, it would be beneficial for a study to determine the key motivating factors for such actions. Also, rather than examining the difference between types of riders, a study of the differences and interferences of preferences and motivations of all users would be extremely helpful. This study found the differences within the riding community to be minimal, however other types of people (hikers, equestrians) use the trails, and there may be a greater gap or interference with their preferences and goals. And due to the narrow focus of this study, it would be prudent for land managers to sponsor similar studies in their regions in the case that their subjects' needs and issues differ.

When considering the findings of this study, it is important to keep it in perspective. Some limitations existed which may have affected the outcomes. An important aspect to note is that this study was conducted during winter months. Trail conditions were not ideal, and winter riding was minimal. The researcher utilized convenience sampling, which allowed for the maximum amount of data collection during the time allotted, but the sample was not random. Finally, most mountain bicyclists like to make rides continuous, that is, not stop to answer a two-minute survey, which limited the sample size of this study.

After considering all the findings and analysis of the data collected, this study does provide some valuable information for land managers, bicycle advocacy groups, and individual riders, particularly in the area studied. This is the first study of its kind in the West Cuesta Ridge Area. The preferred trail aspect findings in particular will help trail builders understand and cater to the needs of the end user. And the end user, the mountain bicyclist, will benefit from improvements made to the trails. Finally, it is an essential

function of managers to understand the demographics of their patrons, which are identified through this study. This senior project would be better served to use as a tool to bridge the gap between various riders and those that make the trails they use.

Conclusions

Based on the findings of this study, the following conclusions are drawn:

1. There is no difference in the motivations of cross-country and downhill mountain bicyclists.
2. Motivations do not vary with skill level.
3. Morning Glory, Shooters, and some illegal trails are being utilized.
4. Mountain bicyclists prefer certain types of trails due to the natural setting, technicality, flow, and single-track.
5. The mountain bicyclists were primarily male, age 25 to 61, fully employed, and lived in the Central Coast for over 19 years.

Recommendations

Based on the conclusions of this study, the following recommendations are made:

1. Place proper signage on illegal trails and educate users on the legal and environmental consequences of their actions.
2. Focus maintenance efforts on the Morning Glory and Shooters trails, which likely sustain the heaviest use.
3. Build trails that feature the same key traits most riders prefer (i.e. single-track, variety, flow, etc.).

4. Future research should examine the reasons for, and effects of, illegal trail usage.

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APPENDIXES

Appendix A

Questionnaire

Mountain Biking: West Cuesta Ridge Area

Thank you for completing this brief questionnaire. The purpose of this study is to examine the motivations, needs, and demographics of mountain bikers in the West Cuesta Ridge Area of the Los Padres National Forest. Your participation is completely voluntary and anonymous. This survey should only take two minutes to complete.

1. What type of riding do you mostly identify with? (Please check one)

☐ *Downhill* ☐ *Cross-Country* ☐ *Other:* _____

2. Rate your skill level. (Please check one)

☐ *Novice* ☐ *Intermediate* ☐ *Advanced* ☐ *Expert*

3. On a scale of 1 to 4 (4 being the most important), indicate the importance of each motivation. (Please circle one for each category)

	Not Important			*Very Important*
Exercise	*1*	*2*	*3*	*4*
Social Affiliation	*1*	*2*	*3*	*4*
Life Meaning	*1*	*2*	*3*	*4*
Enjoyment	*1*	*2*	*3*	*4*
Natural Setting	*1*	*2*	*3*	*4*
Competition	*1*	*2*	*3*	*4*
Risk	*1*	*2*	*3*	*4*

4. Indicate your two favorite trails in the West Cuesta Ridge Area.

☐ *Morning Glory* ☐ *Shooters* ☐ *Roller Coaster* ☐ *Yewks*

☐ *The Elevator* ☐ *Stenner Creek* ☐ *Tough and Dirty Slide* ☐ *Other:*_____

Please turn over. →

5. Describe three aspects that make the ideal trail.

1)

2)

3)

6. Do you ever knowingly ride illegal trails? ☐ *Yes* ☐ *No*

7. Gender: ☐ *Male* ☐ *Female*

8. Age: ☐ *18-24* ☐ *25-40* ☐ *41-61* ☐ *62-*

9. Employment status. (Check all that apply)

☐ *Student* ☐ *Retired* ☐ *Full-time work* ☐ *Part-time work*
☐ *Unemployed*

10. Approximately how long have you resided in the Central Coast? _____ *years*

Thank You.

Appendix B

Informed Consent Letter

INFORMED CONSENT TO PARTICIPATE IN:

AN EXAMINATION OF THE MOTIVATIONS, NEEDS, AND DEMOGRAPHICS OF MOUNTAIN BIKERS IN THE WEST CUESTA RIDGE AREA OF THE LOS PADRES NATIONAL FOREST

Senior project research on mountain bicyclists is being conducted by Chris Devine in the Department of Recreation, Parks, and Tourism Administration at Cal Poly, San Luis Obispo, under the direct supervision of Dr. Marni Goldenberg. The purpose of the study is to examine the motivations, needs, and demographics of mountain bikers in the West Cuesta Ridge Area of the Los Padres National Forest in San Luis Obispo, CA.

You are being asked to take part in this study by completing the attached/enclosed questionnaire. Simply answer the questions on the page provided and return the pen and completed questionnaire to the researcher. Your participation will take approximately three minutes. Please be aware that you are not required to participate in this research and you may discontinue your participation at any time without penalty. You may also omit any items on the questionnaire you prefer not to answer.

There are no risks anticipated with participation in this study. Your responses will be provided anonymously to protect your privacy. Your participation in this research may increase our understanding of mountain bikers.

If you have questions regarding this study or would like to be informed of the results when the study is completed, please feel free to contact Chris Devine at (415) 246-9624. If you have concerns regarding the manner in which the study is conducted, you may contact Dr. Steve Davis, Chair of the Cal Poly Human Subjects Committee, at (805) 756-2754, sdavis@calpoly.edu, or Dr. Susan Opava, Dean of Research and Graduate Programs, at (805) 756-1508, sopava@calpoly.edu.

If you agree to voluntarily participate in this research project as described, please indicate your agreement by completing and returning the attached questionnaire. Please retain this consent cover form for your reference, and thank you for your participation in this research.