STATE PARK USE AND OUTDOOR RECREATION BENEFITS ACROSS DEMOGRAPHICALLY DIVERSE POPULATIONS IN GEORGIA

by

LINCOLN RAY LARSON

(Under the Direction of Dr. Gary T. Green)

ABSTRACT

In an era defined by shrinking budgets, shifting demographics, and growing concerns regarding physical inactivity and obesity, park managers around the United States are struggling to find ways to ensure that the beneficial outcomes of outdoor recreation are available to and enjoyed by visitors from all backgrounds. To address these issues, this study (part of the larger *Georgia State Parks Diversity Project*) investigated park-based outdoor recreation patterns and preferences across demographically diverse populations in northern Georgia. Researchers conducted a comprehensive assessment of state park use and associated recreation benefits in two distinct phases. Phase 1, the onsite assessment (summer 2010), examined visitor use and preferences within three Georgia state parks. Following a research protocol developed and tested during a 2009 pilot study, the onsite sample included 139 exit survey sessions (1,113 vehicles sampled), 217 behavior observations (18,525 visitors observed), and 5,192 intercept surveys. Phase 2, the offsite assessment (summer 2011), examined general park use and outdoor recreation preferences using 1,315 intercept surveys collected at flea markets throughout northern Georgia. Results suggested that state parks are a critical recreation resource for many people, and may be especially important to Georgia's growing low-income and ethnically

diverse populations. Most individuals in these historically under-represented groups engaged in social activities at parks (e.g., cookouts, family gatherings), highlighting the value of family-oriented outdoor recreation opportunities in efforts to increase the nature-based recreation participation of non-traditional park users. Data also revealed positive relationships between outdoor recreation, pro-environmental behavior, physical activity levels, and healthy child development. Overall, this study should provide state park managers in Georgia and other areas with insightful strategies for promoting and sustaining park use and related recreation benefits among a variety of stakeholders. Information obtained in this study could also help state park managers to better conceptualize public preferences and adjust their services, programs, and activities to meet specific needs of their increasingly diverse clientele.

INDEX WORDS: Benefits, Children, Ethnicity, Income, Nature-deficit disorder, Outdoor Recreation, Physical Activity, Pro-environmental behavior, Race, Survey, State Parks

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CHAPTER 1

INTRODUCTION, DISSERTATION FORMAT AND LITERATURE REVIEW

Introduction

Almost fifty years ago, the United States Outdoor Recreation Resources Review Commission (ORRRC) outlined a national recreation policy that mandated access to resources needed for individual enjoyment and assured the physical, cultural, and spiritual benefits of outdoor recreation for all individuals (Hauser, 1962; Outdoor Recreation Resource Review Commission, 1962). Subsequent research has shown that public parks can play a critical role in this process by generating a variety of beneficial social, economic, and ecological outcomes (Bedimo-Rung, Mowen, & Cohen, 2005; Driver, Brown, & Peterson, 1991; Godbey & Mowen, 2010; Kaplan, 1995). Therefore, increasing access to outdoor recreation opportunities and the benefits derived from nature-based activities remains a high priority for park managers across the country (Manning & More, 2002).

However, despite American's enduring appreciation of nature-based recreation (Cordell, Betz, & Green, 2008), evidence suggests that annual per capita visitation to parks throughout the United States may be declining (Pergams, Czech, Haney, & Nyberg, 2004; Pergams & Zaradic, 2008). Historical under-utilization of natural park settings and low outdoor recreation participation rates among minority groups, the fastest growing sector of the U.S. population, is especially concerning (Floyd, 1999; Floyd, Bocarro, & Thompson, 2008; Grossman, 2010). Urban expansion has magnified this park use problem, creating a population majority that is

increasingly sedentary and detached from nature (Louv, 2008). Because the health of America's people and America's environment may well depend on continued public investment and participation in the outdoors (Bedimo-Rung, Mowen, & Cohen, 2005; Ho, Payne, Orsega-Smith, & Godbey, 2003), an enhanced understanding of outdoor recreation patterns and preferences across demographic groups could help to encourage the development and maintenance of a healthy, sustainable society. This research is particularly needed in state parks, which are an increasingly important recreation resource in the lives of many Americans (Dunmyer, 2002; Siikamaki, 2011). For example, Siikamaki (2011) found that state parks account for approximately one third of all nature recreation in the U.S. He also noted that "the nature recreation services provided by the U.S. state park system are considerable, and that their time value (22 billion recreation hours, equivalent to an estimated value of $140 billion) may be considerably greater than the corresponding operation and management expenses" (p. 14033). State parks therefore represent a heavily used recreation destination that could serve as a useful indicator of American's park use and outdoor recreation patterns.

Outdoor Recreation Challenges: The Case of Georgia State Parks

National concerns regarding public park use in the face of massive demographic shifts are mirrored and magnified in Georgia, a state that is experiencing an unprecedented rise in ethnic diversity accompanied by changes in outdoor recreation behavior (Georgia Department of Natural Resources, 2008; U.S. Census Bureau, 2008). The Georgia Department of Natural Resources (GADNR) is attempting to respond to these pressing concerns in its latest Statewide Comprehensive Outdoor Recreation Plan for 2008-2013 (SCORP). The SCORP report highlighted the state's shifting population structure, emphasized the need for diverse recreation opportunities to satisfy a broader audience, and identified specific management priorities that

nurture healthy lifestyles and proper resource use among present and future generations (GADNR, 2008). The trends and potential recreation benefits discussed in the Georgia SCORP report emphasized the important contributions of public parks to overall quality of life.

Specific Georgia SCORP priorities included key park-related benefits identified by Frederick Law Olmstead over a century ago: the promotion of healthy and active lifestyles and the preservation of the ecological health of communities (LeGates & Stout, 2003). However, recent GADNR budget cuts and restructuring have compromised efforts to meet the goals outlined by state officials. For example, the promotion of active lifestyles and pro-environmental ethics in Georgia has been curtailed by a state park reorganization strategy that reduced services and access, cut operational hours, and increased fees for many activities and programs (Georgia State Parks and Historic Sites, 2009; Gilbert, 2008). With less time and resources to devote to creation and maintenance of outdoor recreation opportunities, park managers in Georgia and other states are struggling to find ways to ensure the benefits of recreation on public lands are available to and enjoyed by visitors from all backgrounds. The identification of factors affecting outdoor recreation participation and behavior in America's heterogeneous population could therefore prove invaluable as managers attempt to justify the existence of public parks in Georgia and across the U.S. (Bedimo-Rung et al., 2005; Floyd, Bocarro, et al., 2008; Floyd, Shinew, McGuire, & Noe, 1994; Gobster, 2002; Shinew et al., 2006). Hence, this study was designed to examine cross-cultural patterns of state park use and associated outdoor recreation benefits. Information obtained in this study could help park managers everywhere to better conceptualize and measure public preferences and adjust their services, programs, and activities to meet specific needs of their increasingly diverse clientele.

Dissertation Format

This dissertation highlights several aspects of the larger *Georgia State Parks (GASP) Diversity Project*, which was designed to address management goals and challenges within this dynamic context. The project was guided by several key research questions:

- Who is visiting Georgia state parks? When? How often?
- Why are people visiting Georgia state parks?
- Why aren't people visiting Georgia state parks?
- What benefits do Georgia state park visits provide (with an emphasis on conservation and stewardship, physical activity and health, and child development)?

Although this dissertation focuses primarily on the final question, the *GASP Diversity Project* addressed all of the following topics:

- State Park Visitation
- Outdoor Recreation Participation (overall and within state parks)
- Motivations to Recreate (overall and within state parks)
- Outdoor Recreation Benefits (overall and within state parks)
- Physical Activity Levels of Adults and Children (overall and within state parks)
- Attachment to State Parks
- Constraints to State Park Visitation
- State Park Recreation Fees
- Suggestions for Improving State Parks & Management Implications

For more details regarding the topics not covered in this document, see Larson, Whiting, & Green (2012).

This dissertation is written in manuscript format. Chapter 1 introduces the study,

summarizes past research on park use and outdoor recreation in demographically diverse populations, and presents the general research objectives that guided the study. Chapter 2 provides a detailed overview of the research methodology for the full *GASP Diversity Project* and a description of the overall sample, including on-site and offsite data collection. Subsequent chapters (Chapters 3-6) focus specifically on recreation-related benefits (e.g., conservation and stewardship behavior, physical activity and health, child development) and feature a subset of the larger sample. These sub-samples were obtained through various combinations of the research methods outlined in Chapter 2. Chapters 3, 4, 5, and 6 are manuscripts that will be submitted for publication. Although recommendations and management implications are incorporated throughout the manuscript-style chapters, Chapter 7 provides a concise description of conclusions and recommendations based on results of the overall project. Chapter titles are listed below:

- Chapter 1 – Introduction, Dissertation Format, and Literature Review
- Chapter 2 – Research Methods
- Chapter 3 – Exploring the Influence of Outdoor Recreation Participation on Pro-environmental Behavior in a Demographically Diverse Population
- Chapter 4 – Factors Influencing State Park-based Physical Activity Across Diverse Populations in Georgia
- Chapter 5 – State Park Use and Physical Activity of Youth in Georgia: A Mixed Methods Investigation
- Chapter 6 – Adult-perceived Benefits of Children's Outdoor Recreation in Georgia State Parks
- Chapter 7 – Summary and Recommendations

Literature Review

Demographic Changes in the United States

Recent demographic trends such as rising population density and shifting recreation demands have placed increasing pressure on natural lands in the U.S. (Cordell & Overdevest, 2001). Although researchers are beginning to develop strategies for assessing and responding to these developmental pressures, another emerging pattern – growing racial/ethnic diversity – has introduced a new source of uncertainty that may affect nature recreation participation (Bowker, et al., 2006). Population projections suggest that by 2050, racial/ethnic minorities will represent more than half of the total U. S. population, with the Latino population doubling during the next 40 years (Ortman & Guarneri, 2009; U.S. Census Bureau, 2009). Increasing ethnic diversity presents recreation planners and policy-makers with novel challenges related to under-participation and asymmetrical use of park resources. For instance, research has shown that wildland recreation participation rates – particularly for non-consumptive activities - are typically highest among whites compared to other racial/ethnic groups (Cordell et al., 1999; Bowker et al., 2006; Johnson & Bowker, 1999). Considering anticipated shifts in population composition, these patterns have catalyzed a surge in research investigating the effects of race and ethnicity on environmentalism and outdoor recreation behavior (Baas, Ewert, & Chavez, 1993; Chavez, Winter, & Absher, 2008; Floyd, Bocarro, et al., 2008; Johnson, 1999; Murdock, Backman, Hoque, & Ellis, 1991; Oh & Ditton, 2009; Stodolska, Shinew, & Li, 2010).

Race as a Variable in Leisure Research

Efforts to explain ethnic differences in outdoor recreation behavior have been confounded by an ongoing dialogue regarding the definition and general relevance of race and ethnicity as variables in leisure research. Race is based on socially constructed definitions of

physical appearances; ethnicity refers to membership in a subcultural group based on multiple factors including language and cultural traditions (Floyd, 1999; Hutchinson, 1988). Therefore, studies that use race as a proxy for ethnicity are often criticized (Floyd, 1998). Furthermore, simple contrasts of ethnic groups are over-simplified, and tend to reflect a static or monolithic view of within-group homogeneity that masks the emergent, dynamic properties of culture (Floyd, 1998; Li, Chick, Zinn, Absher, & Graefe, 2007). Nevertheless, racial and ethnic labels are the primary way people categorize individuals in both an historical and contemporary context, and labels persist as a fundamental part of human cognition (Gil-White, 2001; Gobster, 2007; Lee, Scott, & Floyd, 2001; West, 1989). As long as limitations are acknowledged, broad racial and ethnic categories, though somewhat crude and esoteric, can and should be considered in recreation research (Gobster, 2007). Given the social and political weight of the race and ethnicity variables and their salience in modern society, this study used a joint "racial/ethnic" category to explore group differences.

Race and Ethnicity in Research on Environmentalism

Racial and ethnic differences in environmental attitudes and behaviors will undoubtedly become more relevant in countries such as the U.S. where populations continue to diversify (Johnson, Bowker, & Cordell, 2004; Jones, 2002). Historically, investigations of environmental issues have typically reflected the views and concerns of the white majority (Mohai & Bryant, 1998). However, a growing body of research coupled with the environmental justice movement has challenged the widely held belief that environmental concern is only expressed by the wealthy, privileged white upper class (Floyd & Johnson, 2002; Mohai & Bryant, 1998; Schultz & Zelezny, 1999; Sheppard, 1995). In fact, in an extensive study of environmentalism, Whittaker et al. (2005) concluded that, contrary to predictions based on the hierarchy of needs theory

(Maslow, 1943), Latinos and African-Americans who are often among the poorest and least-educated members of society are equally as concerned with environmental issues as white, non-Hispanics. International studies support these findings, indicating that a pro-ecological mindset may actually be more prevalent in less-developed countries where natural and cultural elements are integrated and humans are more commonly viewed as part of nature (Bechtel, Corral-Verdugo, & de Queiroz Pinheiro, 1999; Vikan, Camino, Biaggio, & Nordvik, 2007).

Although these studies hint at the prominent influence of cultural factors on environmental attitudes and values globally (Milfont, Duckitt, & Cameron, 2006), the environmental value orientations of racial and ethnic minorities in the U.S. have not been widely examined. Some research has documented lower levels of participation in pro-environmental behaviors among ethnic minority populations (Johnson et al., 2004). Other studies suggest that support for environmental protection and pro-environmental behaviors within low income and minority communities may remain limited because of socioeconomic and cultural barriers (Gelissen, 2007; Jones & Carter, 1994; Jones & Rainey, 2006). For example, Parker and McDonough (1999) observed that, despite elevated levels of environmental concern in African-American populations, a general feeling of powerlessness obstructed positive environmental actions. This lack of perceived behavioral control may have a negative effect on participation in pro-environmental behaviors (Ajzen, 1991). Additional studies of socio-demographically diverse populations should continue to yield important insights into the relationship between demographic characteristics and environmental values, attitudes, and behaviors.

Race and Ethnicity in Recreation Research

Studies have shown that members of racial/ethnic minority groups are less likely than Anglo Americans to visit natural areas and participate in nature-based recreation activities

(Bowker et al., 2006; Chavez et al., 2008; Dwyer, 1994; Floyd, 1999; Johnson, Bowker, Cordell, & Betz, 2000; Johnson, Bowker, English, & Worthen, 1998; Lee et al., 2001; Tierney, Dahl, & Chavez, 2001; Washburne, 1978). For example, African Americans are more likely to participate in team sports and fitness activities than nature-based activities such as hiking and camping, which are more popular among white recreationists (Floyd et al., 1994; Johnson & Bowker, 1999). African Americans are also more likely to emphasize developed over natural settings (Gobster, 2002; Ho et al., 2005; Payne, Mowen, & Orsega-Smith, 2002). Results have also revealed that cultural minority groups such as African Americans, Latino Americans, and Asian Americans display preferences that differ from the traditional notions of outdoor recreation embraced by the white majority (Baas et al., 1993; Cronan, Shinew, & Stodolska, 2008; Kaplan & Talbot, 1988; Lee et al., 2001; Shinew, Floyd, & Parry, 2004; Tinsley, Tinsley, & Croskeys, 2002; Virden & Walker, 1999). For example, Latinos and Asians typically demonstrate a stronger preference for social interaction and collectivism than whites, and they often visit outdoor recreation settings with family members and larger groups (Chavez, 2008b; Ho et al., 2005; Shinew et al., 2004). The recreation participation decisions made by Latinos are also more likely to be influenced by social interactions (Thapa, Graefe, & Absher, 2002). For instance, a study of trail users in Chicago revealed that Latinos who visited parks focused more on cultural and family-oriented activities than physically active recreation (Cronan et al., 2008). Latinos also tend to use park facilities more intensively that other racial/ethnic groups (Hutchinson, 1987).

Researchers have proposed several theories to explain racial/ethnic groups' different recreation patterns. In a seminal work on African American leisure preferences and constraints, Washburne (1978) introduced ethnicity and marginality hypotheses that continue to provide a theoretical framework for observed patterns of minority recreation behavior today. For the past

30 years, a substantial body of literature has addressed these competing theories with the goal of identifying and eliminating possible barriers to minority outdoor recreation participation. Considering the central focus on demographically diverse populations in this study, the complex explanations for historical racial/ethnic minority under-utilization of parks (relative to the total representation racial/ethnic minorities in the overall U.S. population) warrant more attention.

The Ethnicity Hypothesis

The ethnicity hypothesis, also known as the subculture hypothesis, attributes minority under-participation in outdoor recreation to differences in social norms and cultural values (Floyd, 2001; Washburne, 1978). For example, studies show that African Americans and Latinos prefer more developed environments than Whites (Baas et al., 1993; Cronan et al., 2008; Ho et al., 2005; Kaplan & Talbot, 1988; Shinew et al., 2004). These preferences may reflect distinct cultural meanings assigned to natural landscapes, and they do not necessarily imply negative views of natural environments. For instance, African Americans' preferences for developed areas may be rooted in a history of oppression and slavery, when nature was reviled as a place for punishment and engaging in subsistence activities (Johnson, Horan, & Pepper, 1997; Meeker, 1973). Latinos may prefer developed areas because their cultural norms value landscapes that are peopled and productive (Lynch, 1993; Schultz, Unipan, & Gamba, 2000). This social component of outdoor recreation motivations could explain why Latinos are more likely to recreate in large, family-oriented groups than Whites (Carr & Williams, 1993; Chavez, 2008a; Cronan et al., 2008; Johnson, Bowker, & Cordell, 2005; Johnson & English, 2007).

Although some patterns have emerged, research investigating the role of subcultural barriers in outdoor recreation has generally yielded inconclusive results. Many of the conclusions regarding cultural perceptions of nature and outdoor recreation are confounded by an Anglo-

conformity bias, which reflects normative viewpoints instead of objective assessments (Floyd, 1998; Woodward, 1988). A specific example of this phenomenon is evident in the earlier discussion of race and ethnicity in research on environmentalism and pro-environmental behavior, concepts which are traditionally constructed and defined by the white majority. In other words, if subcultural groups' attitudes toward outdoor activities and environmental protection do not comply with those of the cultural majority, the minority groups are mistakenly assumed to be disinterested or disengaged (Gomez, 2002; Hester, Blazej, & Moore, 1999; Jones & Rainey, 2006). Ethnic-assimilation theory has been proposed to control for this issue of Anglo-centric values (Floyd, Gramann, & Saenz, 1993), and has been especially important in the analysis of Latino Americans' recreation attitudes and behaviors. Cultural assimilation describes the process whereby minority groups absorb the cultural and behavioral characteristics of the dominant group. Assimilation can be measured by acculturation, an early step in the assimilation process that measures the degree to which an individual changes his/her own culture to that of a new culture (Gordon, 1964). Selective acculturation is the most common model for Latino American immigrants in the U.S. Selective acculturation describes the preservation of ethnic identity through the retention of core cultural traits and adoption of majority group traits that contribute to social advancement (Keefe & Padilla, 1987).

Assimilation theory has employed concepts like group assimilation, acculturation, and ancestral status to account for within-group variation in recreation behavior among ethnic groups (Carr & Williams, 1993; Floyd & Gramann, 1993). For example, Shaull & Gramann (1998) showed that family-oriented attitudes toward recreation in Latino Americans were more resistant to assimilation pressures than nature-oriented attitudes toward recreation. Interracial contact in park settings also mediates recreation preferences. Social contact between African American and

Whites in several studies has led to a convergence of leisure preferences, representing an assimilation toward societal norms (Floyd & Shinew, 1999; Floyd et al., 1994). Social boundary reduction for Latinos via cultural and structural assimilation is confined by language, and Latino American immigrants are often reluctant to attend parks and engage in park activities because of language barriers (Chavez, 2007; Hong & Anderson, 2006). Regardless of assimilation processes, the distinct social norms and cultural values of different ethnic groups will continue to influence park use. However, ethnicity and subculture alone cannot explain minority under-participation in outdoor recreation.

The Marginality Hypothesis

According to the marginality hypothesis, under-participation in nature-based activities is class-based, or a result of poverty and limited access to socioeconomic resources (Floyd, 2001; Washburne, 1978). Marginality explanations that link racial/ethnic differences in park use to social inequities often conflict with the management goal of equitable recreation resource distribution. Comer & Skraastad-Jurney (2008) discussed the difference between equality and equity for the provision of urban parks in the U.S.: equality means equal access for citizens; equity means that demographic groups in the greatest need should have the greatest access (Comer & Skraastad-Jurney, 2008). Based on various health and socio-economic metrics, low-income racial and ethnic minority populations typically are identified as the most high-need groups (Abercrombie et al., 2008; Comer & Skraastad-Jurney, 2008). The U. S. National Recreation and Parks Association has called for equitably located parks of uniform quality within all communities (Mertes & Hall, 1996), but ambiguous definitions of "equitable" and "uniform" have made this policy goal difficult to achieve. Despite elevated concern over minority access to park resources, many researchers have concluded that the distribution of

public parks and recreation facilities still contributes to racial and economic disparities. For instance, multiple studies in the past decade have confirmed that low income neighborhoods with limited transportation options generally have fewer parks and active recreation opportunities (Comer & Skraastad-Jurney, 2008; Moore, Diez Roux, Evenson, McGinn, & Brines, 2008; Powell, Slater, Chaloupka, & Harper, 2006; Wolch, Wilson, & Fehrenbach, 2005).

However, tests of the marginality hypothesis should not be confined to socio-economic opportunity variables such as income, transportation, and distance (Floyd, 1998). Issues of access to power and wealth are often the source of socio-economic differences. Thus, marginality also involves historical and contemporary discrimination (Floyd, 1998). In many cases, race-based discrimination exacerbates ethnic boundaries and magnifies socioeconomic disparities for underserved populations. For instance, a longitudinal study discovered that Mexican-Americans four generations removed from immigration to the United States continue to experience exclusion and institutional discrimination that inhibit social mobility (Telles & Ortiz, 2008). Floyd (2001) has suggested that interpersonal and institutional discrimination associated with race-based marginality also contributes to minority under-participation in outdoor recreation within a variety of settings. In fact, perceived racial discrimination has been cited as a recreation constraint in multiple studies involving African and Latino Americans (Floyd, 2001; Floyd et al., 1993; Gomez, 2002; Phillip, 1999). Fear regarding safety and the uncertainties stemming from interracial interactions is another deterrent for minorities in outdoor recreation (Anderson, Nickerson, Stein, & Lee, 2000; Hong & Anderson, 2006; Roberts, 2003; West, 1989).

Although the undertones of discrimination in outdoor recreation can be imperceptible, race-related discrimination in other realms of natural resource conservation are often more conspicuous. For example, the environmental justice movement revealed that African Americans

and other minorities are exposed to a disproportionate amount of pollution and environmental health problems (Adeola, 1994; Bullard, 2001; Mohai & Bryant, 1998). Similarly, many policies focused on the accessibility of park resources and outdoor recreation opportunities in impoverished communities are now motivated by environmental justice principles such as the equitable right to sustainable environmental benefits (Floyd & Johnson, 2002; Henderson, 2009; Taylor, Floyd, Whitt-Glover, & Brooks, 2007).

Culture-based, class-based, and race-based constraints on park use by ethnic minority groups have received much attention following Washburne's (1978) original hypotheses, but a simple explanation for under-participation by ethnic minorities has not emerged. Interactions between variables such as race, ethnicity, and class suggest that these variables should not be considered in isolation (Floyd et al., 1994; Shinew, Floyd, McGuire, & Noe, 1996; Tierney et al., 2001). Age and gender are also significant predictors of leisure behavior in some models (Lee et al., 2001). Other factors that influence outdoor recreation preferences may include personality as well as affective and motivational constructs. These specific variables often have a stronger influence on individual behavior than population-level traits (Barnett, 2006), and a focus on the specific motivations and expected outcomes for different ethnic groups may help to explain discrepancies in recreation participation and behavior (Manfredo, Driver, & Tarrant, 1996). Overall, evidence suggests that studies of park visitation and outdoor recreation should continue to recognize and account for a range of ethnic, cultural, and socio-economic variables (Gomez, 2006, 2008; Li, Absher, Graefe, & Hsu, 2008; Walker, Deng, & Dieser, 2001). Future research exploring the complex relationships between race, ethnicity, and recreation behavior could help to ensure that outdoor recreation benefits are experienced and enjoyed by people from all backgrounds.

General Benefits of Outdoor Recreation

A growing body of research has revealed substantial benefits associated with outdoor recreation in public parks (Driver et al., 1991; Frumkin, 2001; Godbey & Mowen, 2010; Harmon & Putney, 2003; Overholt, 2012). These outcomes are effectively summarized in a conceptual model that highlights potential physical, psychological, social, economic, and environmental benefits of park visitation (Figure 1.1; Bedimo-Rung et al., 2005). This model does not account for non-use values, nor does it account for interactions among recreation outcomes. Despite these limitations, the park benefits framework provides a useful foundation for this study (Figure 1.1).

Many studies have documented numerous psychological benefits associated with outdoor recreation (Brymer, Cuddihy, & Sharma-Brymer, 2010). Researchers have identified the unique power of nature to restore and rejuvenate individuals after periods of stress (Kaplan, 1995; Orsega-Smith, Mowen, Payne, & Godbey, 2004; Thompson et al., 2012). Other studies have shown that natural settings have a powerful influence on concentration levels and therefore represent a potential antidote to Attention Deficit Disorder (Kuo & Taylor, 2004; Laumann, Garling, & Stormark, 2003; Taylor & Kuo, 2009). In some cases, visiting a park can improve mood and sense of pleasure while reducing feelings of sadness (Godbey & Blazey, 1983; More & Payne, 1978). Outdoor recreation in parks also provides an array of social benefits, facilitating social interactions that strengthen community bonds and reduce crime and violence (Coley, Kuo, & Sullivan, 1997; Kawachi, Kennedy, & Glass, 1999; Kuo & Sullivan, 2001). Benefits associated with outdoor recreation and park use may be especially important for children suffering from nature-deficit disorder, a non-medical term that has been used to describe the negative developmental consequences and behavioral problems stemming from children's

reduced time in natural outdoor environments (Burdette & Whitaker, 2005; Charles, Louv, Bodner, Guns, & Stahl, 2009; Kellert, 2002; Louv, 2008).

Although psychological and social park-related benefits are important to overall human well-being, this dissertation focuses on the environmental stewardship and physical fitness outcomes associated with outdoor recreation. Using Georgia state parks as a model system, this study explored these park-based environmental conservation and physical health benefits across diverse populations. A review of the literature related to these outdoor recreation outcomes follows.

Outdoor Recreation and Pro-environmental Behavior

By offering an array of outdoor activities, public parks often create an atmosphere that encourages interaction with nature and provides opportunities for the public to learn the value of conservation and environmental stewardship (Cordell & Tarrant, 2002; Louv, 2008). Unfortunately, national levels of environmental stewardship and environmental literacy are plummeting as fewer and fewer Americans enjoy opportunities to connect with nature (Coyle, 2005). Environmental attitudes, beliefs, knowledge, and value orientations are important predictors of conservation ethics and behavior (Ajzen, 1991; Vaske, Donnelly, Williams, & Jonker, 2001). A better understanding of these variables is useful because environmental problems are frequently attributed to the public's reluctance to engage in pro-environmental behavior (Gardner & Stern, 2002). Pro-environmental behavior (PEB), or environmentally significant behavior, is often characterized by its impacts. As Stern (2000) notes, environmentally significant behaviors were originally defined as behaviors that "change the availability of materials or energy from the environment or alter the structure and dynamics of ecosystems or the biosphere itself" (p. 408). However, as environmental protection has become

an increasingly important component in human decision making, PEB has developed a second, intent-oriented definition. From the individual actor's standpoint, PEB is "behavior that is undertaken with the intention to change (normally, to benefit) the environment" (Stern, 2000, p. 408). These actions can have direct and indirect effects on the environment and include behaviors such as recycling, energy and water conservation, environmental citizenship, green consumerism, and participation in environmental organizations (Stern, 2000; Green, Cordell, Betz, & DiStefano, 2006; Nordlund & Garvill, 2002). Given the important relationship between environmentally significant behavior and natural resource conservation, efforts to support and promote environmental initiatives and global sustainability often center on PEB and the factors that influence it (Turaga, Howarth, & Borsuk, 2010).

Evidence suggests that environmental beliefs, attitudes, and behaviors may be shaped by outdoor experiences (Louv, 2008; Thompson, Aspinall, & Montarzino, 2008; Vadala, Bixler, & James, 2007). For instance, research suggests that positive exposure to nature through outdoor recreation participation may contribute to a pro-environmental ethos characterized by pro-environmental attitudes, awareness, and support for conservation (Kareiva, 2008; Tarrant & Green, 1999). Tarrant and Green (1999) showed that appreciative recreation activities such as hiking had a significant mediating effect on the relationship between environmental attitudes and behavior. Studies have also suggested that positive childhood outdoor experiences in natural settings may be among the most significant predictors of biocentric value orientations and increased outdoor recreation participation later in life (Bixler, Floyd, & Hammitt, 2002; Larson, Whiting, & Green, 2011; Wells & Lekies, 2006). Wells and Lekies (2006) found that children who frequently interacted with wild nature (i.e., camping, hunting, or hiking in natural areas) before age 11 displayed stronger environmental attitudes and PEB as adults. Hence, the creation

of outdoor recreation opportunities across diverse communities could become an important component of efforts to encourage PEB.

Despite these findings, efforts to investigate explicit links between environmental orientations, outdoor recreation participation, and willingness to engage in PEB are generally limited (Cottrell, 2003; Larson et al., 2011). Halpenny (2010) demonstrated that place attachment – in this case, an individual's affective connection with a Canadian national park – can play a major role in promoting pro-environmental attitudes and behaviors. Other research has also revealed similar relationships between place identity and support for conservation at specific parks (Kyle, Absher, & Graefe, 2003), but few have investigated the impact of general outdoor recreation participation. Zaradic et al. (2009) examined the relationship between outdoor recreation and PEB using time-series data. Specific activities (i.e., hiking and backpacking) were positively correlated with support for conservation organizations; general public land visitation was inversely related to that specific behavior. Unfortunately, Zaradic et al. (2009) only addressed a single indicator of PEB and did not account for other variables (including socio-demographic variables), which have been shown to have a substantial influence on value orientations and PEB (Johnson et al., 2004; Jones, 2002; Vaske & Donnelly, 1999). Although research has revealed differences in attitudes towards, preferences for, and affective meanings attached to natural areas among distinct demographic groups, most have not directly addressed links between recreation participation and PEB (Payne et al., 2002; Virden & Walker, 1999). Additional research is needed to investigate the relationship between outdoor recreation and PEB, both during childhood and adulthood. Because concepts regarding the natural environment vary drastically among different populations (Bechtel, Corral-Verdugo, Asai, & Gonzalez, 2006;

Bechtel et al., 1999; Corral-Verdugo & Armendariz, 2000), attempts to measure the recreation-PEB relationship should also be adapted to account for cultural diversity.

Outdoor Recreation, Physical Activity and Public Health

The widespread health benefits of an active lifestyle are well documented. According to a U.S. Department of Health and Human Services Surgeon General's Report (1996), regular levels of moderate activity (e.g., 30 minutes of brisk walking or yard work, 15 minutes of walking) on most days of the week can reduce the risk of morbidity and mortality and improve quality of life. In fact, many researchers and medical professionals have attributed the increasing incidence of cardiovascular disease, the growing obesity epidemic, and potential declines in life expectancies to inadequate levels of physical activity in the U.S. population (Bauman & Craig, 2005; Ogden et al., 2006; Olshansky et al., 2005; Wilcox, Castro, King, Houseman, & Brownson, 2000). Physical activity also improves mental health and is important for the health of muscles, bones, and joints (U.S. Department of Health and Human Services, 1996). Recognizing the benefits of an active lifestyle, the U.S. Department of Health and Human Services made "physical activity" a leading health indicator in the agency's Healthy People 2010 report (U.S. Department of Health and Human Services, 2000). The World Health Organization also released a global strategy to reduce the worldwide incidence of non-communicable disease with a focus on increasing physical activity (Bauman & Craig, 2005).

Despite the recognized benefits of physically active lifestyles, a majority of Americans (estimates range from 51% to 55%) still fail to meet recommended physical activity levels (either 75 minutes of vigorous activity weekly or 150 minutes of moderate activity weekly; CDC, 2010; Macera et al., 2005; U.S. Department of Health and Human Services, 2000). Furthermore, about 25% of Americans continue to report no leisure-time physical activity, and increasing sedentary

behavior may be one of the factors contributing to physical activity declines (Brownson, Boehmer, & Luke, 2005; CDC, 2005). Medical researchers have reached a general consensus that current rates of physical inactivity represent a growing problem for the American people and the U.S. health care system (Sofi, Capalbo, Cesari, Abbate, & Gensini, 2008).

Another concern fueling the physical activity movement centers on documented differences in activity participation among racial and ethnic groups (Ho et al., 2003). Sedentary leisure behavior is most common in Latinos and African Americans (Crespo, Smit, Anderson, Carter-Pokras, & Ainsworth, 2000; Pearce, 1999), increasing the health risks for these minority populations. Subsequent studies have confirmed that the negative health effects and disease risks associated with physical inactivity are especially severe in low-income minority groups (Floyd, Taylor, & Whitt-Glover, 2009; Kumanyika & Grier, 2006; National Heart, Lung, and Blood Institute, 2007; Pratt, 2008; Thomas, Eberly, Smith, Neaton, & Stamler, 2005). Physical inactivity is particularly prevalent among the growing Hispanic population (Marquez & McAuley, 2006), and more than 75% of Latinos in the U.S. are overweight or obese (Ogden et al., 2006). Similar patterns have been observed in Georgia, where physical activity participation rates are even lower. Only 46% of adults in the state are regularly active, and the percentage of regularly active individuals among Latinos (28%) and African Americans (38%) is even lower (Falb, Kanny, Thompson, Wu, & Powell, 2006; Georgia Department of Public Health, 2010). Consequently, more than 30% of adults in Georgia are categorized as obese (Georgia Department of Public Health, 2011).

Studies suggest that efforts to increase physical activity could benefit from an ecological approach to health promotion that emphasizes the influence of an individual's environmental surroundings as well as intra and interpersonal factors (Bedimo-Rung et al., 2005; Sallis et al.,

2006; Shores & West, 2008; United States Department of Health and Human Services, 2000). A few studies have examined physical activity location use frequency, but these studies have been inconclusive. For example, Huston et al. (2003) reported that neighborhood streets, homes, and fitness centers are used more frequently than parks for physical activity. Wilhelm-Stanis (2008) and colleagues observed a different pattern, noting the important role of parks in physical activity pursuits. More research is needed to determine the role of various environmental factors on physical activity levels.

By supplying diverse opportunities for outdoor recreation and creating an environment conducive to physical activity participation, public parks provide a venue for combating obesity and improving health across many population sectors (Godbey & Mowen, 2010; Godbey, Caldwell, Floyd, & Payne, 2005; Ho et al., 2003; Mowen, Kaczynski, & Cohen, 2008; Overholt, 2012; Taylor et al., 2007). In fact, physical activity is widely recognized as a primary motive for participating in outdoor recreation (Mowen et al., 2008). A recent report illustrated the popularity of parks, stating that 107 million Americans made an average of almost five visits to local public parks in the month of January 2008 (Crosby & Rose, 2008). When regional, state, and national parklands are included, this estimate becomes even higher. Collectively, this evidence underscores the enormous potential of parks for addressing America's physical activity issues (Mowen et al., 2008). In the past decade, research has started to reveal more specific information about the effect of parks on physical activity participation and the contributions of park-based recreation to healthy lifestyles (Godbey & Mowen, 2010; Mowen, 2010).

Park Proximity and Physical Activity

Positive relationships between residential proximity to parks and physical activity levels have been documented by multiple studies (Giles-Corti et al., 2005; Killingsworth, James, &

Morris, 2003; Mowen, Orsega-Smith, Payne, Ainsworth, & Godbey, 2007). For example, a study in West Virginia discovered a positive relationship between countywide physical activity and the number of recreation facilities and acres managed by public agencies (Rosenberger, Sneh, Phipps, & Gurvitch, 2005). Kaczynski and Henderson's (2007) literature review also found that a majority of published articles examining parks and physical activity reported at least some positive associations between park proximity and physical activity levels. Other research has shown that access to recreational facilities, parks, and public open space is associated with higher levels of active park use (e.g., walking) and overall self-reported physical activity (Brownson, Baker, Housemann, Brennan, & Bacak, 2001; Giles-Corti et al., 2005). In a study of a mid-sized Canadian city, Kaczysnki, Potwarka, Smale, & Havitz (2009) found that each additional hectare of park area located within 1 km of an individual's home increased that individual's odds of participating in 150 or more minutes of moderate to strenuous activity by 2%; each additional park increased the odds by 17%.

Strong relationships between park proximity, availability of recreation resources, and physical activity may help to explain some of the variance in physical activity levels and health across diverse groups (Diez Roux et al., 2007). For instance, Mitchell & Popham (2008) examined data across England and discovered that health inequalities related to income deprivation were reduced in populations living near parks and "green" areas. Despite the documented health benefits of green space, recent studies in the U.S. confirm that physical inactivity in low-income, high-minority neighborhoods is exacerbated by poor access to parks and other physical activity-related facilities and amenities (Crawford et al., 2008; Gordon-Larsen, Nelson, Page, & Popkin, 2006; Powell et al., 2006). Gordon-Larsen et al. (2006) used telephone surveys and GIS data to compare the distribution of children's physical activity resources and

self-reported activity levels. Non-white, low-income neighborhoods were 50% less likely than white, high-income neighborhoods to have at least one potential physical activity location in the community. The probability of achieving recommended activity levels also increased as facility numbers increased (Gordon-Larsen et al., 2006). Powell et al. (2006) used a national-level multivariate analysis to show that physical-activity destinations were less likely to be located in low-income neighborhoods with a higher proportion of residents from racial/ethnic minority backgrounds. A similar study revealed that communities with low socio-economic status were also less likely to contain parks and open green space (Powell, Slater, & Chaloupka, 2004). Given these patterns, it is not surprising that low-income minority individuals in the U.S. often cite limited access and availability as barriers that negatively affect park use (Scott & Munson, 1994; Shores, Scott, & Floyd, 2007; Wilhelm-Stanis, 2008).

Although inequitable distribution of parks appears to be a problem in many areas, some researchers examining relationships between parks and census block data on smaller scales have concluded that associations between neighborhood demographics and park prevalence are not evident (Abercrombie et al., 2008; Comer & Skraastad-Jurney, 2008). In spite of these contradictory results, Moore (2008) found that, even when parks are located in low-income, high minority neighborhoods, they are 4.5 times less likely to have physical fitness-related facilities than those in high-income areas. Overall, most researchers agree that access to parks is important for promoting physical activity and health in low-income, diverse populations (Cohen et al., 2007; Mowen, 2010). Improvements in the type and quality of park resources in communities that experience a high risk of obesity and associated health problems could yield multiple benefits, ultimately helping to ameliorate health disparities related to race/ethnicity and socioeconomic status (Moore et al., 2008). Considering the extensive benefits of physical

activity in these high risk populations, more research is needed to identify park attributes and environmental factors that encourage activity in minority and low socio-economic groups (Flores, 2008; Floyd et al., 2009; Nasar, 2008; Pearce, 1999; Pratt, 2008).

Park Features and Physical Activity Preferences

Features, facilities, and amenities may have a strong influence on physical activity participation within parks. Several instruments have been developed with the purpose of inventorying the features and attributes of parks that may be related to physical activity. These tools include the Environmental Assessment for Public Recreation Spaces (EAPRS) (Saelens et al., 2006) and the Bedimo-Rung Assessment Tool – Direct Observation (BRAT-DO) (Bedimo-Rung, Gustat, Tompkins, Rice, & Thomson, 2006). By comparing park audits and physical activity data from surrounding areas, researchers have revealed positive relationships between the number of diverse features in a park and physical activity levels (Giles-Corti et al., 2005). In many cases, these effects are substantial. For example, Shores and West (2008) found that six types of built features – sports fields, courts, paths, playgrounds, green space, and picnic areas - explained 58% of the variance in park visitors' observed physical activity. In Ontario, parks with paved paths were 26 times more likely to be used for physical activity than parks without paved trails (Kaczynski, Potwarka, & Saelens, 2008). Research has also shown that most parents will travel significant distances to bring their children to parks with unique features such as playgrounds and water attractions (Tucker, Gilliland, & Irwin, 2007).

Studies are also beginning to identify specific park features associated with physical activity (Rung, Mowen, Broyles, & Gustat, 2011). For instance, multiple studies have shown that observed physical activity levels across demographic groups are generally highest around sport fields and courts, playgrounds, and walking paths (Mowen et al., 2008; Rung, Mowen, Broyles,

& Gustat, 2010; Shores & West, 2008); activity levels are often lowest in picnic areas (Floyd, Spengler, Maddock, Gobster, & Suau, 2008a; Mowen, 2010). In an observational study of parks in multiple cities conducted by Floyd et al. (2008b), only 16.9% of visitors observed around picnic shelters were moderately or vigorously active compared to >58.3% at sports courts and >45.5% in open green space. These initial findings have important management and policy implications, and authors have noted that more research is needed to identify features that facilitate and constrain park-based activity across diverse populations (Mowen, 2010; Wilhelm-Stanis, Schneider, Chavez, & Shinew, 2009; Wilhelm-Stanis, Schneider, & Russell, 2009).

Researchers have also started to examine the individual preferences that influence physical activity participation of park visitors. Studies often show that safety and fear of crime is a primary concern among physically active park users (Corti, Donovan, & Holman, 1996; Mowen, Payne, & Scott, 2005; Wilhelm-Stanis, Schneider, Chavez, et al., 2009), especially for women and older individuals (Roman & Chalfin, 2008). Despite the importance of a safe environment, few studies have examined whether public preferences for safe parks are directly related to observed physical activity levels (Mowen, 2010). Many visitors also prefer to recreate in an aesthetically pleasing setting with features such as well-maintained, tree-lined paths (Corti, Donovan, & Holman, 1997) and enjoyable scenery (Brownson et al., 2001; Humpel, Owen, & Leslie, 2002). Desirable surroundings likely contribute to visitor satisfaction and affect park visitation and physical activity pursuits. For example, a study of urban parks in Montreal showed that unhealthy neighborhoods were generally associated with parks earning low maintenance or facility condition ratings (Coen & Ross, 2006). A synthesis of qualitative research exploring park behavior supported these results, revealing that safety, aesthetics, amenities, and maintenance were important for encouraging active park use (McCormack, Rock, Toohey, & Hignell, 2010).

Social characteristics may also play an important role in physical activity participation. Overall, literature indicates that positive perceptions of social environments are associated with higher levels of activity and lower levels of obesity (Poortinga, 2006). For instance, Giles-Corti and Donovan (2003) found that social factors were as important as environmental factors in terms of their influence on walking behavior. Researchers have also shown that park visitors are more likely to be physically active if they see others exercising in a particular area (Brownson et al., 2001; Sallis, Hovell, & Hofstetter, 1992). Trost et al. (2002) noted that a sense of self-efficacy and social support emerged as the most consistent psychological correlate of physical activity. The prominent effects of social environmental factors and social support on leisure time physical activity are particularly well documented in Latinos (Cronan et al., 2008; Marquez & McAuley, 2006) and African Americans (Sanderson et al., 2003). Social aspects of park visits can also facilitate interactions that build community cohesion and social capital, often leading to healthier lifestyles (Bedimo-Rung et al., 2005; Kawachi et al., 1999). Future research should consider the interacting influence of park features, public perceptions of park features, and social context on park-based physical activity (McCormack et al., 2010; Nasar, 2008; Shores & West, 2008).

Organized programs may stimulate visitation and associated activity as well. Research in Los Angeles has shown that an increase in the number of supervised park activities was related to higher observed visitation (Cohen et al., 2009). Similar studies have confirmed that park renovations and improvements, new programs, and the presence of activity supervisors encourage visitors to become physically active (Cohen, 2007; Kerstetter, Mowen, Trauntvein, Liechty, & Rubiero, 2008; Sallis, Johnson, Calfas, Caparosa, & Nichols, 1997). However, unstructured recreation can also play an important role in active recreation pursuits. Research in

Tampa, FL, and Chicago, IL, revealed that moderate and vigorous activity levels were significantly associated with unorganized activities (Floyd, Spengler, et al., 2008a). Considering these conflicting results, the role of park policies, programs, and supervision remains unclear. Research is needed to integrate objective and perceived measures of activity, inventory existing parks and activity levels, and characterize the role of specific park features on activity levels across diverse populations (Godbey & Mowen, 2010; Mowen, 2010).

Levels of Park-based Physical Activity

Physical activity correlates have received much attention in the literature, but few studies have directly assessed levels of park-based physical activity. Early studies of park use relied heavily on self-reported measures (Godbey et al., 2005). Self-reports are a practical and cost effective strategy for assessing the context and type of physical activities with short-term recall in large samples (Morgan, 2005; Paffenbarger, Blair, Lee, & Hyde, 1993), but evidence supporting their validity across longer temporal scales and within distinct racial/ethnic and income groups remains mixed (Rauh, Hovell, Hofstetter, Sallis, & Gleghorn, 1992; Rundle et al., 2007; Sallis & Saelens, 2000). With a growing demand for surveillance frameworks that measure leisure time physical activity and active parks use (Kruger, Mowen, & Librett, 2007), a combination of subjective and objective measures may be necessary to develop better approximations of park-based activity levels.

Recent innovations have introduced objective behavioral metrics to help researchers accomplish this goal. For instance, the System for Observing Play and Recreation in Communities (SOPARC) has proven to be a reliable and feasible instrument for assessing physical activity in community settings (McKenzie, Cohen, Sehgal, Williamson, & Golinelli, 2006). Using observational methods, researchers are now examining and describing park-based

physical activity in unprecedented detail. Observational studies of diverse park users in Chicago and Tampa revealed that most (65%) visitors were engaged in sedentary behaviors (Floyd, Spengler, et al., 2008b). Hispanic/Latino (in Tampa) and African-American (in Chicago) visitors displayed the highest mean energy expenditures at the respective sites. Studies of urban park users in Los Angeles have yielded similar results, with about two-thirds of all visitors observed in a sedentary state (Cohen et al., 2007; McKenzie et al., 2006). However, a study of suburban parks in the eastern United States found that nearly two-thirds of visitors were observed in a moderate or vigorously active state (Shores & West, 2008). Given the range of results across different populations and geographical contexts, it is clear that more studies using mixed-method approaches are needed to cross-validate activity patterns and better characterize park-based activity levels (Mowen, 2010).

Park-based Physical Activity: Expanding the Geographic Context

Although research linking parks and physical activity has typically focused on urban environments (Bedimo-Rung et al., 2005; Saelens et al., 2006), future investigations could examine suburban or rural areas and account for recreation opportunities in different types of parks at the state and national levels (Boone-Heinonen, Casanova, Richardson, & Gordon-Larsen, 2010; Godbey & Mowen, 2010; Godbey et al., 2005). Preliminary studies of small rural parks have revealed unique participation trends. Rural park use is often clustered around weekend days, and rural park users may be less physically active than urban park visitors (May, 2011; Shores & West, 2010). Rural parks also support many forms of leisure and often represent social gathering places. Evidence collected from national forests and state parks across the rural to urban spectrum reveals similar patterns, suggesting park users in more remote areas may display unique physical activity behaviors and preferences (Wilhelm-Stanis, Schneider, Shinew, Chavez,

& Vogel, 2009). These studies also indicate that activity levels in non-urban parks such as state parks and national forests may be substantial (Kline, Rosenberger, & White, 2011; Wilhelm-Stanis, Schneider, & Anderson, 2009). For example, a study in Minnesota showed that nearly 90% of state park visitors participated in at least 10 minutes of physical activity. The average Minnesota state park visitor also displayed healthier weight and body mass index (BMI) than the average U.S. or Minnesota adult (Wilhelm-Stanis, Schneider, & Anderson, 2009). Another study of six Pennsylvania state parks found that 63% respondents reported being moderately or vigorously active during their visit. Overnight visitors reported 90 minutes of moderate activity and 49 minutes of vigorous activity per day; day users reported 68 minutes of moderate and 68 minutes of vigorous activity per visit (Mowen, Trauntvein, Graefe, & Ivy, 2009).

Exploration of park-based physical activity is particularly absent in the South, a region known for a lack of physically activity among its racial and ethnically diverse residents (Macera et al., 2005). However, researchers have noted the promise of public lands in the southeastern U.S. for physical activity promotion. For instance, Kline et al. (2011) calculated that although the southern region accounts for only 7% of all U.S. national forest land, the region yields 17% of total net recreation-related energy expenditures. This study addresses a growing need for mixed-method research within this geographic context by investigating state park-based physical activity levels in Georgia, a state whose obesity and physical inactivity rates consistently rank among the highest in the country (Fahmy, 2011). Results should help to address the critical need to identify park attributes and other socio-ecological factors that influence physical activity across minority and low socio-economic populations that has been highlighted by a number of researchers (Flores, 2008; Floyd et al., 2009; Mowen, 2010; Nasar, 2008; Pearce, 1999; Pratt, 2008).

Children's Outdoor Recreation Benefits

Although the multifaceted benefits of outdoor recreation and park use are important to individuals of all ages, children have the most to gain from spending time outdoors. For instance, outdoor activities can help strengthen children's physical health (Maller, Townsend, Pryor, Brown, & St. Leger, 2006; Sallis, Prochaska, & Taylor, 2000), mental health (Burdette & Whitaker, 2005; Taylor & Kuo, 2009; Taylor, Kuo, & Sullivan, 2001), environmental knowledge and attitudes (Chawla, 2006; Wells & Lekies, 2006), academic achievement (Coyle, 2010), and social relationships (Ginsburg, 2007). Given these diverse benefits, it is not surprising that many organizations (e.g., Children and Nature Network, No Child Left Inside Coalition) are now exclusively devoted to increasing children's time outside. This enhanced emphasis on the child-nature relationship has been echoed by the U.S. government, which recently launched an agenda to make the outdoors relevant in lives of children across the nation (America's Great Outdoors, 2011; Pannell, 2011).

Children's Nature-deficit Disorder

The movement to reconnect children and nature is fueled by the assumption that today's kids are spending less time outside than their predecessors. Louv (2008) was among the first to describe this trend, lamentably asserting that, "the child in nature is an endangered species" (p. 355). He coined the phrase "nature-deficit disorder" to describe the physical and psychological consequences associated with this absence of authentic outdoor experiences during childhood (Louv, 2008). Other authors have expressed concern about children's diminishing contact with nature and the effects of nature deprivation (Kellert, 2005; Zaradic & Pergams, 2007). Although indirect and vicarious exposure to nature through school and electronic media has become increasing commonplace for children in contemporary society (Pergams & Zaradic, 2006;

Rideout, Foehr, & Roberts, 2010), these experiences are typically inadequate substitutes for direct encounters with natural ecosystems (Kahn, Severson, & Ruckert, 2009; Kellert, 2002).

For instance, Kahn (2008) and colleagues investigated the physiological benefits of direct nature contact in a controlled experiment. The researchers found that individuals in an office setting who viewed nature through a window displayed lower stress levels than either individuals without a window or those who viewed a similar virtual nature scene through a plasma screen. In another example highlighting the value of direct contact with nature, Duerden & Witt (2010) concluded that the effects of a classroom-based preparatory course on adolescents' environmental knowledge, attitudes, and behavior were magnified when the course was combined with nature-based activities during an international field experience. Similarly, Taylor, Kuo & Sullivan (1998) discovered that children's levels of creative play were higher in green urban landscapes (i.e., areas with trees and grass) than in barren neighborhoods devoid of natural features.

Given the dearth of authentic nature contact for modern children and the value of direct experience, public parks have a unique capacity to provide outdoor activities that promote healthy child development and positive environmental orientations in youth. Public parks also provide a non-formal setting for learning and affective growth, contributing to the objectives set forth in many recreation management plans (Burdette & Whitaker, 2005; Chawla, 2006; Falk, 2001; GADNR, 2008). However, the extent to which public parks currently achieve their vast potential for encouraging outdoor youth activities remains largely unknown (Moody et al., 2004). Clearly, more research is needed to characterize the role that public park use plays in the outdoor experiences and physical activity of children.

Children's Physical Activity

Childhood obesity rates in the U.S. are alarmingly high - especially for Latinos, African Americans, and children from low-income families (Kumanyika & Grier, 2006; National Heart, Lung, and Blood Institute, 2007). Although many things influence childhood obesity, physical inactivity is one of the main factors (Eisenmann, Bartee, Smith, Welk, & Fu, 2008). Hence, low physical activity levels in children across the United States have become a major public health issue (U.S. Depatment of Health and Human Services, 1996). According to a CDC report, 61.5% of 9-13 year-old children do not participate in any organized physical activity during non-school hours and 22.6% do not engage in any leisure time activity (CDC, 2003). Efforts to address childhood obesity and sedentary behavior have focused on policy measures that account for legislative and regulatory power (Boehmer, Luke, Haire-Joshu, Bates, & Brownson, 2008), but prevention measures could adopt a more organic, proactive approach focused on local environments and lifestyle choices. For example, research shows that being outdoors is the strongest correlate of children's physical activity (Sallis et al., 2000). Public parks therefore represent a promising solution to the child obesity problem (Maller et al., 2006). Park and recreation professionals and researchers, recognizing the value of outdoor recreation, are now working to validate the important contributions of parks and public green space to healthy lifestyles, with a major focus on children (Kellert, 2005; Sherer, 2006; Timperio et al., 2008).

Studies investigating environmental factors associated with children's obesity and activity levels have yielded important insight concerning the value of parks in physical activity promotion. Roemmich et al. (2006) found that the percentage of total park area in a community is a significant predictor of children's physical activity, observing a 1.4 percent increase in physical activity levels for every 1 percent increase in park area. A study of youth (ages 5-20) in

Atlanta examined travel diary data and found a significant relationship between the number of neighborhood parks and recreation facilities and children's walking frequency (Frank, Kerr, Chapman, & Sallis, 2007). In an experiment designed to reduce sedentary behavior, Epstein et al. (2006) noted that increases in children's (ages 8-15) physical activity were magnified with greater amounts of parkland nearby. Similarly, Cohen et al.'s (2006) study of adolescent girls in six cities used accelerometers to discover that teens with more parks close to home achieved higher physical activity levels.

Despite these findings relating park proximity to physical activity, many children live in areas with limited trails and park access (Cutts, Darby, Boone, & Brewis, 2009). These neighborhoods are often characterized by low income, racial/ethnic minority residents, exacerbating the issue of physical inactivity within these high-risk populations. For example, a national study of adolescents found that low levels of physical activity among Hispanic and African American girls have been attributed to the schools they attend – a proxy for neighborhood socio-economic status (Richmond, Hayward, Gahagan, Field, & Heisler, 2006). Even when parks are available, their value may be offset by social characteristics including perceptions of personal risk (measured through neighborhood crime and traffic fatalities) and quality of local parks (Cutts et al., 2009). For instance, Potwarka et al. (2008) noted that although children living within 1 km of a park playground were almost five times more likely to be a healthy weight, safety concerns still prevented families from using the facilities as often as they would like. In fact, research has shown that adults who feel safe are 60 percent more likely to encourage children to use local playgrounds (Miles, 2008). This link between parents' and children's recreation highlights the importance of creating activities fostering social interaction among individuals of all ages (Kerstetter et al., 2008). Some researchers have even

recommended the integration of picnic areas near the most attractive physical activity sites within parks, luring families to parks and increasing the likelihood that adults and children gathering for social purposes may also participate in active recreation (Shores & West, 2010).

In general, studies suggest that the provision of many types of diverse activities and facilities is very important for encouraging children's outdoor recreation (Sallis & Glanz, 2006). When activity options are available, children are typically more active in parks than adults. For example, an observational study in Tampa and Chicago showed that about 50% of all children were observed participating in moderate or vigorous physical activity (Floyd, Spengler, et al., 2008b). Similar research in North Carolina found that 47.4% of children observed in municipal parks were at least moderately active (Floyd et al., 2011). More studies are needed to validate these park-based activity levels among youth and examine the social factors and design features that influence youth activity (Floyd et al., 2011; Godbey & Mowen, 2010; Spengler et al., 2011). Research is especially needed in rural areas where diverse recreation activities may be less accessible. Discrepancies between rural and urban parks may partially explain why rural and exurban adolescents are more likely to be overweight than their suburban counterparts (Nelson, Gordon-Larsen, Song, & Popkin, 2006). Studies could therefore target larger rural parks (such as state parks) situated within communities and regions characterized by low physical activity levels and limited outdoor recreation opportunities (May, 2011).

Effects of the Parent-Child Relationship on Children's Outdoor Recreation

Efforts to understand children's park use could capitalize on the strong relationship between adults' outdoor recreation patterns and preferences and children's recreation behavior. Multiple studies have shown that parents' perceptions and behaviors are significant determinants of children's involvement in recreational activities (Barnett & Chick, 1986; Weir, Etelson, &

Brand, 2006). For example, researchers have noted a significant parental influence on children's concepts of leisure that are eventually challenged as these children embrace more autonomy in adolescence (Hutchinson, Baldwin, & Caldwell, 2003; Shannon, 2006). Similarly, a national study of U.S. youth revealed a strong correlation between children's time outdoors and the outdoor time of their parents or guardians (Larson, Green, & Cordell, 2011). Parents' perceptions of their children's outdoor recreation activities and corresponding benefits therefore represent useful and informative proxies for assessing children's outdoor recreation behavior (Barnett & Weber, 2008). Although several studies have examined parent-reported measures of children's recreation participation (Burdette, Whitaker, & Daniels, 2004; Larson et al., 2011; Sallis, Taylor, Dowda, Freedson, & Pate, 2002), few have specifically investigated adult-perceived benefits associated with children's recreation (Barnett & Weber, 2008). Even fewer have explored the adult-perceived benefits of outdoor recreation for diverse children in natural settings such as state parks. Hence, an examination of adult-reported metrics and perceived benefits could highlight youth outdoor leisure patterns and reveal strategies that help more children enjoy the multifaceted benefits of outdoor recreation.

Problem Statement

An overview of existing literature reveals several important research gaps that should be addressed to ensure that public parks – especially state parks - are providing recreation opportunities that satisfy the needs of an increasingly diverse population. Although many states in the nation face this challenge, the following research gaps are particularly evident across all segments of the demographically diverse population in Georgia:

1. Limited information regarding outdoor recreation participation patterns and park use (especially state park use);

2. Limited information regarding motivations and perceived benefits associated with outdoor recreation (especially state park-based recreation);
3. Limited research comparing outdoor recreation participation, environmental value orientations, and pro-environmental behaviors;
4. Limited research examining the role of parks (particularly state parks) in the promotion of physical activity and healthy lifestyles;
5. Limited information to characterize the role of parks (particularly state parks) in ongoing efforts to promote the outdoor recreation and physical activity of youth.

This study attempted to address each of these issues using a mixed methods approach to explore the patterns, preferences, perceived benefits, and positive outcomes associated with general and state park-based outdoor recreation in north Georgia.

Statement of Purpose and General Research Objectives

As mentioned in the previous section titled *Dissertation Format*, this dissertation is part of the larger *GASP Diversity Project*. The sections of the study described in this document address several research objectives (outlined below) representing a subset of the larger *GASP Diversity Project* goals. Specifically, this study compared samples of Georgia state park users and non-users with respect to race/ethnicity, gender, age, education, and income to examine:

1. Patterns of general outdoor recreation participation and state park use;
2. Motivations and benefits associated with general outdoor recreation and state park use;
3. Relationships between outdoor recreation participation and pro-environmental behavior;
4. State park-based physical activity levels and general physical activity correlates for adults and children;
5. Benefits of children's outdoor recreation and state park use.

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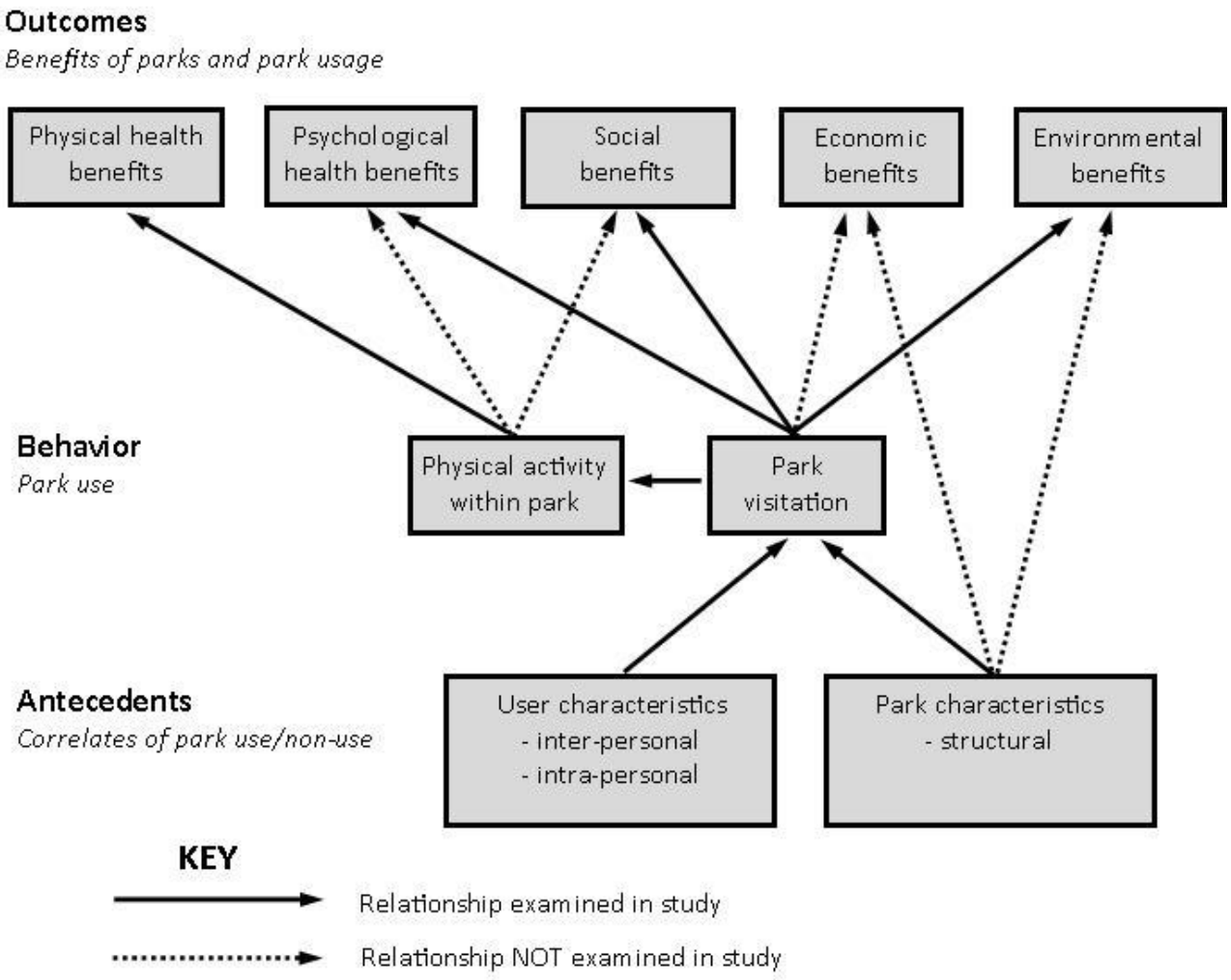

Figure 1.1. Benefits of parks and park usage (adapted from Bedimo-Rung et al., 2005, p. 160)

CHAPTER 2

RESEARCH METHODS

The *Georgia State Parks (GASP) Diversity Project* was conducted in two phases: onsite and offsite. Onsite data were collected via exit surveys, visitor observations, and intercept surveys at three state parks in north Georgia. Offsite data were collected via intercept surveys at flea markets in counties surrounding the focal parks. This chapter provides a general overview of the research methods and overall sample obtained throughout the entire project. Subsequent chapters contain a more detailed description of the data collection strategies employed to address specific research questions, including sample demographics related to those particular research objectives. All study instruments and protocols were approved by the University of Georgia Institutional Review Board Human Subjects Office prior to implementation.

Phase 1: Onsite Data Collection

Selected State Parks

In Phase 1, three state parks (Fort Mountain, Fort Yargo, and Red Top Mountain; Appendix A) were selected as study sites based on annual visitation rates and anecdotal reports from state park managers and administrative officials in the GA DNR's Parks, Recreation, and Historic Sites Division regarding the racial, ethnic, and cultural diversity of visitors (Eric VanDeGenachte, Georgia Dept. of Natural Resources, personal communication, 2009). The three state parks included facilities that offer a related assortment of land and water-based recreation activities such as camping, cycling, hiking, swimming, boating, and picnicking (Table 2.1;

Appendices A, B). Children's playgrounds and mini-golf courses were also present at each state park. All three parks featured an historic site accompanied by heritage interpretation. Despite these similarities, each state park has some unique features. For example, Fort Mountain has 25 miles of horse trails. Fort Yargo includes basketball courts and a popular group camping area. Red Top Mountain is home to a large marina and a boat ramp that serve as a gateway to recreation on Lake Allatoona. Overall, these three state parks are among the most popular parks in the Georgia State Park system, and each park accounts for well over 100,000 annual visits (Table 2.1; Eric VanDeGenachte, Georgia Dept. of Natural Resources, personal communication, 2009).

On-site data collection centered on primary exit points and "recreation hotspots" within each state park. The term "recreation hotspots" has been used to describe specific areas where recreation demands are the highest or most intense (Cordell & Green, 2001). Although the term is typically applied on larger scales, here it is used to refer to concentrated centers of recreational use within each of the state parks. These hotspots, which were identified after several site visits and discussions with on-site managers, were typically campgrounds and popular day use areas near major attractions such as lakes or beaches.

Pilot Study

A pilot study using exit surveys, intercept surveys, and behavior observations was conducted at each of the three state parks during 23 May – 7 November 2009 (Table 2.2). The pilot study was designed to: (1) assess the feasibility of the proposed research methods in each particular state park, (2) develop a standardized research protocol to be used by multiple investigators, and (3) evaluate the reliability and validity of the survey instrument. During the pilot study exit surveys, researchers stopped every departing vehicle at exit points and asked a

few brief questions (e.g., length of stay, purpose of visit) - resulting in almost 200 vehicles surveyed. During the pilot study intercept survey sessions, 840 surveys were collected from a convenience sample of visitors at the campgrounds and recreation hotspots. Over 2,000 state park users were observed at recreation hotspots during pilot study observation sessions (Table 2.2). Pilot study data led to several revisions of question structure and sampling procedures that improved data collection protocols.

For example, researchers determined that the "every car" exit survey approach was too cumbersome and disruptive to traffic flow. Hence, an "every third car" sampling strategy was employed the following year. An additional question was also added to the exit survey to account for groups entering and leaving the park multiple times in the same day. On the intercept surveys, many respondents skipped multiple items and complained about the overall length of the instrument (two distinct four-page versions). To facilitate comprehension and ease the time burden, survey content was subsequently split across five different two-page versions. The shorter instruments led to an increase in response rates (+6.5%), greater collection efficiency (+11.1 surveys collected per researcher hour), and enhanced quality of responses (fewer items skipped and reductions in missing data; Larson, Whiting, Parker, & Green, 2012). Additionally, researchers discovered that general open-ended questions (e.g. "If you could change one thing about this park, what would it be?") yielded very few responses. As a result, most of these questions were eliminated or modified to include closed response choices. After encountering problems with double-counting visitors, the behavior observation recording procedure was changed from stationary to mobile. By systematically moving across the site as counts were conducted, researchers were able to observe and record physical activity more accurately and efficiently.

Onsite Data Collection Methods

After incorporating these revisions, on-site data were collected using three distinct sampling procedures: exit surveys, intercept surveys, and behavior observations (Table 2.3; Figure 2.1). To determine the appropriate survey sampling methodology, researchers had to consider many factors such as survey length and complexity, completion time, accuracy of answers, and availability of sampling information. The intercept survey approach was ultimately selected for two primary reasons. The onsite approach enabled researchers to gain access to low-income, minority populations that are historically underrepresented on contact lists used in mail, telephone, or Internet surveys (Vaske, 2008). The onsite approach also allowed researchers to explain the importance of the survey and provide clarification as necessary, increasing response rates and accuracy (Groves & McGonagle, 2001). Because different sampling strategies typically yield different results (Vaske, 2008), the mixed-methods approach was employed to cross-validate results and increase the likelihood of obtaining data that accurately characterized park use patterns.

On-site data were collected between Memorial Day and Labor Day weekends (19 May – 6 September) during 2010. Sampling dates at state parks were selected based on a stratified random sampling protocol. First, the entire summer was blocked according to four categories: weekdays, Wednesdays (this was the only free admission day at Georgia State Parks), weekend days, and holiday weekends (Memorial Day, Independence Day, and Labor Day). Then, parks were randomly assigned *a priori* to each category to ensure that researchers visited each park on at least three weekdays, at least two Wednesdays, at least six weekend days, and at least one holiday weekend (Table 2.4). Extra trips were added near the end of the summer to make up for deficits in any category resulting from unforeseen scheduling conflicts. Although this

stratification system enabled researchers to maximize coverage across temporal and spatial scales, time constraints and travel-related challenges did not allow for complete coverage of all days at every park location.

Exit Surveys

Surveys of exiting recreationists were conducted at primary gates and state park access points (Figure 2.1a; Appendix C). Surveying visitors who are exiting parks is a preferred strategy for visitor counts because it allows visitors to provide more detailed information about their length of stay and activity choices (English, Kocis, Zarnoch, & Arnold, 2002). To determine exit survey times within each sampling day and ensure broad coverage across a temporal range, researchers randomly allocated 30-minute survey sessions to four daily time blocks (morning = 6:00-11:59am, earl afternoon = 12:00-2:59pm, late afternoon = 3:00-5:59pm, evening = 6:00-11:59pm). During each exit survey, researchers stopped every third vehicle passing through the exit point and asked drivers the following questions:

1. How many people are in your car?
2. How many people in your car are under age 18?
3. How long have you been at XXX State Park today?
4. What was your main activity during this visit?
5. Are you coming back to XXX State Park today?

Each researcher also documented the gender and race/ethnicity of vehicle occupants to the best of his/her ability. If respondents indicated an intention to return to the park later in the day, their site use and demographic data were retained for analytical purposes. However, the returning recreationists were not included in visitation estimates (which are not reported in this dissertation). The interactions, which usually lasted 15-30 seconds, did not impede the flow of

traffic from the site. Exit surveys also provided detailed visitor use data to supplement basic vehicle counts, which GA DNR currently calculates infrequently – typically on a monthly basis.

Intercept Surveys

Self-administered intercept surveys of state park users were conducted in and around the recreation hotspots (Figure 2.1b; Appendices D, E, F). Although intercept survey times were determined based on peak visitor use hours (e.g., day use areas such as beaches and picnic areas around lunch and dinner, campgrounds in the evening), researchers made an effort to vary collection efforts to cover multiple days of the week and times of the day at each park location. During intercept survey sessions, researchers and trained volunteers approached every visitor age 18 or older and asked if he/she would be willing to participate in a brief survey about state park use (see Appendices D and E for intercept survey procedure and data coversheet). Upon consent, visitors were randomly given one of five different survey versions. Each version of the survey instrument included two pages (one sheet, front and back) of items designed to address a specific subset of research objectives (Table 2.5; Appendix F). Survey Versions 1 through Version 4 contained adult-oriented items. Version 5 focused on children's outdoor recreation, and required adult respondents to answer questions about the child (under age 18) in their family who had the most recent birthday (Table 2.5). If a participant who did not have children was given Version 5, then that participant was randomly handed a different adult-oriented survey version. General questions designed to capture state park visitation frequency and important elements of experience use history appeared on every survey version. On the last page of every survey, participants were asked to provide general information such as gender, age, education, income, zip code, and race/ethnicity. Participants also had the opportunity to specify ethnic origin to encapsulate more dynamic components of their culture. Each survey included an open-ended

comment box where participants could supply additional suggestions and recommendations for park managers.

Surveys were available in Spanish, and the Spanish language proficiency of all survey administrators was verified prior to fieldwork. After a survey was distributed, researchers remained in the area and responded to questions as necessary, allowing ample time (approximately 5-15 minutes) for survey completion (see Figure 2.1b and Appendix B for photographs). Refusal rates and reasons were recorded and used to calculate response rates and identify potential sampling bias (Table 2.6).

Behavior Observations

Observations of visitor activity at each state park were conducted using the System for Observing Play and Recreation in Communities (SOPARC; Figure 2.1c; Appendix G). Developed and refined by McKenzie (2006) and colleagues, SOPARC was originally designed to facilitate the collection of data on recreation participants' physical activity levels in community environments. Since its creation, researchers have confirmed that SOPARC is a statistically reliable and logistically feasible and efficient strategy for assessing park activity levels in multiple contexts (Bocarro et al., 2009; McKenzie, Cohen, Sehgal, Williamson, & Golinelli, 2006; Parra et al., 2010). Validity of the SOPARC physical activity codes has also been established in previous studies (Scruggs et al., 2003). Despite its utility in a variety of park settings, the SOPARC instrument has not been previously used to assess visitor behavior in state parks.

In this study, SOPARC observations focused on the designated recreation hotspots – specifically multi-use zones (e.g., swimming beaches and other grassy play and picnic areas ideally suited for fitness and/or sport activities) and major trailheads within each park. To

determine SOPARC observation times, researchers used a sampling approach similar to the exit surveys. To maximize coverage across a broad temporal range, sessions at each state park observation zone (multi-use area or trailhead) were randomly allocated to four daily time blocks (morning = 6:00-11:59am, early afternoon = 12:00-2:59pm, late afternoon = 3:00-5:59pm, evening = 6:00-11:59pm). Researchers made an effort to conduct as many observations as possible during each daily time block during the course of the summer.

In a SOPARC session, a researcher began at one end of a target area and slowly walked across the zone, documenting the apparent age (child: age 12 and younger, teen: age 13 to 17, adult: age 18 to 59, or senior: age 60 or older), gender (male or female), race/ethnicity (White, African American, Latino, or Asian/Other), and physical activity level (sedentary, moderate, or vigorous) of recreation participants at the moment they were observed. If visitors were engaged in either moderate or vigorous physical activity, the activity type was also noted. High inter-rater reliability levels (intra-class correlation coefficients among paired observers ranged from 0.888 to 0.990) indicated acceptable agreement among observers for all demographic categorizations (Whiting, Larson, & Green, unpublished data, 2012). The unobtrusive SOPARC observations did not appear to affect visitor behavior or impact visitor experiences in any way.

Phase 2: Offsite Data Collection

During Phase 2 of the project, the research focused on communities surrounding the selected state parks. Offsite data collection was designed to capture a diverse subset of the general population of north Georgia, including both state park users and non-users. Although Vaske (2008) acknowledged that intercept surveys make little sense when the target sample population is the general public in a large area, the intercept approach was retained in the offsite sampling for two reasons. First, researchers wanted to mirror the onsite protocol to maintain

consistency in data collection procedures to facilitate onsite and offsite comparisons. Second, common general population survey methods (e.g., mail, telephone) often fail to reach historically underrepresented groups such as low-income, racial/ethnic minorities (Vaske, 2008). To increase the probability of contacting targeted groups in the region (e.g., racial/ethnic minorities, low-income families), researchers focused on a particular subpopulation characterized by high racial and socio-economic diversity: indoor and outdoor flea markets attendees.

Flea markets surveyed during the offsite research phase were scattered across the northern part of Georgia, and included locations in metro Atlanta as well as venues in more rural settings (Table 2.7; Appendix A). All flea markets were within 35 miles of one of the focal state parks. The sites varied in size (from 15 to 1000 vendors) and structure (e.g., outdoor tables, outdoor tents, indoor malls). Researcher observations and anecdotal evidence from site managers indicated that each flea market contained a racially and ethnically diverse sample of potential survey respondents.

Off-site data were collected 27 March – 24 July during 2011. Sampling dates at flea parks were initially based on random assignment. Before data collection began, three large flea markets in the north Georgia region were selected and randomly assigned to two weekend days. However, after trips to each of these locations, researchers determined that additional markets should be added to systematically target new geographical areas (i.e., counties closer to Red Top Mountain State Park) and populations (i.e., African Americans living closer to urban Atlanta). Hence, the purposive sample expanded to incorporate more markets as the summer progressed (Table 2.7).

Data collection procedures at flea markets focused on two distinct groups: vendors (defined as any person selling goods at the market) and customers (defined as any person visiting

the market to browse or purchase items). To survey the vendors, researchers used an administration approach similar to the on-site protocol. Researchers and trained volunteers approached the table or booth of every vendor age 18 or older and asked if he/she would be willing to participate in a brief survey about outdoor recreation in Georgia (Figure 2.2a). Upon consent, participants were randomly given one of the five different survey versions (Appendix H). If a participant who did not have children was given survey Version 5 (the version centered on "Children's Outdoor Recreation"), then that participant was randomly handed a different adult-oriented survey version. Surveys were available in Spanish, and the Spanish language proficiency of all survey administrators was verified prior to fieldwork. After a survey was distributed, researchers remained in the area and responded to questions as necessary, allowing ample time (approximately 5-15 minutes) for survey completion. Refusal rates and reasons were recorded and used to calculate response rates and identify potential sampling bias (Table 2.8).

To survey flea market customers, researchers used an incentive-based participation approach. Every third flea market visitor (age 18 or older) passing a designated "research" table (a flea market booth reserved by the researchers) was approached and asked if he/she would be willing to take a brief outdoor recreation survey in exchange for candy (Figure 2.2b). The location of the research table varied during each visit, but was typically situated near the hub of flea market activity. A large, bilingual (English and Spanish) sign was used to advertise the purpose of the research table and the availability of the candy incentive. Upon consent, participants were randomly given one of the five different survey versions to complete at the table. If the participant declined, refusal rates and reasons were recorded and used to calculate response rates (Table 2.8).

The self-administered intercept survey protocol and format used in off-site data collection was nearly identical to the survey protocol and format used in state parks, and all survey versions contained similar content (Table 2.5, Appendix H). Item wording was slightly adapted for the new audience and context (e.g., instead of "How many times did you visit this state park?", the item asked "How many times have you visited any Georgia state park?"), but other changes were minimal. Each off-site survey included an open-ended question where participants could highlight general park features important to them when deciding where to visit.

Intercept Survey Response Rates

The on-site intercept survey response rate during data collection at all state parks was 91.5%, and was similar in both campgrounds (93.8%) and day use areas (90.9%) across demographic groups (Table 2.6). The most common reasons for not responding in state parks were lack of interest (39.1% of non-respondents), failure to complete survey (36.6%), and lack of time (13.3%). Major demographic differences in non-response reasons were not evident in campgrounds, but a few discrepancies emerged in day use areas. Younger people (ages 18-30) cited a lack of interest (47.8% of non-respondents) and a lack of time (25.4%) more often than people in older age groups. Middle-aged people (ages 31-59) were more likely to depart or quit before completing the survey (37.6%). Older people (age 60 or older) were more likely than other age groups to decline participation because of language or literacy issues (20.0%). People in all racial/ethnic groups departed or quit before completing the survey at approximately equal rates (between 30.0% and 35.8%). African Americans were the most likely to cite lack of interest as a reason for not participating (49.0%). Latinos (13.8%) and people in the Asian/Other group (10.9%, primarily Asians) were more than twice as likely to decline because of language or literacy issues.

Off-site intercept survey response rates (73.7%) during data collection at all flea markets were lower than on-site response rates in state parks. Off-site response rates were similar for both the customer (70.7%) and vendor (74.9%) strategies, but response rates differed by demographic group (Table 2.8). The most common reasons for not responding at flea markets were lack of interest (51.0% of non-respondents), failure to complete survey (17.1%), and language or literacy issues (16.8%). Major age and racial/ethnic differences in off-site non-response reasons were also evident. People in the 31-59 (48.2%) and 60+ (63.4%) year old age groups were more likely to cite lack of interest as a reason for not responding than younger people. Younger people (18-30 year olds) were more likely to depart or quit before completing the survey (38.7%). Language or literacy issues were equally problematic across all age groups (between 12.9% and 18.7%). Among racial/ethnic groups, Whites (67.5%) were more likely than other groups to cite lack of interest as a reason for not responding. African Americans (22.5%) and Latinos (23.1%) were more likely to leave without completing the survey. Language or literacy issues were the largest problem for Latinos (20.6%) and people in the Asian/Other category (48.4%).

Overall Sample Demographics

Exit counts revealed demographic differences in visitor composition among the three parks (Table 2.9). The male to female ratio was similar in all parks. Fort Yargo and Red Top Mountain appeared to attract more children than Fort Mountain. Whites represented a large majority of visitors at Fort Mountain. The ratio of white to non-white visitors was lower at Fort Yargo, and much lower at Red Top Mountain – where white visitors were the minority. Focusing exclusively on visitors who spent time in day use recreation hotspots (e.g., beaches, picnic areas), the exit survey counts revealed a much larger percentage of minority visitors across all parks (Table 2.10). The number of Latinos, in particular, was high in these areas. Latinos were

the racial/ethnic group that accounted for the largest number of day use visitors at Red Top Mountain.

A comparison of the demographic characteristics of on-site state park intercept survey respondents revealed significant differences between the campground and day use areas (Table 2.11). Visitors surveyed in the campgrounds tended to be white, older, more educated, and higher-income. Day users were more likely to be minority (especially Latino), younger, less educated, and lower-income. Almost all of the campground-based visitors preferred to speak English, but only two thirds of day users listed "English only" as their language preference. White, older, and higher income individuals were over-represented in state park campgrounds relative to the general population in the state of Georgia (Table 2.11; U.S. Census Bureau, 2012). Conversely, Latinos, children, and lower-income individuals were over-represented in state park day use areas relative to the general population in Georgia. The offsite sample was comparable to the state park day use sample, but even more diverse and lower income. The offsite sample was also much more diverse than the overall Georgia population in terms of race/ethnicity, income, and education levels (Table 2.11; U.S. Census Bureau, 2012).

The SOPARC observations in beach areas and trailheads within each park also revealed racial/ethnic differences in state park visitation patterns. Whites and Latinos represented the largest portion of visitors in day use areas. Whites were observed more often than other groups of visitors at trailheads across all parks. Differences in racial/ethnic counts were also observed among the three selected parks (Table 2.12). Across all parks, observations in beach areas revealed significant differences in age distribution within racial/ethnic categories. A higher proportion of visitors observed in the African American (41.9%) and Latino (47.7%) groups were children than in other racial/ethnic categories. African American teens (19.7%) were also

more commonly observed than teens in other racial/ethnic groups. Although visitors in the senior adult category (estimated to be 60 or older) represented just 2.3% of the total sample, the ratio was higher for white visitors (3.2%).

Overview of Topic-specific Samples

Samples used in the separate analyses presented in the rest of this dissertation represent a subset of this overall sample population. Descriptions of these sub-samples are provided in each chapter, which specifically focus on benefits associated with general and state park-based outdoor recreation. See Appendix I or Larson, Whiting, & Green (2012) for an overview of data related the range of other topics examined in the larger *GASP Diversity Project*, including:

- State Park Visitation
- Outdoor Recreation Participation (overall and within state parks)
- Motivations to Recreate (overall and within state parks)
- Outdoor Recreation Benefits (overall and within state parks)
- Physical Activity Levels of Adults and Children (overall and within state parks)
- Attachment to State Parks
- Constraints to State Park Visitation
- State Park Recreation Fees
- Suggestions for Improving State Parks & Management Implications

Limitations

Although this study provides a wealth of information regarding the outdoor recreation patterns and preferences of demographically diverse state park users and non-users, readers should be aware of several limitation that affect the generalizability of the results. (Specific

limitations of the methodology and analyses related to specific research objectives are described in more detail in separate chapters.)

Spatial and Temporal Limitations

First, participants in this study did not represent a random sample of Georgia residents. Due to resource and time constraints, onsite sampling strategies targeted visitors to three state park in north Georgia and offsite sampling strategies targeted north Georgia flea market attendees. Though these distinct subgroups were specifically chosen to represent overall state park users (i.e., the three focal parks were intentionally selected by GA DNR to represent parks in north Georgia) and demographically diverse Georgians (i.e., flea markets provide unique, convenient access to a diverse, low income, typically under-surveyed portion of the population), generalizations beyond the sample frame should be conducted with caution. Similarly, the geographical focus on the northern region of Georgia may have yielded data that do not reflect the recreation patterns, preferences, and priorities across the entire state (especially residents of rural southern Georgia and urban Atlanta). The delimitation of the study sample to the peak summer season also limits inferences, for state park visitation and outdoor recreation behavior may differ at other times of the year. Furthermore, the study's emphasis on state parks did not directly address the importance of other locations to outdoor recreation participation. Future research comparing use of and benefits associated with local, state, and national parks could help researchers to better evaluate the relative contributions of each unique setting.

Methodological Limitations

Sampling methods employed in this sample have some inherent limitations as well. For instance, although researchers made an effort to account for visitors in all park zones, sampling in recreation hot spots (e.g., beaches, picnic areas, and campgrounds) was more efficient than

sampling in more remote areas (e.g., trailheads). Consequently, all survey data and a majority of visitor observations occurred in recreation hotspots. Fortunately, surveys of exiting recreationists confirmed that nearly four out of every five state park visitors went to recreation hotspots. However, these numbers suggest that an estimated 20% of state park users were not included in intercept survey sampling frames. The outdoor recreations behaviors and preferences of this omitted group may have differed from the study population. Future research should therefore endeavor to capture visitors using more remote areas of state parks.

The use of self-reported survey instruments (i.e., exit and intercept surveys) can also introduce method bias. Researchers have found that self-reporters have a tendency to exaggerate estimates or ratings on socially desirable measures of attitudinal and behavioral constructs (Chao & Lam, 2009; Sallis & Saelens, 2000). This response to covert social pressure may be even more pronounced among racial/ethnic minorities. Warnecke et al. (1997) noted that, when potential survey respondents were approached by interviewers from different cultural backgrounds, the respondents tended to report inflated scores. Because all researchers in this study were of White/Caucasian descent and many participants were racial/ethnic minorities, these previous findings were a concern. Hence, researchers in this study made a concerted effort to accommodate diverse participants and assure them that survey responses were anonymous and confidential. The use of adult proxies to provide information about children's outdoor recreation patterns introduces similar problems, for parents may intentionally overstate values and scores to comply with social norms. Furthermore, artificially elevated ratings on ordinal scales with limited variability can decrease statistical power and mask patterns of interest. This problem was evident in the *GASP Diversity Project*, and many metrics resulted in high scale means across all groups (often greater than four on scales of one to five). Researchers have suggested that

expanded scales with a broader range of response options might help to alleviate potential issues associated with this ceiling effect, ultimately revealing more useful information about differences among participants (Small, Larson, Green, & Shenk, 2012).

Overt measures of behavior can help to overcome some of the limitations associated with Likert-type scale data. Subjective Likert-type scales can only measure constructs such as perceived recreation benefits, whereas overt measures often convey exactly what is occurring when people engage in outdoor activities. Despite this advantage, objective measures of recreation behavior present additional challenges. In this study, for example, the SOPARC sampling approach only yielded information about park visitors at a particular moment in time. Efforts to quantify the influence of social, environmental, and behavioral factors on park use and activity levels would likely benefit from more detailed data collection procedures that yield precise measures of activity participation frequency and duration. However, advanced objective metrics (e.g., satellite data recorders) often require extended time and exorbitant budgets. Because GA DNR funding did not allow for this type of investment, basic observational procedures that required minimal personnel and limited staff training were deemed most appropriate for this study.

Detailed information about park use can be obtained in other ways such as qualitative data collection. However, the absence of depth in qualitative responses (i.e., most open-ended survey responses were two sentences or less) was another limitation of this study. During the *GASP Diversity Project*, *ad hoc* conversations with state park visitors and their children allowed researchers to identify specific features and facilities that encouraged park-based activities across demographic groups. A more formal approach to qualitative data collection and analysis using strategies such as interviews and focus groups (e.g., Bauer, Yang, & Austin, 2004) or time

diaries (e.g., Hofferth, 2009) would support quantitative survey and SOPARC data, providing additional insights regarding outdoor recreation activities and choices.

Analytical Limitations

In many chapters of this dissertation, data are reported as pooled sample averages across all parks (onsite) and flea markets (offsite). As indicated earlier, this approach was adopted to illustrate general patterns across sites and define "typical" attributes of state park users and nonusers across different demographic groups. However, because the characteristics of participants at different research sites were not uniform and sampling was not conducted using a rigorous, randomized statistically based protocol such as those employed in the U.S. Forest Service National Visitor Use Monitoring System (e.g., English et al., 2002), pooled results provide only a coarse representation of the overall sample. Additional analyses incorporating post-weighting procedures could be used to account for certain over- or under-represented subgroups within the sample populations and generate broader inferences regarding state park users and the general population of Georgia (Vaske, 2008).

A larger sample with less stratification would also allow for more explicit examination of interactions between demographic variables. For instance, although researchers have noted significant effects of the interaction between race/ethnicity and income on a variety of outdoor recreation-related variables (e.g., Abercrombie et al., 2008; Johnson et al., 1998; West, 1989), small cell sizes for certain categories in this study (i.e., high-income African Americans) prevented analysis at such fine levels of detail.

Conceptual Limitations

From a conceptual standpoint, this study only examined one type of benefits – those provided by actual park use. However, parks provide many non-use values that are also

important. Non-use values included existence value (which is an inherent benefit of existence often related to the environmental assets or conservation values guarded by a park or protected area) and bequest value (the awareness that future generations may benefit from the park and the resources it contains; Nijkamp, Vindigni, & Nunes, 2008). In fact, results of several studies suggest that non-use values exceed use values for some public land classes (Cordell, Tarrant & Green, 2003; Johnson, Bowker, Bergstrom & Cordell, 2004). Indirect values associated with parks have also been recognized as important factors in regional economies. For example, houses and properties close to parks and protected areas are more desirable and valuable than comparable properties not near a park (Pack & Schanuel, 2005). Hence, the non-use values of parks could be considered in conjunction with use values in future studies exploring park-related benefits.

Finally, the race/ethnicity variable selected for use in this study has been highly scrutinized in previous research. For example, several authors have criticized the homogenization of race and ethnicity into a fixed number of groups, arguing that this strategy tends to reflect a static or monolithic view of ethnicity that masks the dynamic properties of culture (Floyd, 1998, Li *et al.* 2007). To address this issue, pilot test surveys allowed participants to indicate their own ethnicity through an open-ended response variable. Data analysis and interactions with participants revealed that many people had difficulty comprehending the question. In fact, most participants elected to skip the item altogether. When familiar choices for race/ethnicity were provided, almost all participants understood and responded to the conventional categories. Hence, the racial/ethnic groups used in this study were White/Caucasian, Hispanic/Latino, Black/African American, and Asian/Other. Though participants could check "all that apply" and write in their specific ethnic origin under each category (e.g., Cuban,

Korean), very few exercised these options. Despite efforts to address the dynamic properties of race and ethnicity, results therefore provide little information about within group variation. Small cell sizes within strata also prevented analyses of interactions among variables such as race/ethnicity and income (e.g., low-income African Americans). Although this study provided much needed information about racial/ethnic differences in park use and outdoor recreation behavior, future research could examine these demographic properties in more detail.

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Table 2.1

Description of Georgia State Parks Sampled During Summer 2009 and Summer 2010

State Park	**Location**	**Annual Visitation 5-year Average** (2004-2008)	**Facilities**
Fort Mountain	Chatsworth, GA Murray County	135,339	3,712 acres 17-acre lake Swimming beach 41 miles of hiking/biking trails 47 campsites 7 picnic shelters
Fort Yargo	Winder, GA Barrow County	396,360	1,815 acres 260-acre lake Swimming beach 15 miles of hiking/biking trails 74 campsites 5 picnic shelters
Red Top Mountain	Cartersville, GA Bartow County	837,614	1,776 acres 12,010-acre lake (Allatoona) Swimming beach 17 miles of hiking/biking trails 92 campsites 7 picnic shelters

Table 2.2

Pilot Study Sample Totals for Data Collected in Three North Georgia State Parks, Summer 2009

State Park	Exit Surveys (# cars stopped)	Intercept Surveys (# Surveys Collected)	Observations (# Visitors Observed)
Fort Mountain	90	187	616
Fort Yargo	99	305	1,136
Red Top Mountain	0*	348	529
TOTAL	189	840	2,281

*The exit survey procedure was defined during site visits to Red Top Mountain, but no data were collected there.

Table 2.3

Onsite Sample Totals for Data Collected in Three North Georgia State Parks, Summer 2010

State Park	Exit Surveys (# Cars Stopped)	Intercept Surveys (# Surveys Collected)	Observations (# Visitors Observed)
Fort Mountain	241 (over 48 sessions)	1,548 (69% day use)	4,355 (over 80 sessions)
Fort Yargo	530 (over 45 sessions)	1,700 (86% day use)	8,005 (over 72 sessions)
Red Top Mountain	342 (over 46 sessions)	1,944 (79% day use)	6,165 (over 65 sessions)
TOTAL	1,113 (over 139 sessions)	5,192 (78% day use)	18,525 (over 217 sessions)

Table 2.4

Onsite Survey Sampling Calendar, Summer 2010

State Park	Weekdays	Wednesdays	Weekend Days	Holiday Weekends
Fort Mountain	June 4 July 8 July 16	June 16 July 28 August 4	June 5-6 July 17-18 August 14-15	Labor Day (September 4-6)
Fort Yargo	June 24 July 27 August 12 August 20	June 9 July 14 July 21 August 25	June 19-20 July 10-11 August 28-29	Memorial Day (May 29-31)
Red Top Mountain	June 14 August 6 August 12	June 2 September 1	June 12-13 June 26-27 August 1 August 7-8	Independence Day (July 3-5)

Table 2.5

Description of Onsite Intercept Survey Content (by Survey Version) During the Summer 2010

Georgia State Park Diversity Project

Survey Version	Survey-specific Content	Measurement Scale
Version 1 (General Outdoor Rec)	SP recreation activities (adults)	Binary (did OR did not participate)
	Motivations to visit SP	Likert (from 1=not important to 5=extremely important)
	SP recreation preferences	Likert (from 1=not important to 5=extremely important)
	Perceived benefits of SP visits (adults)	Likert (from 1=strongly disagree to 5=strongly agree)
Version 2 (Constraints to Outdoor Rec)	Constraints to SP visitation	Likert (from 1=not a reason to 5=major reason)
	Social norms	Likert (from 1=very unlikely to 5=very likely)
Version 3 (Willingness to Pay for Parks)	Willingness to pay more for SP	Binary (would OR would not pay more – with amount)
	Response to hypothetical price shift	Categorical (visits decrease, stay the same, increase)
	Type of SP payment preferences	Categorical (various payment options)
	Place attachment	Likert (from 1=strongly disagree to 5=strongly agree)
Version 4[a] (Park-based Physical Activity)	Physical activity locations	Likert (from 1=never to 5=very often)
	Physical activity time budget (adults)	Open-ended (fill in blank)
	Park features used for physical activity	Binary (did OR did not use)
	Physical activity site preferences	Likert (from 1=not important to 5=extremely important)
Version 5 (Children's Outdoor Rec)	SP recreation activities (kids)	Binary (did OR did not participate)
	Perceived benefits of SP visits (kids)	Likert (from 1=strongly disagree to 5=strongly agree)
	Physical activity time budget (kids)	Open-ended (fill in blank)

[a]The self-reported physical activity questions on Survey Version 4 were adapted from existing instruments (e.g., Walker et al., 2009) and distinguished between moderate and vigorous physical activity using explicit definitions derived from international and national lifestyle surveys created by the Centers for Disease Control and Prevention (Bauman et al., 2009; Centers for Disease Control and Prevention, 2009). *Moderate* activity was defined as physical activity that causes some increase in breathing and heart rates for at least ten minutes at a time. *Vigorous* activity was defined as physical activity that produces a large increase in breathing and heart rate for at least ten minutes at a time. Examples activities in each category were provided to facilitate comprehension.

Table 2.6

Response Rate Data and Reasons for Not Responding (by Demographic Group) for Onsite Sample in Three North Georgia State Parks, Summer 2010

(5,675 people approached, 5,192 surveys collected)

Demographic Variable	Response Rate (%)	Top Reasons for Not Responding
Gender		
Female	92.8	Not interested (36.7%); Did not complete (35.7%)
Male	89.3	Not interested (40.5%); Did not complete (37.8%)
Age		
18-30 year olds	93.4	Not interested (42.0%); Did not complete (28.4%)
31-59 year olds	87.2	Did not complete (40.3%); Not interested (38.9%)
60+ years old	88.1	Not interested (35.7%); Did not complete (21.4%)
Race/Ethnicity		
White/ Caucasian	92.3	Not interested (41.2%); Did not complete (36.5%)
Hispanic/Latino	91.3	Did not complete (37.0%); Not interested (31.5%)
Black/African American	88.7	Not interested (49.0%); Did not complete (32.7%)
Asian/Other	86.7	Not interested (40.7%); Did not complete (35.4%)

Table 2.7

Offsite Sample Totals for Data Collected in North Georgia Flea Markets, Summer 2011

Flea Market Name	**Location** (Georgia County)	**Date(s) Surveyed**	**Intercept Surveys** (# Surveys Collected)
285	DeKalb	July 23	52
Big D	Whitfield	April 30 July 24	304
Buford Highway	DeKalb	May 22	55
J & J	Clarke	April 2 April 3 April 17 May 7	544
Marietta	Cobb	May 28	41
Pendergrass	Jackson	March 27 April 23 May 1	211
Tucker	DeKalb	July 23	38
Yesteryear	Cobb	July 24	70
TOTAL			1,315

Table 2.8

Response Rate Data and Reasons for Not Responding (by Demographic Group) for Offsite Sample in North Georgia Flea Markets, Summer 2011

(1,784 people approached, 1,315 surveys collected)

Demographic Variable	Response Rate (%)	Top Reasons for Not Responding
Gender		
Female	78.5	Not interested (48.9%); Language/literacy issues (17.0%)
Male	68.8	Not interested (52.3%); Did not complete (17.1%)
Age		
18-30 year olds	85.0	Did not complete (38.7%); Not interested (38.7%)
31-59 year olds	64.4	Not interested (48.2%); Language/literacy issues (18.7%)
60+ years old	41.7	Not interested (63.4%); Language/literacy issues (14.6%)
Race/Ethnicity		
White/ Caucasian	72.3	Not interested (67.5%); Not enough time (11.9%)
Hispanic/Latino	75.3	Not interested (43.8%); Did not complete (23.1%)
Black/Afr. American	78.4	Not interested (39.2%); Did not complete (35.3%)
Asian/Other	64.3	Language/literacy issues (48.4%); Not interested (28.1%)

Table 2.9

Demographic Distribution of Visitors[a] (% of Total, by Park) During Exit Survey Counts in Three North Georgia State Parks, Summer 2010

Variable	State Park		
	Fort Mountain (n=745)	**Fort Yargo** (n=1361)	**Red Top Mountain** (n=1096)
Gender			
Female	50.6	48.3	49.2
Male	49.4	51.6	50.8
Age			
Under 18 (child)	33.3	40.6	38.5
Over 18 (adult)	66.7	59.4	61.5
Race/Ethnicity			
White or Caucasian	79.1	63.1	41.7
Hispanic/Latino	18.4	20.9	31.8
Black/African American	1.2	9.6	17.8
Asian/Other	1.3	6.5	8.8

[a] Workers and park volunteers excluded

Table 2.10

Demographic Distribution of Visitors[a] Whose Primary Activity Occurred in Day-Use Recreation Hotspots (% of Total, by Park) During Exit Survey Counts in Three North Georgia State Parks, Summer 2010

	State Park		
Variable	**Fort Mountain** (n=376)	**Fort Yargo** (n=937)	**Red Top Mountain** (n=870)
Gender			
Female	51.9	51.0	51.3
Male	48.4	49.0	48.7
Age			
Under 18 (child)	44.1	45.3	40.8
Over 18 (adult)	55.9	54.7	59.2
Race/Ethnicity			
White or Caucasian	63.6	54.7	34.0
Hispanic/Latino	33.8	26.8	38.2
Black/African American	1.6	9.5	17.6
Asian/Other	1.1	9.0	10.2

[a] Workers and park volunteers excluded

Table 2.11

Demographic Distribution of Intercept Survey Respondents (% of Total, by Survey Location) in Onsite Georgia State Park (Summer 2010) and Offsite Flea Market (Summer 2011) Samples

Variable	On-site: Campgrounds (n=1136)	On-site: Day Use Areas (n=4056)	Offsite (n=1315)	% in GA[a]
Gender				
Female	50.3	58.6	51.3	**51.2**
Male	49.7	41.4	48.7	**48.8**
Age				
Under 18 years old	19.2	22.7	24.7	**24.7**
18-30 years old	14.8	25.1	27.8	(under
31-50 years old	39.7	41.2	31.6	age 18)
Over 50 years old	26.3	11.0	15.9	
Race/Ethnicity				
White or Caucasian	90.0	51.7	39.1	**55.9**
Hispanic/Latino	3.8	30.9	36.9	**8.8**
Black or African American	2.1	8.2	14.1	**30.5**
Asian/Other	4.3	9.3	9.8	**4.8**
Language Preference				
English	93.7	63.4	58.9	**87.3**
English & Spanish	3.9	21.0	22.0	(English
Spanish	1.0	11.1	12.9	at home)
Other	1.4	4.5	6.2	
Education				
Some high school	5.2	13.8	18.2	**16.5**
High school or GED	26.0	38.8	43.7	**56.3**
College or advanced degree	68.7	47.4	38.1	**27.2**
Income				
$25,000 or less	6.5	21.9	34.1	**15.7**
$25,001 to $50,000	19.7	24.7	26.5	(below
$50,001 to $100,000	33.2	23.2	14.9	poverty
$100,001 or more	21.0	9.4	2.9	line)
Refuse to answer	19.6	20.8	21.6	

[a]Overall Georgia state population estimates based on 2010 U.S. Census Data (U.S. Census Bureau, 2012)

Table 2.12

Visitors Observed (% of Total, by Race/Ethnicity) in Different Zones of Three North Georgia State Parks During, Summer 2010

	Fort Mountain		**Fort Yargo**		**Red Top Mountain**	
Race/Ethnicity	**Beach** (n=3164)	**Trail** (n=848)	**Beach** (n=7333)	**Trail** (n=692)	**Beach** (n=5987)	**Trail** (n=521)
White	61.6	92.6	46.6	64.7	39.7	88.7
Hispanic/Latino	34.8	1.8	39.5	14.3	43.3	0.8
Black	1.3	1.1	10.5	14.9	12.5	2.5
Asian/Other	2.3	4.6	3.4	6.1	4.5	8.1

Figure 2.1. Photographical depiction of (a) exit survey, (b) behavior observation, and (c) intercept survey sampling procedures during onsite data collection at Fort Mountain State Park

Figure 2.2. Photographical depiction of survey strategies for (a) vendors and (b) customers during offsite data collection at north Georgia flea markets

CHAPTER 3

EXPLORING THE INFLUENCE OF OUTDOOR RECREATION PARTICIPATION ON PRO-ENVIRONMENTAL BEHAVIOR IN A DEMOGRAPHICALLY DIVERSE POPULATION[1]

[1] Larson, L. R., Whiting, J. W., & Green, G. T. (2011). *Local Environment, 16*(1): 67-86.
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Abstract

This study used structural equation modeling to examine the effects of socio-demographic variables and outdoor recreation participation on pro-environmental behavior (PEB) among an ethnically diverse population of adult state park visitors near Atlanta, Georgia, U.S.A. (N=319). Data collected through intercept surveys at three state parks were used to examine relationships among potential predictors of PEB including socio-demographics (ethnicity, gender, education, income), outdoor recreation participation (during childhood and adulthood), and environmental value orientations (biocentric and anthropocentric). The best-fitting model accounted for 40% of the variance in self-reported PEB and indicated the strongest positive relationship between adult outdoor recreation participation and PEB ($\beta = 0.54$, $t = 5.70$). Biocentric and anthropocentric value orientation scores were also significant antecedents of PEB ($\beta = 0.17$, $t = 1.99$ and $\beta = 0.19$, $t = 2.56$, respectively), and both were influenced by socio-demographic variables. Overall, results suggest that a diverse public's environmental ethos and propensity to engage in pro-environmental behaviors could be influenced by outdoor recreation opportunities.

Introduction

Environmental problems are frequently attributed to the public's reluctance to engage in pro-environmental behaviors (PEB) or other actions that encourage natural resource conservation (Gardner & Stern, 2002). Consequently, attempts to support and promote environmental initiatives and global sustainability often center on factors influencing the development of PEB (Turaga et al., 2010). Although traditional PEB models have focused on the causal relationships among values, attitudes, and behaviors, links between environmental values and behaviors are often indirect (Hargreaves et al., 2008; Poortinga et al., 2004). An improved understanding of the

value-based factors and antecedents that affect PEB could help policy-makers develop better strategies for dealing with environmental issues. For example, the identification of particular value-centered PEB motives (i.e., to benefit nature or oneself) could highlight opportunities for increasing environmentally friendly activities in certain populations (Tarrant & Cordell, 2002).

Future PEB-prediction models should also account for increasing racial and ethnic diversity. In countries like the United States, the mobility and migration of ethnically-diverse groups has contributed to unprecedented levels of socio-demographic heterogeneity (Shinew et al., 2006). However, the potential effects of diversity on PEB remain largely unknown. A growing body of research also suggests that positive exposure to nature through outdoor recreation participation may contribute to a pro-environmental ethos (Kareiva, 2008; Tarrant & Green, 1999). Hence, the creation of outdoor recreation opportunities across diverse communities could become an important component of efforts to encourage PEB. This study accounts for growing diversity and the influence of outdoor recreation participation, building upon existing models to identify potential factors influencing PEB as pro-environmental actions become a critical outcome associated with policy interventions around the world.

Accounting for Environmental Value Orientations in PEB Models

Early behavior models focused on the basic, rational connection between attitudes and behaviors (Fishbein & Ajzen, 1975), but research indicates that causal models of PEB involve a number of variables that should be considered simultaneously (Cottrell, 2003; Nordlund & Garvill, 2002; Oreg & Katz-Gerro, 2006). For example, Stern and colleagues (e.g., Stern et al., 1995; Stern et al., 1999) emphasized a significant but indirect relationship between values and behavior, introducing a value-belief-norm theory in which personal values affect environmental beliefs, beliefs affect behavioral norms, and norms subsequently influence PEB. Nordlund and

Garvill (2002) examined these indirect effects and developed a model where the influence of environmental values on PEB was mediated by personal norms and problem awareness. Although personal norms appeared to be an antecedent to PEB, their model only accounted for 21% of the explained variance in environmental behaviors. Other variables such as contextual factors and personal habits also affect attitude formation and behavior choices (Poortinga et al., 2004; Stern, 2000; Tarrant & Cordell, 1997). Acknowledging all of these complex interactions, a variety of studies examining both direct and indirect relationships between values, attitudes, and behaviors continue to emphasize the role of value orientations and belief structures as fundamental cognitive constructs that form a foundation for action (Johnson et al., 2004; Oreg & Katz-Gerro, 2006; Vaske, 2008). Hence, the expression of a particular set of environmental values or value orientations, through both direct and indirect paths, could represent a potential predictor of PEB.

Exploration of environmental value orientations or ecological worldviews began in the 1970s with a model called the New Environmental Paradigm (NEP; Dunlap & Van Liere, 1978). This model suggested that humans were shifting from an anthropocentric worldview, characterized by a human-focused attitude, to a biocentric or ecocentric worldview that is more respectful of nature. Other studies, including a revised version of the NEP renamed the New Ecological Paradigm, have affirmed a conceptual continuum related to these two distinct biocentric and anthropocentric value orientations (Dunlap et al., 2000; Vaske & Donnelly, 1999). The biocentric view endorses environmental preservation where nature is valued for its very existence – not for human use or consumption (Kellert, 2005; Thompson & Barton, 1994; Wiseman & Bogner, 2003). The anthropocentric mindset favors utilization of natural resources and valuation of nature based on the material or physical benefits it may provide for human

welfare (Milfont & Duckitt, 2004; Nordlund & Garvill, 2002; Vaske & Donnelly, 1999). Researchers have noted differences between biocentric and anthropocentric values in their relationships to PEB. In general, biocentric values are associated with higher levels of PEB, whereas anthropocentric values and PEB are negatively related (Nordlund & Garvill, 2002; Stern et al., 1995). Although these two perspectives are clearly distinct they are not mutually exclusive, and humans hold varying levels of both biocentric and anthropocentric values simultaneously. In fact, the evolution of environmental values may be a complex dialectical process with distinct cultural influences (Castro, 2006). In this study, biocentric and anthropocentric value orientations are both considered as important predictors of PEB.

Accounting for Socio-demographic Variables in PEB Models

Socio-demographic characteristics are recognized as important factors affecting environmental value orientations, but the influence of socio-demographics on PEB has not been adequately explored. For instance, income and education have traditionally been used to account for differences in ecological worldviews, with low-income and less-educated individuals displaying lower pro-environmental orientations than their wealthier and more-educated counterparts (e.g., Arcury & Christianson, 1993; Cordell et al., 2002). However, cross-cultural studies have challenged this assumption, suggesting that affluence is not necessarily a prerequisite for environmental concern and a conservation ethos (Dunlap & Mertig, 1995; Whittaker et al., 2005). Income and education may not always be the most appropriate indicators when attempting to explain environmental orientations. Consequently, researchers have recommended future investigations involving other potential predictors of attitude and value orientations, such as gender and ethnicity (Mohai & Bryant, 1998, Vaske et al., 2001).

Research suggests that women are more inclined than men to support preservation of nature, often reported as concern for environmental issues (Milfont & Duckitt, 2004; Vaske et al., 2001,). In examining gender differences in environmental behavior, Zelezny et al. (2000) also found that women reported significantly greater participation in PEB. Conversely, other studies have shown no relationships between gender and behaviors like recycling (Schultz et al., 1995). Stern et al. (1993) noted that although women held strong beliefs about the consequences of environmental actions, women and men expressed similar levels of environmental value orientations. Based on existing studies, the impact of gender on value orientations and PEB remains uncertain.

Racial and ethnic differences on environmental attitudes and behaviors will undoubtedly become more relevant in countries like the U.S. as populations continue to diversify (Johnson et al., 2004; Jones, 2002). Census projections suggest that by 2050, ethnic minorities will represent approximately half of all Americans (U. S. Census Bureau, 2006). Historically, investigations of environmental issues have typically reflected the views and concerns of the white majority. However, a growing body of research coupled with the environmental justice movement has challenged the widely held belief that environmental concern is only expressed by the wealthy, privileged, white upper class (Floyd & Johnson, 2002; Mohai & Bryant, 1998; Schultz & Zelezny, 1999). In one of the more extensive studies of environmentalism among ethnic minorities in the U.S., Whittaker et al. (2005) concluded that, contrary to predictions based on the hierarchy of needs theory (Maslow, 1943), Latinos and African Americans who are often among the poorest and least-educated members of society are equally concerned with environmental issues as white, non-Hispanics. International studies have indicated that a pro-ecological mindset actually may be more prevalent in less-developed countries like Brazil, where

natural and cultural elements are integrated and humans are more commonly viewed as part of nature (Bechtel et al., 1999; Vikan et al., 2007). Although these studies seem to indicate the prominent influence of cultural factors on environmental attitudes and values globally, the environmental value orientations and PEB of racial and ethnic minorities in the U. S. have not been adequately examined. Research also suggests that PEB participation within minority communities may remain limited because of socioeconomic and cultural barriers (Jones & Carter, 1994; Jones & Rainey, 2006). For example, Parker and McDonough (1999) observed that despite elevated levels of environmental concern in African American populations, a general feeling of powerlessness obstructed positive environmental actions. This lack of perceived behavioral control may have a negative effect on participation in PEB (Ajzen, 1991). Recent research has also documented lower levels of participation in PEB among ethnic minority populations (Johnson et al., 2004). Additional studies of socio-demographically diverse populations should continue to yield important insight into the relationship between demographic characteristics and PEB.

Accounting for Outdoor Recreation Participation in PEB Models

Other variables may also influence an individual's expression of eco-friendly actions. For example, researchers have noted that positive exposure to the natural environment through participation in outdoor recreation is often correlated with pro-environmental attitudes, awareness, and support for conservation (Kareiva, 2008; Tarrant & Green, 1999). Studies have suggested that positive childhood outdoor experiences in natural settings may be among the most significant predictors of biocentric value orientations and increased outdoor recreation participation later in life (Bixler et al., 2002; Wells and Lekies, 2006). Wells and Lekies (2006) found that children who frequently interacted with wild nature (i.e., camping, hunting, or hiking

in natural areas) before age 11 displayed stronger environmental attitudes and PEB as adults. Tarrant and Green (1999) showed that appreciative recreation activities such as hiking had a significant mediating effect on the relationship between environmental attitudes and behavior.

Despite these findings, subsequent efforts to investigate links between environmental orientations, outdoor recreation participation, and willingness to engage in PEB are limited (Cottrell, 2003). Halpenny (2010) demonstrated that place attachment – in this case, an individual's affective connection with a Canadian national park - can play a major role in promoting pro-environmental attitudes and behaviors. Other research has also revealed similar relationships between place identity and support for conservation at specific parks (Kyle et al., 2003), but few have investigated the impact of general outdoor recreation participation (Tarrant & Green, 1999). Zaradic et al. (2009) examined the relationship between outdoor recreation and PEB using time series data. Specific activities (i.e., hiking, backpacking) were positively correlated with support for conservation organizations; general public land visitation was inversely related to that specific PEB. Unfortunately, Zaradic et al. only addressed a single indicator of PEB, and did not account for other variables (including socio-demographic variables) which have been shown to have a substantial influence on value orientations and PEB (Johnson et al., 2004; Vaske & Donnelly, 1999). Although research has revealed differences in attitudes toward, preferences for, and affective meanings attached to natural areas among distinct demographic groups, most has not directly addressed links between recreation participation and PEB (Payne et al., 2002; Virden & Walker, 1999). Additional research is needed to investigate the relationship between outdoor recreation and PEB, both during childhood and adulthood.

Research Objectives

Previous research has revealed multiple factors that influence an individual's participation in PEB to different degrees. However, little research has explored the influence of socio-demographic variables and outdoor recreation participation on PEB. The purpose of this study was to examine the relationships among socio-demographic variables, social-psychological constructs, outdoor recreation participation, and self-reported PEB. Specifically, this study compared and evaluated two structural equation models (baseline Model A and nested Model B) to address the following objectives.

Objective 1. To examine the direct and indirect relationships between environmental value orientations (biocentric and anthropocentric) and PEB.

Objective 2. To examine the direct and indirect relationships of sociodemographic variables (income, education, gender, and race/ethnicity) and PEB.

Objective 3. To examine the direct and indirect relationships of outdoor recreation participation (during adulthood and childhood) and PEB.

Defining the Models

These research objectives were examined using a multivariate statistical procedure that simultaneously accounted for measurement of latent constructs (i.e., environmental value orientations and PEB) and relationships among predictor and outcome variables (Cottrell, 2003; Klem, 2002). Hypothesized paths connecting all of these interacting factors are outlined in two possible models for predicting PEB (variable name PEB). In Model A, the baseline model, all factors, including socio-demographic variables (gender, ethnicity, education, and income), have a direct influence on PEB (Figure 3.1). This model allows for a direct test of all relationships between predictor variables of interest and PEB. The more parsimonious Model B represents a

simplified conceptualization of factors influencing PEB (Figure 3.2). In this model, only environmental value orientations (BioEVO and AnthroEVO) and outdoor recreation participation during adulthood (AdultOut) have a direct influence on PEB. In Model B, the relationship between socio-demographic variables and PEB is mediated by environmental value orientations. Outdoor recreation participation variables (AdultOut and KidOut) also have indirect effects on PEB mediated by environmental value orientations. Through model selection and a subsequent evaluation of the path values for the best-fitting model, this study provided a framework for examining the proportional influence (both direct and indirect) of each potential predictor variable on the self-reported PEB levels of participants.

Methods

Participants and Procedures

Subjects in this study were visitors to three state parks within 100 miles of the metropolis of Atlanta, Georgia, U.S.A., who participated in self-administered intercept surveys in and around concentrated centers of recreation activity within each park during the summer of 2009. The three state parks (Fort Mountain, Fort Yargo, and Red Top Mountain) were selected as study sites based on annual visitation rates, a comparable array of land- and water-based recreation activities and facilities (i.e., all parks had lakes, beaches, and biking or hiking trails), and anecdotal reports from park managers of high racial/ethnic diversity of visitors.

During intercept survey sessions, researchers and trained volunteers approached every third visitor age 18 or older at recreation hotspots (e.g., beaches, picnic areas, or campgrounds) and asked if he/she would be willing to participate in a brief ten-minute survey about state park use. Surveys were available in English and Spanish, and all survey administrators were bilingual. After surveys were distributed, researchers remained in the area and responded to questions as

necessary, allowing ample time (approximately 10-15 minutes) for survey completion. A total of 497 visitors were approached with a response rate of 83% (414 of 497). Missing data for at least one endogenous variable item (environmental value orientation, outdoor recreation participation, or PEB) occurred on 22% of the completed surveys. The ratios for gender (59% female for missing data, 58% female in analyzed sample) and race/ethnicity (65% white for missing data, 73% white in analyzed sample) among participants who were omitted because of missing data were comparable to the sample used in the analysis (Table 3.1). However, missing endogenous variable data were more common among participants with less education (57% had high school degree or less compared to 42% for analyzed sample) and lower income (52% had income below $35,000 compared to 30% for analyzed sample). These differences were more likely related to wording or comprehension issues than inherent differences in responses to endogenous variable items such as PEB. Therefore, although the reduced sample decreased statistical power, the "missing at random" nature of these data likely had little effect on the parameter estimates (Allison, 2003). Deletion of cases with missing data resulted in a sample size of 324. Five additional outliers were removed after examining Mahalanobis distance statistics ($D > F(13,310) = 41.9$ at $\alpha = 0.01$). After these outlying cases were excluded, the effective sample size for SEM analysis was reduced to 319.

Instrumentation

The intercept survey instrument included four pages of questions designed to address several aspects of park visitation. In this case, relevant items included general information regarding demographics and outdoor recreation participation as well as scales designed to capture environmental value orientations and PEB. Prior to testing the full structural model, the reliability of the scales used to measure the latent environmental value orientation and PEB

constructs was examined using Cronbach's alpha estimates obtained with SPSS Version 18.0 (SPSS, 2008). Convergent and discriminant validity among the constructs was tested using a confirmatory factor analysis of three-factor and one-factor measurement models in LISREL version 8.71 (Joreskog & Sorbom, 2004a). The survey instrument generated data related to the following factors and constructs (with information regarding reliability and validity included where applicable):

Environmental Value Orientations

Environmental value orientations were measured with items modeled after research that characterized responses along the biocentric-anthropocentric continuum (Table 3.2; Thompson & Barton, 1994, Vaske et al., 2001). The biocentric scale included five items ($\alpha = 0.820$) and the anthropocentric scale included three items ($\alpha = 0.706$). All items were measured using five-point Likert-type format ranging from one = strongly disagree to five = strongly agree, with five indicating high levels of value orientations. The convergent and discriminant validity of the biocentric and anthropocentric constructs was supported by the three-factor measurement model (Table 3.3). The two constructs were not significantly correlated (phi = -0.06). Standardized path estimates (lambdas) were all ≥ 0.54 for biocentric and ≥ 0.63 for anthropocentric values and were statistically significant. Furthermore, the R^2 values ($R^2 \geq 0.29$ for biocentric and $R^2 \geq 0.40$ for anthropocentric) supported the theory that each item was a relatively good measure of the specified factor.

Socio-demographic Variables

For socio-demographic questions, respondents were asked to characterize their average annual household income, their highest completed level of education, gender, and race/ethnicity. The coding system for socio-demographic variables appears in Table 3.1. Socio-demographic

categories were based on standard demographic data collected by U.S. Census Bureau. The race/ethnicity category was dichotomized into white or non-white because of the relatively small sample size. Although this type of simplification can mask some dynamic properties of ethnicity and culture, a similar approach has been used by other researchers (i.e., Johnson et al., 2004).

Outdoor Recreation Participation

Outdoor recreation participation items addressed individuals' nature-based experiences as adults and children (Table 3.2). The first item asked respondents to rate the amount of time they participated in outdoor nature activities in the past year on a scale ranging from one = never to five = very often. Although this single-item measure of recreation participation is somewhat limiting, it provides a useful starting point to examine relative rates of recreation participation across diverse groups. The second recreation participation item asked respondents to think back to their childhood and recall how often they participated in outdoor nature activities growing up. Although recall bias for this item is a potential limiting factor, previous studies have used adult recollections of childhood as a method for characterizing children's time outdoors (Wells & Lekies, 2006). Responses on this scale ranged from one = never to nine = very often. Both of these items were converted into a single-measure latent variable to facilitate the analysis in LISREL. Because each of these scales consisted of only one indicator, reliability estimates based on internal consistency could not be calculated. Scale reliability was set at the reasonable value of $\alpha = 0.80$, allowing for some degree of recall error in the responses.

Pro-environmental Behavior

Pro-environmental behavior was measured with three items used in previous studies (Table 3.2; Green et al., 2006; Johnson et al. 2004). Items were designed to capture several distinct components of environmental behavior including environmentally significant personal

action (i.e., recycling), environmental communication (reading environmental articles), and political activism (membership in environmental group). These items are similar to those in the environmental activism and citizenship categories outlined by previous researchers (Oreg and Katz-Gerro, 2006; Stern et al., 1999; Stern, 2000). Items were measured using five-point Likert-type format ranging from one = strongly disagree to five = strongly agree, with five indicating high levels of PEB. Cronbach alpha reliability estimates for the three-item scale was 0.649. The discriminant and convergent validity of the ERB construct was supported by the three-factor measurement model (Table 3.3). The PEB construct was not significantly correlated with BioEVO (phi = 0.36) or AnthroEVO (phi = 0.04). Standardized path estimates (lambdas) were all ≥ 0.49 and statistically significant. Furthermore, all of the R^2 values were ≥ 0.24, supporting the theory that each item was a good measure of the specified factor. The "recycling" item was retained despite a relatively low path estimate (0.49) because of its traditional inclusion and conceptual connection to PEB.

Results

The full structural model was analyzed using a multi-step modeling approach that involved two phases: confirmation of an appropriate measurement model followed by selection and evaluation of the appropriate structural model (Kline, 2005). Prior to the analyses, data were screened to test the assumptions of normality for multivariate analyses using PRELIS version 2.71 (Joreskog and Sorbom, 2004b). Univariate skewness and kurtosis values > |2.0| and a relative multivariate kurtosis statistic larger than 1.0 (1.20) indicated that the data deviated from a normal distribution (Table 2; Kline, 2005). Because the data were slightly non-normal and the sample size was relatively small, a Satorra-Bentler Scaled χ^2 with robust standard error correction was used to estimate model fit and adjust the standard errors of path coefficients

(Chou & Bentler, 1995). Model fit was assessed with the maximum likelihood (ML) estimation technique used in LISREL version 8.71 (Joreskog & Sorbom, 2004a). The ML solution for parameter values tends to be more accurate when the sample size is relatively small and a risk of model misspecification exists (Olsson et al., 2000), and was therefore appropriate for this study context. The covariance matrix used in the analysis is reported in Table 3.4.

Measurement Model Fit

Measurement model fit was assessed before specific hypotheses regarding PEB predictors could be tested. The measurement model tested the relationships among 11 observed variables and 3 latent constructs (biocentric and anthropocentric value orientations and PEB) that appeared in the structural model. Irregularities in the data were not present, and the model was estimated successfully in 11 iterations. The Satorra-Bentler Scaled χ^2 value indicated that the measurement model did not reproduce the observed covariances exceptionally well [χ^2 (41, N=319) = 84.07, $p < 0.001$], but χ^2 estimates are sensitive to sample size. Stand-alone (SRMR = 0.07, RMSEA = 0.06) and incremental fit indexes (NNFI = 0.97, CFI = 0.98) indicated an acceptable fit for the three-factor model (Hu & Bentler, 1999). Additionally, all of the standardized path loadings were statistically significant, supporting the convergent validity of items within each factor (Table 3.3). To assess the discriminant validity of the three-factor model, a single-factor measurement model where all items were specified to load on a single construct was tested (Gowan et al., 1999). The one-factor model poorly fit the data [Satorra-Bentler Scaled χ^2 (44, N=319) =316.16, $p < 0.001$; RMSEA = 0.14, SRMR = 0.15, NNFI = 0.83, CFI = 0.87], supporting the multi-factor structure.

Structural Model Selection

After the appropriateness of the measurement model was confirmed, the two hypothesized structural models were compared to determine the best-fitting model before specific multivariate relationships were evaluated. Because the variables adult outdoor recreation participation (AdultOut), childhood outdoor recreation participation (ChildOut), and socio-demographics were each represented by a single indicator variable, the path value and error variance for these variables were fixed for analysis in LISREL. Path values were set to one and measurement errors to one minus the estimated scale reliability times the variance of the observed score (Gowan et al., 1999). A scale reliability of 1.0 was used for the socio-demographic items because it was theorized that they were measured with minimal error. Because socio-demographic measures are often dependent on each other, all of the socio-demographic indicators were allowed to correlate in the structural models. To estimate the fit of the measurement models, the factor loading for one indicator variable on each of the scales was set to one. Although setting the parameter prevented this particular loading from being tested in the full model, it did not impact the fit index values or the standardized parameter estimates.

Model fit was assessed using the multiple index approach recommended by Hu and Bentler (1999). A Chi-square difference statistic (χ^2_D) was used to compare the nested model (Model B) to the baseline (Model A). Model B [$\chi^2_D(6) = 2.2$, $p = 0.900$] was not significantly different from Model A. Furthermore, the unique component of Model A, the direct effects of the socio-demographic predictors on PEB, were not statistically significant [gender ($\beta = 0.03$, $t = 0.52$); ethnicity ($\beta = -0.11$, $t = -1.30$); income ($\beta = 0.00$, $t = -0.23$); education ($\beta = -0.03$, $t = 0.02$)]. Because Model B was more parsimonious than Model A and the unique direct paths in Model A were not significant (Kline, 2005), Model B was selected as the best model for factors

predicting PEB. Although the Satorra-Bentler Scaled χ^2 value for Model B did not indicate a good fit [$X^2(99, N=319) = 195.2, p < 0.001$], stand-alone goodness-of-fit indexes (SRMR = 0.07, RMSEA = 0.06) were within acceptable ranges (Hu & Bentler, 1999). Incremental fit indexes (NNFI = 0.93 and CFI = 0.95) did not meet the guidelines of > 0.95 outlined by Hu and Bentler, but researchers have noted that the general cutoff criteria of 0.95 may not always be appropriate, especially when sample size is relatively small (Sivo et al., 2006). Additionally, few of the standardized residuals (14%) exceeded the recommended cutoff point of $\leq |2.0|$ (Kline, 2005).

Collectively considering all of the assessment criteria, Model B appeared to provide the best fit to the data. Modification indexes were not considered to correct for potentially mis-specified parameters. Adding speculative parameters based on modification indexes often results in models that do not accurately represent the true data structure and do not cross-validate well in samples with less than 325 participants (MacCallum, 1986; MacCallum et al., 1992).

Structural Model Evaluation

Direct and indirect path coefficients among the variables in Model B appear in Table 3.5. Together, all predictor variables explained approximately 40% of the variance in PEB. Most of the hypothesized direct paths in Model B were statistically significant based on a critical *t* value of 1.65 for one-sided hypothesis testing at $\alpha = 0.05$. As expected, biocentric value orientations were positively associated with PEB ($\beta = 0.17$, $t = 1.99$). However, counter to the hypothesized relationship in the literature, anthropocentric value orientations also showed a positive relationship with PEB ($\beta = 0.19$, $t = 2.56$).

As expected, most of the socio-demographic variables were related. Ethnicity was correlated with income ($r = 0.46$) and education ($r = 0.18$), with whites demonstrating higher levels of both measures than racial/ethnic minorities. Education and income were also related (r

= 0.54). Gender was significantly related to income (r = 0.16), with females reporting higher incomes than males. Although mulitcollinearity issues may confound theory testing in structural equation modeling, all four socio-demographic variables were retained in this analysis because each variable represents a distinct factor of interest and the observed correlations were below the levels (>0.6) that typically pose major problems (Grewal et al., 2004).

Model B did not contain direct paths between socio-demographic variables and PEB; hence, all of the relationships between socio-demographics and PEB appeared to be mediated by the relationship between these variables and environmental value orientations (Table 3.5). Income was negatively associated with anthropocentric value orientation scores (β = -0.23, t = -2.13). Income and education were not significantly correlated with biocentric value orientations (for income: β = 0.01, t = 0.13; for education: β = -0.02, t = -0.24). Gender appeared to be a good predictor of biocentric values, with females showing more support for that particular orientation (β = -0.19, t = -3.19). Racial/ethnic minorities were also strongly associated with biocentric value orientations (β = -0.19, t = -3.19). Race/ethnicity was the only socio-demographic variable that had a significant, albeit modest, indirect effect on PEB mediated value orientations, with a racial/ethnic minority status having a positive influence on PEB (indirect β = -0.06, t = -2.15; Table 3.5).

Outdoor recreation participation in adulthood was the strongest direct predictor of PEB, (β = 0.54, t = 5.70; Table 3.5). Outdoor recreation participation was also significantly related to high levels of biocentric value orientations (β = 0.27, t = 2.63). Childhood outdoor recreation participation, through its relationship with adult outdoor recreation participation, was a significant indirect predictor of PEB (indirect β = 0.24, t = 3.81). A summary of the standardized

values of significant paths among observed and latent variables in the structural portion of Model B appears in Figure 3.3.

Discussion

Results of this study provide insight into continuing efforts to understand the complex factors influencing an individual's willingness to engage in PEB. The best-fitting model, Model B, supported a conceptual relationship between environmental value orientations and PEB that has been reported in previous studies (Nordlund & Garvill, 2002; Stern et al., 2005; Vaske et al., 2001). Biocentric value orientations are often linked to PEB and support for conservation, but the significant relationship between anthropocentric value orientations and PEB observed in this study warrants further investigation. Perhaps anthropocentricity, which traditionally has been associated with a more consumptive attitude (Thompson & Barton, 1994), involves evaluations of complex environmental beliefs that can generate conservation-oriented behaviors in certain contexts. For example, some anthropocentric individuals may be motivated to engage in PEB to produce societal good acting in their own self-interest (Turaga et al., 2010), not to preserve threatened ecosystem services. Studies examining the value orientation-behavior relationship could explicitly account for motivation to participate in PEB as a moderating or mediating factor. The addition of latent measures of subjective norms, behavior intentions, and perceived behavioral control, critical components of both the theory of planned behavior and the value-belief-norm theory of behavior (Ajzen, 1991; Stern et al., 1999), could help increase the amount of explained variance in PEB in future research efforts. The potential for mutually reinforcing relationships among environmental value orientations and PEB could also be explored.

Model selection provided little support for the theory that socio-demographic variables have a direct effect on PEB. Alternatively, the influence of socio-demographics on PEB

appeared to be mediated by environmental value orientations. Higher income and education levels, which have been linked to more biocentric orientations (Cordell et al., 2002), were not significantly related to biocentric values in this study. Data showed that lower levels of income and education were generally associated with higher anthropocentric scores. Perhaps low-income individuals are more likely to focus on egoistic concerns such as immediate survival and subsistence and less inclined to worry about long-term environmental issues linked to biocentric values. However, concerns regarding social welfare could still affect a low-income, less-educated individual's decision to engage in behaviors that support the environment, as evidenced by the positive association between anthropocentric values and PEB. Contrary to earlier research suggesting that pro-environmental actions are more prevalent among the wealthy, well-educated population, this study suggested that socioeconomic and educational background may not be associated with PEB participation.

Women in this study were more biocentric than men, a result that supports previous research showing elevated levels of environmental concern among women (Zelezny et al., 2000). Despite this difference, gender was not significantly associated (directly or indirectly) with PEB, mirroring the findings of previous research (Schultz, 2001). However, men and women may elect to engage in environmentally friendly activities for very different reasons. An investigation of behavior intentions or specific motivations might provide more information regarding decisions to participate in PEB that vary by gender (Ajzen, 1991).

This study also contributes to a growing body of evidence that challenges traditional assumptions about racial/ethnic minorities and their relationship with the natural environment (Floyd, 2007). Results showed that racial/ethnic minorities were more strongly associated with biocentric value orientations than whites, supporting new evidence that environmental issues and

actions are an important concern in minority communities (Mohai & Bryant, 1998; Whittaker et al., 2005). Furthermore, the indirect effects of race/ethnicity (mediated by value orientations) on PEB indicated that minorities could be equally (if not more) inclined to participate in PEB than whites. These data suggest that, to some extent, racial/ethnic minorities may be able to negotiate institutional and cultural barriers to pro-environmental action. Once researchers successfully identify the environmental concerns of low-income minorities and begin to recognize strategies for engaging a diverse citizenry in PEB, the environmental justice movement may progress beyond distributional and procedural inequities and begin to move toward mutually beneficial solutions (Hargreaves et al., 2008). Therefore, future research should continue to examine the influence of race, ethnicity, and culture on environmental value orientations and PEB.

One possible strategy for promoting PEB that emerged from this study was strong support for the hypothesized link between outdoor recreation participation and environmental behaviors. Although theoretical support for this relationship is widespread in the literature, empirical evidence has been lacking. Researchers have proposed mechanisms to explain the relationship between outdoor recreation and a pro-environmental ethos from a theoretical perspective (Tarrant & Green, 1999). Individuals who have ample opportunities to experience, enjoy, and learn about the natural world will likely be more inclined to engage in activities to benefit the environment they have come to love. Regular interaction with natural environments provides opportunities to learn the values of conservation, stewardship, and responsible behavior, and may be even more beneficial when initiated at an early age (Cordell & Tarrant, 2002; Louv, 2008). By providing diverse opportunities for outdoor recreation, public parks can play a critical role in this process. Research has shown that attachment to iconic national parks may have a positive effect on PEB (Halpenny, 2010). However, for many people with limited access to large

nature preserves, everyday settings may be just as instrumental for establishing positive relationships with local environments. Public land managers should recognize the value of all parks in promoting the development of environmental value orientations and participation in PEB, especially in underserved communities.

Childhood outdoor recreation participation, through its contribution to adult outdoor recreation participation, also had a positive indirect influence on PEB, supporting earlier research showing that childhood interaction with nature can promote sustained outdoor recreation participation later in life (Bixler et al., 2002; Kellert, 2002). As a corollary, this study also suggests that concerns over plummeting levels of stewardship and environmental literacy in the U. S. could be exacerbated by decreased participation in outdoor recreation. Reduced contact with nature may precipitate a decline in public willingness to engage in PEB, adversely impacting global conservation efforts. Rees (2008) acknowledged that humans must act now to "override innate behavioral predispositions that have become maladaptive in the modern era." To combat these maladaptive tendencies and support the growth and development of an environmentally responsible population across diverse populations, managers and policy-makers could emphasize strategies for promoting positive interactions between people and the natural environment.

Future Research

Although this exploratory study provided new information about relationships among socio-demographic variables, outdoor recreation participation, environmental value orientations and PEB in a diverse population, inferences are constrained by several limitations that could be addressed in future research. First, these data do not represent a random sample of Georgia residents. In fact, these data do not even represent a random sample of state park visitors

(surveys were only conducted in certain areas of certain parks). Therefore, observed patterns and relationships should not be generalized to other populations, including people living in other states or people who rarely visit parks. Park visitors may possess a predisposition toward environmental action that could affect interpretation of these results in populations less inclined to engage in nature-based activities.

Second, because of the relatively small sample size, all minorities (Latinos, African Americans, Asians, etc.) in this study were placed into a single racial/ethnic group. Homogenization of racial/ethnic groups is often criticized because this strategy tends to reflect a static or monolithic view of ethnicity that masks the dynamic properties of culture (Floyd, 1998, Li et al., 2007). Future studies of PEB predictors could expand the sample and incorporate more distinct racial/ethnic categories.

Third, to improve the measurement model, the indicators of the latent PEB variable could also be expanded to include additional environmental activities that may be more salient to minority populations (Johnson et al., 2004). For example, Parker and McDonough (1999) found that African American environmentalism may focus less on broad-based behaviors like recycling and environmental group membership and more on specific issues related to environmental justice such as pollution in local neighborhoods and access to healthy, safe, natural environments. Additional measures could provide a more holistic picture of PEB, and might include behaviors such as green consumerism (i.e. organic food, buying environmentally friendly products, etc.), environmental citizenship (i.e. environmental group donations, signing environmental petitions, etc.), transportation behavior (i.e. public transportation use), and energy/water conservation (Nordlund & Garvill, 2002; Oreg & Katz-Gerro, 2006; Poortinga et al., 2004; Stern et al., 1998; Turaga et al., 2010).

Finally, Chao and Lam (2009) noted that researchers should cautiously interpret results based exclusively on self-reported measures of PEB. Single measure procedures for examining attitudinal and behavioral constructs can introduce method bias, especially when social desirability of responses is a possibility. Hence, future research could obtain outcome variable measures from different sources (i.e., actual observations of overt behavior) or incorporate temporal, proximal, or psychological separation between items measuring predictor and outcome variables when possible (Podsakoff et al., 2003). Despite these limitations, this study provides a theoretical and statistical framework to inform future investigations of causal models for PEB in diverse communities, especially those that account for the potential influence of participation in outdoor recreation.

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Table 3.1

Sample Distribution by Socio-demographic Group with Variable Names and Levels for Three North Georgia State Parks, Summer 2009 (n = 319)

Variable[a]	N	Percentage of Sample
Gender (GENDER)		
Female (0)	185	58
Male (1)	134	42
Ethnicity (ETHNIC)		
Other (0) (includes Hispanics and African Americans)	86	27
White (1)	233	73
Education (EDUC)		
Some high school (1)	25	8
Graduated from high school or GED (2)	107	34
Graduated from college or technical school (3)	141	44
Postgraduate degree (4)	46	14
Income (INCOME)		
$19,999 or less (1)	45	14
$20,000 to $34,999 (2)	52	16
$35,000 to $49,999 (3)	44	14
$50,000 to $74,999 (4)	55	17
$75,000 to $99,999 (5)	57	18
$100,000 or more (6)	66	21

[a] Variable names for the full model and the numerical values of the ordinal levels are in parentheses.

Table 3.2

Descriptive Statistics for Continuous Variables Comprising Latent Constructs for Visitors to Three North Georgia State Parks, Summer 2009 (n = 319)

Variable (Variable Name)	*M*	*SD*	Skewness	Kurtosis
Biocentric Construct Total[a]	**4.41**	**0.61**	**-1.42**	**3.43**
The main value of state parks is to protect wild areas (BIO1)	4.42	0.69	-1.52	4.25
Nature has as much right to exist as people (BIO2)	4.61	0.68	-2.02	4.73
Wildlife, plants, and people have equal rights to live and develop (BIO3)	4.37	0.82	-1.47	2.46
State parks have value whether people are present or not (BIO4)	4.28	0.95	-1.53	2.05
State park wildlife and plants have as much right to exist as people (BIO5)	4.40	0.84	-1.64	3.00
Anthropocentric Construct Total[a]	**2.58**	**0.98**	**0.47**	**-0.28**
The main value of state parks is to generate money for local communities (ANT1)	2.51	1.24	0.43	-0.93
State parks are valuable only if they produce jobs and income (ANT2)	2.34	1.14	0.65	-0.32
Nature's main value is to provide useful products to people (ANT3)	2.89	1.32	0.14	-1.10
Pro-environmental Behavior (PEB) Construct Total[b]	**3.05**	**1.00**	**0.03**	**-0.66**
Recycle household products such as glass, paper or plastic (PEB1)	3.73	1.36	-0.68	-0.81
Read nature, wildlife or environmental magazines (PEB2)	3.13	1.26	0.05	-0.98
Actively participate in an environmental group (PEB3)	2.31	1.29	0.72	-0.57
Outdoor Recreation Participation as Adult (OutAdult)[b]	**4.29**	**0.90**	**-1.50**	**2.66**
Outdoor Recreation Participation as Child (OutKid)[c]	**6.94**	**2.12**	**-0.90**	**-0.02**

[a] Variables coded on a 5-point Likert scale ranging from 1, strongly disagree, to 5, strongly agree.
[b] Variables coded on a 5-point Likert scale ranging from 1, never, to 5, very often.
[c] Variable coded on a 9-point Likert scale ranging from 1, never, to 9, very often.

Table 3.3

Confirmatory Factor and Reliability Analyses for Latent Constructs in Test of Measurement Model for Sample of Visitors to Three North Georgia State Parks, Summer 2009 (n = 319)

Construct (with variables)[a]	Standardized Factor Loading	*SE*	*t* Value[c]	Cronbach Alpha
Biocentric Value Orientation (Bio EVO)[b]				0.820
BIO1	0.54	0.13	8.33	
BIO2	0.89	0.05	26.84	
BIO3	0.91	0.06	30.20	
BIO4	0.67	0.09	11.17	
BIO5	0.93	0.06	32.70	
Anthropocentric Value Orientation (Anthro EVO)[b]				0.706
ANT1	0.63	0.07	10.45	
ANT2	0.78	0.07	12.08	
ANT3	0.71	0.08	12.66	
Pro-environmental Behavior (PEB)[b]				0.649
PEB1	0.49	0.12	7.83	
PEB2	0.81	0.09	11.19	
PEB3	0.74	0.10	10.41	

[a] Three-factor measurement model outlined here exhibited better fit (Satorra-Bentler Scaled $\chi^2_{(41, N=319)} = 84.07$, $p < 0.001$; SRMR = 0.07; RMSEA = 0.06; NNFI = 0.97, CFI = 0.98) than the one-factor model (Satorra-Bentler Scaled $\chi^2_{(44, N=319)} = 316.16$, $p < 0.001$; RMSEA = 0.14; SRMR = 0.15; NNFI = 0.83; CFI = 0.87), providing evidence for construct validity.
[b] Variables coded on a 5-point Likert scale ranging from 1, strongly disagree, to 5, strongly agree.
[c] All t values significant at $p < 0.05$.

Table 3.4

Covariance Matrix for all Variables in Full Model Predicting Pro-environmental Behavior in Sample of Visitors to Three North Georgia State Parks, Summer 2009 (n = 319)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Gender	1.000																
2. Ethnic	0.076	1.000															
3. Educ	0.015	0.151	0.696														
4. Income	0.287	0.821	0.805	3.517													
5. ANT1	0.035	-0.197	-0.275	-0.681	1.534												
6. BIO1	0.001	-0.001	-0.039	0.036	0.085	0.470											
7. BIO2	-0.092	-0.073	0.007	-0.052	-0.047	0.167	0.459										
8. ANT2	0.058	-0.187	-0.213	-0.429	0.638	0.002	-0.061	1.289									
9. BIO3	-0.187	-0.185	-0.015	-0.201	0.001	0.197	0.366	-0.007	0.668								
10. BIO4	-0.052	0.130	0.050	0.085	-0.063	0.229	0.289	0.018	0.362	0.906							
11. BIO5	-0.192	-0.228	-0.036	-0.234	0.097	0.189	0.399	0.021	0.522	0.332	0.699						
12. ANT3	0.097	-0.289	-0.268	-0.683	0.651	0.025	-0.022	0.740	-0.015	0.022	0.017	1.748					
13. PEB1	-0.076	0.033	0.209	0.161	-0.047	0.190	0.126	-0.155	0.208	0.218	0.232	-0.226	1.847				
14. PEB2	-0.014	-0.134	-0.042	-0.143	0.053	0.202	0.144	-0.018	0.177	0.160	0.227	-0.187	0.591	1.582			
15. PEB3	-0.029	-0.161	-0.089	-0.253	0.387	0.153	0.100	0.274	0.155	0.243	0.184	0.246	0.494	0.857	1.661		
16. OutAdult	-0.061	0.062	0.059	0.077	0.005	0.197	0.104	-0.064	0.132	0.237	0.086	-0.005	0.274	0.376	0.445	0.803	
17. OutKid	0.117	0.011	0.064	-0.274	0.157	0.244	0.012	0.038	-0.092	0.267	0.004	0.101	0.164	0.589	0.854	0.617	4.500

Note. ANT1 – ANT3 = anthropocentric value orientation items, BIO1 – BIO5 = biocentric value orientation items, PEB1 – PEB3 = pro-environmental behavior items, OutAdult = outdoor recreation participation as an adult, OutKid = outdoor recreation participation as a child.

Table 3.5

Standardized Direct and Indirect Path Coefficients (PC), Standard Errors (SE), t *Values (t) and* R^2 *Values for Latent Variables in Full Structural Model B for Sample of Visitors to Three North Georgia State Parks, Summer 2009 (n = 319)*

	Direct			Indirect			
Path	PC	SE	*t*	PC	SE	*t*	R^2
To PEB from:							0.40
Bio EVO	**0.17**	**0.09**	**1.99**				
Anthro EVO	**0.19**	**0.08**	**2.56**				
AdultOut	**0.54**	**0.12**	**5.70**	0.04	0.04	1.47	
KidOut				**0.24**	**0.03**	**3.81**	
Gender				-0.01	0.03	-0.34	
Ethnicity				**-0.06**	**0.03**	**-2.15**	
Education				-0.04	0.04	-1.09	
Income				-0.05	0.02	-1.48	
To Bio EVO from:							0.16
AdultOut	**0.27**	**0.13**	**2.63**				
KidOut	-0.10	0.04	-1.51	**0.12**	**0.03**	**2.21**	
Gender	**-0.19**	**0.06**	**-3.19**				
Ethnic	**-0.22**	**0.06**	**-3.78**				
Education	0.01	0.11	0.13				
Income	-0.02	0.05	-0.24				
To Anthro EVO from:							0.22
AdultOut	-0.02	0.14	-0.21				
KidOut	0.06	0.05	0.67	-0.01	0.02	-0.21	
Gender	0.13	0.08	1.56				
Ethnicity	-0.14	0.09	-1.58				
Education	-0.21	0.16	-1.62				
Income	**-0.23**	**0.06**	**-2.14**				
To AdultOut from:							0.18
KidOut	**0.43**	**0.03**	**5.31**				

Note. Significant *t* values are in bold; because of the directional nature of the hypotheses, all tests are one-tailed at $\alpha = 0.05$ [critical $t(319) = 1.64$]

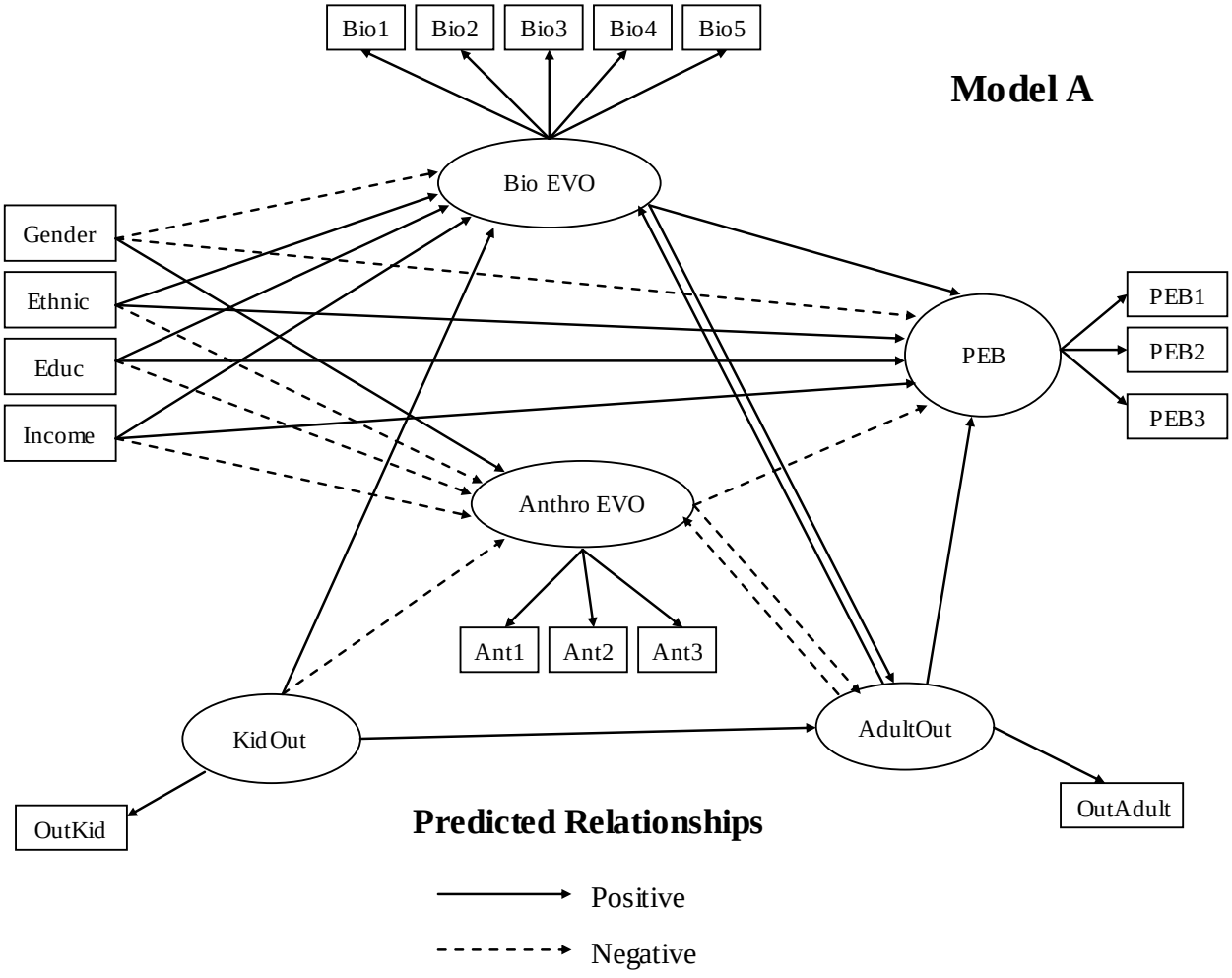

Figure 3.1. Hypothesized paths in pro-Environmental behavior (PEB) predictive Model A (BioEVO, AnthroEVO, AdultOut, and socio-demographics have direct effects on PEB, with indirect effects mediated by BioEVO and AnthroEVO - feedback loop between EVO and AdultOut present)

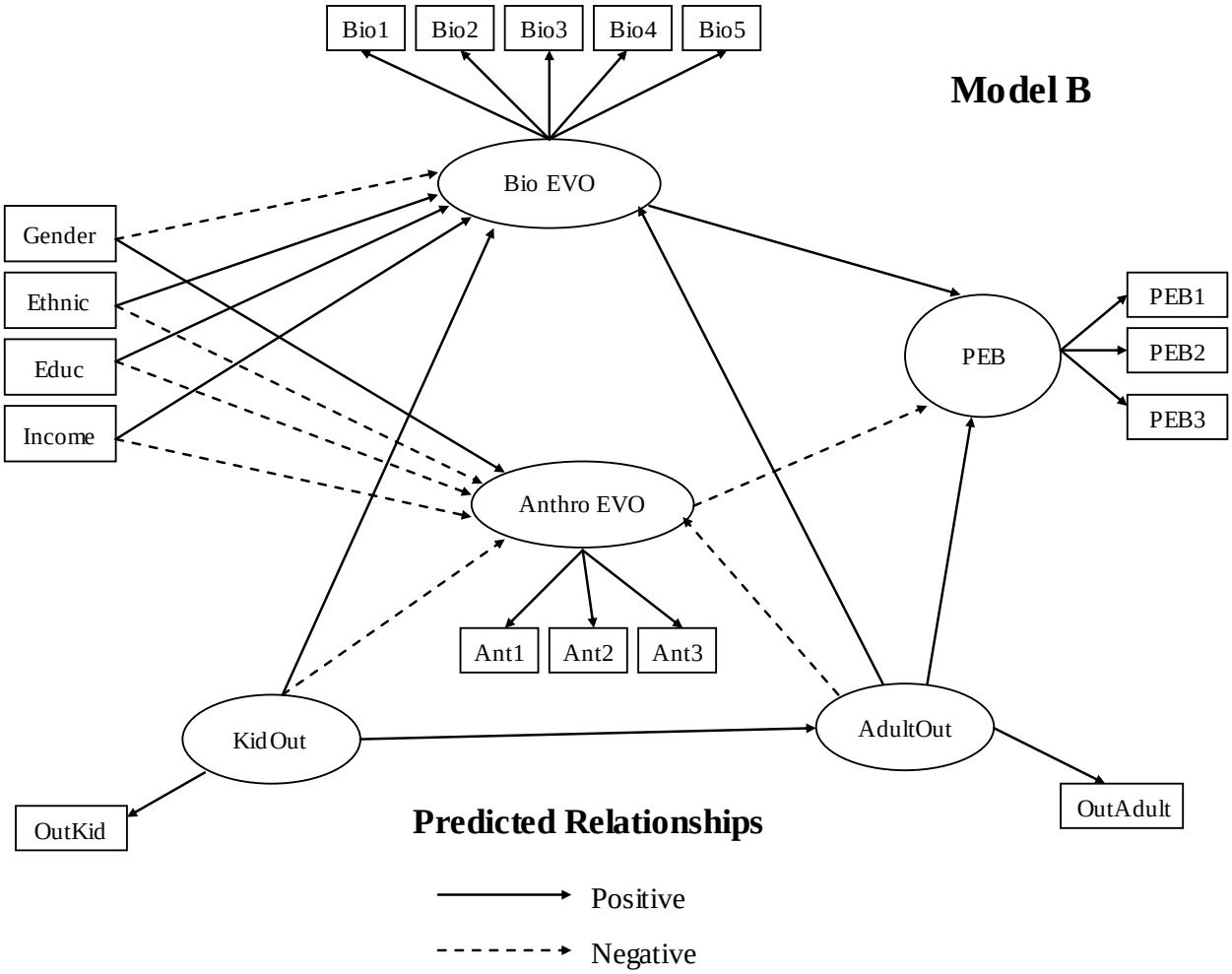

Figure 3.2. Hypothesized paths in pro-environmental behavior (PEB) predictive Model B (BioEVO, AnthroEVO, and AdultOut have direct effects on PEB, with indirect effects of AdultOut, KidOut, and socio-demographics on PEB mediated by EVO - feedback loop between EVO and AdultOut not present)

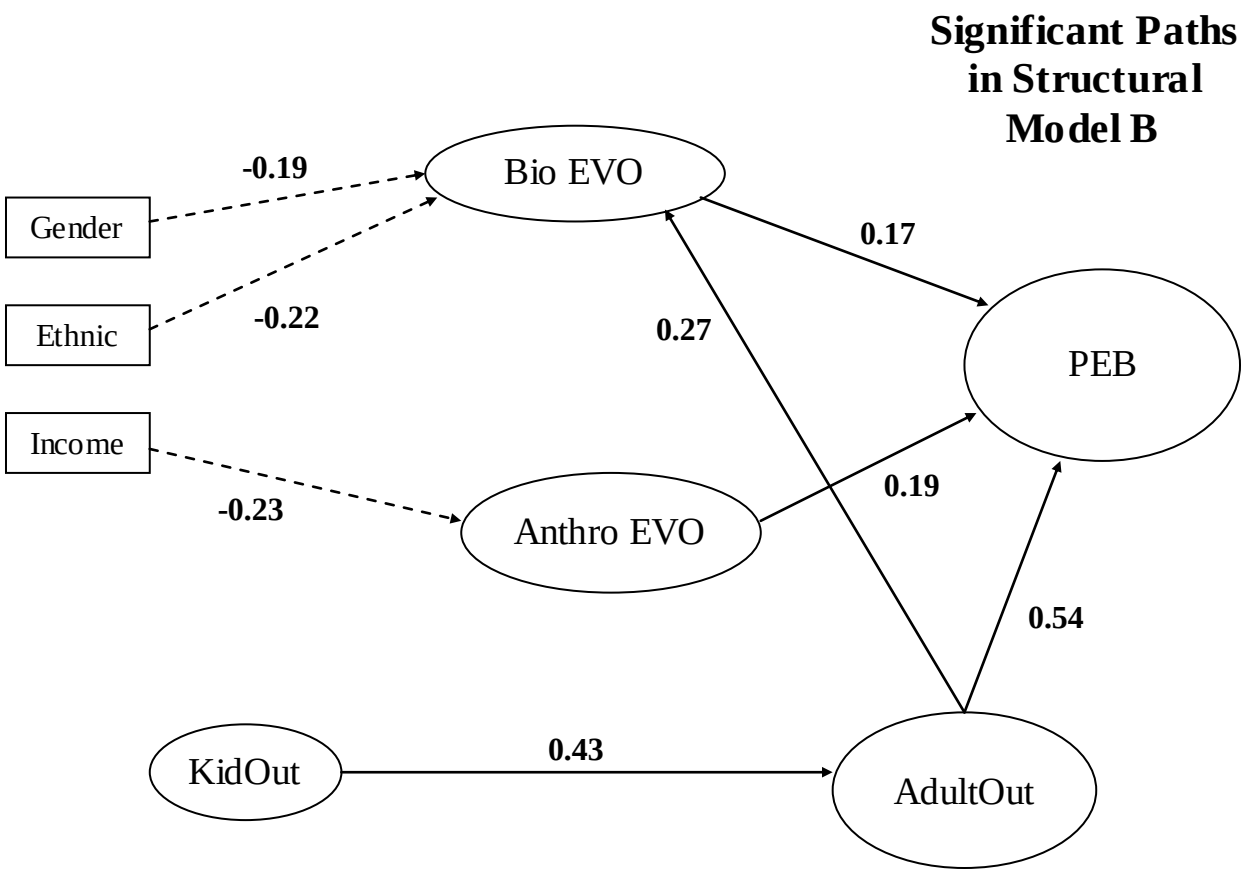

Figure 3.3. Standardized coefficients of significant paths in structural Model B showing effects of socio-demographic variables (Gender, Ethnicity, and Income), biocentric value orientations (Bio EVO), anthropocentric value orientations (Anthro EVO), childhood outdoor recreation participation (KidOut), and adult outdoor recreation participation (AdultOut) on pro-environmental behavior (PEB) for sample of visitors to three north Georgia state parks, summer 2009 (n = 319)

CHAPTER 4

FACTORS INFLUENCING STATE PARK-BASED PHYSICAL ACTIVITY ACROSS DIVERSE POPULATIONS IN GEORGIA[2]

[2] Larson, L. R., Whiting, J. W., Green, G. T., & Bowker, J. M. To be submitted to *American Journal of Preventive Medicine*.

Abstract

Public parks provide multiple outdoor recreation opportunities that can potentially promote physical activity and improve health across many population sectors. However, more research is needed to identify specific park attributes that may help encourage activity within minority and low socio-economic populations. This study focused on state park-based physical activity levels and preferences among demographically diverse groups of adults in Georgia. Data were collected via onsite (n = 1073, summer 2010) and offsite (n = 278, summer 2011) intercept surveys in state parks and flea markets surrounding the parks. Onsite behavior observations (n = 8002) were also conducted in the three focal parks during the summer of 2010. Surveys revealed several factors influencing overall activity levels and highlighted the general importance of public parks in physical activity pursuits. Self-reported state park-based physical activity data highlighted links between social recreation sites (such as beaches and picnic areas) and activity levels, particularly for Latinos and African Americans. Observations showed different patterns in physical activity among demographic groups at beaches and at or around trailheads. African Americans and males were the most active groups at beaches; Whites and males were the most active groups at trailheads. Results suggested that higher levels of activity could be encouraged through an emphasis on diverse recreation choices and family-friendly activities. This study could provide park managers in Georgia and other areas with insightful strategies for promoting and sustaining park-based physical activity across diverse populations.

Introduction

The widespread health benefits of an active lifestyle are well documented. In fact, many researchers and medical professionals have attributed the increasing incidence of cardiovascular disease (Sofi, Capalbo, Cesari, Abbate, & Gensini, 2008), the growing obesity epidemic (Ogden

et al., 2006), and potential declines in life expectancies (Olshansky et al., 2005) to inadequate levels of physical activity in the U.S. population (Wilcox, Castro, King, Houseman, & Brownson, 2000). Negative health effects associated with physical inactivity are especially problematic within low-income, racial and ethnic minority communities (Crespo, Smit, Anderson, Carter-Pokras, & Ainsworth, 2000; Floyd, Taylor, & Whitt-Glover, 2009; Pratt, 2008; Thomas, Eberly, Smith, Neaton, & Stamler, 2005). For instance, data show that physical inactivity is particularly prevalent among the nation's increasing Latino population (Marquez & McAuley, 2006), and more than 75% of Latinos are overweight or obese (Ogden et al., 2006). Despite the recognized benefits of physically active lifestyles, a majority of Americans (estimates range from 51% to 55%) fail to meet recommended physical activity levels (either 75 minutes of vigorous activity weekly or 150 minutes of moderate activity weekly; CDC, 2010; Macera et al., 2005; U.S. Department of Health and Human Services, 2000). Furthermore, about 25% of Americans continue to report no leisure-time physical activity (CDC, 2005), and increasing sedentary behavior may be one of the factors contributing to physical activity declines (Brownson, Boehmer, & Luke, 2005).

Research suggests that efforts to increase physical activity could benefit from an ecological approach to health promotion that emphasizes environmental surroundings as well as intra and interpersonal factors (Sallis et al., 2006; Shores & West, 2008; U.S. Department of Health and Human Services, 2000). For example, Roux et al. (2008) found that the most cost-effective and beneficial approaches to physical activity prevention involve combinations of individually adapted health behaviors, social support, and community-wide campaigns. The role of community-level variables in physical activity promotion underscores the potential utility of parks for addressing America's physical activity problems (Mowen et al., 2008). By supplying

diverse opportunities for outdoor recreation, public parks create an environment conducive to physical activity participation that may help to improve health across many population sectors (Bedimo-Rung, Mowen, & Cohen, 2005; Godbey, Caldwell, Floyd, & Payne, 2005a; Ho, Payne, Orsega-Smith, & Godbey, 2003). Studies are beginning to reveal more information about the effect of parks on physical activity participation, but more research is needed to evaluate public parks' potential to provide unique, low-cost opportunities for physical activity across a diverse cross section of the American public (Godbey & Mowen, 2010).

Early research examining links between parks and physical activity focused on the access and availability of recreation spaces and facilities. Many of these studies revealed relationships between residential proximity to parks and physical activity (Giles-Corti et al., 2005; Kaczynski, Potwarka, Smale, & Havitz, 2009; Mowen, Orsega-Smith, Payne, Ainsworth, & Godbey, 2007). For example, Kaczynski and Henderson's (2007) review of the literature found that 40 out of 50 of published articles examining parks and physical activity reported at least some positive associations between park and recreation variables and physical activity levels. This pattern suggests that physical inactivity observed in low-income minority neighborhoods may be exacerbated by limited availability of and access to physical activity-related facilities and amenities (Crawford et al., 2008; Diez Roux et al., 2007; Gordon-Larsen, Nelson, Page, & Popkin, 2006; Powell, Slater, Chaloupka, & Harper, 2006). However, proximity to parks is only one factor influencing physical activity. Actual park use patterns and preferences are also important predictors of positive health outcomes (Mowen, Kaczynski, & Cohen, 2008), and these variables could provide important insight into physical activity investigations focused on populations with higher risk of developing obesity-related health problems.

Studies of park use have historically relied heavily on self-reported measures (Godbey, Caldwell, Floyd, & Payne, 2005b; Rutten et al., 2001). Self-reports are practical, cost effective strategies for assessing the context and type of physical activities in large samples (Morgan, 2005), but their validity across longer temporal scales and within distinct racial/ethnic and income groups is still in question (Rundle et al., 2007; Sallis & Saelens, 2000). A combination of collaborative subjective and objective surveillance measures may therefore be necessary to accurately assess park-based physical activity levels (Kruger, Mowen, & Librett, 2007). Recent innovations have facilitated the development of objective behavioral metrics to accomplish this goal (McKenzie, Cohen, Sehgal, Williamson, & Golinelli, 2006). Using observational methods, researchers are now examining and describing park-based physical activity in unprecedented detail. For example, observational studies of diverse park users in Chicago and Tampa revealed that most (65%) visitors were engaged in sedentary behaviors (Floyd, Spengler, Maddock, Gobster, & Suau, 2008). Studies of urban park users in Los Angeles yielded similar results, with about two thirds of all visitors observed in a sedentary state (Cohen et al., 2007; McKenzie et al., 2006). Research is also beginning to identify specific park features associated with physical activity (Rung, Mowen, Broyles, & Gustat, 2011). For instance, multiple studies have shown that observed physical activity levels across demographic groups are generally lowest at picnic shelters and highest around sport fields and courts, playgrounds, and paved paths (Floyd et al., 2008; Kaczynski, Potwarka, & Saelens, 2008; Shores & West, 2008). These initial findings have important management and policy implications with respect to park design practices. However, more research is needed to identify features that facilitate and constrain park-based activity across diverse populations (Mowen, 2010).

Although research linking parks and physical activity has typically focused on tools and techniques for assessing activity in urban environments (Bedimo-Rung, Gustat, Tompkins, Rice, & Thomson, 2006; Saelens et al., 2006), future studies could examine suburban or rural areas and account for recreation opportunities in different types of parks at the state and national level (Boone-Heinonen, Casanova, Richardson, & Gordon-Larsen, 2010; Godbey et al., 2005b; Kline, Rosenberger, & White, 2011). Early evidence collected from national forests and state parks across the rural-to-urban spectrum suggests that users of parks in more remote areas may display different physical activity behaviors and preferences (Wilhelm-Stanis, Schneider, Shinew, Chavez, & Vogel, 2009). Rural park use is often clustered around weekend days, and rural park users may be less physically active than urban park visitors (Shores & West, 2010). Low physical activity levels and limited recreation opportunities in rural communities could partially explain the higher incidence of obesity in these settings (May, 2011). However, other researchers have noted high levels of physical activity in state parks (Mowen, Trauntvein, Graefe, & Ivy, 2009; Wilhelm-Stanis, Schneider, & Anderson, 2009), suggesting that more research is needed to better characterize these trends.

Exploration of park-based physical activity is also conspicuously absent in the South, a region known for a lack of physical activity among its racial and ethnically diverse residents (Macera et al., 2005). In Georgia, for example, one in three adults is currently obese and an additional 37% are overweight. The state's obesity rates, particularly among children, have doubled in the past 15 years and consistently rank among the highest in the country (Fahmy, 2011; Georgia Department of Public Health, 2011). Only 46% of adults in Georgia are regularly active, and the percentage of regularly active individuals among Latinos (28%) and African

Americans (38%) is even lower (Falb, Kanny, Thompson, Wu, & Powell, 2006; Georgia Department of Public Health, 2010).

This study addresses a growing need for research within this context by investigating levels of park-based physical activity across diverse populations in Georgia. Using a mixed-methods approach targeting state parks, researchers examined park attributes and other socio-ecological factors that influence physical activity across diverse populations with a particular emphasis on high risk groups such as low income racial/ethnic minorities (Flores, 2008; Pearce, 1999; Pratt, 2008). The specific objectives of the study were to: 1) identify general levels of physical activity and correlates in Georgia; 2) determine the frequency at which different locations are used for physical activity (and the specific role of parks); 3) examine park-based activity levels across diverse groups using multiple data collection approaches; 4) identify specific park attributes associated with increased physical activity levels; and 5) investigate visitor preferences and perceptions affecting physical activity participation.

Research Methods

Study Setting

The study focused on three state parks in northern Georgia (summer 2010) and communities surrounding these parks (summer 2011). Selected sites shared similar facilities and attributes as well as high racial/ethnic visitor diversity (Table 4.1). Onsite data collection targeted recreation hotspots, or zones of high visitor activity within each park. For intercept surveys, these areas included beaches, picnic areas, and campgrounds. For observations, these areas included beaches (and immediately adjacent picnic areas) and trailheads. Sampling dates at state parks were selected based on a stratified random sampling protocol. First, the entire summer was blocked according to four categories: weekdays, Wednesdays (this was the only

free admission day at Georgia State Parks), weekend days, and holiday weekends (Memorial Day, Independence Day, and Labor Day). Then, parks were randomly assigned *a priori* to each category to ensure that researchers visited each park on at least three weekdays, at least two Wednesdays, at least six weekend days, and at least one holiday weekend. Although this stratification system enabled researchers to maximize coverage across temporal and spatial scales, time constraints and travel-related challenges did not allow for complete coverage of all days at every park location.

Offsite data collection conducted during 2011 targeted flea markets in communities within 35 miles of the focal parks. Sampling dates at flea markets were initially based on random assignment. Before data collection began, several large flea markets in the north Georgia region were selected and randomly assigned to two weekend days. However, after trips to each of these locations, researchers determined that additional markets should be added to systematically target new geographical areas (i.e., counties closer to focal parks) and populations (i.e., African Americans). Hence, the purposive sample expanded to incorporate more markets as the research progressed. Both onsite and offsite data yielded a diverse array of participants (Table 4.2, Table 4.3). Study instruments and protocols were approved by the University of Georgia Institutional Review Board Human Subjects Office prior to implementation.

Intercept Survey Measures

Brief (approximately five minute), bilingual (English & Spanish) intercept surveys of adult (age 18 or older) state park visitors were conducted at the recreation hotspots within each park (n = 5,192 surveys collected across 115 sessions; 1,073 focused specifically on adults' physical activity) from late May through early September, 2010. During onsite survey sessions, researchers and trained volunteers approached every adult visitor age 18 or older and asked if

he/she would be willing to participate in a brief survey about state park use. Upon consent, visitors were randomly given one of five different survey versions (one of which focused on physical activity). Similar offsite surveys were conducted in flea markets near the selected state parks (n = 1,315 surveys collected across 25 sessions; 258 focused specifically on adults' physical activity) from April through July, 2011. During offsite survey sessions, researchers and trained volunteers approached every adult vendor and randomly selected customers (every third customer passing the researchers' table) and asked if he/she would be willing to participate in a brief survey about state park use. Upon consent, visitors were randomly given one of five different survey versions (one of which focused on physical activity). The overall onsite response rate was 91.5%, and the overall offsite response rate was 73.7%.

To establish a baseline metric of physical activity across north Georgia, adult intercept survey participants at onsite and offsite locations were asked to estimate how many days in a typical week they engaged in 30 or more minutes of physical activity. This value was based on recommended activity levels for adults (30+ minutes of moderate or vigorous activity on 5 or more days per week) provided by the Georgia Department of Public Health (GADPH) and the Centers for Disease Control and Prevention (CDC; 2010). Respondents in both the onsite and offsite samples were also asked how frequently they used potential physical activity destinations (e.g., state parks, neighborhood parks, gyms; rated on Likert-type scale from one = "never" to five = "very often").

Onsite survey respondents were asked physical activity questions adapted from existing instruments (e.g., Walker et al., 2009) that distinguished between moderate and vigorous activity in the state parks, reflecting terminology used in lifestyle surveys such as the CDC's Behavioral Risk Factor Surveillance System (2009). For many analyses, moderate and vigorous activity

levels were combined to form a general moderate-plus-vigorous activity (MVPA) category. A physical activity ratio (PAR = physically-active time in park/total time in park) was also calculated for each individual. In addition to questions about state park visitation (summer visitation frequency and total number of visits per year) and demographics, onsite survey respondents were asked to indicate the park sites they used during their visit and instructed to rate the value of specific features and facilities in promoting physical activity (rated on a Likert-type scale from one = "not at all important" to five = "extremely important"). Offsite survey content was similar but focused on a broader range of outdoor recreation locations. For example, respondents were asked about motivations for engaging in outdoor recreation (rated on a Likert-type scale from one = "not at all important" to five = "extremely important") and specific outdoor activity participation during the past year. Offsite surveys also included an open-ended question asking respondents to list specific park features that encourage them to be physically active.

Behavior Observation Measures

Observations of adult state park visitor activity at beaches (n = 8,002 individual observations across 128 sessions) and trailheads (n = 1,451 individual observations across 89 sessions) were conducted using a modified version of the System for Observing Play and Recreation in Communities (SOPARC), a reliable strategy for assessing physical activity in community settings (Floyd et al., 2008; McKenzie et al., 2006). From late May through early September, 2010, researchers used a stratified random sampling protocol to maximize coverage across four observation sessions (6:00am to 11:59pm, 12:00pm to 2:59pm, 3:00pm to 5:59pm, and 6:00pm until 11:59pm) during each research day. During each SOPARC session, a trained observer began at one end of a target area and slowly walked across the zone, documenting the

apparent age (12 and younger, 13 to 17, 18 to 59, or 60 or older), gender (male or female), race/ethnicity (White, African American, Latino, or Asian/Other), and physical activity level (sedentary, moderate, or vigorous) of recreation participants at the moment they were observed. Observed physical activity levels of children are not analyzed in this particular report. Validity of the physical activity codes has been established in previous studies (Scruggs et al., 2003). The validity of race/ethnicity codes was confirmed by matching observations with survey responses, resulting in a mean 98.7% accuracy rate for all observers. High levels of inter-rater reliability (intra-class correlation coefficients among paired observers ranged from 0.888 to 0.990) indicated acceptable agreement among observers for all demographic categorizations (Whiting et al., 2012, unpublished data). Mean energy expenditure of park visitors was calculated by assigning MET (metabolic equivalent of task) values of 1.5 (sedentary), 3 (moderate), and 6 (vigorous) to each individual that was observed. These MET values represent the ratio of the working metabolic rate to the resting metabolic rate, and they have been used to quantify energy expenditure in a number of physical activity studies (Ainsworth et al., 2000; Kline et al., 2011; McKenzie et al., 2006; Rung et al., 2011).

Data Analysis

Data were analyzed during 2011 using IBM SPSS Statistics Version 19.0. Descriptive statistics such as means are reported throughout the text with 95% confidence intervals. Ordinary least squares (OLS) regression was used to examine factors influencing overall physical activity levels (measured as physically active days per week) of participants in the offsite sample (i.e., the sample that included both state park users and non-users). Predictor variables in the OLS model included gender, age, race, education (a proxy for income), motivation to engage in physical activity, and the number of state park visits in the past year. Data met the distributional

requirements for OLS. Furthermore, the variance inflation factor (≤ 1.32) statistic and correlational analyses ($r \leq 0.26$) indicated that the absence of multicollinearity assumption was not violated. Separate analyses of variance (ANOVA) were used to compare physical activity location use frequency among demographic groups (gender, age, and race/ethnicity). Bonferroni adjustments (α / number of comparisons) were employed for multiple univariate ANOVA comparisons and *post hoc* tests to maintain the family-wise error rate at $\alpha = 0.05$.

Self-reported park-based activity and mean energy expenditure among different demographic groups were compared using ANOVA. To minimize the effects of outliers and potentially erroneous self-reported data, only individuals who participated in less than or equal to eight hours of moderate or vigorous physical activity during their visit to the park were included in the analysis. For day users, this filter excluded 2.3% of adults and resulted in a total sample of 758. For overnight visitors, this filter excluded 6.3% of adults and resulted in a total sample of 180.

A logistic regression model was developed to examine the effects of demographic variables and observation location on observed physical activity (with sedentary as the reference category). Pearson's chi-square tests explored demographic differences in physical activity site use patterns. Separate ANOVA were used to compare the park-based physical activity preferences of demographic groups. Bonferroni adjustments (α / number of comparisons) were employed for multiple univariate ANOVA comparisons and *post hoc* tests to maintain the family-wise error rate at $\alpha = 0.05$. The eta-squared measure ($\eta^2 = SS_{group}/SS_{total}$) was used where applicable to report effect size.

In many analyses, data are reported as pooled sample averages across all parks (onsite) and flea markets (offsite). This approach was adopted to illustrate general patterns across sites

and define "typical" attributes of state park users and nonusers across different demographic groups. However, because the characteristics of participants at different research sites were not uniform, pooled results provide only a coarse representation of the overall sample.

Results

Overall Physical Activity Levels and Correlates

Respondents reported 30 or more minutes of activity on an average of 3.5 ± 0.11 days per week. Overall, 31.1% of adults in the combined onsite and offsite samples met the state recommendations for regular levels of physical activity. Mean weekly physical activity reports for onsite and offsite participants were similar. About 31.8% of adults surveyed in state parks met the physical activity recommendations; for off-site participants, the number was 29.1%. The OLS model used to examine potential predictors of offsite-sampled adults' physically active days per week explained 21.0% of the total variance in activity levels, $F(8,174) = 5.8$, $p < 0.001$, adjusted $R^2 = 0.17$ (Table 4.4). Males reported more activity than females (standardized $\beta = 0.159$, $p = 0.023$). Whites reported more activity than any of the other racial/ethnic groups, and significantly more than Latinos (standardized $\beta = -0.225$, $p = 0.004$). Individuals who displayed stronger physically active outdoor recreation motivations were significantly more likely to report higher activity levels (standardized $\beta = 0.389$, $p < 0.001$). State park visitation was not significantly related to physically active days per week.

Physical Activity Location Use Frequency

In both the onsite and offsite sample, the most popular locations for physical activity were homes or backyards and neighborhood sidewalks and streets. Although neighborhood parks and state parks were used less frequently, both were more important activity locations for study participants than gyms or recreation centers (Figure 4.5). Overall rankings were similar for onsite

and offsite participants. In fact, offsite participants reported slightly higher use of parks than onsite participants. Therefore, rankings for the two samples were combined and examined as an aggregate mean. Several ANOVA were used to compare the effects of various demographic variables on these "frequency of use" ratings (see Table 4.5 for results, Table 4.6 for example ANOVA).

The frequency of use for state parks as physical activity locations was significantly related to income, $F(5,1048) = 4.7$, $p < 0.001$, $\eta^2 = 0.02$, and age, $F(2,1048) = 3.2$, $p = 0.038$, $\eta^2 = 0.01$, with low income individuals and participants ages 31-59 using state parks most often. Frequency of use for neighborhood parks was significantly related to race/ethnicity, $F(3,1021) = 7.9$, $p < 0.001$, $\eta^2 = 0.02$, gender, $F(1,1021) = 8.4$, $p = 0.004$, $\eta^2 = 0.01$, and age, $F(2,1021) = 3.7$, $p = 0.026$, $\eta^2 = 0.01$, with use highest among Latinos, females, and participants ages 31-59. Females, $F(1,1017) = 6.8$, $p = 0.009$, $\eta^2 = 0.01$, and African Americans, $F(3,1017) = 2.7$, $p = 0.047$, $\eta^2 = 0.01$, used neighborhood sidewalks and streets more often than other groups.

Use of homes or backyards for adults' physical activity varied by race/ethnicity, $F(3,1016) = 12.4$, $p < 0.001$, $\eta^2 = 0.03$, with Latinos using these areas less often than other racial/ethnic groups. Females used homes or backyards for activity more frequently than males, $F(1,1016) = 4.5$, $p = 0.034$. Frequency of use for gyms and recreation centers varied by age, $F(2,994) = 9.5$, $p < 0.001$, $\eta^2 = 0.02$, race/ethnicity, $F(3,994) = 6.8$, $p < 0.001$, $\eta^2 = 0.02$, and income, $F(5,994) = 6.9$, $p = 0.001$, $\eta^2 = 0.03$. Gym facilities were most popular among younger respondents, African Americans, Asians, and individuals in the highest income categories. Physical activity participation at work locations varied by gender, $F(1,1013) = 13.3$, $p < 0.001$, $\eta^2 = 0.01$, and age, $F(2,1013) = 10.3$, $p < 0.001$, $\eta^2 = 0.02$. Younger individuals and males reported a higher

frequency of work-based activity than other groups. Higher income individuals generally reported lower levels of work-based activity, $F(5,1013) = 3.1$, $p = 0.008$.

Park-based Physical Activity: Self-reports

According to offsite data, 59.8% of adult participants had visited a Georgia state park within the past year. An additional 7.4% were not sure if parks they visited were state parks. Whites (67.4%) and Latinos (59.3%) were more likely to have visited a state park at least once in the past year than either African Americans (45.8%) or individuals in the Asian/Other category (48.1%), $\chi^2(6,919) = 35.7$, $p < 0.001$. Onsite data revealed similar racial/ethnic differences in summer state park visitation frequency, $\chi^2(9,998) = 28.0$, $p = 0.001$. Weekly visits to state parks during the summer season were higher for Latinos (30.9%) and Whites (27.7%) than African American (15.0%) or Asian (19.5%) visitors.

Self-reported measures of park-based physical activity were used to assess active time in state parks across demographic groups. About 15% of the adult visitors sampled across all parks reported no physical activity during their trip to the park; 65.6% engaged in at least one hour of moderate activity and 41.8% participated in at least 30 minutes of vigorous activity. Only 8.8% of adult visitors participated in five or more hours of physical activity at any level. Adult day use visitors were engaged in MVPA for an average of 1.96 ± 0.13 hours (moderate $M = 1.43 \pm 0.09$ hours, vigorous $M = 0.54 \pm 0.06$ hours). Mean MVPA was similar across demographic groups, though younger adults (ages 18-30) tended to be more active in parks than older adults, $F(2,676) = 2.5$, $p = 0.085$. The PAR for adults ($M = 0.40 \pm 0.02$) was also similar across demographic groups. Mean daily MVPA levels were higher for overnight visitors than day use visitors (overall $M = 2.46 \pm 0.25$ hours, moderate $M = 1.96 \pm 0.21$ hours, vigorous $M = 0.50 \pm 0.10$ hours). However, given their longer daily time spent in state parks (24 hours), the PAR for adults staying

overnight was lower than the ratio for day use visitors ($M = 0.10 \pm 0.01$ hours). Bivariate correlations suggested that more frequent state park visitors reported more MVPA during their visits ($r = 0.077$, $p = 0.013$). More frequent visitors also demonstrated higher PAR ($r = 0.177$, $p < 0.001$). The relationship between annual state park visit frequency and MVPA during park visits was strongest for Latinos ($r = 0.155$, $p = 0.011$) and Asians ($r = 0.560$, $p < 0.011$).

Pooled data from all three parks showed that swimming areas (used by 72.5% of visitors) and picnic areas and playgrounds (62.1%) were the most common physical activity sites across all demographic groups (Table 4.7). Pearson chi-square tests examining demographic differences showed that males were more frequent users of open green space, $\chi^2(1,982) = 6.0$, $p = 0.014$, and bike trails, $\chi^2(1,982) = 3.7$, $p = 0.054$; females were more active in picnic areas and playgrounds, $\chi^2(1,987) = 8.7$, $p = 0.003$. Swimming areas were used more often by younger visitors (ages 18-30) than those from other age groups, $\chi^2(2,992) = 3.6$, $p = 0.033$. Older visitors were generally more active than younger visitors on biking, $\chi^2(2,986) = 4.6$, $p = 0.100$, and hiking trails, $\chi^2(2,988) = 4.1$, $p = 0.131$. Picnic areas and playgrounds were most popular among Asian and Latino visitors, $\chi^2(3,963) = 6.5$, $p = 0.088$. White visitors (44.9%) used dirt or gravel hiking trails more often than other groups ($\leq$ 25.6%), $\chi^2(3,960) = 41.1$, $p < 0.001$, while African Americans (29.3%) favored paved hiking trails, $\chi^2(3,663) = 9.5$, $p = 0.024$. Open green space was a more popular physical activity location for Latinos (21.3%) compared to other racial/ethnic groups, $\chi^2(3,958) = 8.2$, $p = 0.043$. High income visitors favored hiking trails, $\chi^2(5,971) = 13.1$, $p = 0.023$, and bike trails, $\chi^2(5,969) = 10.9$, $p = 0.054$, more than other income groups; middle and lower income visitors frequented swimming areas, $\chi^2(5,975) = 26.3$, $p < 0.001$.

Park-based Physical Activity: Observations

The SOPARC observations showed that, overall, 58.4% of adult state park visitors were sedentary, 38.8% were moderately active, and 2.7% were vigorously active at the time of observation. Activity levels were highest at the trailheads (76.4% moderately active, 15.2% vigorously active) and lowest in the multi-use zones (32.0% moderately active, 0.5% vigorously active). The proportion of overall visitors observed at each location was significantly different: at trailheads, 83.0% of visitors were white; in multi-use zones 49.1% of visitors were white (Table 4.3). Fit statistics for the logistic regression model predicting MVPA participation supported the existence of a relationship between the predictor and outcome variables (Model $\chi^2(df=13) = 2113.6$, $p < 0.001$; Nagelkerke Pseudo $R^2 = 0.270$). Furthermore, the classification accuracy rate based on the model (71.2%) was higher than the proportional-by-chance accuracy rate (58.4%). Parameter estimates (β**)** and Wald statistics revealed significant effects for observation locations, gender, age, and ethnicity, and significant interactions among observation locations and demographic variables (Table 4.8). Although most visitors (84.7%) were observed in day use areas, the proportion of visitors observed participating in MVPA was highest at trailheads (92.0% vs. 65.5% in multi-use zones). At trailheads, the proportion of visitors engaged in MVPA was highest among Whites and Asians (>93.2% vs. <77.3% for Latinos and African Americans). In multi-use zones, the proportion of visitors engaged in MVPA was significantly higher among males (36.6% vs. 29.3% for females), African Americans (40.3%), and Latinos (34.5% vs. 29.6% for Whites).

Mean MET comparisons supported these patterns, revealing significant differences in average energy expenditure among racial/ethnic groups at both trailheads, $F(3,1447) = 9.8$, $p < 0.001$, $\eta^2 = 0.02$, and multi-use zones, $F(3,7998) = 13.9$, $p < 0.001$, $\eta^2 = 0.01$ (Figure 4.1).

Bonferroni-adjusted, pairwise comparisons showed that the mean MET scores of white visitors at trailheads was significantly higher than that either African Americans (*M* Diff. = 0.581, $p < 0.001$) or Asians (*M* Diff. = 0.402, $p = 0.014$). Conversely, comparisons at multi-use zones indicated that African American visitors displayed significantly higher MET scores than white (*M* Diff. = 0.185, $p < 0.001$) or Latino visitors (*M* Diff. = 0.106, p = 0.01). Latino visitors also displayed higher MET scores than white visitors in multi-use zones (*M* Diff. = 0.080, $p < 0.001$).

Across all parks, the most common activities observed at trailheads were hiking (58.7%), mountain biking (14.7%), and walking (7.0%). Hiking was more commonly observed in Asian (69.3%) and white (63.0%) visitors than African Americans (23.8%) and Latinos (17.3%). African Americans participated in basketball (27.4%) and walking (15.5%) at a higher rate than other racial/ethnic groups. Soccer was especially popular among Latinos (28.0%). The most common activities observed in multi-use areas were walking (17.9% of all visitors) and swimming (9.7%). Walking was most commonly observed among African Americans (27.9%). Swimming (11.7%) and sports such as volleyball and soccer (4.1%) were more popular among Latinos.

Park-based Physical Activity Preferences

Several ANOVA were used to compare the effects of various demographic variables and park locations on visitors' physical activity preferences (see Table 4.6 for example ANOVA). Across all demographic groups and sites, the most important features for encouraging park-based activity were a safe environment, social support (active friends and family), and natural scenery (Table 4.9). Compared to other racial/ethnic groups, Latinos demonstrated the strongest preference for being with active family and friends ($M = 4.36 \pm 0.12$), using open green space ($M = 4.01 \pm 0.21$), seeing other active visitors ($M = 3.59 \pm 0.22$), and accessible recreation

opportunities (M = 4.12 ± 0.19). Relative to other groups, African Americans showed the strongest preference for a variety of activity choices (M = 4.11 ± 0.31) and developed areas and facilities (M = 4.00 ± 0.31). Scores on the natural scenery and safety items were similar across racial/ethnic groups.

Females ranked a safe environment (M = 4.70 ± 0.11) and being with active friends and family (M = 4.37 ± 0.14) significantly higher than males. Natural scenery was more important to visitors in the 60 or older age group than younger respondents (M = 4.42 ± 0.27). Comparisons among income groups revealed that being with friends and family (M = 4.57 ± 0.19), developed areas and facilities (M = 3.97 ± 0.22) and open green space (M = 3.95 ± 0.23) were more important for encouraging the physical activity of individuals in lowest income category ($25,000 or less) than visitors in the higher income groups.

To compare state park visitor preference data with park-based activity preferences in the population of flea market attendees, offsite respondents were also given an opportunity to identify features of parks (not specifically state parks) that encouraged them to be more physically active. Many participants (n = 153) provided at least one suggestion. Responses related to clean or well-maintained facilities were the most common (21.6% of total respondents), and particularly prevalent among Whites (27.1%) and Asians (33.3%). The next most-commonly cited elements were walking or hiking trails (19.6%), natural scenery and beauty (15.0%), and water features such as lakes and streams (15.0%) or beach areas (5.9%). A higher percentage of African Americans (33.3%) listed trails relative to other groups. White participants listed natural scenery (20.0%) and water features (17.1%) more often than participants in the other racial/ethnic categories. Activities for families and kids were important to many participants across racial/ethnic groups (8.5%). Open green space (7.2%) and basketball courts (5.2%) were

the most-commonly reported features related to sport activities; these features were listed by Latinos (11.3%) and African Americans (7.4%) more than members of other groups. Safety was an issue important to 7.8% of participants, and appeared to be especially important to African Americans (23.8%). Issues related to park location or proximity were important physical activity determinants for 5.2% of respondents.

Discussion

Despite growing recognition of public parks' contribution to physically active lifestyles (Godbey & Mowen, 2010; Mowen et al., 2008), few studies have examined levels of park-based physical in the southeastern United States (e.g., Floyd et al., 2008; Shores & West, 2010). Even fewer have explored the influence of parks on physical activity behavior and preferences among low income and racial/ethnic minority groups (Floyd et al., 2009; Taylor, Floyd, Whit-Glover, & Brooks, 2007). Results of this study yielded new information about the potential role that state parks can play in promoting physical activity across diverse population sectors and helped to identify park attributes associated with increased levels of MVPA.

Overall Physical Activity Levels and Correlates

Overall pooled (onsite and offsite) mean physical activity levels for adults in this research sample were lower than statewide reports for Georgia (Georgia Department of Human Resources, 2008; Georgia Department of Public Health, 2010). For example, CDC numbers indicate that 48.5% of adults in Georgia are regularly active, and the percentage of regularly active Latinos and African Americans is even lower (CDC, 2010b; Falb, Kanny, Thompson, Wu, & Powell, 2006). Self-reported data in this study showed that 31.1% of participants were regularly active and revealed the lowest activity participation rates for Latinos and Asians. Though national trends also show the lowest activity levels for Hispanic/Latinos (CDC, 2005; Flores, 2008;

Kumanyika & Grier, 2006; Pearce, 1999), the discrepancy in absolute numbers suggests that the study sample may not be representative of the general Georgia population. However, relatively low activity levels in the sample population indicate that information collected in this study could be especially useful for managers hoping to understand the physical activity behavior of less active groups and stage interventions in predominantly sedentary communities.

The analysis of factors predicting adults' physically active days per week revealed several significant activity correlates. Race, age, and gender have been linked to activity levels and obesity in other studies on larger scales (CDC, 2005; CDC, 2010b; Ogden et al., 2006; Pearce, 1999). In this pooled sample of onsite and offsite participants, gender and race were also significant. Males reported higher activity levels than females, and racial/ethnic minorities (especially Latinos) reported lower activity levels than Whites. Stronger motivations to participate in active outdoor recreation were also linked to physical activity. This finding corresponds with previous research examining the validity of recreation experience preference scales and the predictive power of outdoor recreation intentions and intrinsic motivation within the Theory of Planned Behavior (Ajzen, 1991; Haughton-McNeill, Wyrwich, Brownson, Clark, & Kreuter, 2006; Hrubes, Ajzen, & Daigle, 2001; Manfredo, Driver, & Tarrant, 1996). State park visitation frequency was not significantly related to physically active days per week, suggesting that other physical activity locations may have a stronger influence on overall activity levels.

Physical Activity Location Use Frequency

Some previous studies have noted that neighborhood streets, homes, and fitness centers are used more frequently than parks for physical activity (Huston, Evenson, Bors, & Gizlice, 2003), while others have recognized parks among the most popular physical activity destinations (Wilhelm-Stanis, Schneider, Shinew, Chavez, & Vogel, 2008). Pooled onsite and offsite data in

this study showed that some of the variation in physical activity location use frequency can be explained by demographic variables. Across all groups, the home and backyard was rated as the most frequently used physical activity location. This finding provides additional evidence that the home environment has a strong influence on healthy, active lifestyles and highlights the importance of small-scale activity interventions focused on individual behavioral change (Bedimo-Rung et al., 2005; Giles-Corti & Donovan, 2003; Sallis, Bauman, & Pratt, 1998). However, supporting results of earlier studies (Deshpande, Baker, Lovegreen, & Brownson, 2005; Kaczynski & Henderson, 2007; Shores & West, 2008), park-based activity settings were particularly important to historically underserved demographic groups at higher risk of obesity. For example, females and Latinos were active more often in neighborhood parks than other groups; neighborhood sidewalks and streets were used most often by females and African Americans. Low-income respondents used state parks for physical activity significantly more often that respondents in higher income categories.

Findings related to overall activity levels within the pooled sample suggest that, although state park visitation frequency was not a significant predictor of an individual's active days per week, state parks were used at least moderately often as a physical activity destination. Because of their proximity to larger population centers and ease of accessibility, municipal parks may have a greater capacity than state parks to encourage physical activity (Mowen, 2010). However, state parks may provide critical physical opportunities in rural, low-income areas with limited access to other alternatives such as gyms and sidewalks (Wilhelm-Stanis, Schneider, & Anderson, 2009; Wilhelm-Stanis, Schneider, Shinew, et al., 2009).

State Park-based Physical Activity

Actual levels of self-reported, state park-based physical activity were generally high (85% of visitors engaged in some activity), and about two-thirds of respondents stated that they had participated in at least one hour of MVPA during their visit. Across all parks, day users were moderately active for an average of 86 minutes and vigorously active for 32 minutes per trip; overnight visitors were moderately active for an average of 118 minutes and vigorously active for 31 minutes per day. These values exceeded adults' recommended levels of daily physical activity (CDC, 2010a), and they are comparable to park-based activity levels revealed in a recent study of Pennsylvania state parks reporting that 63% of visitors engaged in MVPA (Mowen, Trauntvein, Graefe, & Ivy, 2009). However, the PAR highlights additional room for growth. For example, day use visitors were only active during 40% of their typical five-hour visits, and overnight visitors were only active for an average of 10% of their time in the park. Increased PAR would result in more efficient use of leisure time for physically active pursuits and could produce mean energy expenditures even greater that the currently observed MET range of 2 to 3, improving fitness and physical health (Wilhelm-Stanis et al., 2008). Synergistic relationships between visitation frequency and mean MVPA during park visits suggest that even small increases in state park visitation could substantially impact physical activity outcomes, especially for groups such as African Americans and Asians who reported lower levels of state park use.

Research examining site use patterns has shown that activity levels are generally highest in areas around sports field and courts, play structures, and walking paths (Kaczynski et al., 2008; Rung, Mowen, Broyles, & Gustat, 2010; Rung et al., 2011; Shores & West, 2008). This study supports many of these previous findings. For instance, the percentage of physically active visitors observed at trailheads was significantly higher than the percentage observed at beaches

and picnic areas, and MET levels were also higher at trailheads. However, data also revealed the importance of non-traditional locations for physical activity, particularly for racial/ethnic minorities. For example, in this study, picnic and swimming areas were among the most frequently used locations for physical activity, contradicting research suggesting that park-based activity levels tend to be lower around picnic shelters and other social gathering zones (Floyd et al., 2008; Mowen, 2010). In fact, mean estimated MET levels for visitors observed in these areas were nearly double resting metabolic rates. Because picnic and swimming areas represent a hub for family activities, their use as a destination for physical activity underscores the important influence of social factors on visitor behavior (Brownson, Baker, Housemann, Brennan, & Bacak, 2001; Giles-Corti & Donovan, 2003; Sallis, Hovell, & Hofstetter, 1992; Trost, Owen, Bauman, Sallis, & Brown, 2002). Stealthy park design could capitalize on these unexpected relationships, building physical fitness experiences into seemingly sedentary activities (Buchner & Gobster, 2007). Some researchers have already noted the potential physical health benefits of social activities within parks, recommending the integration of picnic areas near the most attractive physical activity sites to increase the likelihood that adults and children gathering for social purposes may also participate in active recreation (Shores & West, 2010). Social support networks are especially prominent in Latino park visitor groups (Chavez, 2008; Marquez & McAuley, 2006), and efforts to encourage physical activity among chronically inactive Latino populations would likely benefit from a stronger focus on family-based activities. Par

Safety and aesthetics have been recognized as the primary concerns for physically active visitors in parks around the U.S. (Humpel, Owen, & Leslie, 2002; McCormack, Rock, Toohey, & Hignell, 2010; Mowen, Payne, & Scott, 2005; Wilhelm-Stanis, Schneider, Chavez, & Shinew, 2009), and this study of visitors to three Georgia state parks supports these results. However, this

study also highlights several key racial/ethnic differences in site use preferences. White visitors used hiking trails more often than other groups, and also tended to be more physically active on the trails. Picnic areas, beaches, playgrounds, and paved trails were used more often by Latinos and African Americans, and individuals in these racial/ethnic minority groups were also more active in the multi-use park zones. African Americans and older respondents showed the strongest preference for developed areas and facilities, supporting previous research in urban areas (Gobster, 2002; Payne, Mowen, & Orsega-Smith, 2002). Latinos demonstrated a stronger preference for physical activity in open green space than any other group. Social activities were especially important to Latinos and low-income visitors, reflecting observed patterns in other parks (Chavez & Olson, 2008). Future research should continue to explore the interacting influence of visitor diversity, park features, public perceptions of park features on the park-based physical activity levels in different types of park settings (McCormack et al., 2010; Nasar, 2008; Rung et al., 2011; Shores & West, 2008).

Conclusion

This study was designed to fill a critical gap in the physical activity literature focused on the contribution of state parks to physical activity across diverse populations. Capitalizing on strengths including a mixed-methods research design, an emphasis on understudied parks (state parks) in a new geographical context (the southern United States), data collection involving multiple types of potential physical activity sites within parks, and a large sample of racial/ethnically diverse participants, this investigation provided new insight into the role of Georgia state parks as a physical activity destination. Results suggested that state parks may be an especially important physical activity location for Latinos, African Americans, and low-income populations. When considering park-based activity across diverse visitor groups, a

greater emphasis could be placed on non-traditional locations for physical activity such as picnic areas and beaches. These areas attract non-traditional visitors and create opportunities for social recreation experiences, which are important factors promoting physical activity participation in Latinos and other racial/ethnic minority groups.

Future research could address the limitations of this study. First and foremost, participants in this study did not represent a random sample of Georgia residents. The sample was confined to visitors to three state parks and attendees at several flea markets in north Georgia. Though these distinct subgroups were specifically chosen to represent overall Georgia state park users (the representative nature of the parks was a primary selection criteria) and the demographically-diverse population of north Georgia (flea markets provide unique access to a diverse, low income, typically under-surveyed portion of the population), future studies could expand the current sample frame to generate population inferences on a larger scale. The delimitation of this sample to the peak summer season presents other research opportunities, for park-based physical activity patterns may differ at other times of the year.

Overt measures of physical activity behavior that move beyond self-reported measures could also improve the validity of activity data, helping researchers develop a more objective understanding of actual activity patterns that considers frequency, duration, and intensity (Kruger et al., 2007). The momentary time sampling approach (SOPARC) used in this study provided a snapshot of visitor activity, but techniques incorporating accelerometers or mobile data loggers across entire park visits would yield more detailed information about physical activity time budgets. Models attempting to quantify the influence of diverse social, environmental, and behavioral factors on activity levels could also explicitly account for constraints to physical activity participation (Wilhelm-Stanis, Schneider, et al., 2009). Furthermore, the overall physical

activity benefits provided by state parks undoubtedly depend directly on the number of annual visits that visitors make to these parks (Wilhelm-Stanis, Schneider, & Anderson, 2009). Research should therefore directly compare visitation rates and park-based activity levels across local, state, and national parks to determine the relative contributions of each unique setting to physical activity across diverse populations. Finally, the scope of investigation should be expanded to move beyond adults and explore the socio-demographic and environmental characteristics that influence park-based physical activity of children.

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Table 4.1

Description of Georgia State Parks Sampled During Summer 2010

State Park	Location	**Annual Visitation 5-year Average** (2004-2008)	Facilities
Fort Mountain	Chatsworth, GA Murray County	135,339	3,712 acres 17-acre lake Swimming beach 41 miles of hiking/biking trails 47 campsites 7 picnic shelters
Fort Yargo	Winder, GA Barrow County	396,360	1,815 acres 260-acre lake Swimming beach 15 miles of hiking/biking trails 74 campsites 5 picnic shelters
Red Top Mountain	Cartersville, GA Bartow County	837,614	1,776 acres 12,010-acre lake (Allatoona) Swimming beach 17 miles of hiking/biking trails 92 campsites 7 picnic shelters

Table 4.2

Demographic Distribution of Onsite and Offsite Adult Intercept Survey Respondents in North Georgia, 2010-2011

Variable	Onsite[a] (%) (n = 1073)	Offsite[b] (%) (n = 258)	% in GA[c]
Gender			
Female	55.2	50.4	**51.2**
Male	41.5	48.1	**48.8**
Did not report	3.4	1.6	
Age			
≤ 30 years old	26.1	30.2	**24.7**
31-59 years old	59.6	53.9	(under age 18)
≥ 60 years old	6.7	6.6	
Did not report	7.5	9.3	
Race/Ethnicity			
White/Caucasian	60.5	39.1	**55.9**
Hispanic/Latino	25.8	33.7	**8.8**
Black/African American	6.1	17.4	**30.5**
Asian/Other	5.6	7.8	**4.8**
Did not report	2.1	1.9	
Household Income			
$25,000 or less	14.7	29.5	**15.7**
$25,001-50,000	22.3	22.1	(below
$50,001-75,000	13.8	9.7	poverty line)
$75,001-100,000	10.3	4.3	
$100,001 or more	11.5	4.7	
Refused	18.5	22.5	
Did not report	9.0	7.4	
Education			
No college degree	45.6	57.7	**16.5**
College degree	48.4	35.7	**56.3**
Did not report	6.0	6.6	**27.2**
Annual Number of State Park Visits	4.00 ± 0.38 visits to selected GA state park	5.73 ± 2.43 visits to all GA state parks	

[a] Sample included day use and overnight visitors in selected Georgia state parks
[b] Sample included vendors and customers in north Georgia flea markets within 35 miles of the focal state parks
[c] Overall Georgia state population estimates based on 2010 U.S. Census Data (U.S. Census Bureau, 2012)

Table 4.3

Demographic Distribution of Adults Observed During Onsite Behavior Observations in Three North Georgia State Parks (by Park Zone), Summer 2010

Demographic Variable	**Multi-use Zones[a] (%)** (n = 8002)	**Trailheads (%)** (n = 1451)
Gender		
Female	56.8	46.4
Male	43.2	53.6
Age		
Adult (ages 18-59)	95.3	63.4
Senior (age 60+)	4.7	36.6
Race/Ethnicity		
White/Caucasian	49.1	83.0
Hispanic/Latino	7.5	5.8
Black/African American	39.7	5.2
Asian/Other	3.7	6.1
Activity Level		
Sedentary	67.5	8.4
Moderate	32.0	76.4
Vigorous	0.5	15.2

[a] Included high density visitor zones such as beaches and adjacent picnic areas

Table 4.4

Parameter Estimates for Ordinary Least Squares Regression Model Predicting Adults' Physically Active Days per Week[a] *in the Offsite Sample at Georgia Flea Markets, Summer 2011 (n = 182)*

Variable	Mean	β (SE)	Standardized β	*t*	Sig.
Constant		1.438 (0.613)		1.97	0.051
Gender (Male)	0.48	0.613 (0.267)	0.159	2.30	0.023
Age (years)	38.6	-0.013 (0.011)	-0.089	-1.22	0.226
Race (Latino)	0.28	-0.969 (0.334)	-0.225	-2.91	0.004
Race (Black)	0.18	-0.441 (0.369)	-0.087	-1.20	0.233
Race (Asian/Other)	0.07	-0.703 (0.558)	-0.090	-1.26	0.209
Education (College)	0.45	-0.170 (0.282)	-0.044	-0.60	0.548
Outdoor Rec Motivations – Improving Physical Health[b]	3.87	0.709 (0.129)	0.389	5.45	0.000
State Park Visit in Past Year	6.51	0.007 (0.006)	0.078	1.13	0.262

Model Fit Statistics: $F(8,174) = 5.8$, $p < 0.001$, adjusted $R^2 = 0.17$

[a] Mean reported activity levels for adults = 3.55 ± 0.28 physically days/week.

[b] Recreation motivations were measured on a scale from 1 = strongly disagree to 5 = strongly agree

Table 4.5

Example ANOVA Examining Effects of Demographic Variables on Pooled Onsite and Offsite Participants' Ratings of the Frequency of Use of Georgia State Parks as a Physical Activity Destination, 2010-2011 (n = 1060)

Source	***df***	**Type III SS**	***F***	***p***	η^2
Intercept	1	1727.35	1551.5	0.000	
Race/Ethnicity	3	2.70	0.8	0.489	
Gender	1	0.08	0.1	0.038	0.01
Age	2	7.29	3.3	0.791	
Income	5	23.30	4.2	0.001	0.02
Error	1048	1166.81			

Table 4.6

Demographic Differences in Pooled Onsite and Offsite Participants' Ratings of the Frequency of Use for Various Physical Activity Locations, 2010-2011 (n = 1060)

Physical Activity Location	Mean Rating[a] (w/ 95% CI)	Demographic Differences (Groups with Most Frequent Use)			
		Gender Diff.	Age Group Diff.	Ethnic Diff.	Income Diff.
Home/backyard	3.79 ± 0.07	female*	18-30,	White, Black***	
Neighborhood sidewalks/streets	3.20 ± 0.08	female**		Black, Asian*	
Neighborhood parks	2.99 ± 0.08	female**	31-59, 18-30*	Latino, Black, Asian***	
Work	2.98 ± 0.10	male***	18-30, 31-59***		Low, Mid**
Georgia state parks	2.59 ± 0.04		31-59*		Low***
Gym/recreation center	2.53 ± 0.08	male*	18-30***	Black***	High***

*,**,*** denotes statistical significance of Bonferonni-adjusted pairwise comparisons of groups within demographic variables (*F* test) at $\alpha = 0.05$, 0.01, and 0.01, respectively (groups with the highest statistically similar ratings are reported)

[a] Frequency of use was measured on a scale from 1 = never to 5 = very often

Table 4.7

Percentage of Onsite Participants[a] Using Physical Activity Locations within Three North Georgia State Parks (with Demographic Differences), Summer 2010 (n = 992)

		Demographic Differences (Group with Highest Use)			
Physical Activity Location	**TOTAL**	**Gender Diff.**	**Age Diff.**	**Ethnic Diff.**	**Income Diff.**
Swimming areas	72.5		age 18-30	Asian	Mid, Low***
Picnic areas/playgrounds	62.1	female**		Asian, Latino	
Hiking trails (dirt/gravel)	37.4			White***	High*
Boating areas	26.6				
Walking trails (paved)	21.4			Black	
Open green space	15.7	male*	age 18-30	Latino	
Biking trails	14.7	male	age 31-59		High
Paved courts	7.5				
Horse trails	4.0				
Other[b]	7.5		age 60 +*	White	White

*,**,*** denotes statistical significance of Bonferonni-adjusted pairwise comparisons of groups within demographic variables (χ^2 test) at $\alpha = 0.10$, 0.05, and 0.01, respectively (groups with the highest statistically similar ratings are reported)

[a] The total sample represents pooled data from visitors to all three focal parks.

[b] Other physical activity locations included campgrounds, tennis courts, fishing areas, mini-golf, geocaching, etc.

Table 4.8

Parameter Estimates in the Logistic Regression Model Predicting Adults' Observed Participation in Moderate or Vigorous Physical Activity (MVPA) in Three North Georgia State Parks, Summer 2010 (n = 9453)

Variable	β (std. error)	Wald	*p*-value	Odds Ratio
Constant	-1.050 (0.063)	61.33	<0.001	
Park		64.89	<0.001	
ParkFY	-0.105 (0.066)	2.53	0.112	0.90
ParkRTM	0.308 (0.067)	21.41	<0.001	1.36
ObsLocation (Trailhead)	3.655 (0.174)	441.02	<0.001	38.66
Gender (Male)[a]	0.317 (0.048)	42.82	<0.001	1.37
Age (60plus)[a]	-0.223 (0.120)	3.45	0.063	0.80
Ethnicity[a]		26.18	<0.001	
Ethnicity (AfricanAmerican)[a]	0.424 (0.092)	21.20	<0.001	1.53
Ethnicity (Latino)[a]	0.176 (0.048)	11.50	<0.001	1.19
Ethnicity (AsianOther)[a]	0.077 (0.130)	0.35	0.553	1.08
Male*Trailhead[b]	0.107 (0.202)	0.28	0.596	1.11
60plus*Trailhead[b]	-0.121 (0.321)	0.14	0.707	0.89
Ethnic*Trailhead[b]		72.51	<0.001	
AfricanAmerican*Trailhead[b]	-2.217 (0.291)	57.93	<0.001	0.11
Latino*Trailhead[b]	-1.617 (0.311)	27.11	<0.001	0.20
AsianOther*Trailhead[b]	-0.218 (0.460)	0.22	0.636	0.80

Model Fit Statistics: Nagelkerke Pseudo $R^2 = 0.270$; Full Model $\chi^2(df=13) = 2113.6$, $p < 0.001$; Hosmer & Lemeshow $\chi^2(df=8) = 17.6$, $p = 0.024$

[a]Term depicts demographic effects when ObsLocation = MultiUse.

[b]Term depicts demographic effects when ObsLocation = Trailhead.

Table 4.9

Physical Activity Preferences of Onsite Participants[a] in Three North Georgia State Parks (with Demographic Differences), Summer 2010 (n = 884)

Preference	Mean Score (w/ 95% CI)	Demographic Differences (Groups with Strongest Preference)			
		Gender Diff.	**Age Diff.**	**Ethnic Diff.**	**Income Diff.**
A safe environment	4.63 ± 0.05	female**			
Being with active friends/family	4.20 ± 0.06	female*		Latino*	Low**
Natural scenery	4.10 ± 0.06		age 60+**		
Variety of activity choices	3.80 ± 0.07			Black, Latino*	
Accessible recreation opportunities	3.79 ± 0.07			Latino**	
Open green space	3.72 ± 0.08			Latino**	Low
Developed areas & facilities	3.70 ± 0.07		age 60+	Black, Latino*	Low
Seeing other active visitors	3.05 ± 0.09		age 60+	Latino, Black, Asian**	Low**

*,** denotes statistical significance of Bonferonni-adjusted pairwise comparisons of groups within demographic variables (*F* test) at $\alpha = 0.05$ (adjusted $\alpha = .006$) and $\alpha = 0.01$ (adjusted $\alpha = 0.001$), respectively (groups with the highest statistically similar ratings are reported)

[a] The total sample represents pooled data from visitors to all three focal parks.

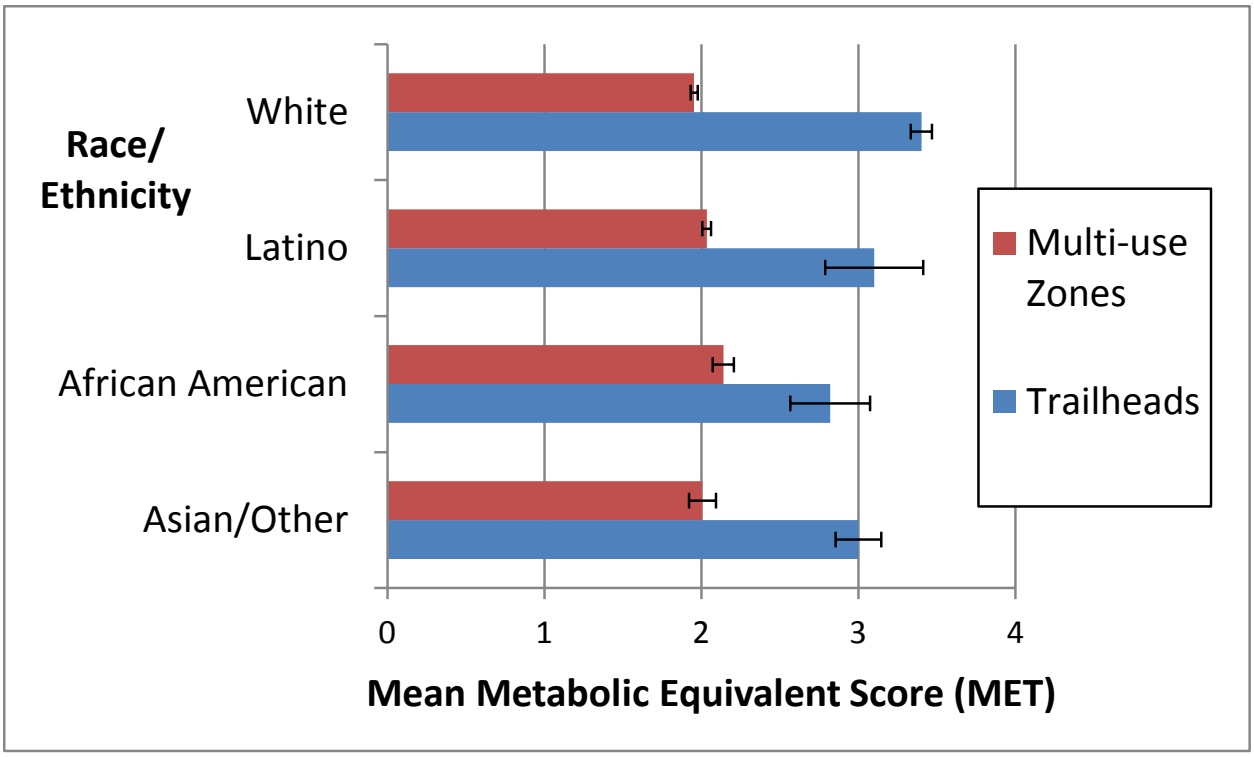

Figure 4.1. Mean Metabolic Equivalent (MET) scores for visitors to three north Georgia state parks observed in different zones (by race/ethnicity) (n = 8002 for multi-use zones, n = 1451 for trailheads)

CHAPTER 5

STATE PARK USE AND PHYSICAL ACTIVITY OF YOUTH IN GEORGIA: A MIXED METHODS INVESTIGATION[3]

[3] Larson, L. R., Whiting, J. W., Green, G. T., & Bowker, J. M. To be submitted to the *Journal of Leisure Research*.

Abstract

Obesity and physical inactivity have become major health concerns for youth in the United States. Public parks provide outdoor recreation opportunities that can help children increase activity levels and improve health, but research is needed to identify specific park attributes that encourage activity in diverse populations. This study used an onsite (in state parks) and offsite (in flea markets near state parks) sampling approach across north Georgia involving adult-reported intercept surveys (n = 1318) and child behavior observations (n = 9072) to assess children's park-based physical activity levels and factors influencing activity participation. Surveys showed that children's overall activity levels were significantly related to gender (males more active), age, parent perceptions of recreation benefits, and the use of homes and backyards for outdoor activities. Although state park use frequency was not related to children's overall activity levels in the offsite sample, state park visits appeared to support high levels of physical activity (Mean MVPA = 3.14 ± 0.14 hours per day trip) among all gender, age, and racial/ethnic groups. Park-based activity levels were highest among children participating in family-based recreation such as beach activities, picnics and cookouts, swimming, and playing on playgrounds. These social activities appeared to be especially important for African American and Latino children. White children were significantly more active than other racial/ethnic groups active on trails. Results suggested that higher levels of physical activity across diverse groups of youth could be encouraged through an emphasis on family-friendly activities and other non-traditional outdoor recreation opportunities. Future research could expand the current sample to characterize the contribution of parks to active living on broader spatial scales and explore the physical activity patterns and preferences of diverse groups of youth in a variety of recreational contexts.

Introduction

In the past decade, childhood obesity rates in the U.S. have reached unprecedented levels (Ogden et al., 2006). Current trends suggest that the number of obese and overweight children in the country will continue to rise, producing an array of negative health consequences that are especially severe for minority children in low-income communities (Kumanyika & Grier, 2006; National Heart, Lung, and Blood Institute, 2007; Thomas, Eberly, Smith, Neaton, & Stamler, 2005). Although many factors influence childhood obesity, physical inactivity is one of the major culprits (Davison & Lawson, 2006; Eisenmann, Bartee, Smith, Welk, & Fu, 2008; U.S. Depatment of Health and Human Services, 1996). According to a report by the Centers for Disease Control and Prevention (CDC), 61.5% of 9-13 year-old children do not participate in any organized physical activity during non-school hours, and 22.6% do not engage in any leisure time activity (CDC, 2003). Hence, youth physical activity promotion has assumed a central role in many childhood health initiatives. Anti-obesity and physical activity campaigns commonly focus on policy measures that account for legislative and regulatory power (Boehmer, Luke, Haire-Joshu, Bates, & Brownson, 2008), but prevention measures could adopt a more organic, holistic, and cost effective approach centered on environmental and individual characteristics (Roux et al., 2008; Sallis et al., 2006).

For example, research shows that being outdoors is one of the strongest correlates of children's physical activity (Sallis, Prochaska, & Taylor, 2000). By providing numerous opportunities for outdoor recreation and physical activity, public parks may therefore represent a promising solution to the childhood obesity problem (Ho, Payne, Orsega-Smith, & Godbey, 2003; Maller, Townsend, Pryor, Brown, & St. Leger, 2006; Mowen, Kaczynski, & Cohen, 2008; Sallis et al., 2000). However, the extent to which parks currently achieve their potential for enhancing

youth development, particularly with respect to physical activity, remains largely unknown (Floyd et al., 2011; Moody et al., 2004). Recognizing the value of outdoor recreation for America's youth, park and recreation professionals and researchers are now working to validate and publicize the important contributions of parks and public green space to healthy lifestyles in children (Kellert, 2005; Sherer, 2006; Timperio et al., 2008). Federal measures such as the proposed Healthy Kids Outdoors Act and new America's Great Outdoors Initiative have added momentum to this movement (America's Great Outdoors, 2011; Pannell, 2011), and ongoing efforts to assess the effects of park use on physical activity across diverse populations of youth are beginning to inform park design and management.

Children's Park-based Physical Activity

Studies investigating environmental factors associated with children's obesity and activity levels have yielded important insight concerning the potential role of parks in physical activity promotion. For example, Roemmich et al. (2006) found that the percentage of total park area in a community is a significant predictor of children's physical activity, observing a 1.4 percent increase in physical activity levels for every 1 percent increase in park area. Another study of youth (ages 5-20) in Atlanta examined travel diary data and found a significant relationship between the number of neighborhood parks and recreation facilities and children's walking frequency (Frank, Kerr, Chapman, & Sallis, 2007). In an experiment designed to reduce sedentary behavior, Epstein et al. (2006) noted that increases in children's (ages 8-15) physical activity were magnified with greater amounts of parkland nearby. Similarly, Cohen et al.'s (2006) study of adolescent girls in six cities used accelerometers to discover that participants with more parks close to home achieved higher physical activity levels.

Although these findings highlight links between park proximity and physical activity, many children live in areas with limited trails and park access. Neighborhoods with poor recreation opportunities are often home to low-income, racial/ethnic minority residents, further limiting physical activity in populations already at high-risk of obesity and similar health-related problems (Cutts, Darby, Boone, & Brewis, 2009). For example, a national study of adolescents found that low activity levels in Latino and African American girls can be partially explained by the schools they attend, a common proxy for neighborhood socioeconomic status (Richmond, Hayward, Gahagan, Field, & Heisler, 2006). Even when parks are available, their value may be offset by social characteristics including perceptions of personal risk (measured through neighborhood crime and traffic fatalities) and local park quality (Cutts et al., 2009). Potwarka et al. (2008) noted that although children living within one kilometer of a park playground were almost five times more likely to be a healthy weight, safety concerns often prevented families from using the facilities. In fact, research has shown that adults who feel safe are 60 percent more likely to encourage children to use local playgrounds (Miles, 2008). This relationship highlights a critical link between parents' perceptions and children's outdoor recreation behavior that warrants further investigation (Jago et al., 2009).

The provision of many different types of activities and facilities also appears to be an important factor influencing children's outdoor recreation (Davison & Lawson, 2006; Sallis & Glanz, 2006). When appealing options are available, children are generally more active in parks than adults. For example, observational studies conducted in Tampa and Chicago showed that 44-52% of all children were observed participating in MVPA compared to 23-47% of adults (Floyd, Spengler, Maddock, Gobster, & Suau, 2008a, 2008b). A similar study conducted in North Carolina municipal parks showed that 47.4% of children were observed in MVPA and

highlighted correlates of physical activity including gender (males), age (0-5 years), adult presence (negative influence), other active children (positive influence), and interactions between age, facilities, and formality of play (Floyd et al., 2011). Hence, research is beginning to illustrate more detailed relationships between children's park use and physical activity, but more studies are needed to affirm these park-based activity levels and the social and environmental characteristics that encourage exercise (Floyd et al., 2011; Godbey & Mowen, 2010).

Most park-based physical activity research to date has centered on urban areas, but several authors have noted that suburban and rural parks deserve more attention (Shores & West, 2010; Wilhelm-Stanis, Schneider, Shinew, Chavez, & Vogel, 2009). The disproportionate health issues common in rural areas are often related to inadequate outdoor recreation opportunities (May, 2011). Furthermore, differences between activity levels in rural and urban parks may partially explain why rural and exurban adolescents are more likely to be overweight than their suburban counterparts after controlling for age, race, and socio-economic status (Nelson, Gordon-Larsen, Song, & Popkin, 2006). Additional research could therefore target larger rural parks such as state parks situated within communities and regions characterized by low physical activity levels and limited outdoor recreation opportunities (May, 2011).

Measuring Children's Physical Activity: A Mixed-methods Approach

Studies of park use have historically relied heavily on self-reported measures (Godbey, Caldwell, Floyd, & Payne, 2005; Rutten et al., 2001). Self-reports are practical and cost effective strategies for assessing context and type of physical activities in large samples (Morgan, 2005; Paffenbarger, Blair, Lee, & Hyde, 1993), but their validity across longer temporal scales and within distinct racial/ethnic and income groups remains largely unknown (Rundle et al., 2007; Sallis & Saelens, 2000). For example, Sallis & Saelens (2000) discovered that self-reports

resulted in gross overestimation of physical activity, often on the order of 100% for vigorous activity levels. Survey approaches are also problematic for research involving children, where human subject protocols often preclude direct interaction with minors. In this context, adults (i.e., parents or guardians) typically serve as proxies. Strong correlations between the recreation activities of adults and their children have been reported (Larson, Green, & Cordell, 2011), and several studies have used adult-reported data to assess recreation patterns and preferences of youth (Burdette, Whitaker, & Daniels, 2004; Larson et al., 2011). Considering the efficiency and effectiveness of adult-reported survey data and the success of instruments such as the CDC's Behavior Risk Factor Surveillance System (Centers for Disease Control and Prevention, 2009), researchers determined that a self-administered, adult-reported survey approach would be useful in this study.

However, researchers also recognized the need for objective measures to identify absolute levels of children's physical activity (Evenson & Mota, 2011). Tools such as accelerometers have been used to successfully and objectively quantify children's activity in multiple studies (Troiano et al., 2008; Trost et al., 2002), but this approach can be costly and time consuming. Recent innovations such as the System for Observing Play and Recreation in Communities (SOPARC) have introduced less invasive behavioral metrics to help researchers approximate activity levels (McKenzie, Cohen, Sehgal, Williamson, & Golinelli, 2006). Using procedures like SOPARC, researchers are now employing observational strategies to characterize the physical activity levels in parks around the country (Cohen et al., 2007; Floyd et al., 2008b). Researchers have also used observational approaches to identify specific park features that are associated with physical activity (Rung, Mowen, Broyles, & Gustat, 2011). For instance, studies have shown that observed physical activity levels across demographic groups

are generally lowest near picnic shelters and highest around sport fields, courts, playgrounds, and paved paths (Floyd et al., 2008b; Kaczynski, Potwarka, & Saelens, 2008; Shores & West, 2008). These initial findings could have important implications for policy and practice, and more studies that integrate subjective and objective physical activity surveillance measures are needed to identify features that facilitate and constrain park-based activity across diverse populations of children (Evenson & Mota, 2011; Kruger, Mowen, & Librett, 2007; Mowen, 2010).

Research Objectives

This study used a mixed-method approach to build upon the growing body of research focused on children's physical activity and outdoor recreation. By combining on-site (in state parks) and off-site (in communities surrounding state parks) sampling strategies with self-reported survey and observation data collection techniques, researchers attempted to evaluate the contributions of state parks to the physical activity of youth in Georgia, a state whose population consistently ranks among the most obese in the country (CDC, 2010; Fahmy, 2011). The study was specifically designed to examine:

1. Overall adult-reported physical activity levels for demographically diverse youth in Georgia;
2. Factors (demographic, environmental, and social) influencing overall adult-reported physical activity levels for youth in Georgia;
3. State park-based adult-reported and observed physical activity levels for demographically diverse youth in Georgia; and,
4. Factors (demographic, environmental, and behavioral) influencing state park-based adult-reported and observed physical activity levels for youth in Georgia.

Methods

This study focused on three state parks in northern Georgia and communities surrounding these selected parks. Selected state park sites shared similar facilities and attributes as well as high racial/ethnic visitor diversity. Onsite data were collected using intercept surveys and behavior observations during the summer of 2010. Onsite data collection targeted recreation hotspots, or zones of high visitor activity within each park. For intercept surveys, these areas included beaches, picnic areas, and campgrounds. For observations, these areas included beaches (and immediately adjacent picnic areas) and trailheads. Sampling dates at state parks were selected based on a stratified random sampling protocol. First, the entire summer was blocked according to four categories: weekdays, Wednesdays (this was the only free admission day at Georgia State Parks), weekend days, and holiday weekends (Memorial Day, Independence Day, and Labor Day). Then, parks were randomly assigned *a priori* to each category to ensure that researchers visited each park on at least three weekdays, at least two Wednesdays, at least six weekend days, and at least one holiday weekend. Although this stratification system enabled researchers to maximize coverage across temporal and spatial scales, time constraints and travel-related challenges did not allow for complete coverage of all days at every park location.

Offsite data were collected during the summer of 2011 via intercept surveys at flea markets in neighboring counties (each flea market was within 35 miles of a focal state park). Sampling dates at flea markets were initially based on random assignment. Before data collection began, several large flea markets in the north Georgia region were selected and randomly assigned to two weekend days. However, after trips to each of these locations, researchers determined that additional markets should be added to systematically target new geographical areas (i.e., counties closer to focal parks) and populations (i.e., African Americans). Hence, the

purposive sample expanded to incorporate more markets as the research progressed. Both onsite and offsite data collection procedures yielded a diverse array of participants (Table 5.1, Table 5.2). Study instruments and protocols were approved by the University of Georgia Institutional Review Board Human Subjects Office prior to implementation.

Intercept Survey Measures

Brief (approximately five minute), bilingual (English & Spanish) intercept surveys of adult (age 18 or older) state park visitors were conducted at the recreation hotspots within each park (n = 5,192 surveys collected across 115 sessions; 1,039 focused specifically on children's physical activity) from late May through early September, 2010 (Table 5.1). During onsite survey sessions, researchers and trained volunteers approached every visitor group with children and asked an adult age 18 or older in the group if he/she would be willing to participate in a brief survey about state park use. Upon consent, the participant was handed the youth-centered version of the survey and instructed to answer questions about the child (age 17 or younger) in their group who had the most recent birthday. Onsite youth survey items addressed general outdoor recreation participation in state parks, park-based physical activity levels, and demographics (gender, age, and race/ethnicity). A state park visitation question asked how many times children visited the park during the summer, and a separate item instructed adult respondents to check all the activities that children participated in during their visit to the selected parks. To establish a general physical activity baseline, participants were also asked to estimate how many days in a typical week their children engaged in 60 or more minutes of physical activity. This value was based on recommended activity levels for children (60+ minutes of moderate or vigorous activity on five or more days per week) provided by the Georgia Department of Public Health (GADPH) and the CDC (2010). Park-based physical activity questions were adapted from existing

instruments (e.g., Walker et al., 2009) and distinguished between moderate and vigorous activity, reflecting terminology used in lifestyle surveys such as the Behavioral Risk Factor Surveillance System (CDC, 2009). For many analyses, moderate and vigorous activity levels were combined to form a general MVPA category. A physical activity ratio (PAR = physically-active time in park/total time in park) was also calculated for each child.

Similar offsite surveys were conducted in flea markets near the selected state parks (n = 1,315 surveys collected across 25 sessions; 279 focused specifically on children's outdoor recreation) from April through July, 2011 (Table 5.1). During offsite survey sessions, researchers and trained volunteers approached every adult vendor and randomly selected customers (every third customer passing the researchers' table, where a candy incentive for participation was offered) and asked if he/she would be willing to participate in a brief survey about state park use. Upon consent, the participant was handed the youth-centered version of the survey and instructed to answer questions about the child (age 17 or younger) in their family who had the most recent birthday. If a participant was in a family without children, he/she was given a different, adult-oriented version of the survey. Offsite survey content was similar to onsite survey content but focused on a broader range of outdoor recreation locations. For example, adults were asked to indicate children's use frequency for various physical activity destinations including state parks (items scored on a Likert-type scale from one = "never" to five = "very often"). Offsite respondents were also asked specific questions about children's state park visitation (e.g., "Did this child visit a state park in the past 12 months?"), perceived outdoor recreation benefits (items scored on a Likert-type scale from one = "strongly disagree" to five = "strongly agree"), and general physical activity levels (number of physically active day per week as indicated above).

Respondents also had an opportunity to check all of the outdoor recreation activities that children participated in during the past year.

The overall onsite response rate was 91.5%, and the overall offsite response rate was 73.7%. Most survey respondents indicated they were parents of the child (71.2%), though grandparents (8.5%), aunts and uncles (6.3%), and older siblings (4.6%) were also common proxies.

Behavior Observation Measures

The second onsite data collection method involved direct observations of children's activity at beaches (n = 8,462 individual observations across 128 sessions) and trailheads (n = 610 individual observations across 89 sessions) within state parks (Table 5.2). Observations were conducted using SOPARC, a reliable strategy for assessing physical activity in community settings (Floyd et al., 2008; McKenzie et al., 2006). From late May through early September, 2010, trained observers documented visitor activity levels in each park to maximize coverage across four observation sessions (6:00am to 11:59pm, 12:00pm to 2:59pm, 3:00pm to 5:59pm, and 6:00pm until 11:59pm) during each research day. During each SOPARC session, a researcher began at one end of a target area and slowly walked across the zone, documenting the apparent age (0-12, and 13 to 17 years), gender, race/ethnicity (White, African American, Latino, Asian/Other), and physical activity level (sedentary, moderate, or vigorous) of recreation participants at the moment they were observed. Age categories were based on previous research with SOPARC that reflects stages of childhood development (Bocarro et al., 2009). Validity of the physical activity codes has been established in previous studies (Scruggs et al., 2003). The validity of race/ethnicity codes was confirmed by matching observations with survey responses, resulting in a 98.7% accuracy rate across all observers. High levels of inter-rater reliability (intra-

class correlation coefficients among paired observers ranged from 0.888 to 0.990) indicated acceptable agreement among observers for all demographic categorizations (Whiting et al., 2012, unpublished data).

Data Analysis

Data were analyzed using SPSS Version 19.0. Descriptive statistics such as means are reported throughout the text with 95% confidence intervals. Ordinary least squares (OLS) regression was used to examine factors influencing overall physical activity levels (measured as physically active days per week) of children in the offsite sample (i.e., the sample that included both state park users and non-users). Data were approximately normally distributed, meeting the distributional requirements for OLS. Predictor variables in the OLS model included gender, age, race/ethnicity, parent-perceived benefits of children's outdoor recreation, and frequency of use ratings for several potential physical activity locations (e.g., state parks, neighborhood parks, homes or backyards). Two additional potential predictors (e.g., number of state park visits in past year, frequency of use of neighborhood sidewalks and streets) were removed because of high correlations ($r \geq 0.5$) with variables already included in the model (e.g., frequency of use of state parks and neighborhood parks). After deletion of these variables, the variance inflation factor ($\leq$ 1.43) statistic and correlational analyses ($r \leq 0.38$) indicated that the absence of multicollinearity assumption was not violated. Separate factorial analyses of variance (ANOVA) were used to compare physical activity location use frequency among demographic groups (gender, age, and race/ethnicity) and their interactions. Bonferroni adjustments (α / number of comparisons) were employed for multiple univariate ANOVA comparisons and *post hoc* tests to maintain the family-wise error rate at $\alpha = 0.05$. The eta-squared measure ($\eta^2 = SS_{group}/SS_{total}$) was used where applicable to report effect size.

The park-based activity levels of children in different demographic groups were compared using ANOVA. To minimize the effects of outliers and potentially erroneous self-reported data, only children who participated in less than or equal to eight hours of moderate or vigorous physical activity during their visit to the park were included in the analysis. For day users, this filter excluded 2.3% of adults and resulted in a total sample of 758. For overnight visitors, this filter excluded 6.3% of adults and resulted in a total sample of 180. Children's participation in state park-based outdoor recreation activities was compared across demographic categories using Pearson's chi-square tests. Relationships between activity participation (a binary variable) and total MVPA time in park (a continuous variable) were assessed using partial point biserial correlations controlling for total time in park. A logistic regression model was developed to examine the effects of demographic variables and observation location on the observed physical activity of children (with sedentary as the reference category). Preliminary tests for multicollinearity among the predictor variables indicated that the intercorrelation levels were appropriate for analysis (variance inflation factor $\leq$ 1.043, r $\leq$ 0.160). Other assumptions of logistic regression such as linearity in the logit and independence were also satisfied.

In many analyses, data are reported as pooled sample averages across all parks (onsite) and flea markets (offsite). This approach was adopted to illustrate general patterns across sites and define "typical" attributes of state park users and nonusers across different demographic groups. However, because the characteristics of participants at different research sites were not uniform, pooled results provide only a coarse representation of the overall sample.

Results

Children's Overall Physical Activity Participation

According to adult respondents, children in both the onsite and offsite samples participated in 60 or more minutes of physical activity an average 4.2 days per week. Overall, 46.6% of children in both samples met the state recommendations for regular levels of physical activity. Mean weekly physical activity reports for onsite and offsite participants were similar. About 46.0% of children visiting state parks met the physical activity recommendations; for off-site participants, the number was 49.0%. The OLS regression analysis of children in the offsite sample explained 17.0% of the total variance and revealed several significant predictors of children's physically active days per week, $F(10,176) = 3.6$, $p < 0.001$, adjusted $R^2 = 0.12$ (Table 5.3). Gender (standardized $\beta = 0.172$, $p = 0.015$) and age (standardized $\beta = 0.164$, $p = 0.034$) were significantly related to children's physical activity, with males and older children reporting higher levels of activity. Race/ethnicity was significantly related children's activity. Children of parents who perceived greater physical health benefits associated outdoor recreation displayed significantly higher activity levels than those whose parents recognized those benefits to a lesser extent (standardized $\beta = 0.246$, $p = 0.001$). Children's frequency of use of state parks was not significantly related to overall activity levels. However, neighborhood park use frequency was positively associated with overall activity (standardized $\beta = 0.135$, $p = 0.096$). Frequent use of homes and backyards was significantly positively related to children's weekly physical activity (standardized $\beta = 0.213$, $p = 0.005$).

Physical Activity Location Use Frequency

Based on offsite survey reports, the most popular physical activity locations for children were the home or backyard, neighborhood sidewalks and streets, and neighborhood parks (Table

5.4). Several ANOVA were used to compare the effects of various demographic variables on the "frequency of use for physical activity" ratings in the offsite sample (see Table 5.4 for results, Table 5.5 for example ANOVA). Frequency of use for homes and backyards did not vary significantly by demographic group, though young children (ages 0-5) and white children tended to use these areas most often. The use of neighborhood sidewalks and streets for youth physical activity differed significantly for the gender*age interaction term, $F(3,194) = 3.5$, $p = 0.017$, $\eta^2 = 0.05$, with young females ages 0-5 using these areas most often. Neighborhood parks were most popular among children in the 0-5 year old age group, $F(3,204) = 4.2$, $p = 0.007$, $\eta^2 = 0.05$. Frequency of use for gyms and recreation centers varied significantly by race, $F(3,197) = 2.7$, $p = 0.045$, $\eta^2 = 0.03$, with African Americans using gyms more often than children in other racial/ethnic groups. The gender*age interaction was significant for gyms and recreation centers, $F(3,197) = 2.7$, $p = 0.048$, $\eta^2 = 0.03$; teenage males used gyms most often. Frequency of use for state parks was not significantly associated with children's demographic characteristics.

Children's Physical Activity in State Parks

According to offsite data, 55.8% of adult respondents said their children had visited a Georgia state park within the past year. An additional 14.6% were not sure if parks their children visited were state parks. White (67.4%) and Latino (54.3%) children of parents surveyed offsite at flea markets were more likely to have visited a state park in the past year than either African American (45.2%) or Asian/Other children (34.8%), $\chi^2(6,297) = 16.3$, $p = 0.012$. Onsite data revealed that a substantial percentage of the children who visited selected state parks (30.7%) did so at least once a week. Summer state park use frequency was highest for Latinos, $\chi^2(9,944) = 28.9$, $p = 0.001$, and almost 40% of Latino children sampled visited the selected state parks at least once a week.

Most children in the onsite sample were active during their trip to the state parks. Adult proxies indicated that 95.4% of children participated in some physical activity during their visit; 89.2% engaged in at least one hour of MVPA during their visit, and 63.8% participated in at least 30 minutes of vigorous activity. About 20% of children participated in five or more hours of physical activity at any level. Only 5.0% of children did not engage in physical activity during their trip to a state park. During day use visits, children displayed high levels of MVPA (total $M = 3.14 \pm 0.14$ hours, total median = 3.0 hours; moderate $M = 2.26 \pm 0.11$ hours, moderate median = 2.0 hours; vigorous $M = 0.88 \pm 0.07$ hours, vigorous median = 0.5 hours). Mean child MVPA during day trips to state parks differed by gender, $F(1,623) = 8.6$, $p = 0.004$, $\eta^2 = 0.01$, with males more active than females. Park-based activity levels were generally higher for 10-12 year olds and African-American children, though these differences were not statistically significant. Children's day use PAR ($M = 0.66 \pm 0.02$) was significantly different for gender, $F(1,623) = 5.5$, $p = 0.019$, $\eta^2 = 0.01$, race/ethnicity, $F(3,623) = 5.9$, $p = 0.001$, $\eta^2 = 0.03$, and race*age, $F(9,623) = 2.4$, $p = 0.012$, $\eta^2 = 0.03$. Males displayed a higher PAR than females. White and African American children displayed a higher PAR than Latinos or Asians. The PAR appeared to increase with age for Latinos and decrease with age for whites and Asian children. For overnight child visitors, mean daily MVPA was higher and more variable than that of day users (total $M = 3.80 \pm 0.34$ hours, total median = 4.0 hours; moderate $M = 2.86 \pm 0.30$ hours, moderate median = 2.75 hours; vigorous $M = 0.94 \pm 0.16$ hours, vigorous median = 1.0 hours). Demographic differences in MVPA for children staying overnight were not significant. Given their longer daily time spent in state parks (24 hours), the PAR for children staying overnight was substantially lower than the ratio for day use visitors ($M = 0.16 \pm 0.01$).

An examination of the relationship between state park-based outdoor activities and physical activity time showed that, after controlling for total time in park during each visit, participation in beach activities ($r_{pb} = 0.144$, $p < 0.001$), picnics or cookouts ($r_{pb} = 0.125$, $p < 0.001$), and swimming ($r_{pb} = 0.122$, $p < 0.001$) were the strongest predictors of children's total MVPA (Table 5.6). Youth participation in mini-golf ($r_{pb} = 0.144$, $p = 0.003$), playing on playgrounds ($r_{pb} = 0.084$, $p = 0.012$), jogging and running ($r_{pb} = 0.080$, $p = 0.017$), and canoeing and kayaking ($r_{pb} = 0.070$, $p = 0.037$) were also related to MVPA. Overall, the most-popular recreation activities for children during state park visits were swimming (70.1%) and beach activities (65.0%). Demographic differences in activity patterns were also evident (Table 5.6). For example, playgrounds were most popular among very young children (ages 0-5) and African Americans. Hiking or walking and biking were more common among white visitors, while jogging or running was more common among Latino visitors. More Latinos and Asians participated in team sports than children from other racial/ethnic groups. Relaxing and canoeing/kayaking were the only activities favored by more teens than members of younger age categories.

The SOPARC observations provided additional evidence that most children were active during their state park visits. Across all observation zones in the selected park, 64.4% were moderately active and 2.9% were vigorously active; only 32.7% of child state park visitors were sedentary at the time of observation. Activity levels were highest at the trailheads (86.1% moderately active, 5.9% vigorously active) and lowest in the multi-use zones (62.8% moderately active, 2.7% vigorously active). The proportion of overall child visitors observed at each location was significantly different: at trailheads, 80.5% of visitors were white; in multi-use zones 45.1% of visitors were white (Table 5.2). Model fit statistics for the logistic

regression model examining factors associated with state park-based MVPA participation supported the existence of a relationship between the predictor and outcome variables for both multi-use zones and trailheads (Model χ^2(df=13) = 422.3, $p < 0.001$, Nagelkerke Pseudo R^2 = 0.063). The Hosmer and Lemeshow Test statistic provided additional evidence for model fit, χ^2(df=13) = 6.1, $p = 0.639$. Parameter estimates (β**)** and Wald statistics revealed significant effects for observation zone location, gender, age, ethnicity, and significant interactions among observation locations and demographic variables (Table 5.7).

In day use areas, the proportion of children engaged in MVPA was highest among males (67.7% vs. 63.3% of females), pre-adolescents (69.3% vs. 56.5% of teens), and African Americans (73.2% vs. <64.7% for other racial/ethnic groups). At trailheads, the proportion of children engaged in MVPA was lowest among Latino children (76.7% vs. >90.2% for other racial/ethnic groups). Although most children (93.3%) were observed in day use areas, the proportion of children observed participating in MVPA was highest at trailheads (92.0% vs. 65.5% in multi-use zones).

Across all parks, the most common activities observed during observation sessions at trailheads were hiking (60.2% of children) and walking (8.5%). White children were more likely to be observed hiking (69.5%) than other children. Conversely, African American children participated in basketball (24.0%) and walking (24.4%) at a higher rate than other groups. Latino and Asian/Other children were more likely to be observed at playgrounds or playing soccer or tennis relative to other children. The most common activities observed in multi-use areas for all racial/ethnic groups were swimming (34.4%) and walking (17.9%).

Discussion

Numerous studies have shown that outdoor time, a vital component of a physically active, healthy lifestyle, can help to combat the obesity epidemic plaguing America's youth (Cleland et al., 2008; Roemmich et al., 2006; Sallis et al., 2000). Public parks are widely recognized as locations for promoting children's physical activity, but few studies have examined the actual park use and park-based physical activity of diverse youth, particularly outside of urban areas (Floyd et al., 2011). To accomplish this goal, this study used adult-reported survey data and recreation behavior observations to explore children's physical activity levels within and around three state parks located in northern Georgia.

Children's Overall Physical Activity

Adult-reported data for the combined onsite and offsite samples showed that about 47% of children surveyed in north Georgia were meeting the recommended physical activity levels outlined by the CDC (2010). This number closely mirrors state-level data for Georgia obtained by the Behavior Risk Factor Surveillance System (Georgia Department of Public Health, 2010), which indicated that 52% of middle school students and 43% of high school students are regularly active. Regression analysis with the offsite sample highlighted several factors associated with higher levels of general MVPA in children. Males were generally more active than females, a pattern that has been observed in previous studies (Georgia Department of Public Health, 2010; Troiano et al., 2008; Trost et al., 2002). The number of active days per week generally increased with age. Race was not associated with overall activity levels, an unexpected result considering state and national reports of lower activity among racial/ethnic minority children (GADPH, 2010; CDC, 2010). However, recent research has revealed that racial/ethnic differences in self-reported physical activity levels may have been historically overstated (Active

Living Research, 2011a). For example, Whitt-Glover et al.'s (2009) national study using objective measures found that activity levels were actually highest for African American and Latino youth. Additional research investigating patterns of physical activity among diverse children in high-risk states like Georgia is needed to resolve these discrepancies.

Positive adult perceptions of the physical health benefits associated with outdoor recreation were among the strongest predictors of children's physically active days per week. The link between parent perceptions of recreation benefits and children's outdoor activities has also been established in previous studies (Barnett, 2008; Barnett & Weber, 2008; Chawla, 2006; Valentine & McKendrick, 1997), highlighting the need to consider the influence of adult preferences on youth behavior. For example, Larson et al. (2011) found that children's time outdoors was significantly correlated with adults' time outdoors, and outdoor recreation studies by the Outdoor Foundation (2010) estimated that recreation choices for three out of every four children ages 6-12 are heavily influenced by parents and other adults in their lives. As noted by other researchers (Whitt-Glover et al., 2009), parental involvement and the quality and accessibility of physical activity-related resources appear to be important to children from all backgrounds.

In this study, children who frequently used their homes or backyards for physical activity were more likely to be active than those who did not. According to adult reports, homes and backyards were also the most frequently used physical activity location for all children. These findings supports evidence that active outdoor recreation within any scale or geographic context can result in important developmental and health benefits for diverse youth (Louv, 2011; Pyle, 2002). Results also confirm the crucial influence of the home environment on children's physically active behavior (Roemmich, Epstein, Raja, & Yin, 2007). Neighborhood parks were

positively related to overall activity levels and appeared to be popular across all population sectors. Local parks were especially important physical activity sites for younger children and females, supporting results of other studies (Mowen, 2010). Gyms and recreation centers were used less often, and seemed to be more popular among teens, males, and African Americans. Frequency of use for state parks was not related to children's overall physical activity levels.

Children's State Park-based Physical Activity

Although significant relationships between state park use and overall physical activity were not observed in the offsite sample, state parks may still have a substantial influence on certain groups of children. For example, Latinos who visited state parks tended to do so more often than children in other racial/ethnic groups. A lack of access to suitable recreation sites and safety concerns are common constraints to outdoor recreation in minority communities, and may contribute the low physical activity levels observed for Latinos in this and other studies (Gordon-Larsen, Nelson, Page, & Popkin, 2006; Grow et al., 2008; Weir, Etelson, & Brand, 2006). For high-risk groups such as Latino children, state parks may provide a unique, safe outdoor recreation environment superior to other alternatives in surrounding, non-urban areas (May, 2011).

Data in this study showed that a majority of children were active during state park visits, with median moderate (2.0 hours for day use, 2.75 for overnight visitors) and vigorous (0.5 hours for day use, 1.0 hour for overnight visitors) activity approximately equal across demographic groups. These numbers exceed the CDC's recommended daily activity levels for children (CDC, 2010). White children exhibited the highest physical activity ratio, suggesting that Latino and African American children, given the longer period of time they typically spend in parks (Chavez, 2008; Larson et al., unpublished data, 2012), have the greatest potential to increase

their onsite activity (Wilhelm-Stanis, Schneider, Shinew, Chavez, & Vogel, 2008). Managers could therefore purposefully develop programs and facilities to address the physical activity of these racial/ethnic minority groups.

This study also contributed to research examining how different park features can influence physical activity across diverse populations (Rung et al., 2011; Spengler et al., 2011). After controlling for total time in state parks with the point biserial partial correlation coefficient, children's MVPA during visits was significantly correlated with participation in beach activities, picnics or cookouts, and swimming. More conventional active recreational activities such as swimming, playing on playgrounds, jogging, and canoeing were also significant linked to MVPA, though their effect was not as strong. Considering the growing nationwide popularity of family-based recreational pursuits relative to other conventional recreation options (e.g., hiking, fishing, biking; Cordell, 2008; Cordell, Betz, & Green, 2008), social activities may therefore play a more important role in children's park-based MVPA than previously recognized. The SOPARC observation data supported this assertion, showing that most children at state parks were observed in family-centered activities in multi-use zones. As children's participation rates in traditional nature-based activities continue to decline (Outdoor Foundation, 2010; U.S. Department of the Interior Fish & Wildlife Service & U.S. Department of Commerce, 2006), park managers should make an effort to recognize new forms of outdoor recreation and their relationship to youth physical activity.

For instance, previous research has shown that adult-child interactions play a critical role in children's park-based physical activity. Some researchers have noted positive links between adult supervision, organized activity, and physical activity in parks (McKenzie et al., 2006); others studies have reported negative associations between organized activities and child activity

levels (Spengler et al., 2011). Results of this study suggest that a combined approach that integrates free play and adult supervision may work well in park settings. Design strategies that place picnic areas near the most attractive physical activity sites within parks could allow children to freely explore surroundings safely under adult supervision (Carver, Timperio, & Crawford, 2008), luring families to parks and potentially increasing inter-generational interactions that often result in more active recreation across age groups (Buchner & Gobster, 2007; Jago et al., 2009; Shores & West, 2008, 2010). Additional studies are needed to better understand the rapidly evolving relationships between formality of play and recreation activities, adult supervision, and youth physical activity (Floyd et al., 2011).

Activity data also confirmed that efforts to promote park-based youth physical activity should account for outdoor recreation patterns and preferences among different age and racial/ethnic groups. For example, playing on beaches and playgrounds was more important for 0-5 year olds than other age groups. Other studies have highlighted the value of playgrounds in young children's physical activity pursuits (Active Living Research, 2011b). Older children (10-12 year olds) and teens were more likely to bike, canoe, or engage in team sports. Similar park-based activities may be especially important for addressing declines in physical activity between childhood and adolescence that generally continue throughout the lifespan (Babey, Hastert, Yu, & Brown, 2008; Broderson, Steptoe, Boniface, & Wardle, 2007; Davison & Lawson, 2006). Compared to Latinos and African Americans, white children were more likely to participate in traditional nature-based activities such as hiking, camping, fishing, and wildlife viewing, a pattern that has been observed in many studies focused on adults (Dwyer, 1994; Floyd, 1999; Johnson, Bowker, Cordell, & Betz, 2000; Washburne, 1978). African American children were more likely to use playgrounds, and Latino children were more likely jog, run, or play team

sports. These youth recreation patterns also reflect studies examining cultural differences in adult recreation preferences, highlighting African American and Latino affinity for social activities and developed settings (Chavez, Winter, & Absher, 2008; Cronan, Shinew, & Stodolska, 2008; Floyd, Shinew, McGuire, & Noe, 1994; Gobster, 2002). As the U.S. population grows and becomes more racially and ethnically diverse (U.S. Census Bureau, 2009), managers hoping to encourage diverse children's park-based physical activity should therefore consider the unique preferences of children in different demographic groups (Roberts, Chavez, Lara, & Sheffield, 2009; Shinew et al., 2006)

The SOPARC observations validated intercept survey data, suggesting that physical activity is already common among children visiting Georgia state parks. Relative to other groups, a larger percentage of male, pre-teen, and African American children were engaged in MVPA in the multi-use zones such as beaches and picnic areas. These findings support the adult-reported data and reiterate the importance of family-based recreation at beaches and picnic areas for promoting park-based physical activity in younger children. Beaches and picnic areas may be especially important for African American children, whose parents may be reluctant to allow children to venture farther from familiar zones and engage in nature-based hiking and biking (Roberts, 2009). Hence, park managers could recognize the value of enhanced opportunities for physical activity within multi-use zones. At trailheads, white children were more active than children in other groups, a result that was also supported by adult-reported data. Given these patterns, park managers could work to develop family-friendly social hiking opportunities for Latino and African American visitors, specifically encouraging racial and ethnic minorities to become more active on park trails through targeted marketing and promotion (Cronan et al., 2008).

Future Research

Although state park visitation frequency did not appear to be a significant predictor of children's overall physical activity levels in the north Georgia sample, this study provided evidence that state parks provide many important physical activity opportunities for diverse groups of youth. Future research could build upon this investigation and address several limitations. First and foremost, participants in this study did not represent a random sample of Georgia residents. The sample was confined to visitors to three state parks and attendees at several flea markets in north Georgia. Though these distinct subgroups were specifically chosen to represent overall Georgia state park users (the representative nature of the parks was a primary selection criterion) and the demographically-diverse population of north Georgia (flea markets provide unique access to a diverse, low income, typically under-surveyed portion of the population), future studies could expand the current purposive sample frame to generate population inferences on a larger scale. A larger sample could also help to yield broader insight regarding the relative contribution of state parks and other potential physical activity locations (e.g., schools; Trost & Loprinzi, 2008) to overall youth activity levels.

Second, overt measures of behavior that move beyond self-reported measures of children's physical activity (particularly those provided by adult proxies) may improve data validity, helping researchers develop a more objective understanding of actual activity patterns. Although the SOPARC moment-in-time sampling approach provided a useful snapshot of activity within parks, observations across entire visits involving accelerometers (e.g., Trost et al., 2002) or time diaries (e.g., Hofferth, 2009) could yield more detailed information about children's physical activity duration and the specific park features supporting MVPA. The

delimitation of the current sample to the peak summer season could also be extended to other times of the year when park-based physical activity levels may vary.

Finally, qualitative investigations that explore the outdoor recreation patterns, preferences, and park visitation constraints of diverse children and their parents could help researchers and managers to better understand physical activity correlates. In this study, *ad hoc* conversations with park visitors and their children allowed researchers to identify specific features and facilities that encouraged park-based activity across gender, age, and ethnic groups. A formal approach to qualitative data collection and analysis using strategies such as interviews and focus groups (e.g., Bauer, Yang, & Austin, 2004) would support intercept survey and SOPARC data, leading to the development of new hypotheses and predicted relationships that could be tested quantitatively. Additional studies that systematically investigate the recreation patterns, preferences, and park use of children should continue to inform efforts to increase physical activity and prevent obesity in diverse communities.

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Table 5.1

Demographic Distribution of Children Reported by Onsite and Offsite Adult Intercept Survey Respondents in North Georgia, 2010-2011

Demographic Variable	Onsite[a] (%) (n = 1039)	Offsite[b] (%) (n = 279)
Gender		
Female	42.3	47.7
Male	48.8	49.5
Did not report	8.9	2.9
Age		
0-5 year olds	23.8	14.0
6-9 years olds	29.8	15.4
10-12 year olds	21.5	28.0
13-17 year olds	18.9	38.7
Did not report	6.1	3.9
Race/Ethnicity		
White/Caucasian	55.1	30.1
Hispanic/Latino	28.3	47.0
Black/African American	9.2	13.3
Asian/Other	5.1	7.2
Did not report	2.3	2.5

[a] Pooled sample proportions include day use and overnight visitors in all three selected Georgia state parks

[b] Pooled sample proportions include vendors and customers in north Georgia flea markets within 35 miles of selected state parks

Table 5.2

Demographic Distribution of Children Observed During Onsite Behavior Observations in Three North Georgia State Parks[a] (by Park Zone), Summer 2010

Demographic Variable	Multi-use Zones[b] (%) (n = 8462)	Trailheads (%) (n = 610)
Gender		
Female	49.9	46.4
Male	50.1	53.6
Age		
Child (age 12 and under)	70.3	63.4
Teen (age 13-17)	29.7	36.6
Race/Ethnicity		
White/Caucasian	45.1	80.5
Hispanic/Latino	40.1	7.0
Black/African American	11.4	6.7
Asian/Other	3.5	5.7

[a] Sample proportions represent the pooled data from all three focal parks.
[b] Include high density visitor zones such as beaches and adjacent picnic areas

Table 5.3

Parameter Estimates for Ordinary Least Squares Regression Model Predicting Children's Physically Active Days per Week[a] *in the Offsite Sample at North Georgia Flea Markets, Summer 2011 (n = 186)*

Variable	Mean	β (SE)	Standardized β	t	Sig.
Constant		-1.072 (1.060)		-1.01	0.313
Gender (Male)	0.49	0.649 (0.263)	0.172	2.47	0.015
Age (years)	11.02	0.071 (0.033)	0.164	2.14	0.034
Race (Latino)	0.48	0.049 (0.340)	0.013	0.16	0.875
Race (Black)	0.14	0.340 (0.442)	0.061	0.77	0.442
Race (Asian/Other)	0.07	-0.457 (0.558)	-0.062	-0.82	0.414
Parent-perceived Benefit – Improve Physical Health[b]	4.35	0.557 (0.165)	0.246	3.37	0.001
Frequency of Use – Georgia State Parks[c]	2.61	-0.115 (0.116)	-0.074	-0.99	0.324
Frequency of Use – Neighborhood Parks[c]	3.40	0.197 (0.118)	0.135	1.68	0.096
Frequency of Use – Gym/Rec Center[c]	2.74	-0.010 (0.099)	-0.008	-0.10	0.920
Frequency of Use – Home/Backyard[c]	4.34	0.370 (0.130)	0.213	2.86	0.005

Model Fit Statistics: $F(10,176) = 3.6$, $p < 0.001$, adjusted $R^2 = 0.12$

[a] Mean reported activity levels for children = 4.46 ± 0.27 days of regular physically activity per week. Based on recommendations from the CDC (2010), regular activity for children was defined as 60 or more minutes of moderate or vigorous physical activity during the day.

[b] Parent-perceived recreation benefits were measured on a scale from 1 = strongly disagree to 5 = strongly agree

[c] Use frequency items were measured on a scale from 1 = never to 5 = very often

Table 5.4

Demographic Differences in Offsite Adult Participants' Ratings of their Children's Frequency of Use for Various Physical Activity Locations, 2010-2011 (n = 230)

Physical Activity Location	Mean Rating[a] (w/ 95% CI)	Demographic Differences (Groups with Most Frequent Use)			
		Gender Diff.	**Age** (yrs.) **Diff.**	**Ethnic Diff.**	**Interactions**
Home/backyard	4.34 ± 0.14	female	0-5	White	
Neighborhood sidewalks/streets	3.53 ± 0.18	female	0-5		Female X age 0-5*
Neighborhood parks	3.41 ± 0.16	male	0-5*		
Gym/recreation center	2.81 ± 0.19		13-17	Black*	Male X 13-17*
Georgia state parks	2.67 ± 0.15		6-9		

*,**,*** denotes statistical significance of Bonferonni-adjusted pairwise comparisons of groups within demographic variables (*F* test) at $\alpha = 0.05$, 0.01, and 0.01, respectively (groups with the highest statistically similar ratings are reported)

[a] Frequency of use was measured on a scale from 1 = never to 5 = very often

Table 5.5

Example Factorial ANOVA Examining Effects of Demographic Variables on Adult Offsite Participants' Ratings of their Children's Frequency of Use for Georgia State Parks as a Physical Activity Destination, 2011 (n = 230)

Source	***df***	**Type III SS**	***F***	***p***	η^2
Intercept	1	661.13	427.5	0.000	
Race/Ethnicity	3	1.85	0.4	0.754	
Gender	1	0.01	0.0	0.932	
Age	3	4.40	0.9	0.418	
Race*Gender	3	0.75	0.2	0.922	
Race*Age	9	8.97	0.6	0.758	
Gender*Age	3	10.39	2.2	0.085	
Race*Gender*Age	7	5.27	0.5	0.843	
Error	200	309.32			

Table 5.6

Children's Outdoor Recreation Activity Participation and Physical Activity Associations in Three North Georgia State Parks (with Demographic Differences), Summer 2010 (n = 1038)

Outdoor Activity	Children Participating During Visit (%)[a]	Demographic Differences (Groups with Highest Participation Rates)			Phys. Act. Correlation (partial r_{pb})[e]
		Gender Diff[b]	Age Diff[c]	Ethnic Diff[d]	
Swimming	70.1			W **	0.122***
Beach activities	65.0		0-5		0.144***
Picnic/cookout	63.0				0.125***
Playground	42.3		6-9, 0-5 ***	B **	0.084*
Hiking/walking	37.2			W ***	0.036
Relaxing/no activity	32.9		13-17 ***	B, A, W **	0.051
Camping	26.4		6-9, 10-12	W, A ***	-0.058
Fishing	18.5	M *	6-9, 10-12 **	A, W **	0.067*
Canoeing/kayaking	15.8		10-12, 13-17 ***		0.070*
Wildlife viewing	14.3			W **	0.029
Biking	12.1		10-12	W **	0.044
Visiting historic site	11.8		6-9, 10-12 **	W ***	0.008
Jogging/running	10.9			H ***	0.080*
Mini-golf	9.8				0.104**
Motor boating	8.5		13-17	W	0.072
Visitor cntr./exhibit	7.9		10-12, 6-9 ***	B, W *	0.064
Team sports	6.2		10-12, 13-17	H, A **	0.000
Horseback riding	4.3	F **			-0.019
Other activities	5.6			W *	0.059

*, **, *** denotes significance of chi-square test or r_{pb} at $\alpha = 0.05$, 0.01, and 0.001 respectively

[a] Percentages represent pooled data from all three focal parks.

[b] Gender Codes: F = females, M = males

[c] Age Codes: 0-5, 6-9, 10-12, 13-17 year olds

[d] Race/ethnicity Codes: A = Asian, B = Black, H = Hispanic, W = White

[e] Partial point biserial correlations depict relationships between activity participation and MVPA time in park, controlling for total time in park

Table 5.7

Parameter Estimates in the Logistic Regression Model Predicting Children's Observed Participation in Moderate or Vigorous Physical Activity (MVPA) in Three North Georgia State Parks, Summer 2010 (n = 9072)

Variable	β (std. error)	Wald	*p*-value	Odds Ratio (95% CI)
Constant	0.760*** (0.062)			
Park		5.86	0.053	
ParkFY	-0.123* (0.062)	3.92	0.048	(0.78, 1.00)
ParkRTM	-0.019 (0.066)	0.08	0.773	(0.86, 1.12)
ObsLocation (Trailhead)	1.791*** (0.262)	46.86	<0.001	(3.59, 10.02)
Gender (Male)[a]	0.186*** (0.048)	16.17	<0.001	(1.10, 1.32)
Age (Teen)[a]	-0.559*** (0.049)	128.18	<0.001	(0.52, 0.63)
Ethnicity[a]		33.06	<0.001	
Ethnicity (AfricanAmerican)[a]	0.421*** (0.082)	26.28	<0.001	(1.30, 1.79)
Ethnicity (Latino)[a]	-0.033 (0.050)	0.43	0.513	(0.88, 1.07)
Ethnicity (AsianOther)[a]	-0.115 (0.126)	0.83	0.362	(0.70, 1.14)
Male*Trailhead[b]	0.359 (0.312)	1.33	0.249	(0.78, 2.64)
Teen*Trailhead[b]	0.360 (0.317)	1.29	0.256	(0.77, 2.67)
Ethnicity*Trailhead[b]		13.19	0.004	
AfricanAmerican*Trailhead[b]	-0.864*** (0.576)	2.25	0.134	(0.14, 1.30)
Latino*Trailhead[b]	-1.447*** (0.414)	12.19	<0.001	(0.10, 0.53)
AsianOther*Trailhead[b]	-0.513 (0.579)	0.79	0.376	(0.19, 1.86)

***, ** and * indicate the significance of parameter at alpha = 0.001, .01, and .05, respectively
Model Fit Statistics: Nagelkerke Pseudo $R^2 = 0.063$; Full Model $\chi^2(df=13) = 422.3$, $p < 0.001$; Hosmer & Lemeshow $\chi^2(df=8) = 6.1$, $p = 0.639$.
[a]Term depicts demographic effects when ObsLocation = MultiUse
[b]Term depicts demographic effects when ObsLocation = Trailhead

CHAPTER 6

ADULT-PERCEIVED BENEFITS OF CHILDREN'S OUTDOOR RECREATION IN GEORGIA STATE PARKS[4]

[4] Larson, L. R., Whiting, J. W., & Green, G. T. To be submitted to *Children, Youth, and Environments*.

Abstract

Growing evidence suggests that children today may be spending less time outdoors than their predecessors. Explanations for this apparent nature-deficit disorder vary, but many researchers have attributed shifts in children's activity participation to parental perceptions of outdoor recreation and associated benefits. An investigation of adult perspectives could therefore yield important insight into children's outdoor recreation preferences, patterns, and trends. This study used an onsite and offsite survey sampling approach in and around Georgia state parks (n = 1318) to examine adult-reported metrics of youth (age 0 to 17 years) outdoor recreation across demographically diverse populations. Surveys showed that most adults were aware of the multi-faceted benefits of children's outdoor recreation. Results also suggested that state parks, which represent a popular outdoor recreation location for diverse children in Georgia, are especially important to the region's growing Latino population. Though a majority of children in the study did not participate in traditional nature-based recreation, they did engage in social forms of recreation centered on interactions with family and friends in outdoor environments. Adults describing potential strategies for increasing children's park use highlighted the value of these communal outdoor recreation experiences, particularly for children from racial/ethnic minority backgrounds. To better understand contemporary youth park use across diverse populations, researchers and managers could begin to re-conceptualize the ways in which children and their parents perceive outdoor recreation and time in nature.

Introduction

Children derive a variety of benefits from spending time outdoors. For example, research has shown that outdoor activities can help strengthen children's academic achievement (Coyle, 2010), conservation attitudes (Chawla, 2007; Wells & Lekies, 2006), social relationships

(Ginsburg, 2007), mental health (Burdette & Whitaker, 2005; Taylor, Kuo, & Sullivan, 2001), and physical health (Maller, Townsend, Pryor, Brown, & St. Leger, 2006; Sallis, Prochaska, & Taylor, 2000). Given these diverse benefits, it is not surprising that many organizations (e.g., Children and Nature Network, No Child Left Inside Coalition) are now exclusively devoted to increasing children's time outside. Public parks provide a valuable setting for promoting children's outdoor activities and contributing to healthy living and educational objectives set forth in many recreation management plans (Burdette & Whitaker, 2005; Chawla, 2006; Falk, 2001; Frumkin & Louv, 2007; Georgia Department of Natural Resources, 2008; Ho, Payne, Orsega-Smith, & Godbey, 2003). However, the extent to which parks currently achieve their vast potential for enhancing youth development remains largely unknown (Moody et al., 2004). Research is therefore needed to evaluate the influence of outdoor recreation and public park use on children from diverse backgrounds (Floyd, Bocarro, & Thompson, 2008).

Though the benefits of children's outdoor recreation are well established, it not clear why these benefits are not enjoyed by a larger portion of the U.S. population (Louv, 2008). One possible explanation centers on the limited availability of suitable outdoor recreation locations. This constraint is particularly problematic in low-income minority communities, where children often suffer from a dearth of safe outdoor environments and health consequences associated with sedentary lifestyles (Cutts, Darby, Boone, & Brewis, 2009; Ogden et al., 2006). However, studies also suggest that adults' outdoor recreation patterns and preferences may be an equally influential predictor of children's recreation behavior. Multiple studies have shown that parents' perceptions and behaviors are significant determinants of children's involvement in recreational activities (Barnett & Chick, 1986; Hutchinson, Baldwin, & Caldwell, 2003; King et al., 2006; Shannon, 2006; Weir, Etelson, & Brand, 2006). For instance, a national study of U.S. youth

revealed a strong correlation between children's time outdoors and the outdoor time of their parents or guardians (Larson, Green, & Cordell, 2011). Parents' perceptions of their children's outdoor recreation activities and corresponding benefits therefore represent useful and informative proxies for assessing children's outdoor recreation behavior (Barnett & Weber, 2008).

Although several studies have examined parent-reported measures of children's recreation participation (Burdette, Whitaker, & Daniels, 2004; Larson, Green, et al., 2011; Sallis, Taylor, Dowda, Freedson, & Pate, 2002), few have specifically investigated adult-perceived benefits associated with children's recreation (Barnett & Weber, 2008). Even fewer have explored the adult-perceived benefits of outdoor recreation for diverse children in natural settings such as state parks. Hence, an examination of adult-reported metrics and perceived benefits could highlight youth outdoor leisure patterns and reveal strategies that help more children enjoy the multifaceted benefits of outdoor recreation.

Benefits of Children's Outdoor Recreation

Children and Nature-deficit Disorder

The movement to reconnect children and nature is fueled by growing evidence that today's kids are spending less time outside than their predecessors. Louv (2008) coined the phrase "nature-deficit disorder" to describe the physical and psychological consequences associated with this absence of authentic outdoor experiences during childhood. Louv (2008) also lamentably asserted that, "the child in nature is an endangered species" (p. 355). The contemporary shift away from outdoor play has also been characterized by indirect and vicarious exposure to natural environments through school and electronic media, which are becoming increasing commonplace for children (Rideout, Foehr, & Roberts, 2010). Unfortunately, these

experiences are inadequate substitutes for direct encounters with native ecosystems (Duerden & Witt, 2010; Kellert, 2005; Pergams & Zaradic, 2006; Taylor, Kuo, & Sullivan, 1998). Other researchers have also expressed concern about children's diminishing contact with nature and the effects of nature deprivation on child development (Frumkin & Louv, 2007; Kellert, 2005; Larson, 2000; Zaradic & Pergams, 2007). Public parks have a unique capacity to combat this problem by providing authentic outdoor recreation opportunities that benefit youth in a variety of ways.

Cognitive Growth

Research indicates that youth who spend significant time engaged in recreational activities outside of school typically earn higher grades, even after controlling for achievement test scores (Cooper, Valentine, Nye, & Lindsay, 1999). Outdoor recreation activities, in particular, many have a major influence on children's cognitive growth. In a National Wildlife Federation report on the educational benefits of outdoor time, Coyle (2010) provided ample evidence to suggest that increased outdoor learning and play time can lead to higher academic performance. Other authors have used social constructivist theory to demonstrate the value of the natural environment as an integrated context for learning (Castro, 2006; Kahn, 1999; Kellert, 2005; Lieberman & Hoody, 1998). Hands-on learning opportunities outside of school can increase positive exposure to nature, raise interest and awareness of environmental issues, and help children assimilate new ideas into their existing base of knowledge (Ramey-Gassert, 1997; Stone & Glascott, 1998; Uitto, Juuti, Lavonen, & Meisalo, 2006; Waliczek, Logan, & Zajicek, 2003). Therefore, a greater emphasis should be placed on non-school activities such as park visits that informally integrate ecological concepts into educational structures (Falk, 2001).

In addition to short-term cognitive gains, outdoor experiences during childhood may also contribute to environmental behavior later in life (Chawla, 2007; James & Bixler, 2010). Several studies have shown that positive associations with outdoor settings developed during childhood are among the most significant predictors of adults' pro-environmental orientations and increased outdoor recreation participation (Asah, Bengston, & Westphal, 2011; Bixler, Floyd, & Hammitt, 2002; Larson, Whiting, & Green, 2011; Thompson, Aspinall, & Montarzino, 2008). Furthermore, Wells and Lekies (2006) found that children who frequently interacted with wild nature (i.e., camping, hunting, or hiking in natural areas) before age 11 displayed stronger environmental attitudes and pro-environmental behaviors as adults. Hence, children's outdoor recreation and park use could also lead to indirect benefits of enhanced stewardship and environmental literacy.

Psychosocial Development

The psychosocial and emotional benefits associated with children's outdoor recreation are also substantial. In a literature review highlighting the importance of play, Ginsburg (2007) stated that play is essential for children because it allows them to use creativity, exercise imagination, improve dexterity, and build physical, cognitive and emotional strength. Studies of elementary school students have demonstrated that children's emotional adjustment is related to the amount of time they spent engaged in non-school activities (Posner & Vandell, 1999). Other researchers have noted that teen participation in extracurricular recreation activities provides valuable opportunities to develop social skills and form meaningful relationships with others (Holland & Andre, 1987). Barnett & Weber's (2008) investigation of parent-perceived benefits of recreation activities for kindergarten through third grade students supported these findings, revealing significant positive benefits related to character building focused on both the self and

others. Unfortunately, saturated schedules and reduced leisure time have transformed the nature of children's recreational activities and affected the accrual of subsequent benefits (Rosenfield & Wise, 2000). Recreation in the lives of many children is now restricted to structured play opportunities such as organized sports and youth programs (Skar & Krogh, 2009), a pattern that has major implications for psychosocial development.

Many researchers have therefore emphasized the specific value of unstructured play in outdoor settings with respect to children's affective growth and mental health (Burdette & Whitaker, 2005; Hofferth & Sandburg, 2001; Taylor & Kuo, 2006). For example, Pyle (2002) and Kellert (2005) have highlighted the benefits of spontaneous experiences and nature exploration that challenges children in new ways. Kahn & Kellert (2002) have also examined the evolutionary ties between children and nature and the development implications of nature-deficit disorder. Other studies have shown that green play settings can significantly reduce stress levels and improve attention and concentration in youth suffering from attention-deficit disorder (Taylor & Kuo, 2009; Taylor et al., 2001). As Kellert (2005) noted, there is considerable evidence indicating that, "the ultimate raw material for much of human intellect, emotion, personality, industry, and spirit is rooted in a healthy, accessible, and abundant natural environment" (p. 88). Considering this evidence, children have a lot to gain cognitively, socially, and emotionally from outdoor recreation in public parks.

Physical Health

Outdoor recreation activities also have the potential to positively impact children's physical health. In recent years, childhood obesity rates in the U.S. have reached unprecedented levels, especially for Latinos and African Americans and children from low-income families (Kumanyika & Grier, 2006; National Heart, Lung, and Blood Institute, 2007). Although many

factors influence childhood obesity, physical inactivity is one of the major culprits (Davison & Lawson, 2006; Eisenmann, Bartee, Smith, Welk, & Fu, 2008; United States Depatment of Health and Human Services, 1996). According to a report from the Centers for Disease Control and Prevention (CDC), 61.5% of 9-13 year-old children do not participate in any organized physical activity during non-school hours and 22.6% do not engage in any leisure time activity (CDC, 2003). Efforts to promote youth physical activity have therefore assumed a central role in many childhood health initiatives.

Research shows that being outdoors is among the strongest correlates of children's physical activity (Sallis et al., 2000). Hence, many park and recreation professionals are now working to validate the important contributions of parks and public green space to healthy lifestyles (Kellert, 2005; Sherer, 2006). Studies investigating environmental factors associated with children's obesity and activity levels have yielded important insight concerning the value of parks in physical activity promotion. For example, researchers have found that park proximity and the percentage of park area in communities are significant predictors of physical activity for children and adolescents (Cohen et al., 2006; Epstein et al., 2006; Roemmich et al., 2006). The provision of diverse activities and facilities appears to be an important factor influencing children's outdoor recreation (Sallis & Glanz, 2006). Most of the positive associations between park use and physical activity have been observed in urban areas (Floyd et al., 2011; Spengler et al., 2011), and suburban and rural parks warrant further attention (Shores, 2010). More research is therefore needed to explore the perceived and realized physical health benefits of park use for youth (Evenson & Mota, 2011; Godbey & Mowen, 2010).

Why Focus on State Parks?

Most studies of the benefits of outdoor recreation for children have focused either directly or indirectly on urban-proximate environments (Burdette & Whitaker, 2005; Charles & Louv, 2009; Taylor & Kuo, 2006). Although these environments undoubtedly provide crucial connections with local ecosystems for nature-deprived youth (Pyle, 1998), they represent only a subset of potential outdoor recreation settings. Agencies such as U.S.D.A. Forest Service and the National Park Service are increasing their efforts to reconnect children and the outdoors on federal lands (Kimbell, Schuhmann, & Brown, 2009; Ratz & Schuster, 2011). State parks represent another outdoor recreation destination that is often overlooked by children and nature researchers.

According to Siikamaki (2011), about one third of American's total nature recreation time can be attributed to the U.S. state park system. In many areas, state parks provide unique and accessible recreation options that are not otherwise available (Dunmyer, 2002). For example, in Georgia, at least one state park is located within 50 miles of every resident (Becky Kelley, Director of Georgia State Parks, personal communication, 2012). In a recent investigation, Asah et al. (2011) focused on the heavily-used Minnesota state park system to explore the influence of childhood outdoor recreation (based on participant recall) on adults' park visitation, recreation motivations and constraint negotiation strategies. However, their study did not examine children's current state park use. Considering the importance of state parks in the recreational pursuits of many families across the U.S., a more thorough understanding of contemporary children's state park-based recreation participation and mitigating factors (i.e., adult perceptions of recreation benefits) could help managers understand why demographically-diverse groups of youth do or do not enjoy the benefits of time outdoors in nature.

Research Questions

The objectives of this study were to examine children's outdoor recreation participation in and around state parks and characterize adult-perceived benefits of outdoor recreation for children from diverse backgrounds. Researchers used on-site (in state parks) and off-site (in communities surrounding state parks) sampling strategies to address the following research questions and compare results across demographic groups (gender, age, and race/ethnicity):

1. How often do children visit state parks?
2. What are children's most common outdoor activities, both overall and within state parks?
3. What benefits do adults believe children receive from outdoor recreation, both overall and within state parks?
4. What park features and factors encourage children's participation in outdoor activities, both overall and within state parks?

Methods

This study focused on three state parks in northern Georgia and communities surrounding these selected parks. Onsite data were collected using intercept surveys during the summer of 2010. Offsite data were collected during the summer of 2011 via intercept surveys at flea markets in neighboring counties (each flea market was within 35 miles of a focal park). The offsite intercept survey content and protocol mirrored the onsite approach. Both onsite and offsite data collection procedures asked adults (typically parents) to provide information about children in their group, yielding a diverse sample of research subjects (Table 6.1).

Intercept Survey Measures

Intercept surveys were brief (approximately five minute), bilingual (English & Spanish) questionnaires distributed to adult state park visitors at recreation hotspots such as swimming

beaches, picnic areas, and campgrounds (n = 5,192 surveys collected across 115 sessions; 1,039 focused specifically on children's outdoor recreation). During onsite survey sessions, researchers and trained volunteers approached every visitor group with children and asked an adult (age 18 or older) in the group if he/she would be willing to participate in a brief survey about state park use. Upon consent, the participant was handed the youth-centered version of the survey and instructed to answer questions about the child (age 17 or younger) in their group who had the most recent birthday.

Onsite youth survey items addressed state park visitation frequency, state park-based outdoor recreation participation, benefits associated with park-based recreation, and demographics (gender, age, and race/ethnicity). The state park visitation frequency item asked how many times children visited the selected park (the park where the survey occurred) during the summer. Adult respondents also checked all the activities that children participated in during their visit to the parks. Children's state park recreation benefit items were developed based on previous reports (Barnett & Weber, 2008; Charles, Louv, Bodner, Guns, & Stahl, 2009; Louv, 2008) and adult responses to a pilot study of park visitors conducted during the summer of 2009. Benefit items were measured on a scale from one = "strongly disagree" to five = "strongly agree" and provided space for respondents to write in other benefits not listed on the questionnaire. With the exception of "improving physical health" and "nature exploration and discovery," each outdoor recreation benefit was measured by a single item. Two similar items (Cronbach's alpha $\geq$ 0.848) were pooled to form a mean score for each of these benefit scales. Overall responses to the six benefit items on the on-site surveys indicated a high degree of internal consistency (Cronbach's alpha = 0.882). Onsite surveys also included an open-ended question that asked,

"What could park managers do to help increase children's participation in outdoor activities in state parks?"

Similar offsite surveys were conducted in flea markets near the selected state parks (n = 1,315 surveys collected across 25 sessions; 279 focused specifically on children's outdoor recreation). During offsite survey sessions, researchers and trained volunteers approached every adult vendor and randomly selected customers (every third customer passing the researchers' table, where a candy incentive for participation was offered) and asked if he/she would be willing to participate in a brief survey about state park use. Upon consent, the participant was handed the youth-centered version of the survey and instructed to answer questions about the child (age 17 or younger) in their family who had the most recent birthday. If the adult participant was in a family without children, he/she was given a different, adult-oriented version of the survey.

Offsite survey content was similar but focused on a broader range of outdoor recreation locations. Offsite respondents were also asked about children's state park visitation; however, respondents were also asked to check all of the outdoor recreation activities that children had participated in during the past year (not only those occurring in state parks). Although a "using electronic devices outdoors" activity item was not included in the 2010 onsite survey, its importance was validated during on-site data collection and it was added to the offsite survey in summer 2011. The perceived benefit item context was broader too, focusing on all outdoor activities and not just those occurring in state parks. Offsite surveys included an open-ended question that asked, "What features of a park are most important to children when deciding where to visit?"

The overall onsite response rate was 91.5%, and the overall offsite response rate was 73.7%. Most survey respondents indicated they were parents of the child (71.2%), though grandparents (8.5%), aunts and uncles (6.3%), and older siblings (4.6%) were also proxies.

Data Analysis

Data were analyzed using SPSS Version 19.0. Descriptive statistics such as means are reported throughout the text with 95% confidence intervals. State park visitation frequency was assessed using Pearson's chi-square tests and analysis of variance (ANOVA) to compare demographic groups. Children's outdoor recreation activity participation both overall and within state parks was compared across demographic categories using Pearson's chi-square tests. A factorial multivariate analysis of variance (MANOVA) was performed to investigate demographic differences in adult-perceived outdoor recreation benefits. The six recreation benefit items were dependent variables in the MANOVA; independent variables were gender, age, and race/ethnicity. Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of covariance matrices, and multicollinearity. Serious violations were only noted for outliers and homogeneity of variance tests. For outliers, 51 cases (4.2% of total sample) had a Mahalanobis distance value greater than the critical threshold at $\alpha = 0.001$, $\chi^2(6) = 22.5$ (Tabachnick & Fidell, 2007). These cases were subsequently removed prior to the MANOVA analysis, resulting in a slightly reduced sample with demographic ratios that were not significantly different than the full sample. Box's and Levene's tests suggested unequal variances among the groups ($p < 0.001$). Therefore, the more robust Pillai's trace test statistic was interpreted instead of Wilk's lambda to better account for unequal sample sizes and distributions (Tabachnick & Fidell, 2007). Bonferroni-adjusted, pair-wise comparisons (α / number of comparisons) were conducted to examine differences in benefit

ratings among various demographic groups. The eta-squared measure of effect size (η^2) was used in some analyses to show what percentage of the overall variance was explained by certain variables.

Qualitative data were coded using a constant comparative approach (Boeije, 2002; Glaser & Strauss, 1967). Several observers examined responses to identify patterns and classify responses into a set of ordered categories that supported emerging trends (Dey, 1993). The coding process highlighted the major factors and features that, according to adult respondents, influence children's park-based outdoor recreation participation.

Limitations

This study relied on adult proxies (primarily parents) to provide information about children's outdoor recreation patterns, a method that has some limitations. Parental reports may introduce bias, and adult perceptions of children's behavior and associated benefits may not represent true conditions. In some cases, adult proxies may intentionally exaggerate values and scores to comply with social norms. For example, Warnecke et al. (1997) found that social desirability was a major concern for racial/ethnic minorities, who tended to report inflated scores when an interviewer was from a different group. However, these potential disadvantages are outweighed by the benefits of the adult-reported approach. When children are directly questioned about the attitudes and behavior, the results may be equally skewed, thereby nullifying the bias counterargument. Furthermore, several studies have demonstrated that the outdoor recreation patterns and preferences of parents and their children are significantly related (Barnett & Weber, 2008; Chawla, 2006; Larson, Green, et al., 2011; Outdoor Foundation, 2010). Adults should therefore be able to provide reasonably accurate information about what their children are doing outdoors.

Another limitation of this study was the recreation activity participation variable, which only accounted for a dichotomous outcome (did or did not participate) and did not incorporate a measure of frequency or duration. Similarly, adult-reported benefit metrics accounted for limited variability (i.e., perceived benefits were only measured on a five-point Likert-type scale) and did not target overt outcomes. The delimitation of the state park sample to the peak summer season could also be expanded, for children's recreation behavior (and associated benefits) may differ at other times of the year.

Furthermore, participants in this study did not represent a random sample of Georgia residents or state park users. The focal parks were all heavily visited and somewhat homogenous in terms in resources and facilities (e.g., large lake, beach, campground), and do not accurately represent all units across the state park system in Georgia. The use of flea markets as an offsite data collection site had several inherent advantages (convenient access to a diverse, low-income, typically under-surveyed portion of general population) and disadvantages (non-representative portion of general population) that yielded rich data but constrained inferential power. Additional studies could expand the current purposive sample frame to generate population inferences on a larger scale.

Finally, this study only focused on two types of outdoor recreation (general and state park-based) in one region of one state. Future research could also compare children's recreation participation and benefits across in other settings such as local and national parks around the country. Despite these limitations, this study provides much needed insight into what diverse groups of children are doing outdoors and the adult-perceived benefits associated with youth recreation participation.

Results

State Park Visitation Frequency

According to offsite data, 55.8% of adult respondents said their children had visited a Georgia state park within the past year. An additional 14.6% were not sure if the parks their children visited were state parks. Park use differed by gender, $\chi^2(2,301) = 7.2$, $p = 0.027$, with more male children (53.6%) than female children (46.4%) visiting state parks. State park use also differed by race/ethnicity, $\chi^2(6,297) = 16.3$, $p = 0.012$. White (67.4%) and Latino (54.3%) children were more likely to visit state parks than either African American (45.2%) or Asian/Other children (34.8%). The Latino number may be an underestimate because many of Latino respondents (19.3%) were not sure if the parks their children visited were state parks. Although state park use did not differ significantly by age group, $\chi^2(6,302) = 7.1$, $p = 0.310$, more 6-9 (65.9%) and 10-12 (61.0%) year olds used state parks than children in other age groups.

Onsite data revealed that most children visited the selected state parks about once a summer (41.1%) or about once a month (28.2%). Visitation frequency varied by age, $\chi^2(9,948) = 25.8$, $p = 0.002$, with more 10-12 (36.9%), 6-9 (33.7%), and 0-5 (30.1%) year-olds visiting at least once a week than teens in the 13-17 age category (20.8%). Visitation frequency also varied by race/ethnicity, $\chi^2(9,944) = 28.9$, $p = 0.001$. Latinos (38.3%) were significantly more likely to visit state parks at least once a week in the summer than children in other racial/ethnic groups. Onsite surveys also showed that state park day use visitor groups contained an average of 3.4 ± 0.13 children. Latinos (Mean number of children = 4.3 ± 0.24) and African Americans (4.2 ± 0.53) tended to recreate in groups that contained significantly more children than white visitors (2.7 ± 0.16), $F(3,2351) = 42.2$, $p < 0.001$, $\eta^2 = 0.05$. Compared to groups of white visitors, more Latino and African American groups contained five or more children (>35.2% vs. 16.4%).

Children's Outdoor Recreation Activities

According to adult reports, offsite recreation activity data showed that a majority of children were using playgrounds (reported by 71.2% of participants), using electronic devices outdoors (59.0%), participating in picnics/cookouts (59.0%), and swimming (58.6%). Demographic differences in children's general outdoor activities were also evident (Table 6.2). For example, younger children (ages 0-5 and 6-9) preferred playgrounds, while older children (ages 13-17 and 10-12) enjoyed using electronic devices outdoors.

In the onsite survey, the most popular recreation activities for children at state parks were swimming (70.1%) and beach activities (65.0%) during their state park visits. Demographic differences in activity patterns were also evident (Table 6.3). For example, playgrounds were most popular among very young children (ages 0-5) and African Americans. Hiking or walking and biking were more common among white respondents, while jogging or running were more common among Latinos. More Latinos and Asians participated in team sports than children from other racial/ethnic groups. Relaxing and canoeing/kayaking were the only activities favored by more teens than members of younger age categories.

Children's Outdoor Recreation Benefits

Adult-perceived children's outdoor recreation benefit ratings were generally high (Overall $M = 4.31 \pm 0.04$) and similar in both the onsite and offsite samples, $t(1288) = -1.28$, $p = 0.202$, though scores were typically higher for state park visitors (Table 6.4). Adults consistently recognized "quality time with friends and family" and "improving physical health" as the most important outdoor recreation benefits for children. Separate MANOVA were used to examine demographic differences in benefits associated with both general and state park based-recreation.

In the offsite sample, combined mean differences in general outdoor recreation benefit ratings were evident among racial/ethnic groups, with higher scores reported for Asian and white children than African American or Latino children (Table 6.5). Although statistically significant differences among age groups were not significant in the multivariate analysis, lower general outdoor recreation benefit ratings were reported for teens (Table 6.5). When each dependent variable was considered separately, differences at the Bonferroni-adjusted significance level ($\alpha = 0.008$) were evident among age groups. Mental health benefit ratings were significantly lower for teens than children in the other groups, $F(3,190) = 4.1$, $p = 0.008$, $\eta^2 = 0.05$. Age-related trends also emerged on the "nature exploration and discovery" scale, though these differences were not statistically significant after Bonferroni corrections. Adults were less likely to report "nature exploration" benefits for teens than children in the younger age groups, especially 0-5 year olds, $F(3,190) = 2.9$, $p = 0.037$, $\eta^2 = 0.04$.

The onsite sample of park visitors revealed significant demographic differences in combined mean state park recreation benefit ratings. Lower scores were reported for teens than other age groups (Table 6.6). Higher scores were reported for Latinos compared to children in other racial/ethnic groups (Table 6.6). When each dependent variable was considered separately, differences at the Bonferroni adjusted significance level ($\alpha = 0.008$) were evident among racial/ethnic groups. Mental health benefit ratings were highest for Latino children, $F(3,796) = 4.2$, $p = 0.006$, $\eta^2 = 0.01$. Latino and African American children also scored higher than other children on the "trying new things" scale, $F(3,796) = 5.0$, $p = 0.002$, $\eta^2 = 0.01$. Although significant group differences on the "nature exploration and discovery" scale were not evident after the Bonferroni corrections, patterns emerged for both the race/ethnicity, $F(3,796) = 3.4$, $p = 0.018$, $\eta^2 = 0.01$, and age*race interactions, $F(9,796) = 1.7$, $p = 0.088$, $\eta^2 = 0.02$. Latino children

generally displayed higher scores on the nature exploration item, and adults of 10-12 year old children from racial/ethnic minority groups (African American, Latino, and Asian) reported higher nature exploration scores than children in all other race and age categories.

Mean combined state park-based outdoor recreation benefit ratings also varied significantly by visitation frequency, even after controlling for demographic variables, $F(3,777) = 3.5$, $p = 0.016$, $\eta^2 = 0.01$. Lower overall benefit scores were reported for children who visited state parks about once a summer ($M = 4.29 \pm 0.06$) compared to children who visited state parks monthly or weekly (aggregate $M = 4.45 \pm 0.09$).

General Park Features Affecting Children's Visitation

To develop a better understanding of factors influencing children's recreation behavior, adults in the offsite sample were asked to identify park features and facilities that encourage children's outdoor recreation. On this version of the youth survey, 203 participants provided at least one response. A large portion of respondents across all racial/ethnic groups (21.6%) stated that playgrounds were the most important park feature for promoting children's outdoor recreation. Respondents also listed trails for hiking/walking (10.8%), zones for sports (9.8%), and designated game areas (4.9%). Compared to Whites, more African American (15.3%), Latino (14.7%), and Asian (12.5%) adults reported that the availability of open areas for sports was a major factor influencing children's park visits. Many respondents (7.3%) also noted that overall cleanliness of parks was important in deciding where to take their children. One participant summarized, "I look at the parks before I visit them (to see) if they are clean and have a great view of nature and wildlife structure." Another respondent suggested a broader definition of cleanliness, "It is important that management take into consideration that the air is too contaminated and it is destroying our lives and the lives of the flora and fauna." These data

highlight the value of basic park maintenance and upkeep to construct of healthy, safe environment where children are free to enjoy the benefits of outdoor recreation.

Suggestions for Enhancing Children's Outdoor Recreation in State Parks

Onsite survey respondents were given an opportunity to provide specific suggestions for improvements or changes that would encourage children to participate in outdoor activities at selected Georgia state parks. On the youth survey, 595 participants provided at least one comment or suggestion. These suggestions were reviewed by two researchers and grouped into common categories, which are described in more detail below.

Guided Programs and Events

The top recommendation among members of all racial/ethnic groups was to provide more guided programs or events (listed by 10.3% of adult respondents). The suggested addition of competitions, challenges, and races were also popular among visitors (5.4%), especially African Americans and Latinos. Quotes from respondents illustrate the nature of this desired programming. A white male recommended "staff-initiated structured games for the kids to encourage new friendships," while a white female wanted an "increase in the number of park-sponsored activities, guided nature hikes, and/or naturalist programs." Another white male provided specific program suggestions including "reptiles (leads to liking the environment), swimming safety, canoeing, and night hikes." A Latino male expressed a desire to see "some kind of ranger-guided viewing walk or maybe a 'scavenger hunt' paper for things to look for in the park."

Park Facilities & Maintenance

Participants also noted improvements in park features and facilities that might encourage children to visit and be more active. These suggestions included bigger playgrounds with more

equipment (7.1%), more activities in general (6.7%), and a variety of water activities such as slides and diving platforms (6.1%). The size of the beach and swimming area were an issue for many participants as well (6.1%). One white female remarked, “I would love for my child to swim but there were too many people and it was just too crowded in the beach area.” Several Latino females also noted beach areas that were “too congested.” Many visitors agreed that beach volleyball might be a way to increase children’s activity (5.5%). Playgrounds appeared to be especially important to African Americans (12.5%).

Cleaner bathrooms (5.9%) and park facilities (4.7%) were other frequently mentioned problems that should be addressed. Bathrooms were especially important to African American (10.7%) and Latino (7.2%) visitors. A Latino male admitted, “We like the park! But provide soap and paper towels and cleaner bathrooms; provide water near the picnic sites; water taps would be very helpful.” A white female effectively summed up many parents’ safety concerns, “We would like to add that while swimming we found 16 beer and soda cans. We took them out and threw them away. There were more on the bottom, but we didn’t pick them up. It would be nice if we didn’t have to worry about our children or ourselves cutting our feet.”

Access to Diverse Family Activities

In general, easy-to-access, inter-generational activity options close to the primary beach and picnic areas were important to people in all racial/ethnic groups (4.9%). Latinos, in particular (16.1%), indicated that a greater diversity of activities would benefit their children. As one Latino female noted, “(Managers should) have some kind of things for young children because the majority of people I see here are 1-7 years old!” Participants also recommended equipment rentals (4.0%), more picnic tables (3.2%), and more family-friendly bike paths (3.0%) and trails (2.5%). For example, a Latino male acknowledged, “my kids don’t like going up and

down the steep stairs to get to the beach. Please open an area in the fence so those children can avoid the steps. Thank you." A black male echoed this sentiment, stating that "better access for handicapped people (is needed); we cannot go up and down all those steps. More family grills are needed near the beach area too." Another visitor, a Latino female, also expressed the need for children's activities within close proximity to recreation hotspots, recommending that managers "definitely add more playground areas close to the beach and swimming areas." One Latino male alluded to the important link between parents' recreation and children's activity by simultaneously requesting, "more sports for kids to do physical activities" and "more tables, grills, and parking for the parents."

Advertising & Information Distribution

Better advertising and marketing of park-based activities did not rank among the top concerns, but many visitors offered recommendations that could help in this arena. Several respondents desired a stronger staff presence and urged rangers to "come around and encourage kids to participate in park activities." A white male wanted managers to "provide a kids map detailing where playgrounds and child-friendly areas are. We probably would have done more if we knew all of the amenities offered. Get kids interested in what you have to offer." Along similar lines, a Latino female lamented, "They should give us information about which kinds of outdoor activities where we can participate. We really like physical activities but we don't know about them. We just know the beach. We would like they give us information like brochure at the gate. In that way we can decide about other things different than beach. We love to go camping but we don't know anything about it. Where can we find information?"

Visitors from all backgrounds also requested better signage on hikes, especially information regarding length and estimated time required. A Latino male effectively voiced this

concern, “Make trail descriptions more accessible and understandable. They should tell me which trail is easiest for a five year-old child, does it loop back, etc. I know they have some things but it needs to be reformatted so it is easier to understand. Fliers that are park-specific; they could sell a cheap color-photo paper animal/bird/flower identifier like the posters on display at the picnic shelter/classroom by the fort.” These concerns clearly demonstrate that more can be done onsite to provide information and help children and their families recognize the diverse outdoor recreation opportunities that exist within state parks.

Parental Responsibility

Several respondents admitted that it was the responsibility of parents, not park managers, to promote children’s activity. “I believe parental participation is key,” noted one white male. An African American female shared this sentiment, noting, “(managers) should do nothing. All resources are in place. The parents should initiate activity – including us!” These comments underscore the value of social and familial support for children’s participation in outdoor recreation activities.

Discussion

Public parks provide critical resources and recreation opportunities that can support the health and well-being of future generations (America's Great Outdoors, 2011). State parks, in particular, represent a valuable recreation resource for growing numbers of U.S. children suffering negative consequences associated with nature-deficit disorder (Charles et al., 2009; Siikamaki, 2011). This study capitalized on the strong relationship between the recreation behavior of parents and their children to explore the adult-reported actual and perceived value of Georgia state parks an outdoor recreation destination for children.

State Park Visitation

Results showed that a majority of children at flea markets in northern Georgia had visited a state park in the past year. Gender and age differences in state park visitation were not significant, though parks appeared to be more popular for children ages 6-12. Whites and Latinos were more likely to visit state park than children from other racial/ethnic groups. The higher ratio of white visitors is consistent with an historic underrepresentation of racial/ethnic minorities on public lands documented by previous studies (Floyd, 1999; Johnson, Bowker, Cordell, & Betz, 2000; Washburne, 1978). However, considering the disproportionate impact of nature-deficit disorder on low-income communities of color (Jones & Rainey, 2006), the high number of Latino children visiting parks is somewhat encouraging. Both Latinos and African Americans came to state parks in larger groups with significantly more children, and Latinos also tended to visit state parks with greater frequency than other groups of visitors, a trend that has been previously noted (Hutchinson, 1987). Perhaps state parks provide a uniquely safe and accessible refuge for outdoor recreation that is rarely present in minority communities (Grow et al., 2008; Weir et al., 2006). Overall, visitation numbers from this study suggest that Georgia state parks are an important outdoor recreation location for youth. Furthermore, state parks may be an especially important recreation destination for Latinos and other minority populations whose children are generally nature-deprived and characterized as high-risk for many developmental and health problems (CDC, 2005; Kumanyika & Grier, 2006).

Children's Outdoor Recreation Participation

Although park visitation statistics provide a coarse overview of the child-nature connection, more details are needed to understand the specific outdoor recreation activities of children from different demographic groups. Results of this study support recent research

suggesting that, contrary to popular beliefs (Louv, 2008), many children continue to engage in outdoor recreation at consistently high rates (Cordell, 2008; Larson, Green, et al., 2011). For example, a majority of children in the offsite portion of this study participated in the following activities at some point during the past 12 months: playgrounds, cookouts, swimming, jogging/running, and team sports. Many of these activities were more common for African American and Latino children than those from other racial/ethnic groups. Swimming and picnicking were also among the most popular activities in state parks.

These activity participation data have several important implications for youth recreation management. First of all, reported participation in conventional nature-based recreation activities (e.g., hiking/walking, fishing, camping, and hunting), both overall and within state parks, paled in comparison to other alternatives. Differences were even more pronounced in Latino and African American children. Although sampling limitations prevented extrapolation of these data to larger scales, patterns were consistent with the decreasing rates of children's nature-based activity participation that have been documented in other studies (Outdoor Foundation, 2010; United States Department of the Interior Fish & Wildlife Service & United States Department of Commerce, 2006) and provided additional evidence to support the need for innovative, interdisciplinary solutions to the nature-deficit problem (Charles et al., 2009). Results of this study also highlighted several approaches that might successfully attract diverse populations to the outdoors: a renewed emphasis on family-based recreation and incorporation of non-traditional recreation pursuits.

For example, playing on playgrounds was consistently ranked among the most popular children recreation activities both overall and within state parks. Playgrounds were especially popular for children ages 0-9, and should continue to be considered as important element in park

design (Active Living Research, 2011). Data also revealed that social outdoor activities such as picnics or cookouts were a major component of children's outdoor recreation across all demographic groups. This finding is in line with nationwide studies showing recreation participation trending towards activities such as picnics and family gatherings (Cordell, 2008; Cordell et al. 2008). The popularity of social activities for children reflects a strong preference for social interactions in the rapidly expanding Latino population, who often visit outdoor recreation settings with family members and larger groups (Chavez, 2008; Marquez & McAuley, 2006; Shinew, Floyd, & Parry, 2004). Team sports were listed as popular youth activities in the offsite sample, especially among older and racial/ethnic minority children. The low number of team sport participants in state parks may be indicative of the parks' current limited capacity to provide open green space where informal games can occur. Managers hoping to entice more diverse groups to visit parks should therefore consider expanding social recreational space.

Park professionals and researchers could also acknowledge a new trend illustrated by the data – the growing appeal of technology-based outdoor activities (Chavez, 2009; Larson, Green, et al., 2011; Zaradic & Pergams, 2007). Adult respondents in this study reported that using electronic devices was the second most popular outdoor activity among youth, especially for teens and racial/ethnic minority children. This activity was not even possible a decade ago, highlighting the complex influence of shifting cultural norms and a new generation of "digital natives" on leisure behavior (Prensky, 2001). Youth outdoor recreation will continue to evolve as the U.S. population diversifies (Shinew et al., 2006). Managers hoping to sustain outdoor recreation at their sites and maintain growth in Americans' time outdoors should therefore pay special attention to what particular groups of children are or are not doing outside (Bruyere, Teel, & Newman, 2009; Kimbell, Schuhmann, & Brown, 2009).

Adult-perceived Outdoor Recreation Benefits for Children

Research suggests that children's participation in outdoor recreation activities is strongly influenced by the recreation patterns and preferences of their parents and guardians (Barnett & Weber, 2008; Poortinga, 2006; Valentine & McKendrick, 1997). In fact, national surveys have shown that parents (and guardians) influence the activity choices of 75% of children ages 6-12 (Outdoor Foundation, 2010). Thus, researchers and park professionals interested in understanding and promoting children's outdoor recreation can learn a great deal about youth activity patterns through adult-reported data.

General benefit ratings in this study indicated that most adults were very aware of the cognitive, psychosocial, and physical health benefits that their children experience when participating in outdoor recreation. Mean benefit ratings were lowest for teens in both samples. Declining adult support for teens' outdoor recreation could partially explain documented declines in pro-environmental attitudes and outdoor activity participation in early adolescence (Larson, Green, & Castleberry, 2010; Larson, Green, et al., 2011), but social dependency and developmental factors may affect these trends as well (Hurtes, 2002). Hence, more research is needed to examine the influence of parent perceptions on teens' outdoor recreation behavior. Adults' overall mean perceived benefit ratings also differed by race/ethnicity. The parents or guardians of white children reported higher scores than the parents or guardians of Latino and African American children. Reduced recognition of outdoor recreation benefits among racial/ethnic minorities may help to explain why children in these groups are typically exposed to fewer positive outdoor experiences (Roberts, 2009).

Compared to data for the general offsite sample, adult-reported mean benefit scores for children visiting state parks revealed a very different pattern. Onsite visitor ratings showed that

parents or guardians of Latino children were more cognizant and accepting of state park-based outdoor recreation benefits for children than adults in other racial/ethnic groups. This enhanced acknowledgment of benefits probably contributed to the greater state park visitation frequency among Latino children, affirming the relationship between parents' perceptions and children's outdoor recreation (Barnett & Chick, 1986; Barnett & Weber, 2008). The greatest specific benefits of state park-based recreation for minority children appeared to be mental health, trying new things, and nature exploration and discovery. Positive adult perceptions of children's nature exploration and discovery are particularly important for African American and Latinos, whose appreciation of the environment and participation in outdoor recreation and have been challenged by previous studies (Dwyer, 1994; Floyd, 1999; Whittaker, Segura, & Bowler, 2005). Hence, state parks may have a unique capacity to allow adults and children to interact in natural settings, generating enthusiasm for nature-based recreation activities and inspiring youth to become better environmental stewards (Pergams & Zaradic, 2008; Thompson et al., 2008). Additional studies are needed to better understand if and how these parent-perceived benefits are translated into nature-based recreation participation for diverse segments of American youth.

Examination of specific benefits across both samples showed that adults believed "spending quality time with friends and family" and "improving physical health" were the top outdoor recreation benefits for children. The value of children's recreation-based social bonding has been recognized for decades (Holland & Andre, 1987), but these social benefits have only recently been directly attributed to outdoor play environments (Ginsburg, 2007). Thapa (2002) noted that recreation participation decisions made by Latinos are especially likely to be influenced by social group interactions. This study suggests that the benefits of social interactions in outdoor settings may extend to children in other racial/ethnic groups as well.

Adults also acknowledged the physical health benefits of children's outdoor recreation. Numerous studies have shown that time outdoors is a critical component of physically active and healthy lifestyles and an important antidote to the obesity epidemic currently plaguing America's youth (Cleland et al., 2008; Roemmich et al., 2006; Sallis et al., 2000). Perhaps adults are beginning to recognize this relationship and purposefully create opportunities for their children to enjoy the healthy aspects of park-based physical activity.

Enhancing Children's Park-based Outdoor Recreation

Of all the park features and facilities that encourage children to engage in outdoor recreation, playgrounds, trails for hiking and walking, and designated sports areas appeared to be the most popular. Open areas for team sports were especially important to children from racial/ethnic minority backgrounds. Many adults also noted that maintenance and condition of park facilities was a critical factor influencing children's recreation participation decisions. The value of a clean, safe park environment cannot be underestimated, and has been shown to be a major factor influencing park-based activity levels across a variety of settings (Bedimo-Rung, Mowen, & Cohen, 2005; Miles, 2008).

In state parks, an increase in the number of guided programs and events was the top suggestion for encouraging children's outdoor recreation participation. Research in other areas such as southern California has shown that an increase in the number of organized programs and supervised park activities leads to higher observed visitation and park-based activity (Cohen et al., 2009). Similar studies have confirmed that park renovations and improvements, new programs, and the presence of activity supervisors encourage visitors to become more active and engaged in recreation activities (Cohen, 2007; Kerstetter, Mowen, Trauntvein, Liechty, & Rubiero, 2008; Sallis, Johnson, Calfas, Caparosa, & Nichols, 1997; Shores & West, 2008).

Advertising and information distribution were also important to many participants. Several parents complained that park resources, even when available, were difficult to locate and access. Inadequate information often led to misunderstanding and apprehension that discouraged parents from allowing children to participate in park activities. Multiple studies have identified lack of information and knowledge of recreation opportunities as a constraint (Burns, Covelli, & Graefe, 2008; Johnson, Bowker, & Cordell, 2001; Walker & Virden, 2005), and managers should make a concerted effort to address this issue by improving access to and distribution of park-related information.

State park visitors also highlighted the value of access to diverse family activities, illustrating the increasingly family-oriented nature of outdoor recreation. Other researchers have noted that parents will travel great distance to access kid-friendly park facilities (Tucker, Gilliland, & Irwin, 2007). Hence, the integration of adult recreational resources (e.g. picnic tables, grills) and children's recreational resources (e.g., beaches, playgrounds) could increase family utilization of parks, providing adjacent activities that appeal to individuals of all ages (Kerstetter et al., 2008; Shores & West, 2010). Family-based trails and bike paths could also help to bridge the adult-child gap, encouraging inter-generational interactions that stimulate outdoor activity participation across a diverse cross section of the American public. Overall, open-ended responses confirmed that state park managers hoping to attract and engage children in outdoor activities should strategically consider the recreational needs and perceptions of the adults in visitor groups.

Implications

Results of this study showed that most adults are aware of the multi-faceted benefits provided by children's outdoor recreation. Because children's outdoor activities are strongly

influenced by their parents' or guardians' perceptions of recreation benefits, managers should make a concerted effort to educate adults about the cognitive, social, and physical benefits provided by park-based recreation. Results also suggested that state parks, which may represent an important outdoor recreation location for demographically diverse groups of children in Georgia, are especially important to the region's growing Latino population. By providing a diverse array of outdoor recreation opportunities, state parks have the potential to combat childhood nature-deficit disorder and facilitate healthy child development.

Though a majority of children in this study did not participate in traditional nature-based recreation, they did engage in social forms of recreation centered on interactions with family and friends in outdoor environments. This collective experience of the outdoors plays seems to play a central role in contemporary youth park use and likely influences the ways in which children and their parents experience nature. Using subjective input from adult respondents, this study highlighted the value of conceptualizing outdoor recreation (and associated benefits) from a family-oriented perspective. As heterogeneity in the U.S. population increases, future research could employ objective indicators of children's recreation behavior and corresponding outcomes to overtly measure the benefits of outdoor activities that accrue to children from all gender, age, and racial/ethnic groups.

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Table 6.1

Demographic Distribution of Children Reported by Onsite and Offsite Adult Intercept Survey Respondents in North Georgia, 2010-2011

Demographic Variable	Onsite (%)[a] (n = 1039)	Offsite (%)[b] (n = 279)
Gender		
Female	42.3	47.7
Male	48.8	49.5
Missing	8.9	2.9
Age		
0-5 year olds	23.8	14.0
6-9 years olds	29.8	15.4
10-12 year olds	21.5	28.0
13-17 year olds	18.9	38.7
Missing	6.1	3.9
Race/Ethnicity		
White/Caucasian	55.1	30.1
Hispanic/Latino	28.3	47.0
Black/African American	9.2	13.3
Asian/Other	5.1	7.2
Missing	2.3	2.5

[a] Pooled sample proportions include day use and overnight visitors in all selected Georgia state parks

[b] Pooled sample proportions include vendors and customers in north Georgia flea markets within 35 miles of selected state parks

Table 6.2

Children's Overall Outdoor Recreation Activities Reported by Offsite Adult Intercept Survey Respondents in North Georgia Flea Markets (with Demographic Differences), Summer 2011 (n = 279)

Outdoor Activity	Total Children Participating in Past Year (%)[a]	Demographic Differences (Group with Highest Use)		
		Gender Diff[b]	Age Diff[c]	Ethnic Diff[d]
Playground	71.2		0-5, 6-9 **	
Using electronic devices outdoors	59.0		13-17, 10-12 ***	B, H
Picnic/cookout	59.0	F	0-5, 13-17 *	B, W ***
Swimming	58.6	F		W, B **
Relaxing/no main activity	57.6			H *
Jogging/running	54.3		13-17 ***	H, B ***
Team sports	53.2	M *	13-17, 10-12	H, B
Hiking/walking	49.6			H, W
Biking	48.9			
Beach activities	40.6	F	0-5 *	W, B *
Fishing	38.5			W, A **
Camping	29.5			A, W ***
Wildlife viewing/photos	24.5			
Visiting historic site	23.7			
Driving off-road vehicles	18.3	M	13-17	W, A
Hunting	13.7	M	10-12, 13-17	
Motor boating/jet skiing	9.4			
Canoeing/kayaking	6.8			W
Other activities (tennis, paintball, etc.)	4.0			

*, **, *** denotes significance of chi-square test at $\alpha = 0.05$, 0.01, and 0.001 respectively
[a] Percentages represent pooled data from all three focal parks.
[b] Gender Codes: F = females, M = males
[c] Age Codes: 0-5, 6-9, 10-12, 13-17 year olds
[d] Race/ethnicity Codes: A = Asian, B = Black, H = Hispanic, W = White

Table 6.3

Children's State Park-based Outdoor Recreation Activity Participation Reported by Onsite Adult Intercept Survey Respondents in Three North Georgia State Parks (with Demographic Differences), Summer 2010 (n = 1039)

Outdoor Activity	Total Children Participating During Visit (%)[a]	Demographic Differences (Group with Highest Use)		
		Gender Diff[b]	Age Diff[c]	Ethnic Diff[d]
Swimming	70.1			W **
Beach activities	65.0		0-5	
Picnic/cookout	63.0			
Playground	42.3		6-9, 0-5 ***	B **
Hiking/walking	37.2			W ***
Relaxing/no main activity	32.9		13-17 ***	B, A, W **
Camping	26.4		6-9, 10-12	W, A ***
Fishing	18.5	M *	6-9, 10-12 **	A, W **
Canoeing/kayaking	15.8		10-12, 13-17 ***	
Wildlife viewing/photos	14.3			W **
Biking	12.1		10-12	W **
Visiting historic site	11.8		6-9, 10-12 **	W ***
Jogging/running	10.9			H ***
Mini-golf	9.8			
Motor boating	8.5		13-17	W
Visitor center/exhibit	7.9		10-12, 6-9 ***	B, W *
Team sports	6.2		10-12, 13-17	H, A **
Horseback riding	4.3	F **		
Other activities	5.6			W *

*, **, *** denotes significance of chi-square test at $\alpha = 0.05$, 0.01, and 0.001 respectively

[a] Percentages represent pooled data from all three focal parks.

[b] Gender Codes: F = females, M = males

[c] Age Codes: 0-5, 6-9, 10-12, 13-17 year olds

[d] Race/ethnicity Codes: A = Asian, B = Black, H = Hispanic, W = White

Table 6.4

Mean Ratings (with 95% CI) of Adult-perceived Benefits[a] Associated with Children's Outdoor Recreation Across General Outdoor Settings and Selected State Parks in North Georgia, 2010-2011

Benefit	**General Outdoor Recreation** (n = 257)	**Outdoor Recreation in State Parks** (n = 1023)	**TOTAL** (n = 1280)
Quality time with family/friends	4.53 ± 0.11	4.71 ± 0.05	4.67 ± 0.05
Physical health	4.35 ± 0.11	4.37 ± 0.06	4.36 ± 0.05
Nature exploration & discovery	4.18 ± 0.12	4.28 ± 0.06	4.26 ± 0.05
Opportunity to try new things	4.22 ± 0.12	4.24 ± 0.06	4.24 ± 0.05
Mental health	4.22 ± 0.12	4.16 ± 0.06	4.17 ± 0.05
Development of social skills	4.02 ± 0.13	4.17 ± 0.06	4.14 ± 0.05
MEAN TOTAL BENEFIT SCORE	4.26 ± 0.09[b]	4.32 ± 0.04[b]	4.31 ± 0.04[b]

[a] Benefit items were rated on a scale from 1 = strongly disagree to 5 = strongly agree
[b] Total mean benefit scores represent an equally-weighted aggregate mean of all individual benefit items, providing an overall approximation of adult-perceived value of children's outdoor recreation

Table 6.5

MANOVA Test Comparing Combined General (Offsite) Outdoor Recreation Benefit Ratings for Children in Different Demographic Groups, Summer 2011 (n = 220)

Variable	n	Mean Benefit Rating	SD	F	df	p-value	Pillai's Trace
Gender				0.41	6,185	0.874	0.013
Female	109	4.29	0.588				
Male	111	4.43	0.571				
Age				1.26	18,561	0.209	0.116
0-5 years	34	4.56	0.639				
6-9 years	31	4.43	0.574				
10-12 years	67	4.46	0.550				
13-17 years	88	4.19	0.549				
Race/Ethnicity				1.78	18,561	0.024	0.162
White	74	4.46	0.537				
Hispanic/Latino	107	4.31	0.599				
African American	28	4.28	0.645				
Asian/Other	11	4.47	0.533				
Gender*Age				0.98	18,561	0.479	0.092
Gender*Race				0.72	18,561	0.792	0.068
Age*Race				1.00	54,1140	0.474	0.272
Gender*Age*Race				0.95	42,1140	0.572	0.202

Table 6.6

MANOVA Test Comparing Combined State Park-based (Onsite) Outdoor Recreation Benefit Ratings for Children in Different Demographic Groups, Summer 2010 (n = 828)

Variable	n	Mean Benefit Rating	SD	F	df	p-value	Pillai's Trace
Gender				0.47	6,791	0.834	0.004
Female	383	4.34	0.590				
Male	445	4.42	0.544				
Age				2.09	18,2379	0.005	0.047
0-5 years	205	4.42	0.513				
6-9 years	260	4.46	0.525				
10-12 years	193	4.39	0.615				
13-17 years	170	4.23	0.607				
Race/Ethnicity				1.97	18,2379	0.009	0.044
White	487	4.33	0.574				
Hispanic/Latino	223	4.50	0.548				
African American	76	4.38	0.569				
Asian/Other	42	4.41	0.500				
Gender*Age				0.34	18,2379	0.996	0.008
Gender*Race				0.77	18,2379	0.739	0.017
Age*Race				1.43	54,4776	0.021	0.096
Gender*Age*Race				1.28	54,4776	0.973	0.045

CHAPTER 7

SUMMARY AND RECOMMENDATIONS

The goal of this research project was to assess outdoor recreation patterns and preferences among diverse demographically diverse populations within and around north Georgia state parks. From 2009 to 2011, researchers conducted a comprehensive assessment of outdoor recreation in Georgia state parks in two distinct phases. Phase 1, the on-site assessment, examined visitor use and preferences in three state parks. A pilot study was used to test survey instruments and sampling procedures (23 May – 7 November 2009). The following year (29 May – 6 September 2010), a comprehensive on-site sample was collected that included 139 exit survey sessions (1,113 vehicles sampled), 217 behavior observations (18,525 visitors observed), and 5,192 intercept surveys. Phase 2, the off-site assessment (27 March – 24 July 2011), examined public park use and preferences in regions surrounding the selected parks. The off-site sample included 1,315 intercept surveys collected at flea markets across north Georgia. The overall *Georgia State Parks Diversity Project* addressed a variety of topics related to park use. A general overview of these topics was presented in Chapters 1 and 2 (see Appendix I for additional information). Most of this dissertation, however, focused on a few specific research objectives. Key findings related to these objectives are highlighted below.

Summary

Outdoor Recreation Participation and State Park Use

- State parks were a popular recreation destination for visitors from all backgrounds, and appeared to be especially popular among low-income Hispanic/Latinos.
- Racial/ethnic minorities visiting state parks tended to arrive in larger groups with more children and stay longer than white visitors.
- Social, family-based activities such as swimming, beach activities, and cookouts were by far the most popular state park-based recreational activities across all racial/ethnic groups.

Outdoor Recreation Motivations and Benefits

- State park visitors from all groups (and especially African Americans) preferred well-maintained and developed areas more than natural areas.
- "Social time with friends and family" was consistently listed as the top recreation motivation across demographic groups.
- "Improving quality of life" and "developing positive views of nature" were the top-rated benefits associated with state park-based outdoor recreation.

Outdoor Recreation Participation and Pro-environmental Behavior (PEB)

- Contrary to results in several earlier studies, racial/ethnic minorities displayed environmental value orientations and PEB participation levels that were equal to or greater than those of Whites.
- Environmental value orientations were significant predictors of PEB, and appeared to mediate the documented relationship between demographic variables and PEB.
- PEB levels were significantly related to outdoor recreation participation frequency.

- PEB levels were indirectly related to childhood outdoor recreation experiences through their positive influence on adult recreation patterns.

Park-based Physical Activity

- Activity levels of adults and children during state park visits greatly exceeded recommended daily values.
- State parks may be especially important physical activity locations for people living in rural, low-income areas.
- Observed park-based activity levels were highest at trailheads, but many visitors (especially racial/ethnic minorities) did not visit these zones of the parks.
- Picnic areas and swimming areas represented a hub of activity in most state parks and were used by more visitors for physical activity than other areas.
- Social and family-based outdoor activities in multi-use zones may be especially important for promoting physical activity in children and racial/ethnic minority groups.
- Playgrounds, easy trails for hiking and walking, and designated sports areas or open green space appeared the most important park features for encouraging youth physical activity.

Children's Outdoor Recreation Benefits

- Adults from all demographic backgrounds generally recognized the diverse array of developmental and physical health benefits children receive from outdoor recreation participation.
- Recreation benefit ratings were lower for racial/ethnic minorities in the general sample; however, benefit ratings were highest for Latinos in state parks.

- Adults rated “quality time with friends and family” and “improving physical health” as the top outdoor recreation benefits for children.
- Although most children did not participate in nature-based activities, they did engage in high rates of social recreation with family and friends in outdoor settings.
- According to adult reports, communal, family-based outdoor recreation experiences are especially important for children in racial/ethnic minority groups.
- State park visitors listed guided programs and organized events as the state park factors most likely to increase their children’s outdoor activity participation.

Recommendations

Overall, results of this study led to several key recommendations that Georgia state park managers and policy-makers could use to improve their current offerings, reach diverse stakeholders, and work to ensure that benefits associated with outdoor recreation are enjoyed by all. These recommendations are:

Emphasize the value of state parks as a conservation asset.

Results indicate that outdoor recreation participation is among the strongest predictors of PEB. Childhood recreation experiences also translate into pro environmental values and attitudes later in life. Hence, park visitation often represents an important precursor to environmental stewardship and conservation behavior. In this context, parks can do more than simply protect and preserve natural resources. Through the cultivation of positive outdoor recreation opportunities and the implementation of effective natural resource interpretation and environmental education programs, parks can encourage visitors to support resource protection. Collectively, these park-based experiences may inspire youth to become the environmental

leaders of the future. Managers and policy makers should therefore acknowledge that the conservation benefits of state parks and state park use often transcend park boundaries.

Emphasize the value of state parks as a physical activity destination.

Public parks provide unique opportunities for physically active outdoor recreation that help to combat American's growing obesity epidemic. Although results suggest that state parks cannot serve as a panacea for problems linked to physical inactivity, they may represent an important part of the solution. For example, groups at high-risk of obesity and related health issues such as low-income individuals, racial/ethnic minorities, and children are especially active in state parks. Managers could try to capitalize on and expand the existing value of parks as a physical activity destination by: 1) publicizing the health benefits of outdoor recreation across diverse communities; 2) purposely constructing and promoting family-oriented social recreation activities, which are significantly related to park-based activity levels in high-risk groups; and 3) developing and encouraging more structured opportunities for visitors from diverse backgrounds to explore and engage in unfamiliar, nature-based recreation experiences (e.g., trail use).

Emphasize the value of state parks in child development.

Research has revealed multiple benefits associated with children's outdoor recreation, and this study shows that many parents are already aware of the positive outcomes associated with outdoor recreation. Based on adult-reported data, state parks appear to be an especially important location for helping low-income and racial/ethnic minority children (particularly Latinos) enjoy these benefits. Efforts to market parks could therefore focus on educating potential visitors and prospective funders about the valuable assets that parks provide with respect to youth development.

Create opportunities for family-based and socially innovative recreation activities in parks.

Social activities such as cookouts and family gatherings were consistently rated among the most popular outdoor recreation activities in and around state parks. If more opportunities for this type of recreation (e.g., more picnic tables near playgrounds and beaches) are provided, then park visitation will likely increase. Furthermore, these social activities were associated with unexpected benefits including higher levels of physical activity. Family-based recreation opportunities can therefore serve as a gateway to gradually involve and engage diverse visitors in previously unexplored activities and park zones (e.g., hiking trails). An emphasis on social interactions and innovative technology-based recreation opportunities may be an especially effective mechanism for engaging adolescents, an age group characterized by reduced physical activity and decreased time in natural settings, in park-based recreation.

Enhance efforts to attract and accommodate diverse visitors on public lands.

Places such as state parks are relatively cheap, easily accessible, and very popular outdoor recreation locations for diverse populations that are often marginalized in society (e.g., low-income rural residents, racial/ethnic minorities). Georgia state parks, for instance, appear to be especially popular recreation sites for the state's growing Latino population. If managers make a concerted effort to identify recreation preferences and develop activity options and programs that continue to meet the needs and expectations of historically marginalized groups, then they will be better positioned to maintain the relevancy of their parks in America's rapidly diversifying population. Data suggest that these preferences and activity options might include an emphasis on park maintenance and safety, enhanced mechanisms of information distribution both onsite and offsite (e.g., bilingual signage), and an increase in guided programs, special events, and structured recreational offerings that target children and their families.

Collectively, these recommendations demonstrate several ways in which managers can work to ensure that the benefits of public lands such as state parks are enjoyed by present and future generations. For additional management recommendations based on the *Georgia State Parks Diversity Project*, see Larson, Whiting, Green, & Bowker (2012).

Conclusion

Despite several sampling limitations (see Chapter 2 for more information regarding these limitations), this dissertation provided an overview of state park use and outdoor recreation benefits that extends the current body of knowledge in several ways. Although previous reports have revealed minority under-representation in parks throughout the U.S., this study suggested that state parks are an important recreation resource for low-income, racially/ethnically diverse populations in Georgia. These non-traditional users often visit parks to engage in social, family-based forms of recreation, and efforts could be made to increase overall involvement in nature-based activities. However, the benefits of simply being outside in parks and participating in social activities should not be overlooked. This study highlighted positive relationships between outdoor recreation and park use, PEB, physical activity levels, and child development. Furthermore, these recreation benefits were enjoyed by a variety of stakeholders. In an era defined by shifting demographics, shrinking budgets, and growing concern regarding obesity and physical inactivity, state parks can provide diverse recreation opportunities that satisfy a broad range of stakeholders, nurture active, healthy lifestyles, encourage positive environmental orientations, and build social equity among adults and children from all backgrounds.

Future research could continue to explore the cross-cultural benefits of park-based recreation in the U.S. Although this study effectively incorporated multiple research methods (e.g., intercept surveys, exit surveys, and behavior observations) to examine populations of state

park users and non-users in northern Georgia, an expanded focus that incorporates other parks and geographical regions could help managers apply results to new contexts. Additional qualitative inquiries involving ethnographies and focus groups could also help researchers and practitioners develop a more-nuanced and comprehensive understanding of factors (i.e., motivations, preferences, and constraints) affecting park use in diverse populations. This dissertation provided a solid foundation for identifying and characterizing contemporary forms of park-based outdoor recreation and associated benefits, but more research is needed to help park managers everywhere adjust their services, programs, and activities to meet specific needs of their diversifying clientele.

References

Larson, L. R., Whiting, J. W., & Green, G. T. (2012). *Diversity in state parks: A cross-cultural examination of outdoor recreation and park use in Georgia*. Report prepared for Georgia Department of Natural Resources' Parks, Recreation, & Historic Sites Division. Atlanta, GA: GADNR. Retrieved from: http://gtgreen.myweb.uga.edu/GADNRDiversityReport_2012.pdf

APPENDIX A

SURVEY RESEARCH SITES

Table A.1

Overview of Georgia State Park Sites Examined During Summer 2010 Data Collection

Park Information	GA County	Surveys Collected (day use areas & campgrounds)
Fort Mountain State Park 181 Fort Mountain Park Rd. Chatsworth, GA 30705 706-422-1932	Murray	Total: 1548 (480 from campgrounds)
Fort Yargo State Park 210 S. Broad St. Winder, GA 30680 770-867-3489	Barrow	Total: 1700 (238 from campgrounds)
Red Top Mountain State Park 50 Lodge Rd. SE Cartersville, GA 30121 770-975-0055	Bartow	Total: 1944 (408 from campgrounds)
	TOTAL ONSITE SURVEYS COLLECTED	**5192** (1142 from campgrounds)

Table A.2

Overview of North Georgia Flea Markets Examined During Summer 2011 Data Collection

Flea Market Information	**GA County**	**Surveys Collected** (vendors & customers)
285 Flea Market 4525 Glenwood Rd. Decatur, GA 30032 404-289-4747	DeKalb	Total: 52
Big D Flea Market 3451 Cleveland Hwy Dalton, GA 30721 706-259-3269	Whitfield	Total: 304 (58 from customers)
Buford Highway Flea Market 5000 Buford Hwy Chamblee, GA 30341 678-209-0451	DeKalb	Total: 55
J & J Flea Market 11661 Commerce Rd. Athens, GA 30607 706-613-2410	Clarke	Total: 544 (282 from customers)
Marietta Flea Market 550 Franklin Rd. Marietta, GA 30067 770-419-2555	Cobb	Total: 41
Pendergrass Flea Market 5641 US Hwy 129 N Pendergrass, GA 30567 706-693-4466	Jackson	Total: 210 (46 from customers)
Tucker Flea Market 3965 Lawrenceville Hwy Tucker, GA 30084 678-395-6631	DeKalb	Total: 38
Yesteryear Flea Market 43337 Hwy 92 Acworth, GA 30101 770-974-6259	Cobb	Total: 71
	TOTAL OFFSITE SURVEYS COLLECTED	**1315** (386 from customers)

APPENDIX B

PHOTOGRAPHS OF STATE PARK STUDY SITES AND RESEARCH TEAM

Figure B.1. Photographs of recreation hotspots near beach areas at (a) Fort Mountain, (b) Fort Yargo, and (c) Red Top Mountain State Parks, 2009-2010

Figure B.2. State park research team: (*from left*) Jason Whiting and Lincoln Larson, Summer 2010

Figure B.3. State park research team (*seated center*) with Fort Mountain State Park Visitors, Summer 2010

APPENDIX C

EXIT SURVEY COVER SHEET AND DATA COLLECTION FORM

Exit Survey Cover Sheet DATES _____ (DAYS _____) PARK _____ OBSERVERS _____

DATE	OBS	TIME (Start/End)	WEATHER	CAR COUNT	TOTAL PEOPLE	SEX		AGE GROUP		ETHNICITY				HOTSPOT		
						F	M	<18	≥18	W	B	L	O	N	Y	W

Exit Survey Data Sheet

DATE _________ OBS _____ PARK ______ BEGIN ________ END ________ WEATHER ____________ **TOTAL VEHICLES:**

TOTAL PEOPLE	**SEX**		**AGE**		**ETHNIC**				**TIME IN PARK** (hrs.)	**MAIN ACTIVITY**	**HOTSPOT** (Y, N or worker)	**RETURN** (Y or N)
	F	**M**	**<18**	**≥18**	**W**	**B**	**L**	**O**				

APPENDIX D

INTERCEPT SURVEY PROTOCOL AND CONSENT SCRIPT

INTERCEPT SURVEY PROTOCOL & CONSENT SCRIPT

Data Collection Procedures:

1. Every 3rd person will be approached by the survey administrator and asked to take a voluntary survey. During this initial introduction, the survey administrator will briefly outline the purpose of the study and the procedures to be followed (below).

2. *If this subject declines*, this is the end of the interaction. The survey administrator will note (1) reason subject did not respond and (2) subject gender, race/ethnicity, and approximate age on the survey cover sheet before approaching the next person.

3. *If the subject accepts*, the subject will be given a clipboard with a pencil and survey attached. After the survey is distributed, the survey administrator will remain in the general area – approaching other people and answering questions as necessary. The survey administrator will return to collect the survey and answer any final questions after 10-15 minutes.

4. After the survey is completed, the subject will be thanked for his/her participation in the study. There will not be any follow up.

Project Information for Participants:

Title of Project: Diversity in Georgia State Parks

Principal Investigators: Dr. Gary Green, Mr. Lincoln Larson, Mr. Jason Whiting
Warnell School of Forestry and Natural Resources, University of Georgia, Athens, GA 30602
706.542.6556; ggreen@warnell.uga.edu

Purpose of the Study: The purpose of this study is to understand who is visiting Georgia state parks, why they are coming, and ways in which state parks can be better managed for the public's use and enjoyment.

Your involvement: You will be asked to fill out a survey to help us evaluate your experiences within Georgia state parks. The survey should take 10-15 minutes. To participate in the study, you must be 18 years of age or older.

Discomforts and Risks: There are no anticipated risks or discomforts in participating in this research beyond those experienced in everyday life.

Benefits: This survey will allow visitors to provide information to the Georgia Department of Natural Resources (DNR) that can help to guide future policy.

Statement of Confidentiality: Your identity will not be associated with your responses. The data will be stored and secured in the Warnell School of Forestry and Natural Resources on the campus of the University of Georgia in a locked file cabinet and in password protected files. In the event of a publication or presentation resulting from the research, no personally identifiable information will be shared.

Right to Ask Questions: You can ask questions about this research. Contact Gary Green (contact information above) with questions. Questions or concerns about your rights as a research participant should be directed to The Chairperson, University of Georgia Institutional Review Board, 612 Boyd GSRC, Athens, Georgia 30602-7411; telephone (706) 542-3199; email address irb@uga.edu.

Voluntary Participation: Your decision to be in this research is voluntary. You can refuse to participate or stop at any time without penalty or loss of benefits to which you are otherwise entitled. You do not have to answer any questions you do not want to answer. Completion and return of the surveys implies that you have read the information in this form and consent to participate in the research.

APPENDIX E

INTERCEPT SURVEY COVER SHEET

GA State Parks Survey Cover Sheet

DATE _____ DAY OF WEEK _____ OBSERVER _____

PARK _____ SURVEY AREA _____

START TIME: _____ END TIME: _____

WEATHER: Sunny Partly Cloudy Mostly Cloudy Rain Heavy Rain

SURVEYS COLLECTED (Totals):

Version 1 (Activities)		Version 2 (Constraints)		Version 3 (Fees)		Version 4 (Phys. Activity)		Kids (Kids' Out. Rec.)	
Eng	Span	Eng	Span	Eng	Span	Eng	Span	Eng	Span

NON-RESPONSES:

PERS. #	GENDER		AGE GROUP			ETHNICITY				REASON FOR NOT RESPONDING
	F	M	18-30	31-59	60+	W	B	L	O	

RESPONSE RATE:

Total Surveys Collected + Total Non-Responses = Number of People Approached

APPENDIX F

ONSITE INTERCEPT SURVEY FORMS

(Examples for Fort Yargo State Park: 5 Versions in English, 5 Versions in Spanish)

FY1

Georgia State Parks Visitor Survey

The Georgia Dept. of Natural Resources (GA DNR) and the University of Georgia are conducting a study of visitors to state parks. Your responses will help GA DNR to better manage state parks for your use and enjoyment. Please take a few minutes to complete this questionnaire. Your help is voluntary and responses are anonymous and confidential.

1. Including today, how many times have you visited Fort Yargo in the past 12 months? _____ visits

2. In what year did you first visit Fort Yargo? Year: _____ **(Please fill in blank.)**

3. About how often will you visit Fort Yargo this summer (May-September)? **(Check ONE box.)**

   ☐ More than once a week ☐ About once a week

   ☐ About once a month ☐ About once this summer

4. Including you, how many people traveled with you to Fort Yargo today? _____ people

   4a. How many of those traveling with you today are under age 18? _____ people

5. Please **check ALL** the activities you participated in during your visit to Fort Yargo today.

Land-based:	**Water-based:**	**Other:**
☐ Biking	☐ Beach activities	☐ Camping
☐ Hiking/walking	☐ Canoeing/kayaking	☐ Relaxing/no main activity
☐ Jogging/running	☐ Fishing	☐ Visiting historic fort
☐ Picnic/cookout	☐ Motor boating	☐ Visitor center exhibit
☐ Playground	☐ Swimming	☐ Wildlife viewing/photography
☐ Team sports		☐ Other (please specify): _____

6. How IMPORTANT are the following factors in your decision to participate in outdoor recreation at Fort Yargo? (**Circle ONE response for each item.**)

	Not At All Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Spending time with family	1	2	3	4	5
Spending time with friends	1	2	3	4	5
Meeting new people	1	2	3	4	5
Exercising	1	2	3	4	5
Being physically fit	1	2	3	4	5
Relaxing and resting	1	2	3	4	5
Experiencing solitude, peace and calm	1	2	3	4	5
Doing fun and exciting things	1	2	3	4	5
Being close to nature	1	2	3	4	5
Discovering and learning about nature	1	2	3	4	5

Please turn over.

7. How IMPORTANT are the following factors to you during your visit(s) to Fort Yargo?

	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Natural areas (forests, trails, etc.)	1	2	3	4	5
Maintained outdoor areas (beaches, open picnic areas, etc.)	1	2	3	4	5
Developed areas/facilities (shelters, restrooms, visitor center, etc.)	1	2	3	4	5
Parking	1	2	3	4	5
Concession stands/food services	1	2	3	4	5
Stores selling souvenirs and supplies	1	2	3	4	5
Rules to maintain a safe environment	1	2	3	4	5
Friendly, informative rangers	1	2	3	4	5
A place to explore and experience nature	1	2	3	4	5
A place to picnic, barbecue, or cook out	1	2	3	4	5
A place to recreate with family	1	2	3	4	5

8. Please state whether you DISAGREE or AGREE with the following statements concerning visits to Fort Yargo. (**Circle ONE response per item.)**

Visits to Fort Yargo help me to:	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Develop positive views of nature	1	2	3	4	5
Build and strengthen my relationships with others	1	2	3	4	5
Interact with people from different backgrounds	1	2	3	4	5
Improve my physical health	1	2	3	4	5
Improve my mental health	1	2	3	4	5
Increase the quality of my life	1	2	3	4	5

9. What is your gender? ☐ Female ☐ Male

10. What is your age? _____ years old

11. What is your race/ethnicity? (**Check ALL that apply.**)

☐ White or Caucasian ☐ Black or African American ☐ American Indian

☐ Hispanic/Latino (specify origin): _____ ☐ Asian (specify origin): _____ ☐ Other (specify origin): _____

12. What language do you speak at home? (**Check ONE response.**)

☐ Mostly English ☐ English and Spanish ☐ Mostly Spanish ☐ Other: _____

13. What is the highest level of education you have completed? **(Please check ONE response.)**

☐ Some high school ☐ High school or GED ☐ College, tech. school, or other advanced degree

14. How many people currently live in your household? _____ people

15. Please indicate your total household income range before taxes last year. (**Check ONE box.)**

☐ $25,000 or less ☐ $25,001 to $50,000 ☐ $50,001 to $75,000

☐ $75,001 to $100,000 ☐ $100,001 or more ☐ Refuse to answer

Thanks again for your time.

FY2

Georgia State Parks Visitor Survey

The Georgia Dept. of Natural Resources (GA DNR) and the University of Georgia are conducting a study of visitors to state parks. Your responses will help GA DNR to better manage state parks for your use and enjoyment. Please take a few minutes to complete this questionnaire. Your help is voluntary and responses are anonymous and confidential.

1. Including today, how many times have you visited Fort Yargo in the past 12 months?

   _____ visits **(Please fill in blank.)**

2. Including you, how many people traveled with you to Fort Yargo today? _____ people

   2a. How many of those traveling with you today are under age 18? _____ people

3. How many miles did you travel to visit Fort Yargo today? _____ miles

4. Which of the following best describes your group today? **(Check ONE box.)**

☐ Alone (just you) ☐ Friends ☐ Immediate family (parents and children)

☐ Extended family (other relatives) ☐ Organized group (please specify): _____

5. What was the **MAIN ACTIVITY** you participated in during your visit to Fort Yargo today? (**Please write your main activity below**.)

_____

6. Please indicate whether each of the following obstacles or barriers is a reason that **KEEPS YOU** from visiting Fort Yargo as often as you would like. (**Circle ONE response for each item.)**

Obstacle	Not a Reason		Minor Reason		Major Reason
The cost is too high	1	2	3	4	5
I do not have enough free time	1	2	3	4	5
The park is too far from my home	1	2	3	4	5
I have no way to get to the park	1	2	3	4	5
I am not interested in outdoor recreational activities	1	2	3	4	5
The park does not provide enough fun things for me or my family to do	1	2	3	4	5
I have no friends or family members to do activities with	1	2	3	4	5
My family or I have health problems	1	2	3	4	5
I am afraid of wild animals and outdoor pests	1	2	3	4	5
I am afraid of perceived crime in the park	1	2	3	4	5
Facilities are in poor condition	1	2	3	4	5
Park employees are not friendly	1	2	3	4	5
Lack of information about recreation opportunities	1	2	3	4	5
Information about the park (e.g. signs, maps) is not in my language	1	2	3	4	5

Please turn over.

Obstacle	Not a Reason		Minor Reason		Major Reason
I do not approve of activities other visitors are doing	1	2	3	4	5
I feel uncomfortable based on my gender	1	2	3	4	5
I feel uncomfortable based on my race/ethnicity	1	2	3	4	5
I feel uncomfortable around people from other racial/ethnic groups	1	2	3	4	5
People from my racial/ethnic group often experience conflicts with other park visitors	1	2	3	4	5
People from my racial/ethnic group DO NOT feel welcome at Ft. Yargo	1	2	3	4	5
I prefer to recreate elsewhere (where?): _____	1	2	3	4	5

7. How LIKELY are your friends or family to do the following things? (**Circle ONE number per item.)**

	Very Unlikely	Unlikely	Neither	Likely	Very Likely
Spend a day at a state park	1	2	3	4	5
Pay a state park entrance fee	1	2	3	4	5
Pay a state park activity fee	1	2	3	4	5
Participate in ACTIVE outdoor activities (like running)	1	2	3	4	5
Participate in SOCIAL outdoor activities (like a picnic)	1	2	3	4	5
Participate in outdoor NATURE activities (like hiking)	1	2	3	4	5
Enjoy time outdoors in nature	1	2	3	4	5
Encourage me to be outdoors in nature	1	2	3	4	5
Appreciate recreation activities at Fort Yargo	1	2	3	4	5

8. What is your gender? ☐ Female ☐ Male

9. What is your age? _____ years old

10. What is your race/ethnicity? (**Check ALL that apply.**)

☐ White or Caucasian ☐ Black or African American ☐ American Indian

☐ Hispanic/Latino (specify origin): _____ ☐ Asian (specify origin): _____ ☐ Other (specify origin): _____

11. What language do you speak at home? (**Check ONE response.**)

☐ Mostly English ☐ English and Spanish ☐ Mostly Spanish ☐ Other: _____

12. What is the highest level of education you have completed? **(Please check ONE response.)**

☐ Some high school ☐ High school or GED ☐ College, tech. school, or other advanced degree

13. How many people currently live in your household? _____ people

14. Please indicate your total household income range before taxes last year. (**Check ONE box.)**

☐ $25,000 or less ☐ $25,001 to $50,000 ☐ $50,001 to $75,000

☐ $75,001 to $100,000 ☐ $100,001 or more ☐ Refuse to answer

15. What could park managers do to encourage you to camp and/or use park trails MORE OFTEN at Fort Yargo? (**Please write suggestions below)**:

FY3

Georgia State Parks Visitor Survey

The Georgia Dept. of Natural Resources (GA DNR) and the University of Georgia are conducting a study of visitors to state parks. Your responses will help GA DNR to better manage state parks for your use and enjoyment. Please take a few minutes to complete this questionnaire. Your help is voluntary and responses are anonymous and confidential.

1. Including today, how many times have you visited Fort Yargo in the past 12 months? _____ visits

2. In what year did you first visit Fort Yargo State Park? Year: _____

3. Including you, how many people traveled with you to Fort Yargo today? _____ people

   3a. How many of those traveling with you today are under age 18? _____ people

4. How many miles did you travel to visit Fort Yargo today? _____ miles

5. What was the **MAIN ACTIVITY** you participated in during your visit to Fort Yargo today? (**Please write your main activity below**.)

_____

6. Funding Georgia state parks continues to be a major challenge. Would you be willing to pay more for your daily entrance fee if you knew the money was going directly to Fort Yargo? **(Check ONE box.)**

   ☐ No, I would not pay more

   ☐ Yes, I would pay $ _____ more for a daily entrance fee to Ft. Yargo **(Write number in blank.)**

7. Have you purchased a Georgia State Parks ANNUAL PASS in the past 12 months?

   ☐ Yes ☐ No

8. If the daily entrance fee for getting in to Fort Yargo was $_____ per vehicle, how would your visitation to Fort Yargo change? **(Check ONE box.)**

   ☐ My visits in a typical year would be about the same.

   ☐ I would increase my visits to _____ visits per year **(Write number in blank.)**

   ☐ I would decrease my visits to _____ visits per year **(Write number in blank.)**

9. How would you PREFER to pay to visit a state park and participate in outdoor recreation activities? (**Check ONE box.**)

   ☐ Per vehicle parking fee

   ☐ Per person entrance fee

   ☐ Per person activity fee (no entrance fee, but pay a certain amount per person each time you use a different facility such as camping, fishing, boating, etc.)

Please turn over.

10. Please indicate whether you DISAGREE or AGREE with the following statements concerning your opinion of Fort Yargo State Park. (**Circle ONE response for each statement.**)

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
For me, Fort Yargo is a special place.	1	2	3	4	5
I'm happier visiting Fort Yargo than other parks in north Georgia.	1	2	3	4	5
Fort Yargo is the best place for me to recreate.	1	2	3	4	5
There are other places nearby where I can easily do the things I do at Fort Yargo.	1	2	3	4	5
Recreation at Fort Yargo is more important to me than recreation at any other place.	1	2	3	4	5
Fort Yargo is pretty much like any other state or local park.	1	2	3	4	5

11. What is your gender? ☐ Female ☐ Male

12. What is your age? _____ years old

13. What is your race/ethnicity? (**Check ALL that apply.**)

☐ White or Caucasian ☐ Black or African American ☐ American Indian

☐ Hispanic/Latino (specify origin): _____ ☐ Asian (specify origin): _____ ☐ Other (specify origin): _____

14. What language do you speak at home? (**Check ONE response.**)

☐ Mostly English ☐ English and Spanish ☐ Mostly Spanish ☐ Other: _____

15. What is the highest level of education you have completed? **(Please check ONE response.)**

☐ Some high school ☐ High school or GED ☐ College, tech. school, or other advanced degree

16. How many people currently live in your household? _____ people

17. Please indicate your total household income range before taxes last year. (**Check ONE box.)**

☐ $25,000 or less ☐ $25,001 to $50,000 ☐ $50,001 to $75,000

☐ $75,001 to $100,000 ☐ $100,001 or more ☐ Refuse to answer

18. Please provide the zip code for your permanent address. _____

Please write any other comments or suggestions for park managers in the space below:

Thanks again for your time.

FY4

Georgia State Parks Visitor Survey

The Georgia Dept. of Natural Resources (GA DNR) and the University of Georgia are conducting a study of visitors to state parks. Your responses will help GA DNR to better manage state parks for your use and enjoyment. Please take a few minutes to complete this questionnaire. Your help is voluntary and responses are anonymous and confidential.

1. Including today, how many times have you visited Fort Yargo in the past 12 months? _____ visits

2. Including you, how many people traveled with you to Fort Yargo today? _____ people

3. How many days during A TYPICAL WEEK do you participate in PHYSICAL ACTIVTITES (including walking) that cause an increase in breathing or heart rate for at least 30 minutes at a time?

_____ days per week **(Please write number in blank.)**

4. Please tell us HOW OFTEN you use each of the following locations when you participate in PHYSICAL ACTIVITIES. (**Circle ONE response for each item.)**

	Never	Rarely	Occasionally	Often	Very Often
Fort Yargo State Park	1	2	3	4	5
Other Georgia state parks	1	2	3	4	5
Neighborhood parks	1	2	3	4	5
Neighborhood sidewalks/streets	1	2	3	4	5
Gym/recreation center	1	2	3	4	5
Home/backyard	1	2	3	4	5
Work	1	2	3	4	5

5. How much TOTAL time did you *or* will you spend in Fort Yargo during your visit today?

_____ hours and/or _____ minutes **(Write number in blanks.)**

5a. How much of this time did you *or* will you spend doing **MODERATE physical activities** that cause a small increase in breathing or heart rate (such as fast walking or swimming) for at least 10 minutes at a time?

_____ hours and/or _____ minutes **(Write number in blanks.)**

5b. How much of this time did you *or* will you spend doing **VIGOROUS physical activities** that cause a large increase in breathing or heart rate (such as running or fast biking) for at least 10 minutes at a time?

_____ hours and/or _____ minutes **(Write number in blanks.)**

6. Please **check ALL** the areas you use for physical activities during your visit(s) to Fort Yargo.

☐ Biking trails ☐ Open green space/sport fields ☐ Picnic areas/playgrounds

☐ Boating areas ☐ Paved courts ☐ Swimming areas

☐ Dirt/gravel hiking trails ☐ Paved walking trails ☐ Other (please specify): _____

Please turn over.

7. How IMPORTANT are the following items for promoting your PHYSICAL ACTIVITY at Fort Yargo? (**Circle ONE response for each item.**)

	Not At All Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Natural scenery	1	2	3	4	5
Developed areas and facilities	1	2	3	4	5
A variety of activity choices	1	2	3	4	5
Open green space in which to play	1	2	3	4	5
Accessible recreation opportunities	1	2	3	4	5
Seeing other active visitors	1	2	3	4	5
Being with active friends and family	1	2	3	4	5
A safe environment	1	2	3	4	5

8. What is your gender? ☐ Female ☐ Male

9. What is your age? _____ years old

10. What is your race/ethnicity? (**Check ALL that apply.**)

☐ White or Caucasian ☐ Black or African American ☐ American Indian

☐ Hispanic/Latino (specify origin): _____ ☐ Asian (specify origin): _____ ☐ Other (specify origin): _____

11. What language do you speak at home? (**Check ONE response.**)

☐ Mostly English ☐ English and Spanish ☐ Mostly Spanish ☐ Other: _____

12. What is the highest level of education you have completed? **(Please check ONE response.)**

☐ Some high school ☐ High school or GED ☐ College, tech. school, or other advanced degree

13. How many people currently live in your household? _____ people

14. Please indicate your total household income range before taxes last year. (**Check ONE box.)**

☐ $25,000 or less ☐ $25,001 to $50,000 ☐ $50,001 to $75,000

☐ $75,001 to $100,000 ☐ $100,001 or more ☐ Refuse to answer

15. Please provide the zip code for your permanent address. _____

16. What could state park managers do to help increase your participation in outdoor physical activities at Fort Yargo? (**Please write suggestions in the space below.)**

Thanks again for your time.

FYkids

Georgia State Parks Visitor Survey

The Georgia Dept. of Natural Resources (GA DNR) and the University of Georgia are conducting a study of visitors to state parks. Your responses will help GA DNR to better manage state parks for your use and enjoyment. Please take a few minutes to complete this questionnaire. Your help is voluntary and responses are anonymous and confidential.

Children's Outdoor Recreation. *When answering the following questions, think of* ***the ONE child UNDER AGE 18 in your group today*** *who had the* ***LAST BIRTHDAY****.*

1. What is your relationship to this child?

☐ Parent ☐ Aunt/Uncle ☐ Cousin

☐ Grandparent ☐ Sibling ☐ Other (specify): _____

2. Please **check ALL** the activities this child participated in during your visit to Fort Yargo today.

Land-based:	**Water-based:**	**Other:**
☐ Biking	☐ Beach activities	☐ Camping
☐ Hiking/walking	☐ Canoeing/kayaking	☐ Relaxing/no main activity
☐ Jogging/running	☐ Fishing	☐ Visiting historic fort
☐ Mini golf	☐ Motor boating	☐ Visitor center exhibit
☐ Picnic/cookout	☐ Swimming	☐ Wildlife viewing/photography
☐ Playground		☐ Other (please specify):
☐ Team sports		_____

3. Please state whether you DISAGREE or AGREE with the following statements concerning this child's visits to Fort Yargo. (**Circle ONE response per item.)**

Visits to Fort Yargo help this child to:	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Enjoy time with family and friends	1	2	3	4	5
Develop social skills	1	2	3	4	5
Increase physical activity	1	2	3	4	5
Improve physical health	1	2	3	4	5
Improve mental health	1	2	3	4	5
Try new things	1	2	3	4	5
Discover and learn about nature	1	2	3	4	5
Appreciate and respect nature	1	2	3	4	5
Other (specify): _____	1	2	3	4	5

Please turn over.

4. How many days during a TYPICAL WEEK does this child participate in PHYSICAL ACTIVITIES (including walking) that cause an increase in breathing or heart rate for at least 60 minutes at a time?

_____ days per week **(Please write number in blank.)**

5. How much TOTAL time did this child *or* will this child spend in Fort Yargo State Park during your visit today?

_____ hours and/or _____ minutes **(Write number in blanks.)**

5b. How much of this time did *or* will this child spend doing **MODERATE physical activities** that cause a small increase in breathing or heart rate (such as fast walking or swimming) for at least 10 minutes at a time?

_____ hours and/or _____ minutes **(Write number in blanks.)**

5c. How much of this time did *or* will this child spend doing **VIGOROUS physical activities** that cause a large increase in breathing or heart rate (such as running or fast biking) for at least 10 minutes at a time?

_____ hours and/or _____ minutes **(Write number in blanks.)**

6. To the best of your knowledge, about how often will this child visit Fort Yargo this summer (May-September)? (**Please check ONE response**.)

☐ More than once a week ☐ About once a week

☐ About once a month ☐ About once this summer

7. How old is this child? _____ years old

8. What is the gender of this child? ☐ Female ☐ Male

9. What is the race/ethnicity of this child? (**Check ALL that apply.**)

☐ White or Caucasian ☐ Black or African American ☐ American Indian

☐ Hispanic/Latino (specify origin): _____ ☐ Asian (specify origin): _____ ☐ Other (specify origin): _____

10. What could park managers do to help increase this child's participation in outdoor physical activities at Fort Yargo? (**Please write response in space below**.)

Thanks again for your time.

FY1S

Encuesta para los Visitantes de los Parques Estatales de Georgia

El Departamento de Recursos Naturales de Georgia (GA DNR) y la Universidad de Georgia están llevando a cabo un estudio sobre los visitantes a los parques estatales. Sus respuestas ayudarán GA DNR a manejar los parques de modo que usted pueda disfrutarlos más. Por favor tome unos minutos para completar esta encuesta. La participación es voluntaria y sus respuestas son anónimas y confidenciales.

1. Incluyendo hoy, ¿cuántas veces ha visitado a Fort Yargo usted en los últimos 12 meses? _____ visitas

2. ¿En qué año hizo usted su primero visita a Fort Yargo? Año: _____

3. ¿Con qué frecuencia visitará a Fort Yargo usted este verano (mayo-septiembre)? (**Marque UNA caja.)**

☐ Más de una vez por semana ☐ Aproximadamente una vez a la semana

☐ Aproximadamente una vez al mes ☐ Aproximadamente una vez este verano

4. Incluyendo usted, ¿cuántas personas viajaron con usted a Fort Yargo hoy? _____ personas

4a. ¿Cuántos de aquellos viajando con usted hoy tienen menos de 18 años?_____ personas

5. Por favor **marque TODAS** las actividades en las que usted participó durante su visita hoy.

Base de tierra:	**Base de agua:**	**Otra:**
☐ Ciclismo	☐ Actividades en la playa	☐ Acampar
☐ Caminata	☐ Canoa/kayak	☐ Relajación/no hay actividad principal
☐ Correr/trotar	☐ Pescar	☐ Visitar al fuerte histórico
☐ Picnic	☐ Bote a motor	☐ Exhibición del centro de visitantes
☐ Zona de juegos	☐ Natación	☐ Observación de fauna/fotografía
☐ Deportes de equipo		☐ Otra (**por favor detalle**): _____

6. Por favor indique el nivel de IMPORTANCIA de los siguientes factores cuando usted está decidiendo si va a visitar o no Fort Yargo? (**Marque UNA SOLA respuesta para cada caso.**)

	Sin importancia	**Poca importancia**	**Mas o menos importante**	**Algo importante**	**Muy importante**
Pasar tiempo con mi familia	1	2	3	4	5
Pasar tiempo con mis amigos	1	2	3	4	5
Conocer gente	1	2	3	4	5
Ejercitarme	1	2	3	4	5
Estar en buena forma física	1	2	3	4	5
Descansar y relajarme	1	2	3	4	5
Disfrutar la soledad, paz y calma	1	2	3	4	5
Participar en actividades divertidas	1	2	3	4	5
Estar cerca de naturaleza	1	2	3	4	5
Aprender sobre y explorar la naturaleza	1	2	3	4	5

Por favor vea la página siguiente.

7. ¿Qué IMPORTANCIA tienen los factores siguientes a usted durante su visita(s) a Fort Yargo?

	Sin importancia	Poca importancia	Mas o menos importante	Algo importante	Muy importante
Áreas naturales (bosques, caminos, etc.)	1	2	3	4	5
Áreas mantenidas al aire libre (playas, abra áreas de picnic, etc.)	1	2	3	4	5
Áreas/instalaciones desarrolladas (refugios, servicios, centro de visitantes, etc.)	1	2	3	4	5
Estacionamento	1	2	3	4	5
Concesiones o servicios de alimento	1	2	3	4	5
Tiendas que venden recuerdos y provisiones	1	2	3	4	5
Reglas de mantener un ambiente seguro	1	2	3	4	5
Empleados del parque amistosos y simpático	1	2	3	4	5
Un lugar para explorar la naturaleza	1	2	3	4	5
Un lugar para picnic o hacer barbacoa	1	2	3	4	5
Un lugar para recrear con la familia	1	2	3	4	5

8. Por favor indique si usted NO ESTA o ESTÁ DE ACUERDO con las declaraciones siguientes acerca de sus visitas a Fort Yargo. (**Marque UNA SOLA respuesta para cada frase.**)

Las visitas a Fort Yargo me ayudan a:	Totalmente en Desacuerdo	En Desacuerdo	Neutral	De Acuerdo	Totalmente de Acuerdo
Desarrollar actitudes positivas sobre la naturaleza	1	2	3	4	5
Construir y reforzar mis relaciones con otra gente	1	2	3	4	5
Conocer gente de razas diferentes	1	2	3	4	5
Mejorar mi salud física	1	2	3	4	5
Mejorar mi salud mental	1	2	3	4	5
Mejorar mi calidad de vida	1	2	3	4	5

9. ¿Cuál es su sexo? ☐ Femenino ☐ Masculino → 10. ¿Cuál es su edad? _____ años

11. ¿Cuál es su raza o grupo étnico? **(Marque TODAS las que aplican.)**

☐ Blanco o Caucásico ☐ Negro o Afro Americano ☐ Indígena Americana

☐ Hispanic/Latino (indique origen): _____ ☐ Asiático (indique origen): _____ ☐ Otro: _____

12. ¿Qué idioma se habla principalmente en su hogar? (**Marque UNA SOLA respuesta.**)

☐ Más en Inglés ☐ Inglés e Español (mezlca) ☐ Más en Español ☐ Otra: _____

13. ¿Cuál es el nivel educativo más alto que ha completado? **(Marque UNA SOLA respuesta.)**

☐ Educación secundaria incompleta ☐ Graduado de escuela secundaria ☐ Graduado de una universidad

14. ¿Cuántas personas viven actualmente en su hogar? _____ personas

15. Por favor indique el rango de los ingresos totales del año pasado para su hogar antes de la deducción de impuestos. (**Marque UNA SOLA respuesta.)**

☐ $25,000 o menos ☐ $25,001 a $50,000 ☐ $50,001 a $75,000

☐ $75,001 a $100,000 ☐ $100,001 o más ☐ Prefiero no contestar

¡Muchas gracias por su tiempo!

FY2S

Encuesta para los Visitantes de los Parques Estatales de Georgia

El Departamento de Recursos Naturales de Georgia (GA DNR) y la Universidad de Georgia están llevando a cabo un estudio sobre los visitantes a los parques estatales. Sus respuestas ayudarán GA DNR a manejar los parques de modo que usted pueda disfrutarlos más. Por favor tome unos minutos para completar esta encuesta. La participación es voluntaria y sus respuestas son anónimas y confidenciales.

1. Incluyendo hoy ¿cuántas veces ha visitado a Fort Yargo usted en los últimos 12 meses? _____ visitas

2. Incluyendo usted, ¿cuántas personas viajaron con usted a Fort Yargo hoy? _____ personas

   2a. ¿Cuántos de aquellos viajando con usted hoy tienen menos de 18 años?_____ personas

3. ¿Cuántas millas viajó usted para visitar a Fort Yargo hoy? _____ millas

4. ¿Cuál de las siguientes opciones describe mejor su grupo hoy?

   ☐ Sólo usted ☐ Amigos ☐ Familia inmediata (padres y hijos)

   ☐ Familia ampliada (con otros parientes) ☐ Grupo organizado (**especifique**): _____

5. ¿Cuál era su **ACTIVIDAD PRINCIPAL** durante su visita hoy? **(Escriba esta actividad por debajo.)**

_____

6. Por favor indique si cada uno de los obstáculos representa una razón que LE IMPIDE visitar a Fort Yargo tan frecuentemente como le gustaría. (**Marque UNA SOLA respuesta para cada obstáculo.)**

Obstáculo	No es razón		Mas o menos es una razón		Es la razón principal!
El costo es demasiado alto	1	2	3	4	5
No tengo tiempo libre para visitar	1	2	3	4	5
El parque queda muy lejos de mi casa	1	2	3	4	5
No tengo transporte para viajar al parque	1	2	3	4	5
No estoy interesado en actividades recreativas al aire libre	1	2	3	4	5
El parque no tiene actividades divertidas para mí o mi familia	1	2	3	4	5
No tengo a nadie con quien realizar las actividades	1	2	3	4	5
Mi familia o yo tenemos problemas de salud	1	2	3	4	5
Tengo miedo de animales salvajes y parásitos al aire libre	1	2	3	4	5
Tengo miedo del delito percibido en el parque	1	2	3	4	5
Las instalaciones no están en buenas condiciones	1	2	3	4	5
Los empleados del parque no son amigables	1	2	3	4	5
Falta información sobre las oportunidades recreativas	1	2	3	4	5
La señalización y la información no están en mi idioma	1	2	3	4	5
No apruebo las actividades que otros visitantes hacen	1	2	3	4	5
Me siento incómodo debido a mi género (masculino o feminino)	1	2	3	4	5
Me siento incómodo debido a mi raza o etnia	1	2	3	4	5

Por favor vea la página siguiente.

Obstáculo	No es razón		Mas o menos es una razón		Es la razón principal!
Me siento incómodo alrededor de la gente de otros grupos raciales	1	2	3	4	5
La gente de mi grupo racial/étnico a veces experimenta conflictos con otros visitantes del parque	1	2	3	4	5
La gente de mi grupo racial/étnico no sienten cómodas en Ft. Yargo	1	2	3	4	5
Prefiero recrearme en otro lugar (dónde?): _____	1	2	3	4	5

7. ¿Qué es la PROBABILIDAD que sus amigos o familia harían lo siguiente?

	Muy poco Probable	Poco Probable	Quizas sea Probable	Probable	Muy Probable
Pasar un día en un parque estatal	1	2	3	4	5
Pagar para entrar en un parque estatal	1	2	3	4	5
Pagar para participar en actividades en un parque estatal	1	2	3	4	5
Participar en actividades ACTIVAS al aire libre (correr, biking, etc.)	1	2	3	4	5
Participar en actividades SOCIALES al aire libre (picnic, comida al aire libre, etc.)	1	2	3	4	5
Participar en actividades de NATURALEZA al aire libre (caminata, pesca, acampar, etc.)	1	2	3	4	5
Disfrutar tiempo al aire libre cerca de la naturaleza	1	2	3	4	5
Animarme a estar al aire libre en la naturaleza	1	2	3	4	5
Apreciar actividades recreativas en Fort Yargo	1	2	3	4	5

8. ¿Cuál es su sexo? ☐ Femenino ☐ Masculino

9. ¿Cuál es su edad? _____ años

10. ¿Cuál es su raza o grupo étnico? **(Marque TODAS las que aplican.)**

☐ Blanco o Caucásico ☐ Negro o Afro Americano ☐ Indígena Americana

☐ Hispanic/Latino (indique origen): _____ ☐ Asiático (indique origen): _____ ☐ Otro: _____

11. ¿Qué idioma se habla principalmente en su hogar? (**Marque UNA SOLA respuesta.**)

☐ Más en Inglés ☐ Inglés e Español (mezlca) ☐ Más en Español ☐ Otra: _____

12. ¿Cuál es el nivel educativo más alto que ha completado? **(Marque UNA SOLA respuesta.)**

☐ Educación secundaria incompleta ☐ Graduado de escuela secundaria ☐ Graduado de una universidad

13. ¿Cuántas personas viven actualmente en su hogar? _____ personas

14. Por favor indique el rango de los ingresos totales del año pasado para su hogar antes de la deducción de impuestos. (**Marque UNA SOLA respuesta.)**

☐ $25,000 o menos ☐ $25,001 a $50,000 ☐ $50,001 a $75,000

☐ $75,001 a $100,000 ☐ $100,001 o más ☐ Prefiero no contestar

15. ¿Qué podrían hacer los administradores del parque para animarle a acampar y/o usar los senderos en Fort Yargo más frecuentemente? **(Por favor escriba sus sugerencias por debajo):**

FY3S

Encuesta para los Visitantes de los Parques Estatales de Georgia

El Departamento de Recursos Naturales de Georgia (GA DNR) y la Universidad de Georgia están llevando a cabo un estudio sobre los visitantes a los parques estatales. Sus respuestas ayudarán GA DNR a manejar los parques de modo que usted pueda disfrutarlos más. Por favor tome unos minutos para completar esta encuesta. La participación es voluntaria y sus respuestas son anónimas y confidenciales.

1. Incluyendo hoy ¿cuántas veces ha visitado a Fort Yargo usted en los últimos 12 meses? _____ visitas

2. ¿En qué año hizo usted su primero visita a Fort Yargo? Año: _____

3. Incluyendo usted, ¿cuántas personas viajaron con usted a Fort Yargo hoy? _____ personas

   3a. ¿Cuántos de aquellos viajando con usted hoy tienen menos de 18 años?_____ personas

4. ¿Cuántas millas viajó usted para visitar a Fort Yargo hoy? _____ millas

5. ¿Cuál era su **ACTIVIDAD PRINCIPAL** durante su visita hoy? **(Escriba esta actividad por debajo.)**

_____

6. La financión de los parques estatales sigue siendo un reto enorme. ¿Estaría dispuesto a pagar más por la cuota de entrada diaria si usted supiera que el dinero iba directamente a Fort Yargo?

   ☐ No, yo no pagaría más

   ☐ Sí, yo pagaría $ _____ más por una cuota de entrada a Ft. Yargo **(Escriba en el espacio.)**

7. ¿Ha comprado un PASE ANUAL para los parques estatales de Georgia en los últimos 12 meses?

   ☐ Sí ☐ No

8. Si la cuota diaria de entrada en Fort Yargo fuera $_____ por vehículo, ¿cómo cambiaría su visitación a Fort Yargo? **(Marque UNA caja.)**

   ☐ Mis visitas en un año típico sería más o menos igual.

   ☐ Aumentaría mis visitas a _____ visitas al año. **(Escriba número en el espacio.)**

   ☐ Reduciría mis visitas a _____ visitas al año. **(Escriba número en el espacio.)**

9. ¿Cómo PREFIERE pagar usted por visitar un parque estatal y participar en actividades recreativas en al aire libre? (**Marque UNA caja.)**

   ☐ Una cuota de estacionamiento por cada vehículo

   ☐ Una cuota de entrada por cada persona

   ☐ Una cuota de actividad recreativa por cada persona (No hay cuota de entrada, pero paga una cierta cantidad cada vez usa una instalación diferente del parque)

Por favor vea la página siguiente.

10. Por favor indique si usted NO ESTA o ESTÁ DE ACUERDO con las frases siguientes sobre su opinión de Fort Yargo State Park. (**Marque UNA SOLA respuesta para cada ítem.)**

	Totalmente en Desacuerdo	**En Desacuerdo**	**Neutral**	**De Acuerdo**	**Totalmente de Acuerdo**
Fort Yargo es muy especial para mí.	1	2	3	4	5
Estoy más feliz visitando a Fort Yargo que visitando cualquier otra área.	1	2	3	4	5
Fort Yargo es el mejor lugar para mi recreación.	1	2	3	4	5
Hay otros sitios cercanos donde puedo hacer las mismas actividades que hago en Ft. Yargo	1	2	3	4	5
Recreación en Fort Yargo es más importante para mí que recreación en cualquier otro lugar.	1	2	3	4	5
Fort Yargo más o menos parece como cualquier otro parque estatal o local.	1	2	3	4	5

11. ¿Cuál es su sexo? ☐ Femenino ☐ Masculino

12. ¿Cuál es su edad? _____ años

13. ¿Cuál es su raza o grupo étnico? **(Marque TODAS las que aplican.)**

☐ Blanco o Caucásico ☐ Negro o Afro Americano ☐ Indígena Americana

☐ Hispanic/Latino (indique origen): _____ ☐ Asiático (indique origen): _____ ☐ Otro: _____

14. ¿Qué idioma se habla principalmente en su hogar? (**Marque UNA SOLA respuesta.**)

☐ Más en Inglés ☐ Inglés e Español (mezlca) ☐ Más en Español ☐ Otra: _____

15. ¿Cuál es el nivel educativo más alto que ha completado? **(Marque UNA SOLA respuesta.)**

☐ Educación secundaria incompleta ☐ Escuela secundaria ☐ Una universidad o escuela técnica

16. ¿Cuántas personas viven actualmente en su hogar? _____ personas

17. Por favor indique el rango de los ingresos totales del año pasado para su hogar antes de la deducción de impuestos. (**Marque UNA SOLA respuesta.)**

☐ $25,000 o menos ☐ $25,001 a $50,000 ☐ $50,001 a $75,000

☐ $75,001 a $100,000 ☐ $100,001 o más ☐ Prefiero no contestar

18. Por favor proporcione el código postal de su dirección permanente. _____

Si tienes otras sugerencias para el parque, por favor escríbalos en el espacio siguiente:

¡Muchas gracias por su tiempo!

FY4S

Encuesta para los Visitantes de los Parques Estatales de Georgia

El Departamento de Recursos Naturales de Georgia (GA DNR) y la Universidad de Georgia están llevando a cabo un estudio sobre los visitantes a los parques estatales. Sus respuestas ayudarán GA DNR a manejar los parques de modo que usted pueda disfrutarlos más. Por favor tome unos minutos para completar esta encuesta. La participación es voluntaria y sus respuestas son anónimas y confidenciales.

1. Incluyendo hoy, ¿cuántas veces ha visitado a Fort Yargo usted en los últimos 12 meses? _____ visitas

2. Incluyendo usted, ¿cuántas personas viajaron con usted a Fort Yargo hoy? _____ personas

3 ¿Cuántos días durante una SEMANA TÍPICA participa usted en ACTIVIDADES FÍSICAS (incluso caminando) que causan un aumento de respiración o latidos del corazón por lo menos 30 minutos a la vez?

_____ días por semana **(Escriba un número en el espacio.)**

4 Por favor díganos con qué frecuencia usted usa las siguientes áreas para realizar sus ACTIVIDADES FÍSICAS. (**Marque UNA SOLA respuesta para cada área.)**

	Nunca	Raramente	En Ocasiones	Con Regularidad	Muy a Menudo
Fort Yargo State Park	1	2	3	4	5
Otros parques estatales	1	2	3	4	5
Parques en su vecindario	1	2	3	4	5
Aceras/calles en su vecindad	1	2	3	4	5
Gimnasio/centros recreativos	1	2	3	4	5
Hogar/patio trasero	1	2	3	4	5
Trabajo	1	2	3	4	5

5. ¿Cuánto tiempo TOTAL pasa usted en Fort Yargo durante su visita hoy?

_____ horas y/o _____ minutes **(Escriba un número en los espacios.)**

5a. ¿Cuánto de este tiempo pasó usted haciendo **actividades físicas MODERADAS** que causan un aumento pequeño de respiración o latidos del corazón (como caminar rápido o natación) por lo menos 10 minutos a la vez?

_____ horas y/o _____ minutes **(Escriba un número en los espacios.)**

5b ¿Cuánto de este tiempo pasó usted haciendo **actividades físicas VIGOROSAS** que causan un aumento grande de respiración o latidos del corazón (como el correr o montar la bicicleta rápido) por lo menos 10 minutos a la vez?

_____ horas y/o _____ minutes **(Escriba un número en los espacios.)**

6. **Marque TODAS** las áreas usted usa para actividades físicas durante su visita(s) a Fort Yargo.

☐ Caminos para bicicletas ☐ Campos abiertos para deportes ☐ Áreas de picnic/zona de juegos

☐ Áreas de bote ☐ Canchas pavimentadas ☐ Áreas de natación

☐ Senderos sin pavimentar ☐ Senderos pavimentados ☐ Otra (explique): _____

Por favor vea la página siguiente.

7. Por favor indique el nivel de IMPORTANCIA de los factores siguientes para promover su ACTIVIDAD FÍSICA en Fort Yargo? (**Marque UNA SOLA respuesta para cada artículo.**)

	Sin importancia	**Poca importancia**	**Mas o menos importante**	**Algo importante**	**Muy importante**
Paisaje natural	1	2	3	4	5
Áreas desarrolladas e instalaciones	1	2	3	4	5
Una variedad de actividades	1	2	3	4	5
Espacios libre y naturales para jugar	1	2	3	4	5
Oportunidades recreaciónal para todos	1	2	3	4	5
Al ver otros visitantes activos	1	2	3	4	5
Estar con amigos y familia activos	1	2	3	4	5
Un ambiente seguro	1	2	3	4	5

8. ¿Cuál es su sexo? ☐ Femenino ☐ Masculino

9. ¿Cuál es su edad? _____ años

10. ¿Cuál es su raza o grupo étnico? **(Marque TODAS las que aplican.)**

☐ Blanco o Caucásico ☐ Negro o Afro Americano ☐ Indígena Americana

☐ Hispanic/Latino (indique origen): _____ ☐ Asiático (indique origen): _____ ☐ Otro: _____

11. ¿Qué idioma se habla principalmente en su hogar? (**Marque UNA SOLA respuesta.**)

☐ Más en Inglés ☐ Inglés e Español (mezlca) ☐ Más en Español ☐ Otra: _____

12. ¿Cuál es el nivel educativo más alto que ha completado? **(Marque UNA SOLA respuesta.)**

☐ Educación secundaria incompleta ☐ Graduado de escuela secundaria ☐ Graduado de una universidad

13. ¿Cuántas personas viven actualmente en su hogar? _____ personas

14. Por favor indique el rango de los ingresos totales del año pasado para su hogar antes de la deducción de impuestos. (**Marque UNA SOLA respuesta.)**

☐ $25,000 o menos ☐ $25,001 a $50,000 ☐ $50,001 a $75,000

☐ $75,001 a $100,000 ☐ $100,001 o más ☐ Prefiero no contestar

15. Por favor proporcione el código postal de su dirección permanente. _____

16. ¿Qué podría hacer los administradores para animarle a participar en más actividades físicas al aire libre en Fort Yargo? **(Por favor escriba sus sugerencias en el espacio siguiente.)**

¡Muchas gracias por su tiempo!

FYkidsS

Encuesta para los Visitantes de los Parques Estatales de Georgia

El Departamento de Recursos Naturales de Georgia (GA DNR) y la Universidad de Georgia están llevando a cabo un estudio sobre los visitantes a los parques estatales. Sus respuestas ayudarán GA DNR a manejar los parques de modo que usted pueda disfrutarlos más. Por favor tome unos minutos para completar esta encuesta. La participación es voluntaria y sus respuestas son anónimas y confidenciales.

La recreación de niños al aire libre. *Para las siguientes preguntas,* ***piense en el menor (niño o niña)*** *de su grupo hoy con menos de 18 años que* ***cumplió años más recientemente.***

1. ¿Cómo está usted relacionado a este(a) niño(a)?

☐ Padre ☐ Tío o Tía ☐ Primo

☐ Abuelo ☐ Hermano ☐ Otro (explique): _____

2. Por favor **marque TODAS** las actividades en las que este niño(a) participó durante su visita hoy.

Base de tierra:	**Base de agua:**	**Otra:**
☐ Ciclismo	☐ Actividades en la playa	☐ Acampar
☐ Caminata	☐ Canoa/kayak	☐ Relajación/no hay actividad principal
☐ Correr/trotar	☐ Pescar	☐ Visitar al fuerte histórico
☐ Mini golf	☐ Bote a motor	☐ Exhibición del centro de visitantes
☐ Picnic	☐ Natación	☐ Observación de fauna/fotografía
☐ Zona de juegos		☐ Otra (**por favor detalle**): _____
☐ Deportes de equipo		

3. Por favor indique si usted NO ESTA o ESTÁ DE ACUERDO con las declaraciones siguientes acerca de las visitas de este niño(a) a Fort Yargo. (**Marque UNA respuesta para cada frase.**)

Las visitas a Fort Yargo ayuda a este niño(a) a:	**Totalmente en Desacuerdo**	**En Desacuerdo**	**Neutral**	**De Acuerdo**	**Totalmente de Acuerdo**
Disfrutar tiempo con familia y amigos	1	2	3	4	5
Desarrollar habilidades sociales	1	2	3	4	5
Aumentar la actividad física	1	2	3	4	5
Mejorar su salud física	1	2	3	4	5
Mejorar su salud mental	1	2	3	4	5
Intentar actividades nuevas	1	2	3	4	5
Descubrir y aprender sobre la naturaleza	1	2	3	4	5
Apreciar y respetar la naturaleza	1	2	3	4	5
Otra (describe): _____	1	2	3	4	5

Por favor vea la página siguiente.

4. ¿Cuántos días durante una SEMANA TÍPICA participa este niño(a) en ACTIVIDADES FÍSICAS (incluso caminando) que causan un aumento de respiración o latidos del corazón por lo menos 60 minutos (1 hora) a la vez?

_____ días por semana **(Escriba un número en el espacio.)**

5. ¿Cuánto tiempo TOTAL pasa este niño(a) en Fort Yargo durante su visita hoy?

_____ horas y/o _____ minutos **(Escriba un número en los espacios.)**

5a. ¿Cuánto de este tiempo pasó este niño(a) haciendo **actividades físicas MODERADAS** que causan un aumento pequeño de respiración o latidos del corazón (como caminar rápido o natación) por lo menos 10 minutos a la vez?

_____ horas y/o _____ minutos **(Escriba un número en los espacios.)**

5b. ¿Cuánto de este tiempo pasó este niño(a) haciendo **actividades físicas VIGOROSAS** que causan un aumento grande de respiración o latidos del corazón (como el correr o montar la bicicleta rápido) por lo menos 10 minutos a la vez?

_____ horas y/o _____ minutos **(Escriba un número en los espacios.)**

6. Al mejor de su conocimiento, ¿con qué frecuencia visitará este niño(a) a Fort Yargo este verano (mayo-septiembre)? **(Por favor marque UNA SOLA respuesta.)**

☐ Más que una vez por semana ☐ Aproximadamente una vez a la semana

☐ Aproximadamente una vez al mes ☐ Aproximadamente una vez este verano

7. ¿Cuántos años tiene este niño(a)? _____ años

8. ¿Cuál es el sexo de este niño(a)? ☐ Feminino ☐ Masculino

9. ¿Cuál es la raza o grupo étnico de este niño(a)? **(Marque TODAS las que aplican.)**

☐ Blanco o Caucásico ☐ Negro o Afro Americano ☐ Indígena Americana

☐ Hispanic/Latino (indique origen): _____ ☐ Asiático (indique origen): _____ ☐ Otro: _____

10. ¿Qué podría hacer los administradores para animar este niño(a) a participar en más actividades físicas al aire libre en Fort Yargo? **(Por favor escriba sus sugerencias en el espacio siguiente.)**

¡Muchas gracias por su tiempo!

APPENDIX G

SOPARC COVER SHEET AND DATA COLLECTION FORM

SOPARC Cover Sheet DATES _____ (DAYS _____) PARK _____ OBSERVERS ___ ___

LOCATION (DATE)	OBS	TIME (Start/End)	WEATHER	TOTAL #	SEX		AGE GROUP				ETHNICITY				ACTIVITY		
					F	M	Child	Teen	Adult	Old	W	B	L	O	S	M	V

Possible Activity Types:

Fitness
aerobics/exercises
jogging/running
hiking/walking

Sports
baseball
basketball
cheer leading
dance
football
horseshoes
soccer
tennis
volleyball
other

Active Games
climbing/sliding
jumping (rope, hop scotch)
manipulatives/racquet
tag/chasing games

Sedentary
cards/board games
lying down, sitting, or standing
reading
picnic (food involved)
fishing

Data Codes:

Female=1, Male=2
Child=1, Teen=2, Adult=3, Old=4
White=1, Black=2, Latino=3, Other=4
Sedentary=1, Moderate=2, Vigorous=3

SOPARC Observation Data Sheet

DATE __________ PARK ______ AREA ______________ WEATHER __________ BEGIN ______ END ______ OBS _____

PERSON	GENDER		AGE GROUP				ETHNICITY				ACTIVITY			ACTIVITY TYPE
#	F	M	Child	Teen	Adult	Old	W	B	L	O	S	M	V	

APPENDIX H

OFFSITE INTERCEPT SURVEY FORMS

(5 Versions in English, 5 Versions in Spanish)

OFF1

Georgia Outdoor Recreation Survey

The Georgia Dept. of Natural Resources (GA DNR) and the University of Georgia are conducting a study to learn more about outdoor recreation in Georgia. Your responses will help GA DNR to better manage its parks for your use and enjoyment. Please take a few minutes to complete this questionnaire. Your help is voluntary and responses are anonymous and confidential.

1. Please **check ALL** of the following activities you have participated in during the past 12 months.

☐ Beach activities	☐ Fishing	☐ Relaxing outdoors
☐ Biking	☐ Hiking/walking	☐ Swimming
☐ Camping	☐ Hunting	☐ Team sports (soccer, basketball, etc.)
☐ Canoeing/kayaking	☐ Jogging/running	☐ Visiting an historic site
☐ Driving off-road vehicles	☐ Motor boating	☐ Wildlife viewing/photography
	☐ Picnic/cookout	☐ Other (**specify**): _____

2. How IMPORTANT are the following factors in your decision to participate in outdoor recreation? (**Circle ONE response for each item.**)

	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Spending time with family	1	2	3	4	5
Spending time with friends	1	2	3	4	5
Meeting new people	1	2	3	4	5
Exercising	1	2	3	4	5
Being physically fit	1	2	3	4	5
Relaxing and resting	1	2	3	4	5
Experiencing solitude, peace and calm	1	2	3	4	5
Doing fun and exciting things	1	2	3	4	5
Being close to nature	1	2	3	4	5
Discovering and learning about nature	1	2	3	4	5

3. How IMPORTANT are the following types of outdoor areas for your outdoor recreation activities? (**Circle ONE response for each item.**)

	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Natural areas (forests, hiking trails, etc.)	1	2	3	4	5
Maintained outdoor areas (landscaped parks, picnic areas, beaches, etc.)	1	2	3	4	5
Developed outdoor areas/facilities (sport fields/courts, restrooms, visitor centers, etc.)	1	2	3	4	5

Continue to next page.

4. Have you visited a Georgia State Park in the past 12 months? **(Check ONE box.)**

☐ Yes ☐ Not sure ☐ No **(If NO, please skip to question 5.)**

4a. How many times have you visited ANY Georgia State Park in the past 12 months?

_____ visits **Which state park did you visit most often?** _____

4b. What was the **MAIN ACTIVITY** you participated in during your visits to state parks?

Write activity here: _____

5. What features of a park are most important to you when deciding where to visit?
(**Please write answers in the space below).**

_____

_____

6. What is your gender? ☐ Female ☐ Male

7. What is your age? _____ years old

8. What is your race/ethnicity? (**Check ALL that apply.**)

☐ White or Caucasian ☐ Black or African American ☐ American Indian

☐ Hispanic/Latino (specify origin): _____ ☐ Asian (specify origin): _____ ☐ Other (specify origin): _____

9. What language do you speak at home? (**Check ONE response.**)

☐ Mostly English ☐ English and Spanish ☐ Mostly Spanish ☐ Other: _____

10. What is the highest level of education you have completed? **(Please check ONE response.)**

☐ Some high school ☐ High school or GED ☐ College, tech. school, or other advanced degree

11. How many people currently live in your household? _____ people

12. How many children in your household are under age 18? _____ children

13. Please indicate your total household income range before taxes last year. (**Check ONE box.)**

☐ $25,000 or less ☐ $25,001 to $50,000 ☐ $50,001 to $75,000

☐ $75,001 to $100,000 ☐ $100,001 or more ☐ Refuse to answer

14. Please provide the zip code for your permanent address. _____

Thank you again for your time.

OFF2

Georgia Outdoor Recreation Survey

The Georgia Dept. of Natural Resources (GA DNR) and the University of Georgia are conducting a study to learn more about outdoor recreation in Georgia. Your responses will help GA DNR to better manage its parks for your use and enjoyment. Please take a few minutes to complete this questionnaire. Your help is voluntary and responses are anonymous and confidential.

1. Please tell us HOW OFTEN you use each of the following locations when you are participating in outdoor recreation activities. (**Check ONE box for each item.)**

	Never	Once a Year	Several Times a Year	Once a Month	Several Times a Month	Once a Week	Several Times a Week	Every Day
National Park	☐	☐	☐	☐	☐	☐	☐	☐
Georgia State Park	☐	☐	☐	☐	☐	☐	☐	☐
Neighborhood/local parks	☐	☐	☐	☐	☐	☐	☐	☐
Neighborhood sidewalks/streets	☐	☐	☐	☐	☐	☐	☐	☐
Home/backyard	☐	☐	☐	☐	☐	☐	☐	☐

2. Have you visited a Georgia State Park in the past 12 months? **(Check ONE box.)**

☐ Yes ☐ Not sure ☐ No **(If NO, please skip to question 3.)**

2a. How many times have you visited ANY Georgia State Park in the past 12 months?

_____ visits **Which state park did you visit most often?** _____

2b. What was the **MAIN ACTIVITY** you participated in during your visits to state parks?

Write activity here: _____

3. Please indicate whether each of the following obstacles or barriers is a reason that **KEEPS YOU** from visiting Georgia State Parks as often as you would like. (**Circle ONE response per item.)**

Obstacle	Not a Reason				Major Reason
The cost is too high	1	2	3	4	5
I do not have enough free time	1	2	3	4	5
State parks are too far from my home	1	2	3	4	5
I have no way to get to a state park	1	2	3	4	5
I am not interested in outdoor recreational activities	1	2	3	4	5
The parks do not provide enough fun things for me or my family to do	1	2	3	4	5
I have no friends or family members to do activities with	1	2	3	4	5
My family or I have health problems	1	2	3	4	5
I am afraid of wild animals and outdoor pests	1	2	3	4	5
I am afraid of perceived crime in state parks	1	2	3	4	5
State park facilities are in poor condition	1	2	3	4	5
State park employees are not friendly	1	2	3	4	5
Lack of information about recreation opportunities	1	2	3	4	5
Information about state parks (e.g. signs, maps) is not in my language	1	2	3	4	5

Continue to next page.

4. Please indicate whether each of the additional obstacles or barriers is a reason that **KEEPS YOU** from visiting Georgia State Parks as often as you would like. (**Circle ONE response per item.)**

Obstacle	Not a Reason		Minor Reason		Major Reason
I do not approve of activities other state park visitors are doing	1	2	3	4	5
I feel uncomfortable based on my gender	1	2	3	4	5
I feel uncomfortable based on my race/ethnicity	1	2	3	4	5
I feel uncomfortable around people from other racial/ethnic groups	1	2	3	4	5
People from my racial/ethnic group often experience conflicts with other state park visitors	1	2	3	4	5
People from my racial/ethnic group do not feel welcome at state parks	1	2	3	4	5
I prefer to recreate elsewhere (**Where?**): _____	1	2	3	4	5

5. How LIKELY are your friends or family to do the following things? (**Circle ONE number per item.)**

	Very Unlikely	Unlikely	Neither	Likely	Very Likely
Participate in ACTIVE outdoor activities (like running)	1	2	3	4	5
Participate in PASSIVE outdoor activities (like relaxing)	1	2	3	4	5
Participate in SOCIAL outdoor activities (like a picnic)	1	2	3	4	5
Participate in outdoor NATURE activities (like hiking)	1	2	3	4	5
Spend a day at a Georgia state park	1	2	3	4	5

6. What is your gender? ☐ Female ☐ Male → 7. What is your age? _____ years old

8. What is your race/ethnicity? (**Check ALL that apply.**)

☐ White or Caucasian ☐ Black or African American ☐ American Indian

☐ Hispanic/Latino (specify origin): _____ ☐ Asian (specify origin): _____ ☐ Other (specify origin): _____

9. What language do you speak at home? (**Check ONE response.**)

☐ Mostly English ☐ English and Spanish ☐ Mostly Spanish ☐ Other: _____

10. What is the highest level of education you have completed? **(Please check ONE response.)**

☐ Some high school ☐ High school or GED ☐ College, tech. school, or other advanced degree

11. How many people currently live in your household? _____ people

12. How many children in your household are under age 18? _____ children

13. Please indicate your total household income range before taxes last year. (**Check ONE box.)**

☐ $25,000 or less ☐ $25,001 to $50,000 ☐ $50,001 to $75,000

☐ $75,001 to $100,000 ☐ $100,001 or more ☐ Refuse to answer

14. Please provide the zip code for your permanent address. _____

Thank you again for your time.

OFF3

Georgia Outdoor Recreation Survey

The Georgia Dept. of Natural Resources (GA DNR) and the University of Georgia are conducting a study to learn more about outdoor recreation in Georgia. Your responses will help GA DNR to better manage its parks for your use and enjoyment. Please take a few minutes to complete this questionnaire. Your help is voluntary and responses are anonymous and confidential.

1. Please tell us HOW OFTEN you use each of the following locations when you are participating in outdoor recreation activities. (**Check ONE box for each item.)**

	Never	Once a Year	Several Times a Year	Once a Month	Several Times a Month	Once a Week	Several Times a Week	Every Day
National Park	☐	☐	☐	☐	☐	☐	☐	☐
Georgia State Park	☐	☐	☐	☐	☐	☐	☐	☐
Neighborhood/local parks	☐	☐	☐	☐	☐	☐	☐	☐
Neighborhood sidewalks/streets	☐	☐	☐	☐	☐	☐	☐	☐
Home/backyard	☐	☐	☐	☐	☐	☐	☐	☐
Other: _____	☐	☐	☐	☐	☐	☐	☐	☐

2. Have you visited a Georgia State Park in the past 12 months? **(Check ONE box.)**

☐ Yes ☐ Not sure ☐ No **(If NO, please skip to question 3.)**

2a. How many times have you visited ANY Georgia State Park in the past 12 months?

_____ visits **Which state park did you visit most often? _____**

2b. What was the **MAIN ACTIVITY** you participated in during your visits to state parks?

Write activity here: _____

3. Funding Georgia state parks continues to be a major challenge. Would you be willing to pay more than the current $5 daily entrance fee if you knew the money was going directly to state parks?

☐ No, I would not pay more

☐ Yes, I would pay $ _____ more for a daily entrance fee to state parks **(Write number in blank.)**

4. If the daily entrance fee for getting in to Georgia State Parks was $_____ per vehicle, how would your visitation to Georgia State Parks change? **(Check ONE box.)**

☐ My visits in a typical year would DECREASE.

☐ My visits in a typical year would STAY about THE SAME.

☐ My visits in a typical year would INCREASE.

☐ I am NOT INTERESTED in visiting a Georgia State Park, regardless of price

Continue to next page.

5. Please indicate whether you DISAGREE or AGREE with the following statements concerning your opinion of GEORGIA STATE PARKS. (**Circle ONE response for each statement.**)

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
For me, state parks are special places.	1	2	3	4	5
I'm happier visiting state parks than other parks in north Georgia.	1	2	3	4	5
State parks are the best place for me to recreate.	1	2	3	4	5
There are other places nearby where I can easily do the things I do at state parks.	1	2	3	4	5
Recreation at state parks is more important to me than recreation at other places.	1	2	3	4	5
State parks are pretty much like any other local park.	1	2	3	4	5

6. What features of a park are most important to you when deciding where to visit? (**Please write answers in the space below).**

_____

7. What is your gender? ☐ Female ☐ Male

8. What is your age? _____ years old

9. What is your race/ethnicity? (**Check ALL that apply.**)

☐ White or Caucasian ☐ Black or African American ☐ American Indian

☐ Hispanic/Latino (specify origin): _____ ☐ Asian (specify origin): _____ ☐ Other (specify origin): _____

10. What language do you speak at home? (**Check ONE response.**)

☐ Mostly English ☐ English and Spanish ☐ Mostly Spanish ☐ Other: _____

11. What is the highest level of education you have completed? **(Please check ONE response.)**

☐ Some high school ☐ High school or GED ☐ College, tech. school, or other advanced degree

12. How many people currently live in your household? _____ people

13. How many children in your household are <u>under age 18</u>? _____ children

14. Please indicate your total household income range before taxes last year. (**Check ONE box.)**

☐ $25,000 or less ☐ $25,001 to $50,000 ☐ $50,001 to $75,000

☐ $75,001 to $100,000 ☐ $100,001 or more ☐ Refuse to answer

15. Please provide the zip code for your permanent address. _____

Thank you again for your time.

OFF4

Georgia Outdoor Recreation Survey

The Georgia Dept. of Natural Resources (GA DNR) and the University of Georgia are conducting a study to learn more about outdoor recreation in Georgia. Your responses will help GA DNR to better manage its parks for your use and enjoyment. Please take a few minutes to complete this questionnaire. Your help is voluntary and responses are anonymous and confidential.

1. Please **check ALL** of the following activities you have participated in during the past 12 months.

☐ Beach activities
☐ Biking
☐ Camping
☐ Canoeing/kayaking
☐ Driving off-road vehicles
☐ Fishing
☐ Hiking/walking
☐ Hunting
☐ Jogging/running
☐ Motor boating
☐ Picnic/cookout
☐ Relaxing outdoors
☐ Swimming
☐ Team sports (soccer, basketball, etc.)
☐ Visiting an historic site
☐ Wildlife viewing/photography
☐ Other (**specify**): _____

2. How IMPORTANT are the following factors in your decision to participate in outdoor recreation? (**Circle ONE response for each item.**)

	Not Important	Slightly Important	Moderately Important	Very Important	Extremely Important
Spending time with family	1	2	3	4	5
Spending time with friends	1	2	3	4	5
Meeting new people	1	2	3	4	5
Exercising	1	2	3	4	5
Being physically fit	1	2	3	4	5
Relaxing and resting	1	2	3	4	5
Experiencing solitude, peace and calm	1	2	3	4	5
Doing fun and exciting things	1	2	3	4	5
Being close to nature	1	2	3	4	5
Discovering and learning about nature	1	2	3	4	5

3. Have you visited a Georgia State Park in the past 12 months? **(Check ONE box.)**

☐ Yes ☐ Not sure ☐ No **(If NO, please skip to question 4.)**

3a. How many times have you visited ANY Georgia State Park in the past 12 months?

_____ visits **Which state park did you visit most often?** _____

3b. What was the **MAIN ACTIVITY** you participated in during your visits to state parks?

Write activity here: _____

Continue to next page.

4. How many days during A TYPICAL WEEK do you participate in PHYSICAL ACTIVITIES (including walking) that cause an increase in breathing or heart rate for at least 30 minutes at a time?

_____ days per week **(Please write number in blank.)**

5. Please tell us HOW OFTEN you use each of the following locations when you participate in outdoor PHYSICAL ACTIVITIES. (**Circle ONE response for each item.)**

	Never	Rarely	Occasionally	Often	Very Often
A Georgia state park	1	2	3	4	5
A neighborhood park	1	2	3	4	5
Neighborhood sidewalks/streets	1	2	3	4	5
Gym/recreation center	1	2	3	4	5
Home/backyard	1	2	3	4	5
Work	1	2	3	4	5

6. What features of a park are most important to you when deciding where to participate in physical activities? (**Please write answers in the space below).**

_____

7. What is your gender? ☐ Female ☐ Male

8. What is your age? _____ years old

9. What is your race/ethnicity? (**Check ALL that apply.**)

☐ White or Caucasian ☐ Black or African American ☐ American Indian

☐ Hispanic/Latino (specify origin): _____ ☐ Asian (specify origin): _____ ☐ Other (specify origin): _____

10. What language do you speak at home? (**Check ONE response.**)

☐ Mostly English ☐ English and Spanish ☐ Mostly Spanish ☐ Other: _____

11. What is the highest level of education you have completed? **(Please check ONE response.)**

☐ Some high school ☐ High school or GED ☐ College, tech. school, or other advanced degree

12. How many people currently live in your household? _____ people

13. How many children in your household are under age 18? _____ children

14. Please indicate your total household income range before taxes last year. (**Check ONE box.)**

☐ $25,000 or less ☐ $25,001 to $50,000 ☐ $50,001 to $75,000

☐ $75,001 to $100,000 ☐ $100,001 or more ☐ Refuse to answer

15. Please provide the zip code for your permanent address. _____

Thank you again for your time.

OFFK

Georgia Outdoor Recreation Survey

The Georgia Dept. of Natural Resources (GA DNR) and the University of Georgia are conducting a study to learn more about outdoor recreation in Georgia. Your responses will help GA DNR to better manage its parks for your use and enjoyment. Please take a few minutes to complete this questionnaire. Your help is voluntary and responses are anonymous and confidential.

Children's Outdoor Recreation. *When answering the following questions, think of* ***the ONE CHILD (under age 18) in your family WHO HAD THE LAST BIRTHDAY****.*

1. What is your relationship to this child?

☐ Parent ☐ Aunt/Uncle ☐ Cousin

☐ Grandparent ☐ Sibling ☐ Other (specify): _____

2. Please **check ALL** the activities this child has participated in during the past 12 months.

☐ Beach activities
☐ Biking
☐ Camping
☐ Canoeing/kayaking
☐ Driving off-road vehicles or motorcycles
☐ Fishing
☐ Hiking/walking
☐ Hunting
☐ Jogging/running
☐ Motor boating or jet skiing
☐ Picnic/cookout
☐ Playing on a playground
☐ Relaxing outdoors
☐ Swimming
☐ Team sports (soccer, basketball, etc.)
☐ Using electronic devices or listening to music outdoors
☐ Visiting an historic site
☐ Wildlife viewing/photography
☐ Other (**specify**): _____

3. How many days during a TYPICAL WEEK does this child participate in PHYSICAL ACTIVITIES (including walking) that cause an increase in breathing or heart rate for at least 60 minutes at a time?

_____ days per week **(Please write number in blank.)**

4. Please tell us HOW OFTEN this child uses each of the following locations when he/she participates in outdoor PHYSICAL ACTIVITIES. (**Circle ONE response for each item.)**

	Never	Rarely	Occasionally	Often	Very Often
A Georgia state park	1	2	3	4	5
A neighborhood park	1	2	3	4	5
Neighborhood sidewalks/streets	1	2	3	4	5
Gym/recreation center	1	2	3	4	5
Home/backyard	1	2	3	4	5
Work	1	2	3	4	5

Continue to next page.

5. Has this child visited a Georgia State Park in the past 12 months? **(Check ONE box.)**

☐ Yes ☐ Not sure ☐ No **(If NO, please skip to question 6.)**

5a. How many times has this child visited ANY Georgia State Park in the past 12 months?

_____ visits **Which state park did this child visit most often?** _____

5b. What was the **MAIN ACTIVITY** this child participated in during his/her visits to state parks?

Write activity here: _____

6. Please state whether you DISAGREE or AGREE with the following statements concerning this child's outdoor activities. (**Circle ONE response per item.)**

Outdoor activities help this child to:	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Enjoy time with family and friends	1	2	3	4	5
Develop social skills	1	2	3	4	5
Increase physical activity	1	2	3	4	5
Improve physical health	1	2	3	4	5
Improve mental health	1	2	3	4	5
Try new things	1	2	3	4	5
Discover and learn about nature	1	2	3	4	5
Appreciate and respect nature	1	2	3	4	5
Other (**specify**): _____	1	2	3	4	5

7. What features of a park are most important to this child when deciding where to visit? (**Please write answers in the space below).**

_____

_____

8. How old is this child? _____ years old

9. What is the gender of this child? ☐ Female ☐ Male

10. What is the race/ethnicity of this child? (**Check ALL that apply.**)

☐ White or Caucasian ☐ Black or African American ☐ American Indian

☐ Hispanic/Latino (specify origin): _____ ☐ Asian (specify origin): _____ ☐ Other (specify origin): _____

Thank you again for your time.

OFF1sp

Encuesta Acerca de Recreación al Aire Libre en Georgia

El Departamento de Recursos Naturales de Georgia (GA DNR) y la Universidad de Georgia están llevando a cabo un estudio para aprender más acerca de recreación al aire libre en Georgia. Sus respuestas ayudarán GA DNR a manejar los parques de modo que usted pueda disfrutarlos más. Por favor tome unos minutos para completar esta encuesta. La participación es voluntaria y sus respuestas son ánonimas y confidenciales.

1. Por favor **marque TODAS** las actividades en las que usted participó durante los últimos 12 meses.

☐ Actividades en la playa
☐ Ciclismo
☐ Acampar
☐ Canoa/kayak
☐ Conducir vehículos todo terreno
☐ Pescar
☐ Caminata
☐ Cazar
☐ Correr/trotar
☐ Bote a motor
☐ Picnic
☐ Relajación al aire libre
☐ Natación
☐ Deportes de equipo (fútbol, etc.)
☐ Visitar al sitio histórico
☐ Observación de fauna/fotografía
☐ Otra (**describa**): _____

2. Por favor indique el nivel de IMPORTANCIA de los siguientes factores cuando usted está decidiendo si va a participar en recreación al aire libre? (**Marque UNA SOLA respuesta para cada caso.**)

	Sin importancia	Poca importancia	Mas o menos importante	Algo importante	Muy importante
Pasar tiempo con mi familia	1	2	3	4	5
Pasar tiempo con mis amigos	1	2	3	4	5
Conocer gente	1	2	3	4	5
Ejercitarme	1	2	3	4	5
Estar en buena forma física	1	2	3	4	5
Descansar y relajarme	1	2	3	4	5
Disfrutar la soledad, paz y calma	1	2	3	4	5
Participar en actividades divertidas	1	2	3	4	5
Estar cerca de naturaleza	1	2	3	4	5
Aprender sobre y explorar la naturaleza	1	2	3	4	5

3. ¿Qué IMPORTANCIA tienen las áreas siguientes a usted para sus actividades al aire libre?

	Sin importancia	Poca importancia	Mas o menos importante	Algo importante	Muy importante
Áreas naturales (bosques, caminos, etc.)	1	2	3	4	5
Áreas mantenidas al aire libre (playas, abra áreas de picnic, etc.	1	2	3	4	5
Áreas/instalaciones desarrollados (refugios, servicios, centro de visitantes, etc.)	1	2	3	4	5

Por favor vea el otro lado.

4. ¿Ha visitado usted un parque estatal en Georgia durante los últimos 12 meses? (**Marque UNA caja.**)

☐ Sí ☐ No está seguro ☐ No **(Si NO, pase a la pregunta 5.)**

4a. ¿Cuántas veces ha visitado usted a algún parque estatal en Georgia durante los últimos 12 meses?

_____ visitas **¿Qué parque estatal visita usted más a menudo?** _____

4b. ¿Cuál era su **ACTIVIDAD PRINCIPAL** durante sus visitas a los parques estatales?

Escriba aquí la actividad: _____

5. ¿Qué características de un parque son más importante cuando usted está decidiendo dónde quiere visitar?
(Por favor escriba sus sugerencias en el espacio siguiente.)

_____

_____

6. ¿Cuál es su sexo? ☐ Femenino ☐ Masculino

7. ¿Cuál es su edad? _____ años

8. ¿Cuál es su raza o grupo étnico? **(Marque TODAS las que aplican.)**

☐ Blanco o Caucásico ☐ Negro o Afro Americano ☐ Indígena Americana

☐ Hispanic/Latino (indique origen): _____ ☐ Asiático (indique origen): _____ ☐ Otro: _____

9. ¿Qué idioma se habla principalmente en su hogar? (**Marque UNA SOLA respuesta.**)

☐ Más en Inglés ☐ Inglés e Español (mezlca) ☐ Más en Español ☐ Otra: _____

10. ¿Cuál es el nivel educativo más alto que ha completado? **(Marque UNA SOLA respuesta.)**

☐ Educación secundaria incompleta ☐ Graduado de escuela secundaria ☐ Graduado de una universidad

11. ¿Cuántas personas viven actualmente en su hogar? _____ personas

12. ¿Cuántas personas que viven en su hogar tienen menos de 18 años? _____ niños

13. Por favor indique el rango de los ingresos totales del año pasado para su hogar antes de la deducción de impuestos. (**Marque UNA SOLA respuesta.)**

☐ $25,000 o menos ☐ $25,001 a $50,000 ☐ $50,001 a $75,000

☐ $75,001 a $100,000 ☐ $100,001 o más ☐ Prefiero no contestar

14. Por favor proporcione el código postal de su dirección permanente. _____

¡Muchas gracias por su tiempo!

OFF2sp

Encuesta Acerca de Recreación al Aire Libre en Georgia

El Departamento de Recursos Naturales de Georgia (GA DNR) y la Universidad de Georgia están llevando a cabo un estudio para aprender más acerca de recreación al aire libre en Georgia. Sus respuestas ayudarán GA DNR a manejar los parques de modo que usted pueda disfrutarlos más. Por favor tome unos minutos para completar esta encuesta. La participación es voluntaria y sus respuestas son ánonimas y confidenciales.

1. Por favor díganos con qué frecuencia usted usa las siguientes lugares cuando está participando en recreación al aire libre. (**Marque UNA SOLA respuesta para cada lugar.)**

	Nunca	Una vez por año	Varias veces al año	Una vez por mes	Varias veces al mes	Una vez por semana	Varias veces al semana	Todos los días
Parques nacionales	☐	☐	☐	☐	☐	☐	☐	☐
Parques estatales de Georgia	☐	☐	☐	☐	☐	☐	☐	☐
Parques en su vecindario	☐	☐	☐	☐	☐	☐	☐	☐
Aceras/calles en su vecindad	☐	☐	☐	☐	☐	☐	☐	☐
Hogar/patio trasero	☐	☐	☐	☐	☐	☐	☐	☐

2. ¿Ha visitado usted un parque estatal en Georgia durante los últimos 12 meses? (**Marque UNA caja.)**

☐ Sí ☐ No está seguro ☐ No **(Si NO, pase a la pregunta 3.)**

2a. ¿Cuántas veces ha visitado usted a algún parque estatal en Georgia durante los últimos 12 meses?

_____ visitas **¿Qué parque estatal visita usted más a menudo? _____**

2b. ¿Cuál era su **ACTIVIDAD PRINCIPAL** durante sus visitas a los parques estatales ?

Escriba aquí la actividad: _____

3. Indique si cada uno de los obstáculos representa una razón que LE IMPIDE visitar a los parques estatales de Georgia tan frecuentemente como le gustaría. (**Marque UNA SOLA respuesta para cada item.)**

Obstáculo	No es razón		Mas o menos es una razón		Es la razón principal!
El costo es demasiado alto	1	2	3	4	5
No tengo tiempo libre para visitar	1	2	3	4	5
Los parques quedan muy lejos de mi casa	1	2	3	4	5
No tengo transporte para viajar a parques estatales	1	2	3	4	5
No estoy interesado en actividades recreativas al aire libre	1	2	3	4	5
Los parques no tienen actividades divertidas para mí o mi familia	1	2	3	4	5
No tengo a nadie con quien realizar las actividades	1	2	3	4	5
Mi familia o yo tenemos problemas de salud	1	2	3	4	5
Tengo miedo de animales salvajes y parásitos al aire libre	1	2	3	4	5
Tengo miedo del delito percibido en los parques	1	2	3	4	5
Las instalaciones en parques estatales no están en buenas condiciones	1	2	3	4	5
Los empleados de los parques estatales no son amigables	1	2	3	4	5
Falta información sobre las oportunidades recreativas	1	2	3	4	5
La señalización y la información no están en mi idioma	1	2	3	4	5

Por favor vea el otro lado.

4. Indique si cada uno de los obstáculos representa una razón que LE IMPIDE visitar a los parques estatales de Georgia tan frecuentemente como le gustaría. (**Marque UNA SOLA respuesta para cada item.)**

Obstáculo	No es razón		Mas o menos es una razón		Es la razón principal!
No apruebo las actividades que otros visitants hacen	1	2	3	4	5
Me siento incómodo debido a mi género (masculine o feminino)	1	2	3	4	5
Me siento incómodo debido a mi raza o etnia	1	2	3	4	5
Me siento incómodo alrededor de la gente de otros grupos raciales	1	2	3	4	5
La gente de mi grupo racial/étnico a veces experimenta conflictos con otros visitantes a parques estatales	1	2	3	4	5
La gente de mi grupo racial/étnico no sienten cómodas en parques estatal	1	2	3	4	5
Prefiero recrearme en otro lugar (**dónde?**): _____	1	2	3	4	5

5. ¿Qué es la PROBABILIDAD que sus amigos o familia harían lo siguiente?

	Muy poco Probable		Quizas sea Probable		Muy Probable
Participar en actividades ACTIVAS al aire libre (correr, biking, etc.)	1	2	3	4	5
Participar en actividades PASIVAS al aire libre (relajar, etc.)	1	2	3	4	5
Participar en actividades SOCIALES al aire libre (picnic, etc.)	1	2	3	4	5
Participar en actividades de NATURALEZA al aire libre (caminata, etc.)	1	2	3	4	5
Pasar un día en un parque estatal	1	2	3	4	5

6. ¿Cuál es su sexo? ☐ Femenino ☐ Masculino → 7. ¿Cuál es su edad? _____ años

8. ¿Cuál es su raza o grupo étnico? **(Marque TODAS las que aplican.)**

☐ Blanco o Caucásico ☐ Negro o Afro Americano ☐ Indígena Americana

☐ Hispanic/Latino (indique origen): _____ ☐ Asiático (indique origen): _____ ☐ Otro: _____

9. ¿Qué idioma se habla principalmente en su hogar? (**Marque UNA SOLA respuesta.**)

☐ Más en Inglés ☐ Inglés e Español (mezlca) ☐ Más en Español ☐ Otra: _____

10. ¿Cuál es el nivel educativo más alto que ha completado? **(Marque UNA SOLA respuesta.)**

☐ Educación secundaria incompleta ☐ Graduado de escuela secundaria ☐ Graduado de una universidad

11. ¿Cuántas personas viven actualmente en su hogar? _____ personas

12. ¿Cuántas personas que viven en su hogar tienen menos de 18 años? _____ niños

13. Por favor indique el rango de los ingresos totales del año pasado para su hogar antes de la deducción de impuestos. (**Marque UNA SOLA respuesta.)**

☐ $25,000 o menos ☐ $25,001 a $50,000 ☐ $50,001 a $75,000

☐ $75,001 a $100,000 ☐ $100,001 o más ☐ Prefiero no contestar

14. Por favor proporcione el código postal de su dirección permanente. _____

¡Muchas gracias por su tiempo!

OFF3sp

Encuesta Acerca de Recreación al Aire Libre en Georgia

El Departamento de Recursos Naturales de Georgia (GA DNR) y la Universidad de Georgia están llevando a cabo un estudio para aprender más acerca de recreación al aire libre en Georgia. Sus respuestas ayudarán GA DNR a manejar los parques de modo que usted pueda disfrutarlos más. Por favor tome unos minutos para completar esta encuesta. La participación es voluntaria y sus respuestas son ánonimas y confidenciales.

1. Por favor díganos con qué frecuencia usted usa las siguientes lugares cuando está participando en recreación al aire libre. (**Marque UNA SOLA respuesta para cada lugar.)**

	Nunca	Una vez por año	Varias veces al año	Una vez por mes	Varias veces al mes	Una vez por semana	Varias veces al semana	Todos los días
Parques nacionales	☐	☐	☐	☐	☐	☐	☐	☐
Parques estatales de Georgia	☐	☐	☐	☐	☐	☐	☐	☐
Parques en su vecindario	☐	☐	☐	☐	☐	☐	☐	☐
Aceras/calles en su vecindad	☐	☐	☐	☐	☐	☐	☐	☐
Hogar/patio trasero	☐	☐	☐	☐	☐	☐	☐	☐
Otro lugar: _____	☐	☐	☐	☐	☐	☐	☐	☐

2. ¿Ha visitado usted un parque estatal en Georgia durante los últimos 12 meses? (**Marque UNA caja.**)

☐ Sí ☐ No está seguro ☐ No **(Si NO, pase a la pregunta 3.)**

2a. ¿Cuántas veces ha visitado usted a algún parque estatal en Georgia durante los últimos 12 meses?

_____ visitas **¿Qué parque estatal visita usted más a menudo? _____**

2b. ¿Cuál era su **ACTIVIDAD PRINCIPAL** durante sus visitas a los parques estatales?

Escriba aqu la actividad: _____

3. La financión de los parques estatales sigue siendo un reto enorme. ¿Estaría dispuesto a pagar más por la cuota de entrada diaria si usted supiera que el dinero iba directamente a los parques estatales?

☐ No, yo no pagaría más

☐ Sí, yo pagaría $ _____ más por una cuota de entrada a los parques estatales
(Escriba en el espacio.)

4. Si la cuota diaria de entrada en los parques estatales fuera $_____ por vehículo, ¿cómo cambiaría su visitación a parques estatales? **(Marque UNA caja.)**

☐ Mis visitas en un año típico REDUCIRÍA.

☐ Mis visitas en un año típico SERÍA más o menos IGUAL.

☐ Mis visitas en un año típico AUMENTARÍA.

☐ No estoy interesado en visitar a un parque estatal de Georgia, sin importer el precio

Por favor vea el otro lado.

5. Por favor indique si usted NO ESTA o ESTÁ DE ACUERDO con las frases siguientes sobre su opinión de los parques estatales de Georgia. (**Marque UNA SOLA respuesta para cada ítem.)**

	Totalmente en Desacuerdo	**En Desacuerdo**	**Neutral**	**De Acuerdo**	**Totalmente de Acuerdo**
Los parques estatales son muy especial para mí.	1	2	3	4	5
Estoy más feliz visitando a los parques estatales que visitando cualquier otra área.	1	2	3	4	5
Los parques estatales son los mejores lugares para mi recreación.	1	2	3	4	5
Hay otros sitios cercanos donde puedo hacer las mismas actividades que hago en parques estatales	1	2	3	4	5
Recreación en parques estatales es más importante para mí que recreación en cualquier otro lugar.	1	2	3	4	5
Los parques estatales más o menos parece como cualquier otro parque local.	1	2	3	4	5

6. ¿Qué características de un parque son más importante cuando usted está decidiendo dónde quiere visitar? **(Por favor escriba sus sugerencias en el espacio siguiente.)**

_____

7. ¿Cuál es su sexo? ☐ Femenino ☐ Masculino

8. ¿Cuál es su edad? _____ años

9. ¿Cuál es su raza o grupo étnico? **(Marque TODAS las que aplican.)**

☐ Blanco o Caucásico ☐ Negro o Afro Americano ☐ Indígena Americana

☐ Hispanic/Latino (indique origen): _____ ☐ Asiático (indique origen): _____ ☐ Otro: _____

10. ¿Qué idioma se habla principalmente en su hogar? (**Marque UNA SOLA respuesta.**)

☐ Más en Inglés ☐ Inglés e Español (mezlca) ☐ Más en Español ☐ Otra: _____

11. ¿Cuál es el nivel educativo más alto que ha completado? **(Marque UNA SOLA respuesta.)**

☐ Educación secundaria incompleta ☐ Graduado de escuela secundaria ☐ Graduado de una universidad

12. ¿Cuántas personas viven actualmente en su hogar? _____ personas

13. ¿Cuántas personas que viven en su hogar tienen <u>menos de 18 años</u>? _____ niños

14. Por favor indique el rango de los ingresos totales del año pasado para su hogar antes de la deducción de impuestos. (**Marque UNA SOLA respuesta.)**

☐ $25,000 o menos ☐ $25,001 a $50,000 ☐ $50,001 a $75,000

☐ $75,001 a $100,000 ☐ $100,001 o más ☐ Prefiero no contestar

15. Por favor proporcione el código postal de su dirección permanente. _____

¡Muchas gracias por su tiempo!

OFF4sp

Encuesta Acerca de Recreación al Aire Libre en Georgia

El Departamento de Recursos Naturales de Georgia (GA DNR) y la Universidad de Georgia están llevando a cabo un estudio para aprender más acerca de recreación al aire libre en Georgia. Sus respuestas ayudarán GA DNR a manejar los parques de modo que usted pueda disfrutarlos más. Por favor tome unos minutos para completar esta encuesta. La participación es voluntaria y sus respuestas son ánonimas y confidenciales.

1. Por favor **marque TODAS** las actividades en las que usted participó durante los últimos 12 meses.

☐ Actividades en la playa	☐ Pescar	☐ Relajación al aire libre
☐ Ciclismo	☐ Caminata	☐ Natación
☐ Acampar	☐ Cazar	☐ Deportes de equipo (fútbol, etc.)
☐ Canoa/kayak	☐ Correr/trotar	☐ Visitar al sitio histórico
☐ Conducir vehículos todo terreno	☐ Bote a motor	☐ Observación de fauna/fotografía
	☐ Picnic	☐ Otra (**describa**): _____

2. Por favor indique el nivel de IMPORTANCIA de los siguientes factores cuando usted está decidiendo si va a participar en recreación al aire libre? (**Marque UNA SOLA respuesta para cada caso.**)

	Sin importancia	Poca importancia	Más o menos importante	Algo importante	Muy importante
Pasar tiempo con mi familia	1	2	3	4	5
Pasar tiempo con mis amigos	1	2	3	4	5
Conocer gente	1	2	3	4	5
Ejercitarme	1	2	3	4	5
Estar en buena forma física	1	2	3	4	5
Descansar y relajarme	1	2	3	4	5
Disfrutar la soledad, paz y calma	1	2	3	4	5
Participar en actividades divertidas	1	2	3	4	5
Estar cerca de naturaleza	1	2	3	4	5
Aprender sobre y explorar la naturaleza	1	2	3	4	5

3. ¿Ha visitado usted un parque estatal en Georgia durante los últimos 12 meses? (**Marque UNA caja.**)

☐ Sí ☐ No está seguro ☐ No **(Si NO, pase a la pregunta 4.)**

3a. ¿Cuántas veces ha visitado usted a algún parque estatal en Georgia durante los últimos 12 meses?

_____ visitas **¿Qué parque estatal visita usted más a menudo?** _____

3b. ¿Cuál era su **ACTIVIDAD PRINCIPAL** durante sus visitas a los parques estatales?

Escriba aquí la actividad: _____

Por favor vea el otro lado.

4 ¿Cuántos días durante una SEMANA TÍPICA participa usted en ACTIVIDADES FÍSICAS (incluso caminando) que causan un aumento de respiración o latidos del corazón por lo menos 30 minutos a la vez?

_____ días por semana **(Escriba un número en el espacio.)**

5. Por favor díganos con qué frecuencia usted usa las siguientes áreas para realizar sus ACTIVIDADES FÍSICAS. (**Marque UNA SOLA respuesta para cada área.)**

	Nunca	Raramente	En Ocasiones	Con Regularidad	Muy a Menudo
Un parque estatal de Georgia	1	2	3	4	5
Un parque en su vecindario	1	2	3	4	5
Aceras/calles en su vecindad	1	2	3	4	5
Gimnasio/centros recreativos	1	2	3	4	5
Hogar/patio trasero	1	2	3	4	5
Trabajo	1	2	3	4	5

6. ¿Qué características de un parque son más importante cuando usted está decidiendo dónde quiere participar en actividades físicas? **(Por favor escriba sus sugerencias en el espacio siguiente.)**

_____

7. ¿Cuál es su sexo? ☐ Femenino ☐ Masculino

8. ¿Cuál es su edad? _____ años

9. ¿Cuál es su raza o grupo étnico? **(Marque TODAS las que aplican.)**

☐ Blanco o Caucásico ☐ Negro o Afro Americano ☐ Indígena Americana

☐ Hispanic/Latino (indique origen): _____ ☐ Asiático (indique origen): _____ ☐ Otro: _____

10. ¿Qué idioma se habla principalmente en su hogar? (**Marque UNA SOLA respuesta.**)

☐ Más en Inglés ☐ Inglés e Español (mezlca) ☐ Más en Español ☐ Otra: _____

11. ¿Cuál es el nivel educativo más alto que ha completado? **(Marque UNA SOLA respuesta.)**

☐ Educación secundaria incompleta ☐ Graduado de escuela secundaria ☐ Graduado de una universidad

12. ¿Cuántas personas viven actualmente en su hogar? _____ personas

13. ¿Cuántas personas que viven en su hogar tienen menos de 18 años? _____ niños

14. Por favor indique el rango de los ingresos totales del año pasado para su hogar antes de la deducción de impuestos. (**Marque UNA SOLA respuesta.)**

☐ $25,000 o menos ☐ $25,001 a $50,000 ☐ $50,001 a $75,000

☐ $75,001 a $100,000 ☐ $100,001 o más ☐ Prefiero no contestar

15. Por favor proporcione el código postal de su dirección permanente. _____

¡Muchas gracias por su tiempo!

OFFKsp

Encuesta Acerca de Recreación al Aire Libre en Georgia

El Departamento de Recursos Naturales de Georgia (GA DNR) y la Universidad de Georgia están llevando a cabo un estudio para aprender más acerca de recreación al aire libre en Georgia. Sus respuestas ayudarán GA DNR a manejar los parques de modo que usted pueda disfrutarlos más. Por favor tome unos minutos para completar esta encuesta. La participación es voluntaria y sus respuestas son ánonimas y confidenciales

La recreación al aire libre para los niños. *Para contestar las siguientes preguntas,* ***piense en el menor de su familia con menos de 18 años (niño o niña)*** *que* ***cumplió años más recientemente.***

1. ¿Cómo está usted relacionado a este(a) niño(a)?

☐ Padre ☐ Tío o Tía ☐ Primo

☐ Abuelo ☐ Hermano ☐ Otro (explique): _____

2. M**arque TODAS** las actividades en las que este niño(a) participó durante los últimos 12 meses.

☐ Actividades en la playa
☐ Ciclismo
☐ Acampar
☐ Canoa/kayak
☐ Conducir vehículos todo terreno
☐ Pescar
☐ Caminata
☐ Cazar
☐ Correr/trotar
☐ Bote a motor o jet ski
☐ Picnic
☐ Zona de juegos
☐ Relajación al aire libre
☐ Natación
☐ Deportes de equipo (fútbol, etc.)
☐ El uso de dispositivos electrónicos o escuchar música al aire libre
☐ Visitar al sitio histórico
☐ Observación de fauna/fotografía
☐ Otra (**describa**): _____

3. ¿Cuántos días durante una SEMANA TÍPICA participa este niño(a) en ACTIVIDADES FÍSICAS (incluso caminando) que causan un aumento de respiración o latidos del corazón por lo menos 60 minutos (1 hora) a la vez?

_____ días por semana **(Escriba un número en el espacio.)**

4 Por favor díganos con qué frecuencia este niño(a) usa las siguientes áreas para realizar sus ACTIVIDADES FÍSICAS. (**Marque UNA SOLA respuesta para cada área.)**

	Nunca	Raramente	En Ocasiones	Con Regularidad	Muy a Menudo
Un parque estatal de Georgia	1	2	3	4	5
Un parque en su vecindario	1	2	3	4	5
Aceras/calles en su vecindad	1	2	3	4	5
Gimnasio/centros recreativos	1	2	3	4	5
Hogar/patio trasero	1	2	3	4	5
Trabajo	1	2	3	4	5

Por favor vea el otro lado.

5. ¿Ha visitado este niño(a) un parque estatal en Georgia durante los últimos 12 meses? (**Marque UNA caja.**)

☐ Sí ☐ No está seguro ☐ No **(Si NO, pase a la pregunta 6.)**

5a. ¿Cuántas veces ha visitado este niño(a) a algún parque estatal en Georgia durante los últimos 12 meses?

_____ visitas **¿Qué parque estatal visita este niño(a) más a menudo?** _____

5b. ¿Cuál era la **ACTIVIDAD PRINCIPAL** de este niño(a) durante sus visitas a los parques estatales?

Escriba aquí la actividad: _____

6. Por favor indique si usted NO ESTÁ o ESTÁ DE ACUERDO con las declaraciones siguientes acerca de las actividades al aire libre de este niño(a). (**Marque UNA respuesta para cada frase.**)

Las actividades al aire libre ayuda a este niño(a) a:	**Totalmente en Desacuerdo**	**En Desacuerdo**	**Neutral**	**De Acuerdo**	**Totalmente de Acuerdo**
Disfrutar tiempo con familia y amigos	1	2	3	4	5
Desarrollar habilidades sociales	1	2	3	4	5
Aumentar la actividad física	1	2	3	4	5
Mejorar su salud física	1	2	3	4	5
Mejorar su salud mental	1	2	3	4	5
Intentar actividades nuevas	1	2	3	4	5
Descubrir y aprender sobre la naturaleza	1	2	3	4	5
Apreciar y respetar la naturaleza	1	2	3	4	5
Otra (**describa**): _____	1	2	3	4	5

7. ¿Qué características de un parque son más importante cuando este niño(a) está decidiendo dónde quiere visitar? **(Por favor escriba sus sugerencias en el espacio siguiente.)**

_____

_____

8. ¿Cuántos años tiene este niño(a)? _____ años

9. ¿Cuál es el sexo de este niño(a)? ☐ Feminino ☐ Masculino

10. ¿Cuál es la raza o grupo étnico de este niño(a)? **(Marque TODAS las que aplican.)**

☐ Blanco o Caucásico ☐ Negro o Afro Americano ☐ Indígena Americana

☐ Hispanic/Latino (indique origen): _____ ☐ Asiático (indique origen): _____ ☐ Otro: _____

¡Muchas gracias por su tiempo!

APPENDIX I

OVERVIEW OF TOPICS EXAMINED IN *GEORGIA STATE PARKS DIVERSITY PROJECT*

The following overview and basic descriptive data highlight the range of outdoor recreation-related themes examined in the *Georgia State Parks (GASP) Diversity Project*. Although most of these topics were not directly examined in this dissertation, they are discussed in more depth in other reports (e.g., Larson, Whiting, & Green, 2012). Readers should note that, in many cases, means and descriptive data reported here represent the pooled sample (i.e., averages across all three parks). This approach was adopted to illustrate general patterns across sites. However, because the characteristics of participants at different research sites were not uniform, pooled results provide only a coarse representation of the overall sample and should be interpreted with caution.

State Park Visitation Frequency

On-site data yielded information about how often participants had visited one of the three selected Georgia State Parks (i.e., Fort Mountain, Fort Yargo, or Red Top Mountain) within the past 12 months. Across all three parks, the average number of annual visits to the ONE state park in which the visitor was sampled was 4.24 ± 0.24 (Table I.1). About 61% of all visitors surveyed reported visiting one of the three focal parks two or fewer times a year, and 82% of all visitors surveyed said they visited five or fewer times a year. Participants were also asked how often they planned to visit one of the three selected state parks during the summer months of May through September (Table I.2). These data confirmed that participants visited Fort Yargo more often than either of the other parks. Summer visitation frequency across all three parks differed by race/ethnicity. Latino visitors tended to visit state parks more frequently during the summer months than any other racial/ethnic group.

Off-site data yielded information about how often participants had visited ANY Georgia state park within the past 12 months. When asked whether or not they had visited a Georgia state

park in the past year, 56% of participants said "yes" and 9% of the participants said they were "not sure" (n = 1264). Whites (67.7%) and Latinos (56.9%) reported at least one annual state park visit more often than African Americans (46.4%) or Asians (47.6%). Latinos (13.6%) and African Americans (11.2%) were the groups who were most unsure about whether or not they had visited a state park. The average number of reported annual visits to ANY state park was 7.49 ± 1.79. About 46% of all participants reported visiting any Georgia state park two or fewer times a year, and 73% of all participants said they visited state parks five or fewer times a year. When asked which types of places they visited most often to engage in outdoor recreation activities, participants indicated more frequent use of homes or backyards and local parks than either state or national parks (Table I.3).

Distance Traveled to State Parks

Distance traveled to visit state parks varied significantly by state park and survey sites within parks. Excluding extreme distances of 1,000 miles or more (only 0.31% of all visitors surveyed), pooled data for the three focal parks indicated that day users traveled an average of 35.4 ± 0.41 miles one-way to visit state parks (median distance = 20 miles). Campers traveled an average of 96.4 ± 1.09 miles to visit state parks (median distance = 45 miles). In a comparison of distance traveled for visitors to each specific state park, the discrepancy between day users' and overnight users' distance traveled was largest at Fort Mountain (Table I.4). A geospatial analysis of ZIP code data from visitors' point of origin (2 of the 5 surveys contained ZIP code information reported by respondents) confirmed that the selected state parks were popular both locally and regionally (Figure I.1).

Total Time in State Parks

Overall, excluding overnight visitors and visitors who reported spending more than 12 hours during their park visit (23.8% of visitors surveyed), intercept surveys showed that the pooled sample average for time spent in state parks by day users was 5.1 ± 0.15 hours. Pooled sample averages also showed that total time in park differed by race/ethnicity, with white visitors (*M* = 4.5 ± 0.19 hours) spending significantly less time than individuals in other racial/ethnic groups. On average, Latino visitors spent the longest amount of time in the park during day use visits (*M* = 5.6 ± 0.13 hours). This pattern was also evident when examining the distribution of visit lengths across racial/ethnic groups (Table I.5).

Exit surveys provided more comprehensive data regarding visitors' total time in park, accounting for all potential activity zones and not just recreation hotspots. According to exit survey data for all visitors across all parks (excluding workers and volunteers, n = 3198), 8.1% of visitors spent at least one night in a state park. Considering only day use visitors, about 18.8% of visitors spent one hour or less in the park and approximately 38.2% of visitors spent four hours or more in the park (*M* = 3.4 ± 0.05 hours). Day use visitors tended to stay longer at Red Top Mountain (*M* = 3.5 ± 0.09 hours) than either Fort Yargo (*M* = 3.3 ± 0.08 hours) or Fort Mountain (*M* = 3.2 ± 0.17 hours). These mean "time in park" values reported by day users during exit surveys were slightly lower than those obtained via intercept surveys: Red Top Mountain (*M* = 3.9 ± 0.10 hours), Fort Yargo (M = 3.8 ± 0.09 hours) and Fort Mountain (M = 3.7 ± 0.13 hours).

Group Size in State Parks

Mean group size for state park visitors (excluding groups or special events involving more than 30 people) varied by survey location. In campgrounds, the mean size of a group was

4.5 ± 0.25 people. About 36% of camping groups contained two or fewer people, 80% of camping ground contained five or fewer people, and only 5% of camping group had 10 or more people. In day use areas, the mean size of a group was 7.4 ± 0.20 people. About 13% of day use groups had two or fewer people, 50% of day use groups had five or fewer people, and 20% of day use groups had ten or more people. Group size in day use areas was related to respondents' race/ethnicity. Latinos, Asians, and African Americans tended to recreate in larger groups than white visitors (Table I.6).

Focusing specifically on children within state park visitor groups, the mean number of children per group (excluding large groups or special events with more than 20 children) in campgrounds was 1.5 ± 0.18 children. In day use areas, the mean number of children per group was 3.4 ± 0.13 children. About 17% of day use groups had no children, 49% of day use groups had two or fewer children, and 25% of day use groups had 5 or more children. The mean number of children per group in day use areas was related to respondents' race/ethnicity. Latinos, Asians, and African Americans tended to recreate in groups that contained significantly more children than White visitors (Table I.7).

State Park Activity Participation

Exit surveys showed that 64.8% of vehicles surveyed (n = 1113) had visited recreation hotspots during their visits to state parks. Excluding park employees, the percentage of vehicles visiting hotspots increased to 70.7% (n = 1020). When vehicle numbers were weighted by the total number of people in each car, the exit surveys showed that 75.5% of total people in the parks visited recreation hotspots (n = 3341). Excluding park employees, the number of visitors visiting recreation hotspots increased to 78.8% (n = 3202). The percentage of visitors visiting hotspots varied among the three parks: Fort Mountain (70.3%), Fort Yargo (78.5%), and Red

Top Mountain (84.9%). Pooled exit surveys also provided more specific information about visitor activities within state parks (Table I.8). Swimming and beach activities were the most popular at all parks, followed by picnics and cookouts. Overnight stays and hikers accounted for a larger portion of all visitors at Fort Mountain than at either of the other parks.

Outdoor Recreation Preferences

Intercept surveys allowed for comparisons of outdoor recreation preferences among demographic groups. For outdoor recreation activities both inside and outside of state parks, maintained outdoor areas (e.g., landscaped parks, picnic areas, beaches) were more important to visitors than developed outdoor areas and facilities (e.g., sport fields/courts, restrooms, visitors centers) or natural areas (e.g., forests, hiking trails; Table I.9). Natural areas were more strongly preferred by Hispanic/Latino and white state park visitors than any other racial/ethnic group. African Americans viewed natural areas as significantly less important than maintained and developed outdoor areas (Figure I.2). Aggregated onsite and offsite data showed that males (M = 4.03 ± 0.07) preferred natural areas more than females (M = 3.88 ± 0.09). Females preferred maintained (M = 4.39 ± 0.06) and developed (M = 4.30 ± 0.06) outdoor areas more than males (M = 4.28 ± 0.08 and M = 4.14 ± 0.08, respectively).

Across all state parks, visitors rated “a place to recreate with family” and “a place to picnic, BBQ, or cook out” as the most important state park attributes. “Friendly, informative rangers” and “rules to maintain safety” were also very important to visitors. Site preferences varied slightly by park (Table I.10). Specific state park-based recreation preferences also varied by racial/ethnic group. Relative to other groups, Latinos reported higher levels of importance for all factors, and were significantly more likely than all other groups to prefer places to recreate with family, stores, concession stands/food services, and parking. Places to picnic, BBQ, and

cookout, rules to maintain safety, and friendly, informative rangers were more important to Latinos and African Americans than other groups. Although the importance of experiencing nature did not differ significantly among the groups, African Americans displayed slightly lower scores for this item.

Motivations to Visit State Parks

Onsite intercept survey data showed that, across all parks and demographic groups, the most important motivations for visiting state parks were social reasons (e.g., spending time with friends and family, $M = 4.42 \pm 0.05$). Lower-ranking motivations included resting and relaxation ($M = 4.21 \pm 0.05$), nature exploration (e.g., discovering and learning about nature, spending time in nature, $M = 3.94 \pm 0.06$), and physical activity (e.g., exercise, $M = 3.47 \pm 0.07$). Motivations to visit state parks were generally similar across demographic groups (Figure I.3). Hispanic/Latino and African American participants displayed higher scores on social motivation items than white participants, but these differences were not statistically significant. Lower income individuals also tended to report higher scores on the social motivations scale. Nature exploration motivations were more popular among Hispanic/Latinos ($M = 4.12 \pm 0.12$) and whites ($M = 3.90 \pm 0.07$) than African Americans ($M = 3.74 \pm 0.24$). Mean scores on the nature exploration motivation items also decreased as income levels increased. Physical activity motivations in state parks varied by income level, with lower income individuals placing greater importance on exercising and being physically fit.

Benefits of State Park Visits

When visitors were asked what benefits they received from state park visits, the highest rated items across all groups of participants were increasing quality of life and developing positive views of nature. Improving mental health and building or strengthening relationships

with others were the next most important benefits. Perceived benefits of park visits did not differ by park (Table I.11). Lower-income individuals and respondents in the 31-59-year-old category reported higher ratings on the "quality of life" and "mental health" benefit items than other groups. Lower-income groups were also more likely to agree that state parks helped them to "interact with diverse people." The item "develop positive views of nature" varied by income level, with respondents in the middle-income categories scoring higher than other income groups on the benefit scale. Latinos scored higher than other racial/ethnic groups on both the physical health and visitor interaction scales.

Physical Activity Observed in State Parks

The physical activity of state park visitors was examined using several methods, and detailed results of these analyses are presented in Chapters 4 and 5. A general overview of observations showed that a majority of state park visitors were active (45% of visitors were sedentary at the time of observation, 51.3% were engaged in moderate activity, and 2.8% were engaged in vigorous activity).

Activity levels varied at observation zones within each park (Figure I.4). Multi-use zone observations revealed significant differences in physical activity levels within and between demographic groups (Table I.12). Children were the most active group, followed by teens. Males tended to be more active in multi-use zones than females across all age groups. African Americans were the most active across almost all age groups, especially within the children and teenage categories. Trailhead observations also revealed significant differences in physical activity levels among demographic groups (Table I.13). Males were generally more active than females, and much more vigorously active. Adults were more vigorously active than any of the other age groups. Whites tended to be the most active and most vigorously active racial/ethnic

group. Compared to the other groups, a larger proportion of African Americans and Hispanic/Latinos were sedentary at trailheads.

Attachment to State Parks

Two measures of place attachment (i.e., place identity and place dependence) were included in the initial 2009 state park pilot study. However, analyses revealed that the "place dependence" dimension was the most salient factor affecting decisions of state park visitors. Therefore, place dependence was the lone construct measured in the larger investigation in 2010 (see Whiting, Larson, & Green, 2011, for more information). The concept of place dependence suggests that individuals or groups are attached to a particular category of places for functional reasons (Kyle, Bricker, Graefe, & Wickham, 2004). Hence, place dependence is often influenced by two factors: the quality of the current place and the relative quality of comparable alternatives. Six items were selected to measure place dependence in the larger 2010 study of state park visitors. Four items addressed the unique aspects of state parks and were averaged to form the "state parks are special construct" ($M = 3.52 \pm 0.02$). Two items compared state parks to other outdoor recreation locations and were averaged to form the "state parks are not special" construct ($M = 3.00 \pm 0.03$).

Place dependence ratings were relatively similar across all parks for both the "state parks are special" and the "state parks are not special" subscales. However, visitors' responses to the place dependence scales differed by race/ethnicity. Latino visitors were generally more dependent on the selected state parks for outdoor recreation than other racial/ethnic groups. White visitors were more likely to rate the selected state parks as similar to other outdoor recreation locations (Figure I.5). Visitors' responses to the "state parks are special" place dependence items also differed by income level. In general, lower-income individuals were

significantly more dependent on the selected state parks for outdoor recreation. Outside of state parks, participants' responses to the "state parks are special" and the "state parks are not special" place dependence items differed slightly by race/ethnicity. Similar to the onsite results, Latino participants generally expressed a stronger dependence on state parks for outdoor recreation than Whites, African Americans, or Asians. Conversely, Whites, African Americans, and Asians were more likely than Latinos to rate Georgia state parks as similar to other outdoor recreation locations. Overall place dependence scores show that, relative to other demographic groups, state parks are especially valuable recreation sites for low-income Latino populations.

Constraints to State Park Visitation

In the onsite sample, visitor responses to the item, "Please indicate whether each of the following obstacles or barriers is a reason that keeps you from visiting XXX as often as you would like," suggested that state park visitors were not substantially constrained by any factor (mean ratings $\leq$ 2.84, where 1 = not a constraint, 3 = minor constraint, and 5 = major constraint). In the offsite sample, constraint ratings were slightly higher (mean ratings $\leq$ 3.12) but displayed similar patterns. Offsite participants reported lack of time, distance traveled to parks, and lack of money as significant barriers to visitation (Table I.14). An overall lack of information about recreation opportunities was also rated among the more significant constraints. Although interpersonal conflicts and cultural differences were a slightly larger concern for offsite respondents, they did not appear to be a major factor influencing participants' decision to visit parks.

Mean constraint ratings on multiple items differed by race/ethnicity (Figure I.6). A lack of interest in outdoor recreation was a larger constraint for racial/ethnic minorities than white visitors. Distance and transportation issues were a larger concern for racial/ethnic minorities than

whites, and a lack of money appeared to be an especially significant problem for Asians. Although cultural constraints were minimal, they were reported more frequently by racial/ethnic minorities than whites. Racial/ethnic minorities – particularly Latinos and Asians - also tended to rate park-related issues such as lack of information, perceived crime, and unfriendly employees as larger constraints to state park visitation than white visitors.

Onsite Fee Data

When asked how they would prefer to pay to visit a state park and participate in outdoor recreation activities, visitors across all parks (n = 1049) indicated that the current per vehicle parking fee (88.8% selected this option) was better than either a per person activity fee (7.9%) or a per person entrance fee (3.3%). Data showed that only 14.5% of state park visitors surveyed had purchased an annual pass in the past year.

Pooled onsite fee data across all parks (n = 1034) showed visitors were almost evenly split regarding their willingness to pay more to enter focal parks: 52.4% of visitors said they would not pay more, 47.6% said they would. The mean additional amount that visitors were willing to pay to enter the focal parks (assuming a $0 increase for visitors not willing to pay more) was $2.54 ± 0.13 (Table I.15). Of all visitors, 29.1% were willing to pay more than $3 above the current $5 entrance fee; 16.0% were willing to pay more than $5 above the current fee. When visitors were asked how their visitation to state parks would change at different hypothetical fee values, the likelihood of visits decreasing increased as fees rose (Table I.16).

Offsite fee data (n = 240) showed that most potential park visitors (60.8%) would not pay more to enter a Georgia state park. The mean amount of extra money visitors were willing to pay to enter any Georgia state park (assuming a $0 increase for visitors not willing to pay more) was

$2.00 ± 0.24. Of all visitors, 24.4% were willing to pay more than $3 above the current $5 entrance fee; 12.7% were willing to pay more than $5 above the current fee.

Suggestions for Improving State Parks

Open-ended questions in the onsite surveys allowed state park visitors to provide suggestions for improving parks. Most visitors expressed general appreciation for state parks and had only minor suggestions for improvement. The most common suggestion for improving parks and encouraging participation in outdoor recreation activities was better facility maintenance (especially bathrooms). Many visitors also expressed a desire for better interpretation (especially signs and trail markers) and improved programming (particularly organized activities for children). Overnight visitors complained about the current reservation system for campsites and group shelters, and many requested an online system allowing advance reservations for specific sites with one-night minimums. The availability and accessibility of park staff was a common concern for many visitors, many of whom expressed a desire for increased enforcement of park rules and regulations. Improved marketing and advertising was also a frequent suggestion provided by diverse park users (especially Hispanic/Latinos). Previous research has highlighted the importance of culturally relevant approaches to marketing and information distribution on public lands across the United States (Li, Absher, Graefe, & Hsu, 2008; Roberts, Chavez, Lara, & Sheffield, 2009), and Georgia state parks managers could learn from efforts to serve diverse populations in other regions of the country.

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Table I.1

Mean Annual Visits to Three North Georgia State Parks, Summer 2010

State Park	n	Mean Annual Visits (± 95% CI)	Distribution of Annual Visits
Fort Mountain	1238	3.36 ± 0.28	65.8% 2 visits or less 86.5% 5 visits or less 7.1% visited 10 or more times
Fort Yargo	1321	5.95 ± 0.57	47.8% 2 visits or less 73.4% 5 visits or less 16.9% visited 10 or more times
Red Top Mountain	1533	3.47 ± 0.35	68.4% 2 visits or less 86.4% 5 visits or less 6.9% visited 10 or more times

Table I.2

Visitation Frequency (% of Total Visitors in Each Category) to Three North Georgia State Parks, Summer 2010 (May-September)

State Park	n	About once a summer	About once a month	About once a week	More than once a week
Fort Mountain	587	54.9	28.1	10.6	6.5
Fort Yargo	689	24.2	29.2	31.2	15.4
Red Top Mountain	736	47.3	31.4	13.7	7.6
ALL Parks	2012	41.6	29.7	18.8	9.9

Table I.3

Adult Offsite Intercept Survey Respondents Reported Frequency of Use for Potential Outdoor Recreation Locations in Georgia, Summer 2011 (n = 473)

	Frequency of Use (% of total sample)					
Location	**Never**	**Once a Year**	**Several Times a Year**	**Once a Month OR Several Times a Month**	**Once a Week OR Several Times a Week**	**Every Day**
National Park	33.6	31.3	21.0	8.6	4.5	1.1
Georgia State Park	26.7	24.1	29.7	12.3	5.4	1.9
Neighborhood Park	9.1	9.9	27.1	26.9	22.6	4.4
Neighborhood Sidewalks/Streets	12.0	4.8	15.6	21.7	25.8	20.1
Home/Backyard	3.3	1.1	6.3	8.5	30.0	50.9

Table I.4

Distance Traveled (Miles) to Visit North Georgia State Parks, Summer 2010 (by Park and Survey Location)

	Day Users			Campers		
Park	**n**	**Mean**	**Median**	**n**	**Mean**	**Median**
Fort Mountain	368	49.8 ± 0.97	30	191	117.6 ± 1.70	71
Fort Yargo	572	25.4 ± 0.52	20	119	79.1 ± 2.09	25
Red Top Mountain	538	36.1 ± 0.66	25	145	82.7 ± 1.89	30
TOTAL	1478	35.4 ± 0.41	20	455	96.4 ± 1.09	45

Table I.5

Distribution of Day Use Visitors'[a] Total Time in Three North Georgia State Parks, Summer 2010 (% of Total Visitors by Race/Ethnicity)

Race/Ethnicity	n	> 2 hrs.	> 4 hrs.	> 6 hrs.	> 8 hrs.
White	388	89.2	47.7	14.4	2.6
Latino	249	95.2	71.9	33.3	12.4
Black	59	89.8	72.9	37.3	15.3
Asian	29	100.0	65.5	27.6	10.3
TOTAL	758	92.0	59.4	23.5	7.3

[a] Totals represent pooled data for visitors to all three north Georgia state parks.

Table I.6

Mean Group Size for Day Use Visitors[a] to Three North Georgia State Parks, Summer 2010 (by Race/Ethnicity)

Race/Ethnicity	n	Mean Group Size (± 95% CI)	Group Size Distribution
White	1633	5.98 ± 0.22	16.6% of groups had 2 or fewer 60.2% of groups had 5 or fewer 16.6% of groups had 10 or more
Latino	969	9.36 ± 0.40	4.3% of groups had 2 or fewer 32.3% of groups had 5 or fewer 41.1% of groups had 10 or more
Black	256	8.74 ± 0.88	12.3% of groups had 2 or fewer 39.9% of groups had 5 or fewer 34.3% of groups had 10 or more
Asian	126	9.15 ± 1.25	4.5% of groups had 2 or fewer 41.8% of groups had 5 or fewer 41.8% of groups had 10 or more

[a] Totals represent pooled data for visitors to all three north Georgia state parks.

Table I.7

Mean Number of Children Per Group for Day Use Visitors[a] to Three North Georgia State Parks, Summer 2010 (by Race/Ethnicity)

Race/Ethnicity	n	Mean Group Size (± 95% CI)	Group Size Distribution
White	1231	2.69 ± 0.16	20.4% of groups had 0 children 58.9% of groups had 2 or fewer children 16.4% of groups had 5 or more children
Latino	739	4.25 ± 0.24	8.5% of groups had 0 children 33.5% of groups had 2 or fewer children 35.2% of groups had 5 or more children
Black	210	4.19 ± 0.53	16.0% of groups had 0 children 39.0% of groups had 2 or fewer children 37.1% of groups had 5 or more children
Asian	104	3.74 ± 0.80	19.0% of groups had 0 children 52.4% of groups had 2 or fewer children 32.4% of groups had 5 or more children

[a] Totals represent pooled data for visitors to all three north Georgia state parks.

Table I.8

Visitors (% of Total[a]) Engaged in Various Activities at Three North Georgia State Parks (Based on Exit Survey Data), Summer 2010

Activity	State Park			ALL PARKS (n=3195)
	FM (n=754)	FY (n=1475)	RTM (n=1105)	
Swimming/beach	39.0	47.3	58.4	49.1
Picnic/cookout/BBQ	20.6	23.6	33.3	26.1
Camp/cabin/cottage	19.0	7.2	1.9	8.1
Fish or boat on lake	0.8	5.8	3.1	3.7
Bike	3.8	2.6	0.1	2.1
Walk/hike/run trails	12.2	2.3	1.5	4.3
Team sports	0.0	1.9	0.8	1.1
Playground	0.7	1.4	0.6	1.0
Visit visitor center	2.1	1.8	0.0	1.3
Drive through or pickup/dropoff	9.9	7.8	13.3	10.1
Special events	3.4	0.0	0.5	0.9
Volunteer/community service	0.0	1.2	0.0	0.5
Employee/host/worker	2.5	6.0	1.4	3.7

[a] Numbers based on vehicle reports weighted by total people per vehicle.

Table I.9

General Site Preferences for Intercept Survey Respondents in Onsite (Summer 2010) and Offsite Samples (Summer 2011) in North Georgia (n = 1150)

Site Preference Category	Mean Score[a] (Onsite)[b]	Mean Score[a] (Offsite)[c]
Natural areas	3.95 ± 0.07	3.87 ± 0.14
Maintained outdoor areas	4.38 ± 0.06	4.19 ± 0.12
Developed outdoor areas & facilities	4.27 ± 0.06	4.06 ± 0.13

[a] Preferences were measured on a scale from 1 = not important to 5 = extremely important
[b] Onsite means represent pooled data for visitors to three selected state parks in north Georgia.
[c] Offsite means represent pooled data for vendors and customers at several flea markets across north Georgia.

Table I.10

Specific Site Preferences Reported by Visitors[a] to Three North Georgia State Parks, Summer 2010 (Overall and by Park) (n = 984)

Park Attribute	*M*[b]	*SD*	% Rating as Very or Extremely Important		
			FM	**FY**	**RTM**
A place to recreate with family	4.52	0.82	89.7	90.3	87.4
A place to picnic, BBQ or cook out	4.35	0.87	83.9	86.7	84.0
Friendly, informative rangers	4.19	0.98	81.3	81.5	69.7
Rules to maintain safety	4.16	1.03	77.5	82.2	69.5
A place to experience/explore nature	4.15	0.96	80.4	75.6	75.7
Parking	3.99	1.05	66.7	74.2	68.9
Concession stands/food services	2.96	1.36	32.3	39.2	32.7
Stores selling souvenirs and supplies	2.68	1.34	28.7	32.6	25.1

[a] Totals represent unweighted pooled data for visitors to three north Georgia state parks.
[b] Preferences were measured on a scale from 1 = not important to 5 = extremely important

Table I.11

Perceived Benefits of Visits to Three North Georgia State Parks, Summer 2010

Benefit[a]	State Park			TOTAL
	FM (n = 301)	**FY** (n = 342)	**RTM** (n = 378)	**TOTAL** (n = 1019)
Increase quality of life	4.26 ± 0.09	4.28 ± 0.09	4.26 ± 0.08	4.27 ± 0.05
Develop positive views of nature	4.21 ± 0.09	4.10 ± 0.09	4.19 ± 0.08	4.17 ± 0.05
Improve mental health	4.14 ± 0.10	4.16 ± 0.09	4.14 ± 0.09	4.15 ± 0.05
Build/strengthen relationships with others	4.08 ± 0.09	4.00 ± 0.09	3.96 ± 0.09	4.01 ± 0.05
Improve physical health	4.00 ± 0.09	3.96 ± 0.10	3.97 ± 0.09	3.98 ± 0.06
Interact with diverse people	3.46 ± 0.11	3.61 ± 0.12	3.54 ± 0.11	3.54 ± 0.06

[a] Benefits were rated on a scale from 1 = strongly disagree to 5 = strongly agree

Table I.12

Observed Physical Activity Categories (Sedentary, Moderate, or Vigorous) for North Georgia State Park Visitors[a] *(% of total) in Multi-use Zones, Summer 2010 (by Race/Ethnicity within Age Groups) (n = 16464)*

Racial/Ethnic Group	**Children**			**Teens**		
	Sed	Mod	Vig	Sed	Mod	Vig
White	29.6	67.1	3.3	47.5	50.5	2.0
Hispanic/Latino	33.3	64.3	2.4	41.5	57.5	1.0
Black	23.2	71.4	5.4	34.4	62.0	3.6
Asian/Other	35.7	63.3	1.0	42.4	57.6	0.0
TOTAL	30.7	66.3	3.1	43.5	54.7	1.7

Racial/Ethnic Group	**Adults**			**Seniors**		
	Sed	Mod	Vig	Sed	Mod	Vig
White	70.0	29.6	0.4	75.4	24.6	0.0
Hispanic/Latino	65.5	34.0	0.5	66.7	31.3	2.1
Black	58.9	39.9	1.2	88.2	11.8	0.0
Asian/Other	67.5	32.1	0.4	56.3	43.8	0.0
TOTAL	67.3	32.3	0.5	72.9	26.5	0.5

[b] Totals represent pooled data for visitors to three selected state parks in north Georgia.

Table I.13

Observed Physical Activity Categories for North Georgia State Park Visitors[a] (% of total) at Trailheads, Summer 2010 (by Demographic Group) (n = 2061)

Demographic Group	Physical Activity Level at Trailhead		
	Sedentary	Moderate	Vigorous
Gender			
Females	9.7	85.5	4.8
Males	7.2	74.3	18.5
Age			
Children	7.5	89.7	2.8
Teens	9.0	79.8	11.2
Adults	8.4	75.8	15.7
Seniors	8.3	80.6	11.1
Race/Ethnicity			
Whites	6.3	80.5	13.2
Hispanic/Latinos	22.4	67.2	10.4
Black/African Americans	22.9	66.1	11.0
Asian/Other	8.1	87.0	4.9

[a] Totals represent pooled sample of visitors to all three north Georgia state parks.

Table I.14

Constraints to State Park Visitation Reported by Offsite Intercept Survey Participants at North Georgia Flea Markets, Summer 2011 (n = 214)

Constraint Category	Item[a]	Mean	SD
Time	*I do not have enough free time.*	3.12	1.48
Distance	*Parks are too far from my home.*	2.67	1.48
Lack of information	*Lack of information about rec opportunities.*	2.10	1.37
Money	*The cost is too high.*	2.07	1.34
Personal preference	*Parks do not provide enough fun things for me or my family to do.*	1.68	1.12
Personal preference	*I have no friends or family to do activities with.*	1.68	1.20
Park issues	*Facilities are in poor condition.*	1.67	1.05
Park issues	*I am afraid of perceived crime in state parks.*	1.63	1.09
Other alternatives	*I prefer to recreate elsewhere*	1.62	1.28
No interest in activities	*I am not interested in outdoor recreation activities.*	1.61	1.12
Lack of transportation	*I have no way to get to a state park.*	1.61	1.14
Park issues	*Park employees are not friendly.*	1.54	0.96
Personal preference	*My family or I have health problems.*	1.50	1.04
Personal preference	*I am afraid of wild animals and outdoor pests.*	1.49	1.01
Park issues	*Information about parks is not in my language*	1.41	0.95

[a] Constraint items (e.g., "reasons that keep you from visiting state parks as often as you would like") were rated on a scale from 1 = not a reason to 5 = major reason

Table I.15

Mean Amount of Additional Money Visitors to Three North Georgia State Parks were Willing to Pay (WTP) to Enter Park, Summer 2010

Park	n	Mean Additional WTP[a]	SD	% Agreeing to Pay More
Fort Mountain	280	$2.83	4.28	53.3
Fort Yargo	348	$1.93	3.19	41.1
Red Top Mountain	361	$2.92	5.82	49.5
TOTAL	989	$2.54	4.62	47.6

[a]Current Georgia state park per vehicle entrance (parking) fee is $5.

Table I.16

North Georgia State Park Visitors"[a] Response to Various Proposed Park Entrance Fees, Summer 2010

	Proposed Fee Amount			
Response	$5[b] n = 266	$7 n = 252	$10 n = 255	$15 n = 255
Visits would decrease (%)	7.9	20.2	45.1	56.5
Visits would stay the same (%)	78.9	74.2	52.2	41.6
Visits would increase (%)	13.2	5.6	2.7	2.0

[a] Totals represent pooled sample of visitors to all three north Georgia state parks
[b] Current Georgia state park per vehicle entrance (parking) fee is $5.

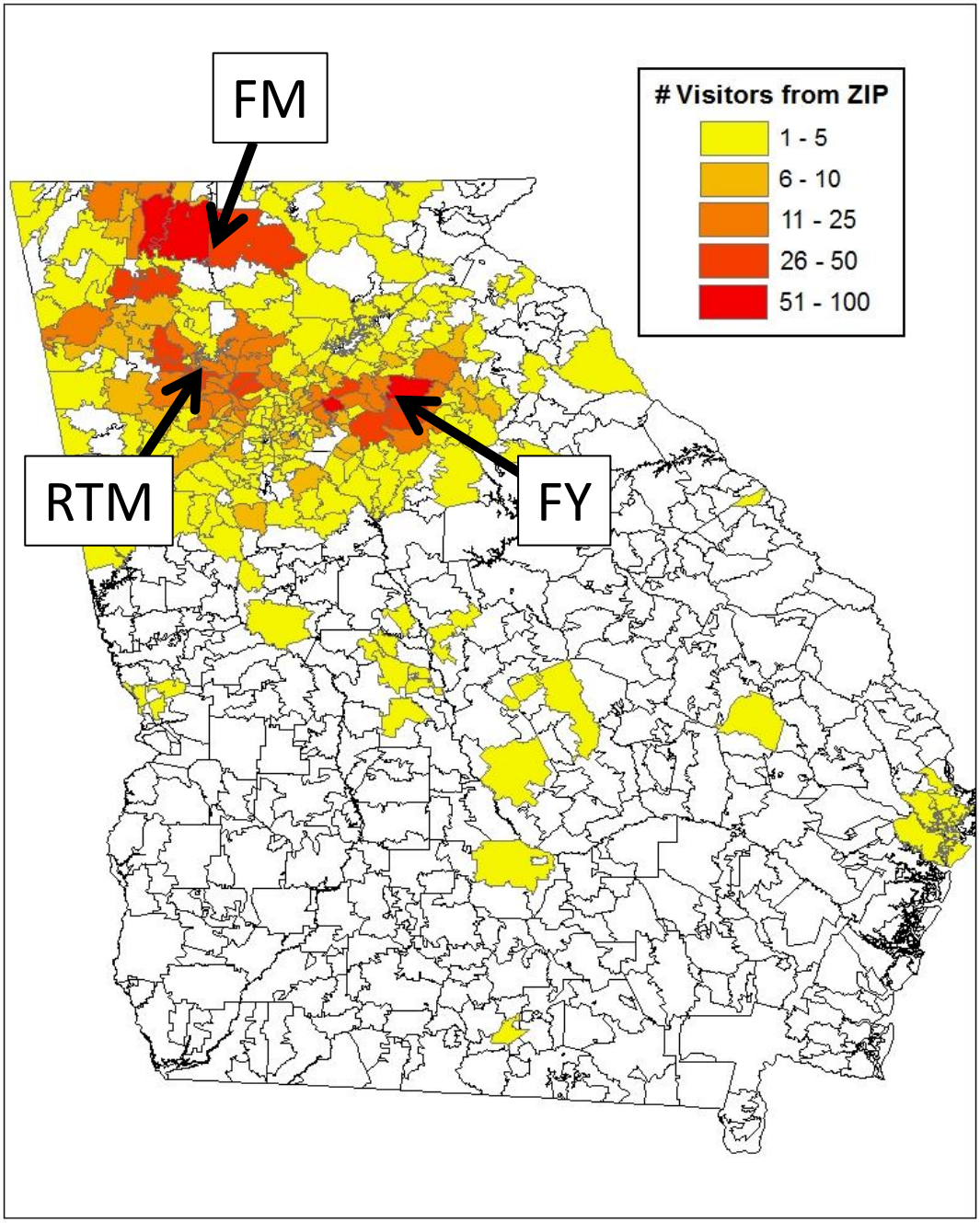

Figure I.1. Distribution of visitors to Fort Mountain (FM), Fort Yargo (FY) and Red Top Mountain (RTM) State Parks in Georgia based on intercept survey participants' reported ZIP code at point of origin, summer 2010 (n = 1985)

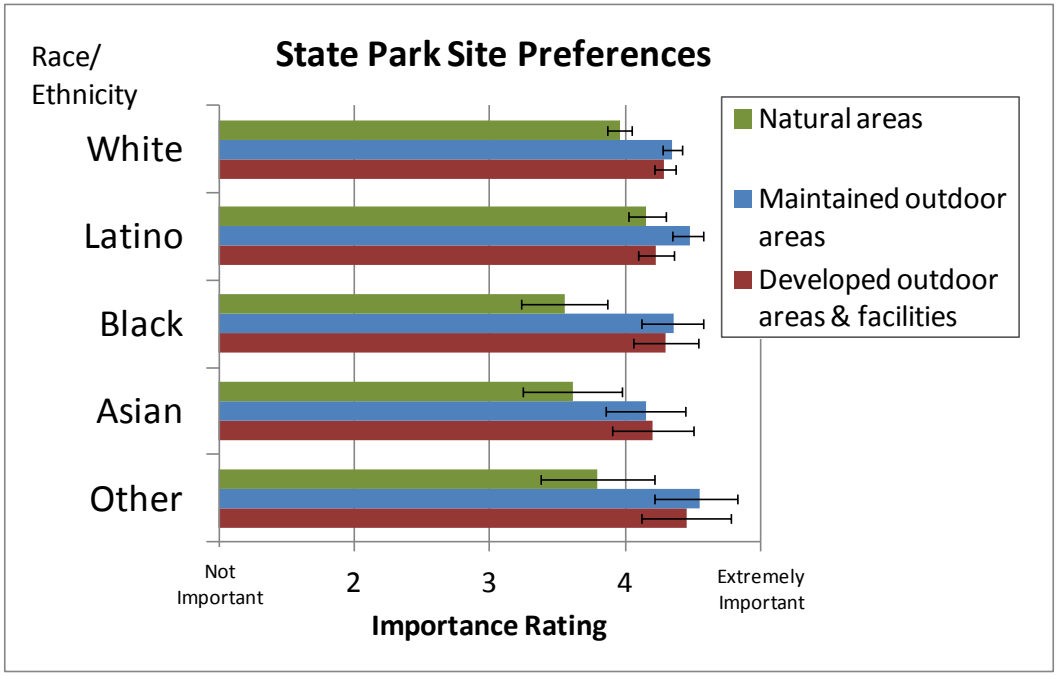

Figure I.2. General site preferences for pooled sample of visitors to three north Georgia State Park (by race/ethnicity), summer 2010 (n = 971)

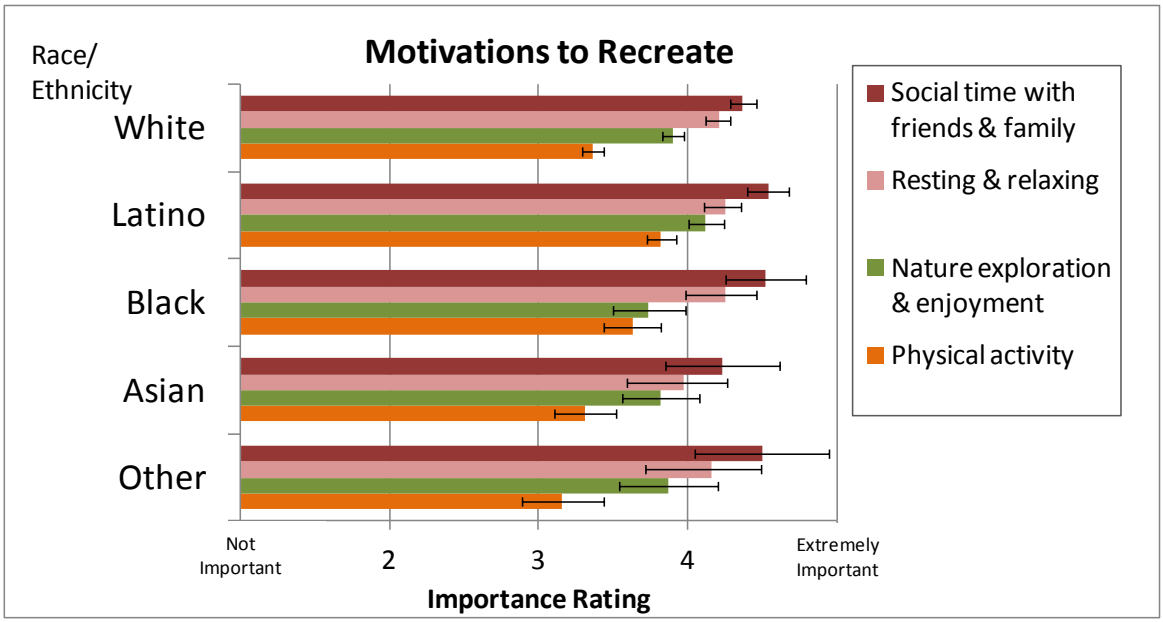

Figure I.3. Motivations to recreate reported by pooled sample of visitors to three north Georgia State Parks (by race/ethnicity), summer 2010 (n = 943)

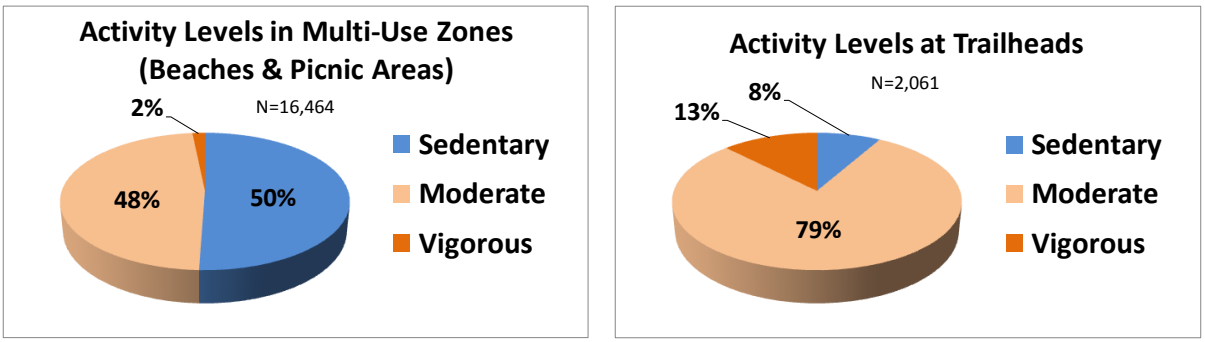

Figure I.4. Observed physical activity levels for pooled sample of visitors to three north Georgia state parks (by park zone), summer 2011

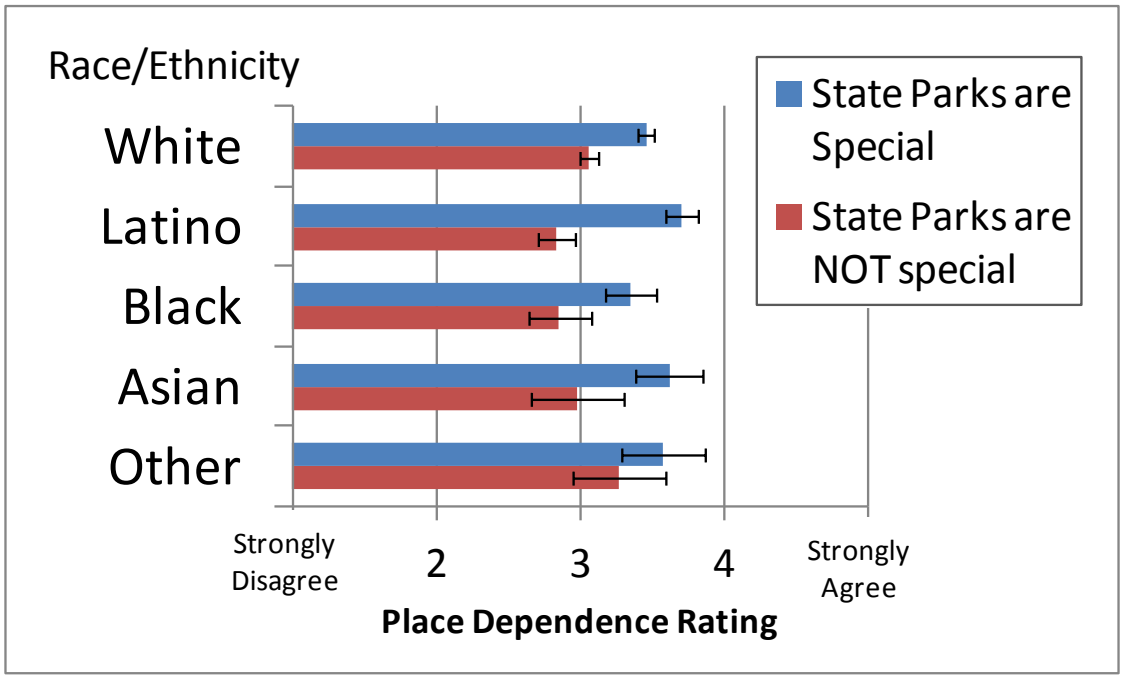

Figure I.5. Aggregate place dependence ratings for pooled sample of visitors to three north Georgia state parks (by race/ethnicity), summer 2010 (n = 987)

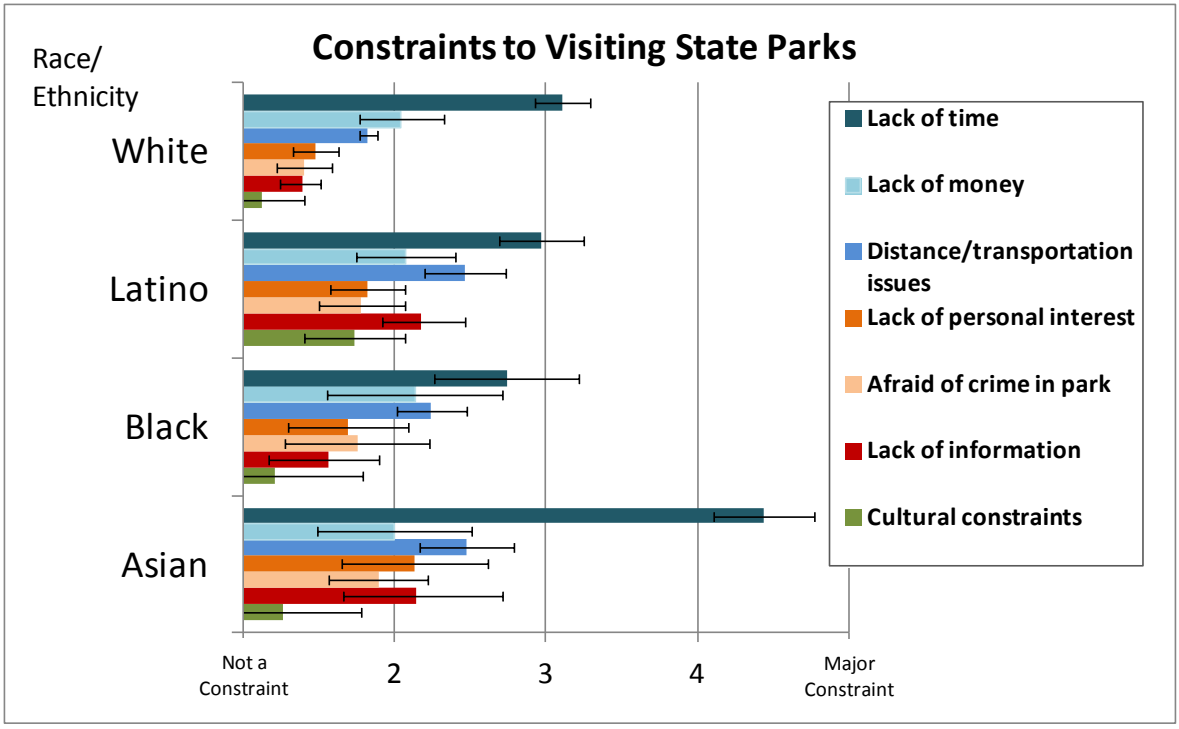

Figure I.6. Constraints to state park visitation reported by offsite intercept survey participants in north Georgia flea markets, summer 2011 (by race/ethnicity) (n = 214)