

## Factors That Affect Student Regional Park Use

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**Abstract** This study examines the primary factors that limit or prevent use of nearby regional parks by undergraduate college students at UC Berkeley. Using a web-based survey of a random sample of UC Berkeley undergraduates, I explored eight factors that might play a role in limiting student regional park use: money, access to transportation, distance to park, environmental value, interest in park opportunities, free time, knowledge of park opportunities, and concern for safety. Chi-squared analysis showed that there is no significant association between park use level and money, access to transportation, environmental value, interest in park opportunities, free time, knowledge of park opportunities, or concern for safety, but there is a significant association between park use level and distance to park. Individual direct ranking of factors by respondents demonstrated that the largest perceived barriers to park use among non-park users are free time and knowledge of park opportunities, and the largest perceived barriers to park use among regular park users are free time and access to transportation. These results suggest that park management agencies should invest resources in publicizing park opportunities to increase interest and in increasing park access, possibly by increasing bus service to parks.

## Introduction

Over 94 percent of Americans enjoy one or more types of outdoor recreation such as walking, camping, boating, nature study, and organized sports (Cordell et al. 1997). Outdoor recreation in natural areas can provide individuals with fitness opportunities, social opportunities, outdoor adventures, and nature experiences, which can provide spiritual rejuvenation (Hughes and Morrison-Saunders 2003), among other benefits. Much of this recreational activity occurs on public lands. These lands exist in the form of parks, forests, seashores, preserves, open space areas, monuments, historic sites, recreation areas, and various other classifications at the national, state, regional, county, and city levels. Like many of the agencies that manage public lands, the East Bay Regional Park District exists with a two-fold purpose: to protect the natural habitats of their lands through resource management and to provide recreational opportunities for the public (East Bay Regional Park District 1996).

This study examines the barriers to use of East Bay Regional Park District lands (Fig. 1) by undergraduates at the University of California, Berkeley. Identification of the barriers to regional park use by undergraduates is the first step in helping agencies managing regional parks and other similar public lands in working to mitigate the barriers.



Figure 1. Map of East Bay Regional Park District. Image ©2006 EBRPD.

The purpose of this study is to examine the relationship between students and regional park use. To put student regional park use in the context of the broader realm of land management, I constructed a model based on previous studies of land use and conservation, suggesting a cyclical relationship among five factors: park use, environmental knowledge, conservation efforts, environmental legislation, and park creation (Fig. 2). This model insinuates the following relationships: Some types of environmental knowledge can be increased by visiting regional parks. The more environmental knowledge individuals have, the more likely they are to support conservation efforts (Aipanjiguly et al. 2003). Conservation efforts can drive environmental legislation (Vaske and Donnelly 1999), which can create more protected park lands for public recreation and resource and ecosystem protection, completing the cycle. Also, simply experiencing parks fosters support for open space preservation and funding of recreational park lands (East Bay Regional Park District 1996). Creation of new parks and preservation of existing parks provides protection and management of natural resources (East Bay Regional Park District 1996, Bay Area Open Space Council 2004).

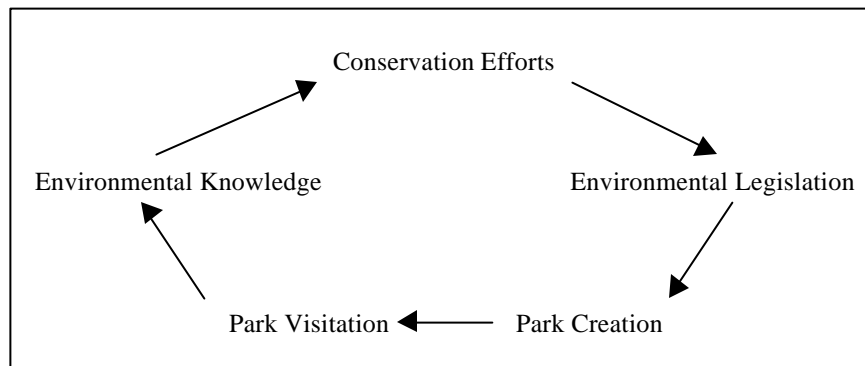


Figure 2. Park visitation cycle inferred from previous studies.

Previous studies by both park management agencies and social scientists have identified and investigated several factors that affect park usage. The Bay Area Open Space Council (2004) found that income and education are strongly positively correlated with park use. Distance to a park and availability of transportation are other factors, as most park users travel less than 30 minutes to get to the park of their choice (Bay Area Open Space Council 2004). Time constraints are the most commonly stated reasons why people do not participate in outdoor recreation (Bay Area Open Space Council 2004). Teisl and O'Brien (2003) found a positive correlation between park users and environmental concern and valuation. Also, Meinhold and Malkus (2005) found environmental knowledge is positively correlated with environmental behavior, which may include visiting parks.

Finally, simple interest in what parks provide personally for users, from opportunities for various activities (Bay Area Open Space Council 2004) to merely getting to a natural area (Hammitt 2000), affects people's park visitation choices. In addition to these other factors, I believe that concern for personal safety and knowledge of specific opportunities at local parks may also affect people's choices.

Despite all the research of user preferences in parks and natural areas, no studies focus explicitly on the barriers to park use. A barrier study is useful for understanding ways to increase park usage, particularly if one believes that increasing park usage can increase other factors in the cycle depicted in Figure 2. Some questions that emerge from this frame for inquiry are: why are certain people non-users? and, what prevents users from visiting parks more often? Along the lines of these questions, this study asks a narrower question about university students living near regional parklands: what are the primary factors that limit or prevent use of regional parks by undergraduate college students at UC Berkeley?

Based on my review of previous studies about recreational land use and user preference, and also on my suppositions, eight factors were considered as possible determinants of park usage: free time, distance to park, access to transportation, amount of disposable income, concern for personal safety, interest in park opportunities, knowledge of park opportunities, and environmental value. The hypothesized associations between these eight variables and park use (the dependent variable) are summarized in Table 1.

Table 1. Investigated explanatory variables, and their hypothesized associations with park use.

<b>Factor</b>	<b>Association</b>	<b>Explanation</b>
Money	+	The more money students have, the more likely they are to use parks because they will be able to pay user fees and afford transportation.
Access to Transportation	+	The easier it is for students to get to parks, the more likely they will go to them.
Distance to Park	-	The further a park is from a student's residence, the less likely they are willing to use the park.
Environmental Value	+	The more students value the environment, the more likely they are to use parks.
Interest in Park Opportunities	+	Students who have little or no interest in the various opportunities and benefits of parks will not use them.
Free Time	+	Students who feel they do not have enough free time to go to parks are less likely to use them, compared to those who feel they have ample free time.
Knowledge of Park Opportunities	+	Students who know about the various recreational opportunities available at parks are more likely to use than those with limited or no knowledge of park opportunities.
Concern for Safety	-	Students who are concerned about their personal safety when visiting parks are less likely to use them.

## Methods

To collect data on the relationship between students and regional park use, I conducted a survey of 1,000 UC Berkeley undergraduates. I chose this approach to emphasize breadth of contact with the study population, rather than emphasizing depth with methods like focus groups or one-on-one interviews. Undergraduate students were studied rather than the general population because they comprise a more accessible, definable population. This group may differ from the general population in park use trends because of their unique position, which often includes a lack of private transportation, a lack of ample spending money, and a lack of knowledge of opportunities of the area they recently moved to.

This project uses regional parks as a case study because many of them lie in close proximity to the UC Berkeley campus, where the study was conducted. Regional parks were also selected because, more so than city parks, they provide a nature experience associated with recreational use of the type relevant to the model in Figure 2.

Recruitment for participation in the study was done via email. The number of students chosen for recruitment was done so in an attempt to receive at least 100 responses to the survey (i.e. a conservative response rate of 10 percent). I obtained email addresses from individual student profiles on the website [www.facebook.com](http://www.facebook.com). All information in the profiles, including email addresses and status as an undergrad, was publicly released by the student creating the profile. Students were selected randomly and stratified by year of graduation in an attempt to obtain a representative sample of the undergraduate student body at UC Berkeley. Selection was carried out by using the website's "advanced search" function, specifying status as an undergraduate and year of graduation. Then, using random numbers generated in Excel, I took the email address from each profile on search result pages corresponding to the random numbers (i.e. if 32 was generated, email addresses from every profile on search result page 32 were taken). Selection was done for 250 email addresses from each graduation class year from 2006 to 2009, using a different list of random numbers for each year.

I emailed 1,000 undergraduates at UC Berkeley with a request to participate in this study. The survey was on a web page hosted by [www.surveymonkey.com](http://www.surveymonkey.com). The survey (Appendix A) consisted of 31 questions, which produce the data for my eight variables. In addition to these eight variables, I collected basic demographic information about my population to account for age, original locality, and local tenure effects. Table 2 summarizes these variables. The survey also contained a question to determine the relative weight of each factor as a barrier to student regional park use as perceived by the

respondent. The environmental value variable was measured using questions adapted from the “New Ecological Paradigm” (Dunlap and Van Liere 1978) that were used in a similar methodological study (email survey of college students) by Rideout et al. (2005). Responses to each question were coded for analysis as described in Appendix B.

Table 2. Description of questions used to measure variables.

<b>Variable</b>	<b>Question Description</b>	<b>Possible Responses</b>
Park Use	Respondents were asked if they had ever been to an East Bay Regional Park, and, if they had, how often they visit each semester.	6-level scale. Never, or each semester: less than once, once or twice, monthly, bi-weekly, and weekly
Money	(1) Respondents were asked to place themselves in a bin of how much weekly spending money they have. (2) Respondents were asked directly if money constrains their ability to visit regional parks.	(1) 6-level scale. \$0-\$50 in bins of \$10, or \$50+ (2) Likert scale: strongly agree to strongly disagree
Access to Transportation	Respondents were asked what forms of transportation they had available to them, and which forms they were willing to take to get to a regional park.	Car/Motorcycle/Moped, Bicycle, Bus, Other
Distance to Park	Respondents were asked how far (in minutes) they thought they lived from a regional park and how long they were willing to travel (in minutes) to get to one.	Open-ended responses
Environmental Value	Respondents were asked a series of questions asking their opinion on environmental beliefs, adapted from Dunlap and Van Liere (1978).	32-level scale based on responses to 8 Likert scale questions
Interest in Park Opportunities	Respondents selected from a list of park opportunities which ones they were interested in participating in.	12 available opportunities listed
Free Time	Respondents were asked how much free time they have each week.	6-level scale. 0-20 hours in bins of 5 hours, 21-30 hours, or 30+ hours
Knowledge of Park Opportunities	Respondents were asked to indicate from a list of opportunities which were available at regional parks.	16 opportunities listed, 12 of which are available
Concern for Safety	Respondents were asked if they had a safety concern while visiting regional parks.	Yes or No
Age	Age of respondent	Open-ended responses
Years at UC Berkeley	How many years the student has been at UC Berkeley	1-4 or 5+
Grew up in East Bay	Did the respondent grow up in the East Bay?	Yes or No

Results of the survey were analyzed using two primary methods. Coded data for each factor (and for the variables of age, years at Berkeley, and original locality) were analyzed using correlation analysis and chi-squared tests. Correlation analysis shows the relationship of each factor with the park use level of each student. Chi-squared tests determine whether responses to the questions quantifying each factor are answered differently by different levels of park users.

I analyzed the data collected from the second-to-last question of the survey (question 30), that asked the respondents to rank each factor individually as to how much it limits their visits to regional parks, differently. Using the coding system described in Appendix B, I took the mean score for each

factor to rank them. The mean was taken for the entire data set and then individually for park users (i.e. all levels of park use clumped together as one group) and for park non-users (i.e. those who have never been to a regional park). I then compared the results of each factor for park users and park non-users using chi-squared tests to determine if there was significant difference between the two groups of respondents. This analysis gives an understanding of what students perceive as the largest barriers to regional park use. It also allows for differences in perception of park users and non-users to be compared.

## Results

Because respondents had the option to skip questions, response rates for individual questions varied. A total of 166 students participated in the study, 64 percent of which were female, and 36 percent of which were male. Participation by ethnicity (compared to the ethnicity of the UC Berkeley undergraduate population) is summarized in Table 3. The largest differences between the sample group and the study population are with those identifying themselves as white (54.0% of the respondents while only 35.0% of the population) and Asian American (only 25.0% of the respondents while 46.7% of the population).

Table 3. Ethnic breakdown of respondents compared to studied population. UC Berkeley data based on Office of Student Research, UC Berkeley (2006).

<b>Ethnicity</b>	<b>Percent of Survey Respondents</b>	<b>Percent of UC Berkeley Undergraduate Population</b>
American Indian	1.2	0.6
African American	1.2	4.0
Asian American	25.0	46.7
Chicano/Latino	9.0	11.9
White	54.0	35.0
Other	7.8	1.7

The average respondent described their park use as visiting less than once a semester. This is because 51.8% of respondents have never visited a regional park (park use level 0), and the remaining 48.2% indicated levels of park use ranging from less than once a semester (park use level 1) to once a week or more (park use level 5). The majority of respondents indicated safety was not a concern, money was not a constraint, they were willing to travel the perceived distance to parks, and they had access to transportation they were willing to take to get to a regional park. Descriptive statistics for

questions concerning the eight factors and other explanatory variables considered are summarized in Table 4.

Table 4. Descriptive statistics of data collected for each variable.

Variable	Potential Responses	n	Mean	Standard Deviation
Park Use	0-5	166	1.0	1.2
Free Time	2.5, 8, 13, 18, 25.5, 35	164	13.7	8.2
Distance to Park	0-1	151	0.6	0.5
Access to Transportation	0-1	166	0.8	0.4
Money (amount)	5, 15, 25, 35, 45, 55	164	22.0	15.0
Money (constraint)	0-1	164	0.1	0.3
Safety Concern	0-1	165	0.3	0.4
Interest in Opportunities	0-12	161	6.1	2.7
Knowledge of Opportunities	0-12	161	7.4	3.2
Environmental Value	0-32	155	22.1	4.2
Age (in years)	Open-ended	164	19.6	1.4
Years at UC Berkeley	1-5	166	2.1	1.2
Grew up in East Bay	0-1	166	0.1	0.3

Results of correlation analysis of each of the eight factors with park use level confirmed all of the hypothesized associations (Table 5). With the exception of distance to park ( $r=-0.295$ ,  $p=0.000$ ), all correlations are so weak ( $r<0.25$ ) that they can be said to have no relationship. All three of the demographic variables measured have weak positive correlations with park use level, with years at UC Berkeley having the strongest correlation ( $r=0.453$ ,  $p=0.000$ ).

Table 5. Correlation of each factor with park use level. R column is relationship and p column is significance, based on correlation analysis. "n.s." denotes not significant.

Variable	Hypothesized Association	Measured Association	r	p
Money	+	+	0.176	0.024
Access to Transportation	+	+	0.147	n.s.
Distance to Park	-	-	-0.295	0.000
Environmental Value	+	+	0.134	n.s.
Interest in Park Opportunities	+	+	0.221	0.005
Free Time	+	+	0.037	n.s.
Knowledge of Park Opportunities	+	+	0.028	n.s.
Concern for Safety	-	-	-0.150	n.s.
Age		+	0.296	0.000
Years at UC Berkeley		+	0.453	0.000
Grew up in East Bay		+	0.263	0.001

Distance to park as a barrier is significantly different among the levels of park users ( $\chi^2=13.697$ ,  $p<0.025$ ,  $d.f.=5$ ). However, there is no significant association between park use and any of the seven other factors measured. The three demographic variables measured, years at UC Berkeley ( $\chi^2=61.525$ ,



$p < 0.001$ ,  $d.f. = 20$ ), age ( $\chi^2 = 45.738$ ,  $p < 0.001$ ,  $d.f. = 20$ ), and whether the respondent grew up in the East Bay ( $\chi^2 = 15.143$ ,  $p < 0.01$ ,  $d.f. = 5$ ), all have significant associations with park use level.

When asked to rank the factors directly (question 30), respondents ranked a lack of free time as the largest barrier to park use, with an average rating of 3.27 out of five. Access to transportation, travel time, and knowledge of park opportunities followed with 2.99, 2.97, and 2.92, respectively. Separating responses of park users from park non-users shows that park users ranked the top four factors in the same order. Park non-users, however, ranked knowledge of park opportunities second to free time, above access to transportation and travel time. Non-users rated interest in park opportunities as a barrier significantly more than park users ( $\chi^2 = 11.096$ ,  $p < 0.05$ ,  $d.f. = 5$ ). However, no other factors had average scores that were significantly different between park users and non-users (Table 6).

Table 6. Rankings of factors (0-5 scale) based on survey question 30. P column denotes if difference between park users and non users is significant based on chi-squared analysis. "n.s." denotes not significant.

Factor	Overall		Park Users		Non-Users		p
	Avg. Score	Rank	Avg. Score	Rank	Avg. Score	Rank	
Free Time	3.27	1	3.28	1	3.26	1	n.s.
Access to Transportation	2.99	2	2.90	2	3.07	3	n.s.
Travel Time	2.97	3	2.85	3	3.07	3	n.s.
Knowledge of Park Opportunities	2.92	4	2.68	4	3.13	2	n.s.
Money	1.99	5	1.74	6	2.21	5	n.s.
Interest in Park Opportunities	1.94	6	1.78	5	2.07	6	$p < 0.05$
Safety	1.50	7	1.23	7	1.73	7	n.s.
Interest in Being in a Natural Area	1.44	8	1.21	8	1.65	8	n.s.

From the 18 responses of the final question, which asked respondents to name additional factors that affected their use of regional parks, two issues were identified. A lack of knowledge of the location of East Bay Regional Parks was by mentioned by seven respondents. Two additional respondents stated they had more convenient locations to engage in the opportunities of regional parks. The remaining responses to this question re-identified one of the eight factors considered in this study.

## Discussion

Results of the correlation analyses confirmed the hypothesized associations of all eight factors with park use level. However, the correlations were so weak ( $r < 0.25$ ) that the data does not really establish associations for any of the factors with park use level, with the exception of distance to park, which has a weak negative correlation with park use. The chi-squared tests produced similar results: no significant difference between the responses to questions for each of the eight factors and park use

level, again with the exception of distance to park. This does not mean that distance to park is the only factor that affects regional park use. Because the correlation of park use level and distance to park is weak, and no other correlations exist, the lack of strong and significant associations may be due to study limitations, such as survey design.

All of the demographic variables (age, years at UC Berkeley, and whether or not the respondent grew up in the East Bay) were weakly positively correlated with park use level, and chi-squared tests found a significant association between park use level and each of these variables. Considering the weak or non-existent association of the eight investigated factors with park use level, the results for the demographic variables suggest that park use might have more to do with how long a student has lived near regional parks than with independent lifestyle variances (the eight investigated factors). Because of the weak power of all the results of the correlation analyses, the importance of length of time a student lives in the East Bay cannot be inferred, but merely suggested as a possible factor to consider in depth in a future study.

The results of the direct ranking of factors place free time as the largest factor overall and among park users and non-users individually. This ranking is understandable given the time constraints students have from classes, on campus activities, and other commitments.

The high rating of access to transportation, rated the second highest constraint overall, may be due to a complete lack of transportation – no car, bicycle, convenient bus route, or other form of transportation. It is also likely that, even with one or more form of transportation available, individuals may not be willing to use those forms to get to parks. A student may own a bike, but may not be willing to ride it up a hill to a regional park. If that student had a car, he may be willing to drive to a park, and thus would not see access to transportation as such a large barrier.

Falling just below access to transportation in the overall rating, travel time to regional parks may be closely related to access. Access to faster transportation (i.e. car rather than bicycle or bus) would reduce travel time. Also, if students do not visit parks regularly, their perception of how long it would take them to get to a park may be skewed; this possibility may explain the high rating of travel time (3.07 – tied with access to transportation) by park non-users.

Knowledge of park opportunities is a clear barrier, as it was rated fourth overall and among park users, and second among non park users. While the difference between park users and non-users is not statistically significant, the higher ranking among non park users indicates that park non-users might consider visiting regional parks if they knew more about them. Although not as high, the ranking of

this barrier by park users also suggests that park users may use the parks more often if they learn of additional available opportunities.

While the ranking of these four factors (free time, access to transportation, travel time, and knowledge of park opportunities) was slightly different between park users and non-users, the fact that there was no significant difference between users and non-users for each factor suggests that perceived barriers to regional park use are similar for all UC Berkeley undergrads, whether or not they visit parks.

Results of the open-ended final question identified a lack of knowledge of park locations and similar opportunities at other locations as additional factors that affect regional park use. These factors may be taken into consideration in future studies. However, because only seven and two people, respectively, listed these as barriers, the actual influence of these as factors can not be deduced from this study.

This study has some limitations on the understanding of the relationship between undergraduate college student and regional park use. Both the types of questions asked and the manner in which they were coded for analysis may not have allowed for a thorough gauging of all the factors considered in the study, which may have led to the weak or insignificant relationships between park use level and the majority of the factors. Often, questions and their coding placed respondents into too few groups, so clear differences among the sample may not have been established. For example, distance to park was simplified into whether or not a student was willing to travel the time it takes them to get to a regional park. Similarly, a student was considered to have access to transportation if they indicated they were willing to take a form of transportation they also had available. This does not take into account the fact that while a student may be willing to take a form of transportation they have available, they may be more likely to visit a park if they had a different form of transportation available. Also, I substituted "interest in being in a natural area" for environmental value in the direct ranking question because I did not feel that respondents would say that they do not go to parks because they do not value the environment. Being in a natural area is not equivalent to environmental value and, therefore, may not have been an accurate measurement of environmental value in that question.

Given the limitations to the study, few generalizations can be made about the behavior of students in regards to regional park use. Future studies of barriers to park use would benefit park managers who wish to increase recreational use of their lands. A redesigned survey that would more accurately measure the relationship between each factor and each respondent would hopefully increase the strength and significance of the results. The study could also be expanded beyond regional parks to

other classifications of public open-space and park classifications, and it could be expanded to the general population instead of merely college undergraduates.

The results of this study indicated that free time and access to transportation are the largest barriers to park use by park users and free time and knowledge of park opportunities are the largest barriers for park non-users. These results can provide a focus for park managers to direct resources towards the mitigation of park use barriers. While park management agencies cannot increase amount of free time individuals have, they can address the other primary factors that limit or prevent park use if they want to increase use of their lands. Access to transportation can possibly be improved by increasing bus routes. Improved access, in turn, would reduce time it takes to get to a park. Knowledge of park opportunities can more easily be addressed through publicity campaigns both at the parks themselves and in the surrounding communities. In attempting to lessen these barriers, managers can better serve the public by providing recreation opportunities while protecting and managing natural resources.

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## Appendix A: "Factors That Affect Regional Park Use" Survey

1. How many years have you been at UC Berkeley?  
 1  2  3  4  5 or more
2. Did you grow up in the East Bay?  Yes  No
3. Age: \_\_\_\_\_
4. Sex:  Male  Female
5. Ethnic Background:  
 American Indian  
 African American  
 Chicano/Latino  
 Asian American  
 White  
 Other
6. Do you like to spend your free time outside?  Yes  No
7. What kinds of outdoor recreation do you like to do?  
 Walking/Hiking  
 Running/Jogging  
 Swimming  
 Cycling  
 Playing Sports  
 Fishing  
 Hunting  
 Observing Wildlife  
 Camping  
 Boating  
 I do not like to recreate outdoors  
 Other (please specify: \_\_\_\_\_)

For the purpose of this survey, all references to 'regional parks' refer to the public lands operated by the East Bay Regional Park District ([www.ebparks.org](http://www.ebparks.org)), a district which covers Alameda and Contra Costa counties. Examples of East Bay Regional Park lands in and near Berkeley are Tilden Regional Park, Wildcat Canyon Regional Park, Claremont Canyon Regional Preserve, and Temescal Regional Recreation Area.

8. Have you ever visited an East Bay Regional Park?  Yes  No  
 If yes, proceed to question 9.  
 If no, skip to question 10.

9. During the semester, how often have you visited the East Bay Regional Parks?

- Once a week or more  
 Once every two weeks  
 Once a month  
 Once or twice a semester  
 Less than once a semester

10. During the semester, how often have you participated in outdoor activities NOT at an East Bay Regional Park?

- Once a week or more  
 Once every two weeks  
 Once a month  
 Once or twice a semester  
 Less than once a semester

11. How far (time-wise) are you willing to travel to get to a regional park? \_\_\_\_\_(minutes)

12. How long do you think it takes to get to the nearest regional park from your home?  
\_\_\_\_\_ (minutes)

13. During the semester, what forms of transportation do you have readily available to you? (Please check all that apply)

- Car/Motorcycle/Moped  
 Bicycle  
 Bus  
 Other (please specify: \_\_\_\_\_)

14. Which forms are you willing to use to get to a regional park? (Please check all that apply)

- Car  
 Bicycle  
 Bus  
 Other (please specify: \_\_\_\_\_)

15. During the semester, how much free time do you have each week?

- 0-5 hours  
 6-10 hours  
 11-15 hours  
 16-20 hours  
 21-30 hours  
 30+ hours

16. During the semester, how much money do you have to spend weekly on entertainment or other non-living expenses?

- 0-10 dollars  
 11-20 dollars  
 21-30 dollars

- \_\_\_\_\_ 31-40 dollars
- \_\_\_\_\_ 41-50 dollars
- \_\_\_\_\_ 50+ dollars

17. Please indicate your level of agreement with the following statement: Money has constrained your ability to visit a regional park.

\_\_\_\_\_ Strongly Agree \_\_\_\_\_ Agree \_\_\_\_\_ Unsure \_\_\_\_\_ Disagree \_\_\_\_\_ Strongly Disagree

If Strongly Agree or Agree, proceed to question 18.

If Unsure, Disagree, or Strongly Disagree, skip to question 19.

18. Please explain how money has constrained your ability to visit a regional park:

\_\_\_\_\_

19. Is safety a concern in your decision to visit a regional park? \_\_\_\_\_ Yes \_\_\_\_\_ No

If yes, proceed to question 20.

If no, skip to question 21.

20. What is the nature of your safety concern?

\_\_\_\_\_

21. In the first column, check the box next to each of the following park activities of interest to you. In the second column, check those activities that you think are available at regional parks, whether or not you are interested in them.

<u>Interested</u>	<u>Available</u>	<u>Opportunity</u>
_____	_____	Walking/Hiking
_____	_____	Camping
_____	_____	Backpacking
_____	_____	Running/Jogging
_____	_____	Swimming
_____	_____	Horseback Riding
_____	_____	Organized Sports
_____	_____	Wildlife Observation
_____	_____	Nature Center
_____	_____	Being in Natural Area
_____	_____	Hunting
_____	_____	Fishing
_____	_____	Boating
_____	_____	Rock Climbing
_____	_____	Picnicking
_____	_____	Off-Road Vehicle Driving

Listed below are statements about the relationship between humans and the environment. For each one, indicate whether you strongly agree, agree, feel neutral, disagree, or strongly disagree with it.

22. Humans have the right to modify the natural environment to suit their needs.



- 23. Humans are severely abusing the environment.
- 24. The earth has plenty of natural resources if we just learn how to develop them.
- 25. Plants and animals have as much right as humans to exist.
- 26. The balance of nature is strong enough to cope with the impacts of modern industrialized nations.
- 27. Despite our special abilities, humans are still subject to the laws of nature.
- 28. The so-called "ecological crisis" facing humankind has been greatly exaggerated.
- 29. The balance of nature is very delicate and easily upset.
- 30. Please rank the following factors on a 1-5 scale based on how much they limit your visits to regional parks during the semester (1 = very limiting, 5 = slightly limiting). If a factor does not limit your visits to regional parks, please select N/A.
  - \_\_\_\_\_ A lack of interest in park activities/opportunities
  - \_\_\_\_\_ A lack of interest in being in a natural area
  - \_\_\_\_\_ Free time
  - \_\_\_\_\_ Travel time to park
  - \_\_\_\_\_ Access to transportation
  - \_\_\_\_\_ Knowledge of park opportunities
  - \_\_\_\_\_ Spending money
  - \_\_\_\_\_ Concern for personal safety

31. Is there anything else that limits your visits to regional parks? Please explain.

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## Appendix B: Coding Description of Survey Questions

<b>Question Number</b>	<b>Purpose of Question</b>	<b>Coding Explanation</b>
1 - 7	Characteristics of Sample Population and Outdoor Recreation Preference	Responses to these questions were analyzed directly and were not be coded.
8 - 10	Park Use Level and Outdoor Recreation Level.	0-5 scale. A 0 was given for a "no" response for question 8. A 0 was given for a response of "Less than once a semester" and a 5 was given for a response of "Once a week or more" for question 9. The same 0-5 scale applied to question 10.
11, 12	Distance to Park	Distance to park was considered a barrier if a student indicated they are willing to travel a shorter time to a park than they the time it takes them to get to one. Coded 0 for non-barrier and 1 for barrier.
13, 14	Access to Transportation	Students were considered to have access to transportation if they indicated they are willing to take at least one form of transportation they indicate they have readily available to them.
15, 16	Free Time and Money	6-point scale, taking the average of each choice range. Free Time scale was 2.5, 8, 13, 18, 25.5, and 35. Money scale was 5, 15, 25, 35, 45, and 55.
17	Money	1 for strongly agree and agree; 0 for neutral, disagree, and strongly disagree.
18 - 20	Money and Concern for Safety	Responses to these questions were qualitative.
21 – Interested Column	Interest in Park Opportunities	0-12 scale. 1 point was given for each activity selected that is also available at an East Bay Regional Park.
21 – Available Column	Knowledge of Park Opportunities	0-12 scale. 1 point was given for each activity checked that is actually available at an East Bay Regional Park.
22-29	Environmental Value	0-32 scale, taking the sum of the scores from the eight individual statements. Each individual statement was coded 0-4 (0 for strongly disagree to 4 for strongly agree for pro-environmental statements 23,25,27,29, and 0 for strongly agree to 4 for strongly disagree for anti-environmental statements 22,24,26,28).
30	Relative Importance of Factors	0-5 scale. Scale is reversal of actual response, with 1 (very limiting) being coded 5, and 5 (slightly limiting) being coded 1. N/A was coded 0.
31	Additional Factors	Responses to this question were qualitative.