

THE COMMUNITY OF MEMBER-BASED NATURE PARKS:  
AN INTEGRATION OF SPATIAL, SOCIO-DEMOGRAPHIC,  
AND INTERVIEW DATA

THESIS

Presented to the Graduate Council of  
Texas State University–San Marcos  
in Partial Fulfillment  
of the Requirements

for the Degree

Master of ARTS

by

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San Marcos, TX  
May 2011

THE COMMUNITY OF MEMBER-BASED NATURE PARKS:  
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## **ACKNOWLEDGEMENTS**

I would first like to extend my gratitude to the Department of Sociology at Texas State University-San Marcos. In particular, I would like to thank Dr. Audwin Anderson for his patience, support, and guidance through the Master's process. I would also like to thank Michael Whitehawk, who encouraged me to attend the Sociology graduate program. To Dr. Nathan Pino, for his candid thoughts on the earliest stages of this thesis and his invaluable insight on teaching and learning. You always keep a smile on my face. Thank you also Dr. Deborah Harris and Dr. Vince Lopes. You both encouraged me to push myself to be a researcher rather than just a student.

I would personally like to thank my thesis committee, for all of their patience, time, and guidance. Dr. Patti Giuffre, your instruction on both my thesis and other research has been invaluable. You have been such a wonderful mentor and friend. Thank you for serving as a committee member for this thesis and for making my time in the Sociology department more rewarding. I also would like to thank Dr. Audrey McKinney for not only serving as a member of my committee, but also igniting my interest in environmental studies and for talking with me when I was still trying to develop the foundation of this thesis. I feel honored to have had both of you be involved in my thesis.

I would also like to express my sincerest thanks to my committee chair Dr. Chad Smith. You have impacted me in profound ways. I entered this program knowing that I liked environmental studies, but you opened my eyes to what that really meant. With Dr.

Chad Smith's instruction and patience I cultivated a deeper, clearer, and more meaningful understanding of myself as a sociologist. Your belief in me has given me the confidence to pursue research endeavors and achieve both professional and academic success. Thank you for everything. Without your insight, this thesis would have never come to fruition.

Texas State University-San Marcos has been my home for many years and in that time I have had the privilege of knowing so many wonderful, inspiring, and thoughtful people. Dr. Craig Hanks, thank you for all of your years as a mentor and friend- for talking me into majoring in philosophy and listening to all my random musings while I was still just a freshman trying to find myself. Dr. Lynn Fulmer, you were a wonderful teacher and friend. I will never forget you and reading Ellery Queen in the garden. Thank you for your involvements in my undergraduate education and ethics bowl activities. I enjoyed those times immensely. Thank you to the entire philosophy department. You have all been, and will always be, family.

Finally, I would like to thank my parents. My path to get to this point has been difficult and stressful at times, yet you both have continuously encouraged me to keep going. My accomplishments are only possible because of your love and belief in my success. I love you both and can never truly express how important you both are to me. My brother, Jeremiah, who I have become closer to these past few years. Thank you for being you.

This manuscript was submitted on April 5, 2011.

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## CHAPTER I

### INTRODUCTION

“A nature center is more than a place--a physical structure with surrounding land area. It is an event, a potential experience for a member of the community.”

- Dr. Gabriel J. Cherem (1974: 3)

Since initial European settlement in the United States, American ideology has been marked by its social construction of the biophysical world. From the Civil War through present times, a conceptual and political discourse has rendered nature a categorical ideal, comprised of many different American sentiments. Nature is often framed as a grand, open space, representing the limitless possibilities of the American people and, within this context, America has undertaken the creation of national parks and sanctuaries in order to preserve this ideal. Nature, set apart in the form of parks, has become an American cultural symbol, an archetype of normative cultural values that embody the greatness of the nation and its people (Ross-Bryant 2005). This concept of wilderness places a great emphasis on nature’s transcendent quality. Thus, embedded within the ideology of preserving nature by creating parks is the social construction of nature.

In the last several decades, member-based nature centers have been established to provide both community orientation to nature and education services; often times with

the goal of promoting nature conservancy and growth and to provide outdoor benefits to urban communities (Cherem 1974). Currently, there are more than 2,000 nature and environmental education centers nationwide (National Environmental Education Foundation 2010). According to the National Audubon Society, Nature Centers Division, nature centers are:

A nature center usually has most of the following features and programs: nature trails with labels or self-guiding booklets; guided walks on scheduled basis for local school classes, youth groups and clubs; guided tours by appointment for visiting individuals or groups; interpretive education building with exhibits and meeting space; seasonal programs for adults and children; educational workshops for teachers and youth group leaders (National Audubon Society 1968:iii).

Most nature centers allow visitors to participate in outdoor recreation and nature experience by either paying an annual amount to become members or a daily entrance fee (National Audubon Society 1975). Focus on nature centers peaked during the 1960s and 1970s as the numbers of nature centers facilities expanded at increasing rates in the United States and Canada (National Audubon Society 1975). During this time, research on nature centers often explored the educational value of centers for teachers and school children (Bruner 1972; Hoban 1973; National Audubon Society 1968; Roller and Green 1967). Recent studies have also emphasized the educational aspects of nature centers for school teachers (Jung and Tonso 2006).

Since the 1980s, research on inequality has neglected member-based nature parks for analysis, even though nature centers may not be reaching certain segments of a

community. One study directed at the Dodge Nature Center in Minnesota, found that Latino community leaders and parents identified unfamiliarity with the nature center, cultural differences, potential for discrimination, and economic factors as the major barriers for their participation (Hong and Anderson 2006). This finding is similar to research on parks and park use, which commonly focuses upon the perceived benefits of and constraints to outdoor recreation at the national and public park level.

Park research suggests that while the idea that public parks belong to all Americans is perpetuated, the presence of distinct use patterns provides evidence that participation is stratified among different segments of society and that use occurs for different reasons. In that vein, a number of studies have found the presence of inequality among park users and non-users (Arnold and Shinenew 1998; Johnson et al. 2001; Lee et al. 2001; Scott and Jackson 1996; Shores et al. 2007; Virden and Walker 1999).

However, little research has focused on this aspect of outdoor leisure and use from a park use and leisure research perspective. By studying member-based nature centers, this thesis will attempt to highlight the relationship between member's social constructions of nature and their participation in park places such as that of a nature center. Given available research, this thesis suggests that these types of member-based nature centers may illustrate an important shift in the socio-environmental relationship of the social construction of nature, park creation, and park use.

Additionally, this relationship is important as a nature center may only be serving a particular spatial and socio-demographic segment of a community and, therefore, may not be reaching maximum effectiveness if an entire community, or a significant subgroup within that community, is unable to reap the physical, psychological, or other perceived

benefits from nature center use. Nature center inequality is also troubling because one of the main arguments as posited by the National Audubon Society for the creation of nature centers is that they serve the entire community in which they are situated (Cherem 1974).

This gap within the literature also extends to environmental sociology, as an analysis of member-based nature participation from an environmental sociological perspective has yet to be included in inquiries; particularly, any environmental inequality that may be present within a community surrounding a member-based nature center. While environmental inequality research has long sought to empirically study the claims that the disproportionate siting of environmental hazards affects the poor and people of color disproportionately (Apelberg, Buckley, and White 2005; Brulle and Pellow 2006; Downey 2005a, 2005b; Downey and Hawkins 2008; Hooks and Smith 2004; Pastor, Morello-Frosch, and Sadd 2005; Pellow 2004; Pulido 2000; Saha and Mohai 2005; Smith 2007; Smith 2009; Walker, Mitchell, Fairburn, and Smith 2005), this research proposes that environmental inequality may also manifest itself in the disproportionate access to environmental benefits.

Guided by a critical realist perspective and using a mixed methodology, this thesis explores social constructs of nature, nature use, leisure use constraints, and environmental inequality in three ways. First, the community surrounding the nature center is assessed through analysis of integrated spatial and demographic information of member zip codes gathered from a nature center in Texas. Second, member views of how nature is socially constructed and its relationship to the creation and use of nature centers are ascertained through interviews collected from a sample of the nature center members. Finally, following suggestions from Wicks, Backman, Allen, and Blaricom (1993), this research

integrates spatial variables, demographic data of residents, and attitudinal data of residents who use the park to provide a comprehensive assessment of this nature center in relation to its surrounding community.

This research provides empirical findings related to outdoor leisure research, nature center users, and a new form of environmental inequality as it relates to benefits. Findings also present how members socially construct nature, and how those social constructions relate to their tangible relationship with the environment as nature center participants. Additional discussion highlights the larger picture given by integrating spatial, socio-demographic, and interview data. Concluding remarks note the implications of these findings and suggest directions for future research.

## CHAPTER II

### LITERATURE REVIEW

#### *From Social Constructions to the Creation of Nature Parks*

Parks represent an array of American sentiments. Throughout history, American social constructions of nature have been associated with religion, utility, and romanticism. Until the nineteenth century, wilderness was the place at the edge of civilization where it was “all too easy to lose oneself in moral confusion and despair” (Cronon 1995: 70). However, by the late 1800s, nature had come to be seen as Eden, a place given to Americans by God himself (Cronon 1995; Ross-Bryant 2005). Since then, wilderness has served social functions that range from ties to the country’s romantic mythological past as places of great beauty to a fundamental part of American citizenry and social identity (Borrie, Freimund, and Davenport 2002; Cox 1985; Cronon 1995; Delaney 2001; Miller 1992; Ross-Bryant 2005; Route 1987; White, Virden, and Cahill 2005).

In the 1920s, Aldo Leopold (1925) described wilderness as a “means for allowing the more virile and primitive forms of outdoor recreation to survive” (401). Like many of his contemporaries, Leopold envisioned wilderness as refuge from modernity, where outdoor experiences would reconnect people to the land. From the onset of park establishment, there existed an idealized view of the “purity of wilderness.” The idea was that the essential beauty of wilderness needed to be preserved for posterity

(Borrie et al. 2002; Cox 1985; Cronon 1995; Miller 1992; Orloff 2004; Raymond and Brown 2006; Ross-Bryant 2005).

Niagara Falls was the first to undergo the transformation from "wild-land" to a place whose beauty was "so spectacular that American citizens had to visit it and see for themselves" (Cronon 1995: 3). Similar romantic views of the Catskills and Adirondacks soon followed. The first lands granted by the federal government to be set aside as national parks were Yosemite and Yellowstone (Borrie et al. 2002; Ross-Bryant 2005). In 1864 the United States government deeded Yosemite to the state of California as the nation's first wild land park after its discovery in 1851 by a group of volunteer militia when they drove out to capture the Ahwahneechee American Indians who had been living in the area (Ross-Bryant 2005). National parks, as they are recognized today, were not a part of American culture until 1872 when the United States Congress set aside 2 million acres of land to make Yellowstone "a public park or pleasuring ground for the benefit and enjoyment of the people" (United States Congress 1872).

In 1916, the National Park Service was established through the Organic Act (Borrie et al. 2002; Ross-Bryant 2005) and, with this action, the justification behind park establishment became confounded by various, perhaps incongruous, rationales. On one side, a utilitarian argument emphasized the necessity of parks for their rejuvenating power, as essential to the productivity and well being of American workers (Ross-Bryant 2005). Supporters of this view argued before Congress that the continued progress (i.e. Manifest Destiny) of the nation depended on Americans' renewal in wilderness areas. On the other side, the economic value of parks was simple: the more visitors a park received, the more funding from the government (Ross-Bryant 2005).

By the 1950s the advent of the federal highway, networks of logging roads, and new technology and information made it easier for Americans to access and plan trips to wilderness. During the 1950s to 1970s, the environmental movement was taking shape, which led to an increased emphasis on the recreational uses of nature (Glotfelty 1996; Turner 2002). Travel to the park became a popular way to enjoy an individualistic exploration of wilderness while maintaining membership within the American community (Ferriss 1970; Miller 1992; Ross-Bryant 2005; Trachtenberg 1968; White, Virden, and Cahill 2005). Nature activities, such as hiking, grew at rates “five times that of the population” (Glotfelty 1996: 439).

Following the passage of the Wilderness Act in 1964, and as wilderness popularity grew, wilderness land for recreation and wilderness land for preservation emerged as the two dominant views within American society (Turner 2002). During the mid-1960s, the nature centers movement was taking shape, emphasizing the role of nature centers as a means of "preserving natural beauty in a community" and a place for urban residents to enjoy "these "islands of green" in their midst" (National Audubon Society 1968: i). The National Audubon Society began producing pamphlets and information on how to establish nature centers (Ashbaugh 1966). The idea was that nature centers and similar facilities were one of the most effective ways to stimulate an appreciation of the environment and one of its missions was to foster a better understanding of humans' place in the ecological community (National Audubon Society 1975).

In 1974, an evaluation of nature centers found that visitors of nature centers were typically the following types of people: the housewife who "enjoys a chance to be with

her school age children on Saturday [and] watching them learn and get excited about what they and she are learning together"; the type who uses the center as "a restful area in which to spend his lunch hour away from work"; retired persons who pursue new hobbies such as bird watching at the nature center; tourists who, travelling by, spot the nature center and are "particularly interested in walking the nature trail, desiring to see plants and possibly animals in their natural surroundings"; and finally, teachers who take their students to the nature center to learn about animals and nature (Cherem 1974: 3).

By 1975 the number of nature centers and environmental education facilities had expanded approximately 22 percent from 356 facilities in the United States and Canada in 1969 to 558 in the United States and 44 in Canada. Reasons for such increasing rates of nature centers are attributed to concern with environmental pollution, the disappearance of urban green space, realization of the finite capacity of natural resources, and a growing awareness of human-nature interconnectedness (National Audubon Society 1975).

With the rise in nature participation popularity, research began to distinguish the benefits associated with nature activities. Such studies found wilderness benefits to be related to an individual's well-being both physically (Bedimo-Rung, Mowen, and Cohen 2005; Cohen, McKenzie, Sehgal, Williamson, Golinelli, and Lurie 2007; Payne, Orsega-Smith, Roy, and Godbey 2005) and psychologically (Manning and Moore 2002; Stein and Lee 1995; Williams and Carr 1993). Frequently addressed are the physical benefits of reduced risk of cardiovascular disease and obesity, a healthier immune system, and increased life expectancy (Bedimo-Rung et al. 2005; Cohen et al. 2007; Maller, Townsend, Pryor, Brown and St. Leger 2005; Vries, Verheij, Groenewegen and

Spreeuwenberg 2003). Psychological benefits include reduced depression, stress-relief, higher self-esteem, and greater life satisfaction (Kleiber, Hutchinson and Williams 2002; Maller et al. 2005; Manning and Moore 2002; Orsega-Smith et al. 2004; Stein and Lee 1995; Williams and Carr 1993). One study found that these psychological benefits of participation in the outdoors were associated with positive emotions gained from outdoor recreational activities (Farber and Hall 2007). Community has also been found to be a benefit of outdoor participation (Sharpe 2005; Wellman, Dustin, Henderson, and Moore 2008). Additionally, some research indicates perceived spiritual benefits which are often associated with a sense of holism, transcendence, connectedness with the earth, and being closer to God or a divine power (Farber, Costanza and Wilson 2002; Fine and Sandstrom 2005; Maller et al. 2005; Manning and Moore 2002; Stein and Lee 1995).

Consequently, "wilderness" was refashioned into a capitalist commodity "as an accessible and desirable tourist destination" (Turner 2002: 463). By the 1970s one no longer needed expert knowledge of nature to participate in the wilderness experience and wilderness recreation commanded a \$400 million dollar market. Visits to nature, with all the conveniences of modern civilization in tow, became embedded within larger economic experiences of consumption and production as a leisure activity (Cronon 1995; Hirschman 2003; Taylor 2000; Turner 2002; West 1996).

#### *Studying Society and Nature Interactions*

While it is evident that park creation and use is intertwined with larger American social concepts of nature, this relationship is of particular importance within environmental sociology (Catton and Dunlap 1978; Dunlap and Marshall 2007; Hannigan 1995; Jones 2002). Two questions are crucial to the study of social-ecological

relationships for sociologists: 1) What is nature (the environment)?, and 2) What is nature's relationship to society? With these questions sociologists have begun to identify the various ways in which society's relationship with the environment is characterized. Moreover, it is from this elucidation of the different manifestations that sociologists derive theories about the empirical social-nature relationship and create methodological frameworks for studying them.

Two opposing theoretical perspectives heavily influence environmental sociology methods. First, is the social construction of nature or constructivist view (Jones 2002). The constructivist paradigm stems from the epistemological school of philosophy known as phenomenology. Constructivists argue that there is no one single nature itself, but many socially constructed ideas of "nature" (Dunlap and Marshall 2007). Opposite to relativist notions is the positivist, or realist, view. The positivist side argues that society is quantifiable and examinable because humans and nature exist independent of one another (Rosa 1998). With its origins in ontology, this fundamentally scientific outlook understands the social world as entirely objective and calls for social researchers to be as objective as possible. As realists argue, the biophysical world is comprised of real entities not merely socially constructed ones (Dunlap and Marshall 2007).

The realist and constructivist views are part of a controversial and difficult debate within environmental sociology. On the one hand, an extreme constructionist view of nature is problematic because it assumes nature is completely socially constructed. That is to say, nature can never be "real" because it is merely a social construction and is therefore malleable, changing according to society's view of it. For example, Ross-Bryant (2005) argues that the "socially-constructed" park reflects the prevailing

“collective ideals” of a given time-period. On the other hand, to view nature from an extreme realist perspective is reductionist because it minimizes the important relationship and interactions between culture, society, and nature.

Rising in recent decades as a third position, critical realism offers a middle-ground solution to the weaknesses of positivist and relativist positions. By doing so, it takes into account that ideas are social concepts, while recognizing that they are only understood via a tangible, predisposed framework (McEvoy and Richards 2006; Proctor 1998; Tsang and Kwan 1999). As Dickens (1997) notes,

There are real differences between how people construe fishes, but this is a wholly different matter from how a fish is physically constructed (73).

Epistemological truths are therefore neither entirely subjective, nor objective. Rather, knowledge is the result of the interactions that occur between subject and object.

Critical realism has a particularly useful application in research aimed at human-nature interactions. Wilderness is a uniquely ambiguous setting, representing a very empirical concrete thing but with strong ideological tainting (Proctor 1998). While some focus has been given to critical realist explorations of nature (Proctor 1998), further evaluations should be made of nature and park use from a middle-ground perspective that neither reduces nature to an abstracted, constructed reality nor a completely scientific one. To address this, a component of this thesis attempts to present a critical realist view of the social construction of nature as it relates to park participation by using a mixed method approach. Combining quantitative and qualitative methods is often advocated in social science research (Creswell 2009; Johnstone 2004; McEvoy and Richards 2006;

Pawson and Tilley 2001), particularly when using a critical realist rationale (McEvoy and Richards 2006).

*The Wilderness Leisure Divide: Users Versus Non-Users*

There is a wide ranging literature covering issues related to park participation (Borrie et al. 2002; Bowker, Cordell, and Johnson 1999; Hammitt, Bixler, and Noe 1996; Hollenhorst, Olson, and Fortney 1992; White et al. 2005) that forms a particularly important aspect of leisure research. Findings from leisure research have noted different constraints for park participation and participation intensity. Research on constraints often cites the presence of distinct inequalities between park users and non-users (Arnold and Shinenew 1998; Bialeschki and Henderson 1998; Howard and Crompton 1984; Johnson et al. 2001; Lee et al. 2001; Mowen and Confer 2003; Payne, Mowen, and Orsega-Smith 2002; Scott and Jackson 1996; Shores et al. 2007). For example, Bialeschki and Henderson (1998) noted that trail users could easily be distinguished from non-users by their age, income, and gender. They also found that time, lack of information, money, health, and distance from home were the leading barriers for trail use. Likewise, Scott and Jackson (1996) revealed that the most intense and widespread types of constraints were associated with availability of time. They also found that improved programming of park activities and park promotions within a community were the most effective strategies to encourage park use.

Participation inequality has also been identified among distinct demographic groups based on race (Arnold and Shinenew 1998; Floyd 1999; Johnson et al. 2001; Lee et al. 2001; Martin 2004; Shores et al. 2007; Virden and Walker 1999; Walker, Deng, and Dieser 2001), socioeconomic status (Arnold and Shinenew 1998; Cordell, Green, and Betz

2002; Lee et al. 2001; Shores et al. 2007), and gender (Arnold and Shiney 1998; Johnson et al. 2001; Lee et al. 2001; Shores et al. 2007; Virden and Walker 1999). Racial and ethnic minorities tend to experience constraints more often than non-minorities (Shores et al. 2007). For example, blacks are less likely than whites to travel to recreation areas, and generally have less involvement in outdoor recreation than whites (Johnson et al. 2001). Using marginality theory, some scholars attribute racial differences to structural barriers within society, such as transportation or information about facilities, as explanations for why some racial minorities are prevented from participating in these activities (Johnson et al. 2001; Lee et al. 2001).

Recently, research has indicated that participation rates may also be explained by cultural differences (Buijs, Elands, and Langers 2009; Kaplan and Talbot 1988), discrimination (Blahna and Black 1993), and social views defining appropriate racial leisure activities (Phillip 1999). According to these explanations, recreation is affected by additional factors other than frequently documented constraints. Gobster (2002) found that Hispanics are limited in their recreation use because they tend to recreate in larger groups, and current park facility designs are not well-suited for such group sizes. Similarly, Muslim-Americans are limited because facilities are not conducive to the spaces they require for daily prayers and communal meetings (Stodolska and Livengood 2003). The appeal of various types of outdoor activities significantly differs by race, such as African-Americans' reports of feeling less comfortable and unwelcome in activities perceived as primarily "white" (Shores et al. 2007). Moreover, minority races often experience feelings of discrimination in their outdoor recreation participation. For example, Blahna and Black (1993) identified four specific forms of discrimination

experienced by Hispanic and African-American students in Chicago parks and wilderness areas.

Conjointly, women are prevented from successful involvement in leisure recreation and outdoor activities. Findings indicate that women are often constrained in their park use because of gender role socialization. Within this research fears of crime and violence are found to be significant factors (Arnold and Shinenew 1998; Bialeschki 2005; Coble, Selin, and Erickson 2003; Day 2001; Henderson and Bialeschki 1993; Koskela 1999; Manning, Bacon, Graefe, Kyle, Lee, and Burns 2001; Wesely and Gaarder 2004). In a recent study, Day (2001) tied fear to the construction of masculine and feminine gender identities. Her findings reveal that the spatial construction of masculine identities builds upon perceptions of feminine identities, especially those of women as “fearful” and “endangered” in given places (Day 2001). Other constraints include the perception of outdoors as dangerous places (Filemyr 1997), a caretaker ethic (Wearing and Wearing 1988), a perceived lack of skill, self-confidence, feminine body-image (Frederick and Shaw 1995), and a perceived lack of entitlement due to views that the outdoors are primarily male territory (Green, Hebron, and Woodward 1990; Henderson and Bialeschki 1991; Virden and Walker 1999; Wearing and Wearing 1988).

An individual’s level of income, level of education, and occupational status has considerable influence on park use as well (Arnold and Shinenew 1998; Burdge 1969; Kelly 1996; Lee et al. 2001; Scott and Munson 1994; Shores et al. 2007). Scott and Munson (1994) observed that individuals with low incomes experienced far more constraints to park use than individuals with high incomes. Similarly, Kelly (1996) notes that a low income keeps individuals from being able to participate in some kinds of

outdoor recreation simply because they are unable to allocate the necessary financial resources. Furthermore, Burdge (1969) notes that the relationship between occupational status and park use is especially prominent in activities that are closely tied to social status and which require some resources, either financial or cultural.

Explanations for the relationship between socio-economic status variables and leisure participation routinely focus on opportunity theory. This perspective suggests that outdoor recreation participation rates are directly related to the cost and physical availability of recreation resources (Lee et al. 2001). To this extent, income or occupation limits a person's opportunity to participate in some types of leisure due to travel costs, entrance fees, and other participation costs. What's more, education is related to leisure socialization, developing an interest in certain types of leisure, and knowledge of the skills needed to participate (Lee et al. 2001). All in all, a majority of leisure researchers have focused upon park participation, participation intensity, and leisure constraints.

Using an environmental sociology framework, this paper attempts to focus on the following questions: how does our society view "wilderness" as it relates to park creation and use? Moreover, are there particular ways in which the commodification of nature impacts society? By exploring the environmental sociology of outdoor activities, particularly park use, it is evident the answers can take several directions. The consensus among some scholars is that nature is socially constructed for various utilitarian, economic, cultural, and pre-lapsarian or romantic reasons, and that such views change according to the dominant ideology of the time (Ross-Bryant 2005). However, this paper notes the problems of a sole reliance on the social construction view of nature and calls

for a theoretical re-framing of the biophysical world inclusive of both constructivism and realism. To do so requires a critical realist orientation of research that this thesis attempts to illustrate via mixed methodology.

This paper also proposes that the commodification of nature through the creation of parks is problematic because of its impacts on society, particularly through inequality and stratification. Recently, fees are being implemented for access to wilderness places and activities (Richer and Christensen 1999; Williams, Vogt, and Vitterso 1999; Winter, Palucki, and Burkhardt 1999). Recreation fees were not charged for wilderness access or participation in undeveloped areas until the establishment of the Recreation Fee Demonstration Program in 1996 (Williams et al. 1999). As mandated by the U.S. Congress, federal land management agencies were directed to examine the possibility of recovering some of the costs associated with operating and maintaining recreation programs by expanding fee collection. While there has been a growing body of research directed toward recreation fees and users' willingness to pay (Fix and Vaske 2007; McKean, Johnson, Taylor, and Johnson 2005; More 1999), there have been relatively few studies regarding the economic aspect of member-based nature centers.

In this regard, distinct demographic inequalities may be occurring between members of nature centers and the larger community. This thesis suggests, if this is the case, member-based nature centers may not be benefiting all community residents, given leisure constraints. It stands to reason that socio-demographic disparities regarding participation may be present in areas of member-based nature centers due to their exclusive nature (i.e. location and fees). The possible presence of these inequalities denotes an unsettling outcome that certain geographic segments of a community are not

receiving benefits from this type of outdoor participation. Additionally, because many of these smaller member-based nature parks receive funding from national, state, and/or local government agencies, some nature recreation programs, funds, and policies may not be reaching their maximum effectiveness.

Such inequality, however, points to the larger issue of environmental inequality. Environmental inequality, in particular, has focused on the unequal distribution of hazardous waste sites across urban cities in America (Apelberg et al. 2005; Brulle and Pellow 2006; Downey 2005; Downey and Hawkins 2008; Hooks and Smith 2004; Pastor et al. 2005; Pellow 2004; Pulido 2000; Saha and Mohai 2005; Smith 2007; Smith 2009; Walker et al. 2005). There is a large body of empirical evidence illustrating the disproportionate siting of environmental hazards (Apelberg et al. 2005; Brulle and Pellow 2006; Downey 2005; Downey and Hawkins 2008; Hooks and Smith 2004; Pastor et al. 2005; Pellow 2004; Pulido 2000; Saha and Mohai 2005; Smith 2007; Smith 2009; Walker et al. 2005).

Repeatedly addressed in environmental inequality literature, the tendency of this type of research is to focus primarily on the “distribution of social groups around a variety of environmental hazards” (Downey 2005b: 652). Usually explanations of environmental inequality often fall into categories of racial, economic, and sociopolitical factors (Apelberg et al. 2005; Brulle and Pellow 2006; Downey 2005a; Downey 2005b; Downey and Hawkins 2008; Hooks and Smith 2004; Pastor et al. 2005; Pellow 2004; Pulido 2000; Saha and Mohai 2005; Smith 2007; Smith 2009; Walker et al. 2005).

Many environmental justice scholars have sought to reveal which of these explanations is the best predictor of environmental inequality (Smith 2009). The goal of

providing empirical evidence for claims that environmental degradation affects the poor and people of color disproportionately has become even more emphasized since the rise of the environmental justice movement in the 1980s and 1990s (Downey 2005b). For example, current research has focused on determining whether Massey and Denton's racial segregation explanation or Wilson's emphasis on economic deprivation were better predictors of superfund sites (Smith 2009). Saha and Mohai (2005) analyzed sociopolitical factors in a longitudinal study of how the "historic growth of public environmental concern and opposition to waste facilities, as well as changes in the policy" encouraged hazardous waste facilities "to follow the path of least (political) resistance and resulted in environmental inequalities" (618).

More recently, studies have evaluated a variety of environmental inequality examples including hazardous waste sites, manufacturing facilities, air toxics, industrial pollution, unexploded military bombs, and superfund sites (Apelberg et al. 2005; Downey 2005a; Downey 2005b; Downey and Hawkins 2008; Hooks and Smith 2004; Pastor et al. 2005; Pellow 2004; Pulido 2000; Saha and Mohai 2005; Smith 2007; Smith 2009; Walker et al. 2005). Even though member-based nature centers do not inflict hazards, their disproportionate access is potentially an environmental benefit that is unequally distributed to some parts of a population. Therefore, environmental inequality may be present in the reverse direction: unequal access to nature's benefits derived from member-based nature centers.

As a part of sociological inquiry, this paper attempts to contribute to the body of environmental sociological research. By using a critical realist perspective and mixed methodology, the goal of this thesis is to contribute a broader understanding of current

constructions of nature as they intertwine with realistic entities like nature centers. While a research focus has not yet been directed toward nature centers, they appear to be well-suited for a critical realist study of nature, because they afford both objective membership data, as well as the ways members socially construct and interact with nature. Moreover, offering both quantitative and qualitative data allows for a mixed method analysis of nature centers, which is often encouraged for sociological research in general (Creswell 2009; Johnstone 2004; McEvoy and Richards 2006; Pawson and Tilley 2001) and park assessment in particular (Wicks et al. 1993).

## **CHAPTER III**

### **METHODOLOGY**

This study utilizes both qualitative and quantitative analyses to address the following research questions:

1. How many people from a metropolitan and surrounding area are members of this nature center, and which community members does this member-based nature center serve?
2. How is nature socially constructed as it relates to nature center creation and use?

#### *Quantitative Methodology*

Quantitative methods are used to answer the first research question. The research hypothesis is that members differ from non-members with respect to their socio-demographic make-up. That is to say, I expect that members will tend to live closer to the center and in parts of the community that are homogeneous in terms of distance from the nature center, race, and income as compared to the larger surrounding city. The units of measurement for this study are all at the aggregate level of the zip code. Geographic information, provided by a nature center in Texas, identifies members' zip codes.

Originally, zip codes were provided for the entire population of members. Due to the sheer number of thousands of members and their placement throughout the United States, focus was given to the immediate metro-area containing the nature center. Criteria for inclusion were based on the United States' Census official listing of the zip codes within this metro-area. This resulted in a total of 91 zip codes to be used for analysis.

Census data were gathered for zip codes to evaluate the socio-demographic features of the center's user community. All county-level data used in this study were obtained from the United States Census Bureau's 2000 Census (2001a; 2001b). These data include median income, housing values, percent of population with a bachelor's degree or higher, percent below poverty, and race percentages for Whites, African Americans, and Hispanics/Latinos. Data for each variable were found for all zip codes within the appropriate surrounding metro-area in Texas. These variables were chosen because they are common indicators of socio-economic and racial demographics of a population (Smith 2009), and because they allow for conclusions to be drawn about the socio-demographic characteristics of that population. Census data for the total population of each zip code were gathered as well. A variable listing the number of members in each zip code was also included in the dataset. Additionally, a variable for zip code members per capita was calculated to account for population size.

The purpose of this research is not to generalize, but to establish a broader understanding of nature by looking at a member-based nature center. Therefore, the findings of this study may not be generalizable to members or nature centers outside those presented here. Also, due to the limited nature of the data and their aggregation, I cannot draw any definitive conclusions as to the characteristics of individual nature

center members. However, I can draw conclusions about the community characteristics within which members of the nature center live. Thus, I can reasonably compare any demographic disparities between nature center members' communities as compared to the rest of the metropolitan-area's population.

### *Qualitative Methodology*

In answering the second research question, the goal of this component of the research is to explore how nature is constructed and how this relates to a member's use of nature. Very little information has been gathered about nature center visitor origin, occupation, age, experiential background toward the environment, and attitudes about nature in general. I seek to understand the relationship between the social construct and park use because it relates to the need for the member-based nature center which in turn influences the center's relative placement, function, and role in a community (Cherem 1974).

Additionally, I want to address the paucity of research that evaluates outdoor recreation from a middle-ground perspective. Wicks et al. (1993) suggests that to accurately assess community parks in relation to use and users, a study must include spatial variables, demographic data of residents, and attitudinal data of residents who use the park. I aim to avoid reducing nature to an abstracted reality that views human-nature interaction in terms of social constructions (Borrie et al. 2002; Ross-Bryant 2005) or to study nature use as completely scientific. Therefore, I will highlight the construction of nature as it relates to park use and combine this with numerical data on membership in the nature center community.

To that end, semi-structured interviews (see Appendix A) were used in order to allow participants to reflect on and talk about their experiences (Esterberg 2002). Access to the sample of interviewees was obtained through the nature center. A request in the member newsletter solicited members to contact me if they were willing to participate. Members who responded were given more information about the study and I scheduled interviews with those who wished to participate. In-depth interviews were conducted with fourteen members who responded to the author's request for participation that was published in the nature center's member newsletter. Eleven participants were women and three were men. Twelve of the respondents were White, while two respondents were Hispanic. Respondents' ages ranged from 32 years old to 74 years old, with an average age of 52.

During the interviews, I asked respondents about their motivations for participation as members in the nature center. Questions such as how long had they been members and what motivated them to choose the center allowed for focused discussion of the underlying motivations for choosing to engage as members of the center. I also asked questions about their current participation at the nature center, why they went, what benefits they felt the center offered them, and if they visited other parks in Texas. Finally, I asked members broad opinion questions that illuminated the way members viewed nature, park creation, and nature use (see Appendix A).

Interviews were transcribed and the transcripts were analyzed using qualitative coding techniques. In this way, common themes were identified in initial open coding and refined during focused coding (Esterberg 2002). As I analyzed the data, I closely evaluated how members describe the nature center in particular, and their views of nature

in general. Below are the findings from these interviews, although, with the convenient sampling nature of this research and the fact that participants only consisted of those members who chose to participate in an interview, qualitative findings of this study are limited in scope and are not generalizable to the larger population of nature center members.

## CHAPTER IV

### FINDINGS

Before beginning a detailed discussion of the findings, it is pertinent to identify the broader themes deduced from the quantifiable demographic measures, as well as those themes that arose from members' constructions of nature. Starting with quantitative analysis, summary information for zip codes in the metropolitan area introduced an overall picture of the community surrounding the nature center. Descriptively, this area is predominately white and socio-economically prosperous.

Within demographic data, it was apparent that members reside throughout the city as all but four zip codes contained at least one member. Further analysis revealed distinct racial and socio-economic differences between zip code areas where a majority of members reside as compared to areas with little or no members. Systematic differences between zip codes reveal that zip codes with more members are predominately White, highly educated, and wealthy.

More members seem to be spatially congregated in particular zip codes. Emerging from the results of spatial influence on zip code membership, proximity to the nature center appeared to have a substantial impact on zip code amount of members. A majority of members live in the same, adjacent, or nearby zip codes to the nature center. Such illustrations suggest a high level of spatial dependency between the nature center and its members' zip codes.

The empirical evidence suggests that the nature center displays a unique form of environmental inequality manifested as the disproportionate access to environmental benefits. Spatial and socio-demographic findings point to inequality of nature center benefits because wealthy, white, educated social groups seem to have disproportionate access to this environmental benefit. Such findings illustrate how a dimension of environmental inequality may be related to environmental benefits as well as hazards.

There were several emergent themes from qualitative interviews. Members unanimously agree that nature and the environment have value. Many respondents' discussions reveal that the values they attribute to nature centers are embedded within their larger constructions of nature. Highlighted through interviews are different factors that contribute to a member's view of nature. For instance, some cited their childhood exposure to nature as influencing their views of nature in adulthood. Such topics relate how the nature center serves as an extension of members' perceptions of nature and their interaction with it.

Exploration of members' own social constructions revealed views of nature centers as having multiple uses. These uses were expressed in terms of nature centers as education facilities and nature recreation settings. Conceptions of nature center uses also extend to split views among members and within members themselves about the function of the center as a "park." Such opposing views within respondents imply that nature centers are perceived to serve various functions for members.

While all members expressed that they derive physical, psychological, and spiritual benefits from nature, they also cited additional benefits. Community was discussed as a derivative benefit of nature centers. Education and learning were also

identified as important new benefits that were not limited to just nature centers, but to nature use in general.

#### SPATIAL AND SOCIO-DEMOGRAPHIC DATA COMPARISONS

Quantitative data are useful for understanding trends within a larger dataset or within a large geographic area, such as a city. To understand the similarities and differences within that larger geographic area, however, I can utilize spatial and socio-demographic data to give a more finely grained analysis of zip codes. As Wicks et al. (1993) suggest, spatial and socio-demographic data are two vital parts of good research aimed at parks and park use within a community. For the purposes of this thesis, quantitative analysis is used as a specific component for a critical realist mixed method approach, which gives a more accurate picture of social-nature interactions of nature centers.

Spatial and socio-demographic analyses reveal interesting elements of the community surrounding the nature center. Particularly, four distinct aspects were identified: 1) Summary information for zip codes in the metropolitan area; 2) Racial and socio-economic differences; 3) Spatial influence on zip code membership; and 4) Environmental inequality manifested as the disproportionate access to nature benefits.

##### *Summary Information for Zip Codes in the Metropolitan Area*

When tallied, there are 5,806 members in the 91 zip codes of the metropolitan area surrounding the nature center. While zip codes cannot evaluate individual members, they can inform conclusions about the population of members and can provide empirical comparisons within the larger metropolitan community. For example, the largest number of members, 394, are located in a zip code that is within a 12-mile radius of the nature

center; this zip code displays an affluent and educated population with housing values of \$203,800, 64.8 percent with a bachelor's degree or higher, and only 1.8 percent below poverty. This area in which most members reside was also predominately white (86.9 percent), with only a few Hispanic/Latino (10 percent) and African American (2.2 percent) residents.

When aggregated together the zip code data provides the basis for quantitative analysis. Summary information describes the metropolitan area in general, which can then be used in additional statistical tests focused specifically at differences between zip codes with a high amount of nature center members and zip codes with a low amount of members. Table 1 illustrates descriptive findings of the metropolitan area surrounding the nature center.

**Table 1: Description of Aggregated Zip Code Variables**

<b>Variable</b>	<b>Median</b>	<b>Mean</b>	<b>St. Deviation</b>
Percent White		76.76	16.28
Percent Black		7.18	8.67
Percent Latino		23.53	16.10
Median Household Income	45,955		21,343
Median Housing Values	110,800		68,554
Percent BA or Higher		31.75	19.95
Percent Poverty		10.62	8.52
Total Population		14,417	13,442
Number of Members		63.80	87.76
Number of Members Per Capita		.48	.69

N=91

Descriptions of the variables for all 91 zip codes located in the metro-area offer a general portrayal of the nature center's surrounding community. According to results, the metro-area is predominately White (76 percent), with only a small percentage of the

population being Black (7 percent) or Latino (23 percent). These descriptions show that the racial composition of this metro-area is not very diverse.

Socio-economically, this community appears to be moderately wealthy. The median household income, at \$45,955, is slightly higher than national levels (\$41,994). Likewise, the percent of the population living below the poverty line (10 percent) is smaller than the national average of roughly 12 percent. Median housing values (\$110,800), however, are lower than the national values of \$119,600. These descriptions enumerate the somewhat prosperous socio-economic structure of this community.

A description of the members of the nature center also begins to emerge here. The mean number of members for zip codes is 63.80, indicating that, on average, a zip code includes 64 nature center members. This highlights the low presence of members across the city as, on average, members consist of only .4 percent of residents within any given zip code. However, member presence in nearly all zip codes reveals that members of the nature center are intertwined within the larger metro-area and, as such, the nature center itself is a part of the community.

Overall these statistics represent the community within which the nature center is located as socio-economically affluent. In general, the metropolitan-area has very little racial diversity. Descriptions also show that the nature center itself is a part of the larger community in terms of membership, suggesting there may be subtle differences between the demographics of the zip codes with nature center members and those of the metro-area at large.

*Racial and Socio-Economic Differences*

To further identify socio-demographic characteristics of members, a comparison point was created for non-members. In order to construct the comparison group, the mean for both the zip code number of members and members per capita was calculated. A new variable measuring the number of members was coded as the following: 0 if a zip code had a below average number of members and 1 if a zip code had an above average number of members. Likewise, the new members per capita variable was dichotomized for those zip codes with below average members per capita (coded as 0) and those with members per capita above average (coded as 1).

Using the dichotomous variables measuring number of members and members per capita, T-tests of statistical significance were performed to find any systematic differences between member and non-member zip codes. Table 2 shows the results from the T-test comparing the mean scores for zip codes with a below average number of members to those with an above average number of members.

**Table 2: Comparison of Mean Scores: Zip Codes With a Below Average Number of Members Versus Those With an Above Average Number of Members**

<b>Variable</b>	<b>Below Average</b>	<b>Above Average</b>	<b>t-Test Score</b>
Percent White	74.71	82.50	-2.04*
Percent Black	8.40	3.79	2.28*
Percent Latino	25.73	17.41	2.21*
Median Household Income	48,424	61,394	-2.63**
Median Housing Values	113,806	170,150	-3.68***
Percent BA or Higher	25.94	47.98	-5.29***
Percent Poverty	11.74	7.50	2.13**
Total Population	11,216	23,352	-4.11***

N=91

\*p<.05 \*\*p<.01 \*\*\*p<.001

Significant differences are evident when comparing mean scores of zip codes with a below average number of members to those with an above average number of members. Zip codes with an above average number of members contain a statistically significant larger population (23,352) when compared to zip codes with a below average number of members (11,216).

Statistically, race variables measuring percent Whites, percent Blacks, and percent Latinos were all significant at a .05 level. When comparing race percentages, zip codes with an above average number of members have a higher percent of Whites (82 percent) than below average zip codes (74 percent). Zip codes with more members also have lower percentages of minorities. Above average zip codes accounting for number of members only have 3 percent Blacks, while below average zip codes have double that with 8 percent of the population African American. Latino percents were statistically lower in zip codes with an above average number of members (17 percent) as compared to zip codes with a below average number of members (25 percent). Substantively, this indicates that the greatest amount of members reside in areas that are predominately white and with larger total populations.

Socio-economic indicators are also statistically significant. Both median household income and percent poverty were significant at the .01 level, while median housing values and percent of the population with a bachelor's degree or higher were both significant at .001 levels. The income rate for above average zip codes (\$61,394) was \$12,970 more than the income for below average zip codes (\$48,424). A similar pattern existed between all of the socio-economic mean scores. Median housing values in the zip codes with an above average number of members were \$170,150, while in zip codes with

below average members the values were only \$113,806. Education levels were much higher at 47 percent of the population with a Bachelor's degree or higher for those zip codes with an above average number of members, versus the 25 percent of the population with a Bachelor's degree or higher in those zip codes with a below average number of members. Zip codes with an above average number of members had a poverty rate of 7 percent, while zip codes with a below average number of members had an 11 percent poverty rate. The T-test comparing mean scores of zip codes with a below average number of members to those with an above average number of members finds substantially large socio-economic differences between the two groups. Comparing mean scores for socio-economic variables reveals that zip codes with above average number of members are more affluent and educated than those zip codes with a below average number of members.

To account for variations between zip codes due to population differences and varying numbers of members, T-tests were also conducted for the variable measuring members per capita. Table 3 depicts the comparison of mean scores between zip codes with an above average members per capita and zip codes with a below average members per capita.

**Table 3: Comparison of Mean Scores: Zip Codes With Members Per Capita Below Average Versus Those With Members Per Capita Above Average**

<b>Variable</b>	<b>Below Average</b>	<b>Above Average</b>	<b>t-Test Score</b>
Percent White	72.55	84.92	-3.66***
Percent Black	9.29	3.11	3.40***
Percent Latino	27.59	15.49	3.65***
Median Household Income	44,970	65,151	-4.76***
Median Housing Values	99,926	184,290	-6.83***
Percent BA or Higher	22.11	50.42	-8.65***
Percent Poverty	12.28	7.42	2.65**
Total Population	14,260	14,719	-.15

N=91

\*p<.05 \*\*p<.01 \*\*\*p<.001

Comparisons based on members per capita also demonstrate socio-economic and racial inequalities between zip codes with a higher number of members and zip codes with a lower number of members. Racially, the percentages of Whites, Blacks, and Latinos are all significantly different for zip codes with above average members per capita versus those with below average members per capita. To illustrate, racial percentages for Whites (84 percent), Blacks (3 percent), and Latinos (15 percent) among zip codes with above average members per capita differed from the percents of Whites (72 percent), Blacks (9 percent), and Latinos (27 percent) found in zip codes with below average members per capita. Similar to tests for number of members, the higher amounts of members per capita are in areas that have a significantly greater percentage of Whites, and a significantly lower percent of African American and Latino minorities.

Like the results for zip code number of members, socio-economic variables are statistically significant for members per capita. In this case, median household income, median housing values, and education levels were all significant at the .001 level. Poverty levels were also significant (p<.01), suggesting that economic inequality is

prominent between zip codes with higher and lower members per capita. For instance, median housing values in below average members per capita zip codes were \$99,926 versus the \$184,290 housing values of their above average members per capita zip code counterparts. Likewise, poverty levels of zip codes with below average members per capita were higher (12 percent) than above average zip codes that had 7 percent poverty.

The obvious difference from tests for number of members is total population, which is not significant when focusing on members per capita. This may be because the members per capita measure already tries to account for the relationship among population totals and a zip codes' numbers of members. Nevertheless, overall socio-demographic inequality is present between members and non-members, regardless of total population.

Comparatively, zip codes saturated with an above average number/per capita of members are systematically different from those with a below average number/per capita of members. While zip codes are limited in scope, they suggest that areas of the community with the greatest number of members are wealthier, have higher education levels, and have fewer minorities. Moreover, segments of the metropolitan-area with the lowest amounts of members per capita have disproportionately larger percentages of minorities, are not as wealthy, and have lower education levels. This signifies the presence of substantial socio-economic and racial inequality between sections of the community with larger numbers/per capita of members versus those with lower numbers/per capita of members. Inequality between groups means that nature center benefits are differentially accessed by White, wealthy, educated areas of the community it serves. Simultaneously providing insight into what parts of the metro-area participate as

members, these findings also denote that nature centers are not reaching their maximum effectiveness as participation in their benefits appears to be limited for minority and poor segments of the community.

### *Spatial Influence on Zip Code Membership*

Thus far, each of the aforementioned aspects of quantitative findings has presented a picture of the inequality present among zip codes with a below average number of members and members per capita versus those zip codes with an above average number of members and members per capita. Indeed, zip codes with an above average number/per capita of members are disproportionately more White, wealthy, and educated when compared to zip codes with a below average number/per capita of members. Not only do findings from the comparison of means tests provide statistically significant evidence that zip codes with more nature center members are substantially different in socio-demographic composition than zip codes with fewer nature center members, they are also the necessary foundation for further analysis of spatial inequality. Ordinary least squares (OLS) regression can determine if zip codes with members are disproportionately afforded nature center benefits because of their proximity to the center; but in order to run OLS analysis it must first be determined whether socio-demographic inequality is present.

Based on comparison of means tests, racial and socio-economic inequality is indeed found between zip codes with an above average number of members and members per capita as compared to zip codes with a below average number of members and members per capita. To further illustrate this inequality it is important to determine which of the socio-demographic variables is the most significant in regard to the amount

of members in a zip code. Using ordinary least squares regression (OLS), it is possible to conclude which of the socio-demographic variables are the best predictors of zip codes with members or members per capita.

Ordinary least squares regression can also shed light on any spatial relationship present. The spatial location of a zip code is particularly relevant as it can influence both the socio-demographic composition of a zip code and can potentially influence the probability of a zip code having a greater number of members or members per capita. Using OLS regression, models were constructed to help control for possible *spatial autocorrelation*. Spatial autocorrelation is exhibited by the "First Law of Geography"—spatially near things are more alike than spatially distant things (Tobler 1970). In the case presented here, one might expect that zip codes closer to each other are more likely to be similar in composition than zip codes that are geographically farther apart. Accounting for those zip codes that are near the nature center can determine if the nature center's location is disproportionately affording benefits to affluent segments of the community.

In the case of the nature center, it is likely that those segments of the community nearest to nature centers will have more affluent populations with higher home values, perhaps, in part, because of the nature center being there. For example, it is possible that proximity to a nature center reflects differences in affluence, such as higher income, home values and lower poverty levels. In this way, OLS measures the statistical significance and influence of spatial autocorrelation as it relates to zip codes with members or members per capita. A proximity variable was therefore included in an ordinary least sums regression model and was created based on zip codes that are in close

proximity to the center and those that are not. Zip codes that are in or contiguous to the nature center were labeled as a "1" and those that are not as a "0." OLS regression can highlight the statistical significance and influence of proximity as it relates to zip code number of members and zip code members per capita. Table 4 shows the results of the regression model for the number of members in each zip code.

**Table 4: Regression Model For Number of Members In Each Zip Code**

<b>Independent Variables</b>	<b>Regression Coefficient</b>
Percent White	3.61
Percent Black	4.36
Percent Latino	2.37
Median Household Income	-.00*
Median Housing Values	.00
Percent BA or Higher	2.42**
Percent Poverty	-2.93*
<i>Control Variables</i>	
Spatial Dummy	85.36***
Total Population	.00***

N=91

\*p<.05 \*\*p<.01 \*\*\*p<.001

In model 1 for the number of members in a zip code, OLS regression analysis indicates that median household income (p<.05), education levels (p<.01), and percent of poverty (p<.05) are the best predictors of the number of members in a zip code. Model 1 reveals that zip codes with higher percents of education, lower poverty rates, and a greater household income are significantly more likely to contain a larger number of members. Racial variables were not found to have a significant influence on zip code number of members. The proximity dummy was one of the most significant factors out of all the variables in the model (p<.001). indicating that proximity has a considerable

amount of influence on zip code number of members. By far, proximity has the largest effect. The magnitude of the effect is underscored by the fact that it is 85.36 which is the largest coefficient of any of the variables. Thus, the model of zip code number of members shows that there is a high degree of geographic spatial dependency among the variables. Furthermore, model 1 reveals that population totals are significant ( $p < .001$ ) and also influence the amount of members in a zip code.

Additional OLS regression models were constructed using zip code members per capita. Table 5 depicts the results of this analysis.

**Table 5: Regression Model For Zip Code Members Per Capita**

<b>Independent Variables</b>	<b>Regression Coefficient</b>
Percent White	.02
Percent Black	.03
Percent Latino	.01
Median Household Income	.00
Median Housing Values	-.00
Percent BA or Higher	.01**
Percent Poverty	.00
<i>Control Variable</i>	
Spatial Dummy	.79***
Total Population	-.00*

N=91

\* $p < .05$  \*\* $p < .01$  \*\*\* $p < .001$

Similar to the regression model focused on zip code number of members, education levels are also significant for members per capita ( $p < .01$ ). However, in the case of members per capita, other socio-economic indicators measuring median household income, median housing values, and poverty percent are not significant. From both models, it appears that education is the best socio-economic predictor for the amount

of members in a zip code. Furthermore, spatial analysis as accounted for in OLS regression represents the relationship between the socio-demographic composition of zip codes, distance between areas with above and below average amounts of members, and their shared metro-area's geographical space. Findings signify that proximity has considerable influence on the relationship between member amounts and zip code location.

Ordinary least squares regression indicates that zip codes with the greatest number of members and members per capita, are disproportionately wealthy, White, and close in proximity to the nature center, relative to the comparison group. When accounting for proximity, the model shows that there is a high level of spatial dependency between the nature center and its members' zip codes. As an outcome, poorer and minority areas of the community are farther away in proximity to the nature center, resulting in their lowered receipt of nature center benefits.

*Environmental Inequality: Disproportionate Access to Nature Benefits*

Overall, the analysis suggests a distinctly new manifestation of environmental inequality as related to environmental benefits rather than hazards. Spatial analysis reveals that the location of the nature center in relation to members and non-members points to the presence of environmental inequality. However, in the case of nature centers, the distribution of social groups is around a variety of environmental benefits rather than hazards. While environmental inequality has primarily concentrated on hazardous sites, I propose that nature centers portray another dimension of environmental inequality. In this case, wealthy, white, educated social groups are disproportionately distributed around this environmental benefit. This represents the reverse of the

environmental inequality finding – that is, the environmental benefits of nature center are disproportionately afforded to affluent segments of the community.

In the case of the nature center, OLS regression findings illustrate that those segments of the community nearest to nature centers have more affluent populations with higher home values. It is likely that these higher home values are perhaps, in part, because of their proximity to a nature center. For example, Nicholls and Crompton (2005) found that adjacency to a greenbelt in Austin resulted in significant property value premiums in two neighborhoods. Furthermore, physical access to a greenbelt had a significant positive impact (Nicholls and Crompton 2005). Such research suggests that greenways may have significant positive impacts on proximate properties' sales prices. The spatial significance of the OLS regression model for nature centers reflects differences in affluence, such as higher income, home values and lower poverty levels.

As environmental inequality suggests, disproportionate experiences by certain socio-demographic groups are significant because they are unfairly burdened by unequal exposure to environmental pollutions and toxins. While still a case for inequality and adhering to the foundational arguments of environmental inequality, these findings suggest that environmental inequality may not be solely about hazards, but may pertain to benefits as well. In the case of nature centers, the disproportionate experiences are related to environmental "goods" rather than environmental "bads," and denote that minority, less-educated, and poorer community members are disproportionately barred from nature center benefits not only in the case of outdoor benefits, but the possible positive impact the nature center may have on housing values.

While this is a very significant finding of reverse environmental inequality, it is apropos to iterate that the evidence here is suggestive and that it is not generalizable. It is also important to point out that these data and findings are about membership and not about use. Therefore, while stratification is present regarding membership, there is no way to know how many of these members actually use the center. The data presented here also do not provide an explanation of how and why the process occurs. It is quite likely that the process leading to negative environmental inequality is quite different from the process leading to positive environmental inequality. Regardless, these findings do indicate that environmental inequality relating to benefits is most likely existent in other forms. Moreover, it is apparent from this data that in the context of nature centers, there is a case for reverse, or positive, environmental inequality.

#### MEMBERS SOCIALLY CONSTRUCTING NATURE

To accurately assess a community park in relation to use and its users, this spatial and demographic data requires a component of attitudinal data of residents who use the park (Wicks et al. 1993). Particularly, when combined with interviews, this information will allow for a better understanding of the need for the member-based nature center which, in turn, influences the center's relative placement, function, and role in a community. More importantly, interviews are used to illuminate how nature is constructed and how this relates to a member's use of nature. Based upon these interviews three themes emerge regarding how nature is socially constructed by members as it relates to nature areas and use: 1) Values of the nature center are layered with members' perceptions of the values of nature in general; 2) Members view the nature

center as having multiple uses; and 3) With the establishment and use of nature centers comes new perceived benefits of nature.

*Layers of Nature Views and Nature Center Value*

For members, a nature center's value is layered within their views of nature. All of the participants self-identified themselves as being somewhat environmentally-oriented and identified themselves as self-proclaimed advocates of protecting the environment. Richard proclaims his own environmental-orientation regarding nature and the importance of protecting the environment:

My philosophy is that nature takes first place. You gotta be careful with it, and it needs its own time. So, that's why I've always done that. And uh, I've kinda just done uh; I've always tried to been doing something that gave back to the earth, but also gave back to me.

Such expressions revealed that members reified nature and the environment, while retaining an anthropocentric mindset. Often times, such reification by a member was followed with them discussing their own efforts to be "eco-friendly" by recycling or driving hybrid cars.

Concern for the environment was a common theme among respondents. When asked if she viewed the environment as valuable, Louise answered, "I'd like to know if you have some idiot who says no! (Laughs) Oh gosh! What can I say? Yes!" Most times members' views of the value of nature focused the heavy reliance of humans upon complex natural/environmental systems. This related to survival of the earth itself, survival of other species, and survival of the human species. The typical member response was that humans would not be here if it were not for nature.

The value of a nature center is embedded within these symbolic ideals members have toward the environment. Many participants revealed that they were members of the center because they sought to support a "good cause" and that the goals of the nature center aligned with their "own interests." Rosalind, who added that she likes to support what the nature center does, shared this feeling. She conceded that the nature center is an outlet through which she can help make sure that we keep the world sustainable and beautiful. Elle also felt that the center served as a way for her to be environmentally active. She said, "I love uh, that they are trying to promote the ecosystem. That you should use the plants and grass that's uh, from this area...also to conservation...so it's environment basically."

Likewise, Louise said, "It's mostly just to expose the grandchildren to beauty and nature and the need to protect and enjoy it. It's just, it's important. I get personal benefit from knowing I'm contributing a tiny, tiny bit to something that's so important." Environmental attitudes of members appear to support suppositions from previous literature on nature centers which argues that nature centers "can do a great deal in correcting and developing the attitudes of people toward the environment" and that "people can then determine and evaluate their relationship to the rest of nature" (Cherem 1974: 4).

Members also looked to other avenues to engage in eco-conscious behavior. Most of the members said they supported other environmental organizations. Richard expressed, "I financially support many of those organizations. Anything, and I try and spread my contributions around because, like I said, there's so many aspects. I'm a big supporter of anything that has to do with rejuvenating, sustaining, increasing, improving

the outdoor experience." Like Richard and other members, Bridgette also gives money to conservation. She says, "Once I was starting to make enough money, I think I was probably 27, I started giving money to conservation."

In addition to these values, members agreed that nature and the environment are valuable. Expressed in terms of "civic responsibility" and "moral responsibility," members highlighted the high level of value they ascribe nature. When talking about setting aside nature areas for public use, Richard said, "I think it's good civic responsibility. I think its uh moral responsibility I would say. If you wanna look at the inverse of that, I think it's detrimental to humanity to not provide a space like that."

These descriptions suggest that the nature center serves as an extension of members' perceptions of nature and their interaction with it. It appears nature centers can also serve as a backdrop in a member's development or customization of their own attitudes toward nature. The nature center's role in members' lives is to function as a gateway to explore, express, and fulfill their perceptions of nature in a physical setting.

#### *Views of Nature Centers as Having Multiple Uses*

The creation of nature centers is most likely intertwined with the same ideologies of preserving nature and providing a place for all people to interact with nature that led to the establishment of public parks. Research points out how park creation is tied to social constructions of nature (Borrie et al. 2002; Cox 1985; Cronon 1995; Delaney 2001; Miller 1992; Ross-Bryant 2005; Route 1987; White et al. 2005). In the case of nature centers, social constructions were expressed in terms of the multiple uses respondents attributed to them.

Members see the nature center in three prominent ways. The first, and most discussed, use of the nature center related to education. Nature centers serve as functional places of education. Members perceive that nature centers provide them with "tremendous learning opportunities." Often speaking of "education," members expounded upon their views that one use of the nature center is directly related to learning and teaching. Elle explains the experiential side of learning at the center:

I mean it's a really fun way and you learn a lot...to learn that way, so it's exploring trying to find; I mean it's not the same thing as when you are reading it as when you are feel and see and exploring. It's much more hard, and I think that gets into your brain really. It's not something you are going to memorize. It's something you are really going to understand because you are touching it and feeling it.

The nature center's "school-like" atmosphere gives members a place where they can derive knowledge and then use that knowledge in their lives. As expressed by members, this use of the nature center brings them both personal pleasure, such as gardening, and public pleasure, such as learning ways to promote ecosystem sustainability in their community. Again, Elle explain this process:

The center for me; yes it's definitely important. I use a lot of the information. I tell people not to use chemicals in the yard or uh, spread the word about things I learn from the center...I am sure I am not the only one. For example, here in [the community],...they really want the minds to change.

Regarding personal pleasure from nature center learning, Richard noted that, "gardening has always been a big part of, uh hobby of mine ever since I was a little kid." Here, like several others, Richard attributes personal pleasure to the nature center for teaching him more about gardening.

Another view of the nature center is that it is different from a "park." While the nature center does have trails and areas mirroring local parks, members were quick to point out that they do not see the center as a park. Rosalind draws a distinction between park use and center use:

I think [the nature center] is more of a place to learn and, and uh, enjoy.

But, you know, when we're at a public park, we're playing Frisbee or, you know, which I wouldn't do at the nature center. Um, so yea, they're different places, and have different goals I think.

Members' constructions of nature centers as an "educational" experience is in direct contrast to traditional views of parks as places of "relaxation, leisure, and tourist" activity. Marie explicitly states that "A city park doesn't have an education center, and um, it's, they're set up for active community use. Um, so I wouldn't say the nature center is like a city park." The importance of this is that it seems that views of nature have shifted, somewhat, away from predominately leisure uses to a multi-faceted construction of nature as an educational opportunity. More so, this highlights a new human relationship with the environment through the medium of nature centers. This relationship involves a distinctly separate dimension of education relating to learning about a surrounding native ecosystem and then implementing those findings in various ways. Similarly, Katharine noted, "The reason I'm going, almost every time is a quest for

some kind of information...it's always learning about the plants themselves and um, how well they coexist with others. That kinda stuff."

Another use of nature centers touches on its "park-like" qualities. Quizzically, in discussing their views of nature centers and parks, members often spoke of the nature center as a "type of park." This split-view was not just between members, but also within members themselves. Such opposing views within respondents suggests that nature centers, even within an individual, are perceived to serve multiple functions. For example, Richard said, "I mean my view is there's so many facets and dimensions to nature. There shouldn't be one dimension, 'All parks should look like this.'" Marie expressed that she does not view the nature center as a park at all, but does "utilize the trails, which are the park aspect of it." She also adds, "And that's what I probably appreciate the most are the trails."

Members' expressions illustrate how the same *space* can be viewed in multiple ways. It appears that the fact that this space is called a "nature center" influences views of it in several important ways. Merely being called a "nature center" automatically sets the space at a different level in a member's mind. For instance, many members' constructions of the nature center were impacted by the educational focus of the center. In most cases, for members, the nature center's mission automatically afforded it distinctive traits that in turn influenced their view of it as an educational experience. Richard expresses the traits he perceives to be part of the nature center:

I think the Wildflower Center serves a very specific purpose. Uh, while I wouldn't go there for hiking, softball, boating, anything else, I go there for a very specific purpose and it serves it well. I view the Center more as an

educational resource. I should say it this way, primarily as an educational resource, secondarily as a beneficial outdoor outing.

This suggests that, perhaps in some ways, because it is a "nature center" it is viewed as an educational tool or opportunity.

Additionally, it also indicates that the "setting" influences views of nature.

Members often compared the nature center to other parks they frequented. Among the influential aspects of the nature center's setting, most members listed the fact that it was less crowded as a positive difference they experienced at the nature center. Like many other members, Marie indicated that the nature center "isn't [like] going to the other community parks or state parks" because the center is "less crowded." It also seems that the fact that the nature center is more "manicured" heavily influences one's view of the center. Susan explicates how the controlled environment of the nature center affects her views of it:

I guess I see [the nature center] as more of a controlled environment, where they go in and create the gardens and take care of the plants... Where some of the other parks are just more dependent on nature. And...if you go to state parks you probably see more the effects of drought or whatever as opposed to the nature center. I see it as more controlled, more contained I guess.

Interviews with members reveal that the already existing social constructions of nature heavily influence the mindset through which one views specific uses of nature.

*New Perceived Benefits to Social Constructions of Nature*

Members' perceptions were consistent with previous research findings of the many physical, psychological, and spiritual benefits of human-nature interaction (Bedimo-Rung et al. 2005; Cohen et al. 2007; Maller et al. 2005; Vries et al. 2003). According to respondents, nature use brought on physical benefits related to exercise, lowered blood pressure, and improved general health. According to Rosalind:

Being away from pollution, being away from noise pollution is, uh, good for people's health. And also, you're usually doing activities where you're, you know, walking, hiking, climbing trees sometimes, whatever you do, throwing rocks. So, you know, you're getting exercise.

Like all of the respondents, Rosalind's perception of getting exercise iterates that, for members, nature use at the center provides them with many physical benefits.

Perceived psychological benefits also coincided with previous research findings of reduced depression, stress-relief, and life satisfaction (Kleiber et al. 2002; Maller et al. 2005; Manning and Moore 2002; Orsega-Smith et al. 2004; Stein and Lee 1995; Williams and Carr 1993). Katharine said that, for her, the benefits of nature included "stress-reduction" and "health in general." Marie expressed that the outdoors gives her "peace of mind" and "mental stability."

Members also mention personal rejuvenation as a benefit of being outdoors. Isabel, Richard, Susan, Jessica, Marie, Abigail, and James mentioned that they "get rejuvenated by nature." This suggests another psychological aspect to the perceived benefits of nature. Rejuvenation in nature is not a new benefit, but is often times not addressed in leisure research. Through discussion of their ability to be renewed in nature,

members illustrate an American ideal, integral in the foundation of parks and nature use (Ross-Bryant 2005).

Moreover, escape was a common theme in respondents' discussions regarding the benefits of nature places. When asked about what benefits she thinks of Rosalind said, "I guess I'd go back to being relaxing. It's a way to kind of get away from the hustle and bustle of the city. And just relax and be with family, and enjoy, um, just being outside." Marie similarly stated, "It's the um, peace and quiet...I can come here and still have the illusion of being away from everything. Especially walking out in the fields, because people don't take the trails too much, so you're out there by yourself." By identifying nature use with escape and individualism, members echo larger American ideologies, which denote nature participation as a mechanism for such experiences (Hirschman 2003; Sack 1988; Trachtenberg 1968; Turner 2002; West 1996).

Additionally, respondents talked about the spiritual benefits they derive from being outdoors. As previous research has found, spiritual benefits are often associated with a sense of holism, transcendence, connectedness with the earth, and being closer to God or a divine power (Farber et al. 2002; Fine and Sandstrom 2005; Maller et al. 2005; Manning and Moore 2002; Stein and Lee 1995). Lily said, "I do get the sense [of spirituality]. I mean, I do believe there are life altering things out there and I think that when you spend enough time outdoors, I think that you become a more open person." Rosalind admits, "I always feel kinda spiritual when I'm outside." Another respondent, Jessie said that, "Nature is one of the biggest places that I find God."

Among personal benefits of nature centers, community was also identified. Bridgette said, "I think that that's where I get more sense of a grounding to earth and the

community as a whole, um, by being outside in open spaces with other people." While the social aspect of nature benefits is not prominent in literature, it does appear to be somewhat significant for members. In this way, the nature center enables members to enjoy an individualistic exploration of nature while simultaneously cultivating a shared community with other members (Ferriss 1970; Miller 1992; Ross-Bryant 2005; Trachtenberg 1968; White et al. 2005).

However, with the shift to nature center use, there appears to be a new dimension to the perceived benefits of nature. Social constructions of nature in this way, now include education and learning as a beneficial aspect of nature, park, and center participation. Illuminating education as a perceived benefit, Richard said:

Besides the physical benefit of refreshing air, besides the spiritual benefit, I feel another dimension there. I don't even know what the words are for it, but you know there's, there's other aspects of being out there as well. Any opportunity for teaching or learning has high value to me. All those are part of what I call the benefit of being outdoors.

This feeling is shared by Rosalind's perception that, "[Nature is] educational for kids and also um to teach kids how to preserve the environment. So, you know, long term effect of appreciating, cause we camped a lot, did things outside; and so I think, you know, a lot of kids who grew up in the city don't have that that opportunity, so I think it gives them some appreciation they may not have. So I think that's good."

Generally, members also said they were advocates of having nature areas set aside for human use. All members gave a high degree of importance to parks and park use. Regarding nature centers, one member said they would advocate for nature centers only if

it was filling a need within a community. However, the majority of members showed a propensity toward placing nature centers at levels of importance equal to or exceeding those attributed to park settings.

The strength of these interviews with members is the ability to gain insight into members' social constructions of nature and explore how that informs their relationship with nature in the form of nature center use. This could be simply being outside at the nature center and attaining the physical, psychological, or spiritual benefits members' perceive to gain from this natural setting. The additional benefit of education is also important to members. Education as a perceived benefit seems to be a by-product of the shift to nature center formations and use. This has further implications pertaining to the finding that some social constructions afforded to nature centers may simply be because they are labeled "nature centers." Other factors, such as area of the center or crowds, also influence members' social constructions of nature.

Thematically, the value associated with the nature center is often layered within a member's referential views of nature as a whole. Nature centers allow members a concrete way to implement their constructions of nature. This may be in the form of giving money to support the center's mission or learning sustainable practices from the center they can use in their own homes. Overall, the nature center is very important to members, providing them with numerous benefits, resources, and experiences they cannot have anywhere else.

## CHAPTER V

### DISCUSSION AND CONCLUSION

In an effort to illustrate an understudied aspect of nature use, this study adds to existing leisure research on nature participation and extends past previous findings, highlighting the presence of a new aspect of environmental inequality, as well as evaluating parks and park use from the underutilized critical realist perspective using a mixed method approach. Moreover, this thesis evaluates member-based nature centers -- an aspect of nature use that has never before been explored, but is an intriguing form of social-nature interaction.

Findings not only shed light on member-based nature centers as an element of human-nature interactions, but also provide evidence for continued social inequality among nature users. Information from member's zip code data suggests the presence of inequalities between segments of the community with an above average number/per capita of members and segments of the community with a below average number/per capita of members. Consistent with previous research on park use, the major quantitative findings of this study show that the zip codes with a higher presence of nature center members are stratified along distinct socio-demographic boundaries (Arnold and Shinew 1998; Bialeschki and Henderson 1998; Howard and Crompton 1984; Johnson et al. 2001; Lee et al. 2001; Mowen and Confer 2003; Payne et al. 2002; Scott and Jackson 1996; Shores et al. 2007). Zip codes with above average number of members and members per

capita tend to be disproportionately White, whereas zip codes with below average number of members and members per capita have higher percentages of minorities and are more racially diverse. Similarly, the greatest amounts of members live in more affluent areas of the community. While the center's members reside throughout the city, large numbers of members are primarily located in middle-class, white areas. Although the center appears to serve an affluent, and less racially-diverse segment of the city, results from the regression analyses indicate that education and proximity to the center play the most important roles in determining those zip codes with members.

Given the inclusion of spatial controls, findings also denote the presence of environmental inequality. While it does not follow the traditional focus on environmental "bads," the case of the nature center does provide evidence for the unequal access of environmental "goods." There are two important contributions from this finding. First, the empirical evidence provided here suggests a new direction for environmental inequality inquiries. Second, environmental sociology literature influences the environmental justice movement whose efforts are aimed at eliminating and correcting environmental inequality. While this paper does not address policy-making, it does begin to shed some light on the fact that future studies should influence political agents outside both the academic and sociological realms.

The inclusion of spatial measures suggests overarching inequality issues among zip codes with lots of members as compared to zip codes with very few to no members. This finding also appears in qualitative interviews with members. As qualitative findings illuminate, members often felt that they were happy the nature center is "less crowded." Deeper meanings of members' sentiments such as this one suggest this may be a

euphemism. Indeed, such statements may be individual expressions of the affluence predicated in the aggregate data analysis. In this way, one of the privileges of membership may be the ability to retain white privilege in nature settings. Such cases illustrate that both zip codes with members and members themselves may be identifying an added benefit of the nature center that affords members the chance to be segregated in their own nature Eden away from the undesirables of the community- namely the poor and less educated. As it stands now, those zip codes with the majority of members are predominately White, wealthier, more educated, and have more members than other less educated, poorer zip codes that have fewer members. Therefore, it is possible that those members who were interviewed are in fact presenting the added component of discrimination when talking of the “less crowded” conditions at the nature center, as they themselves most likely reside in the predominately White, affluent zip codes that have the most members.

This thesis offers valuable contributions to environmental sociology and leisure research. By first understanding the need for a member-based nature center, which influences the center’s relative placement, function, and role in a community, I am able to draw a more complete description of the nature center. Examination of spatial, socio-demographic, and interview data reveals a divide between members and the surrounding metropolitan population regarding membership in the nature center. When combined with interview data, mixed methods reveal that quantitative findings are indicative of several of the member's own observations. For instance, those who visit the nature center tend to be "higher educated." Members also noted that the nature center "doesn't seem to be very racially diverse."

Larger aggregate data is also reflective of the member participants, as all of the interviewees had some college, a bachelor's degree, or a master's degree. Among the members who participated in this thesis, 12 were White and 2 were Hispanic. Most of them had been members for more than one year, while some had been members for as many as 15 years. All of the respondents had or currently have a stable, full-time, seemingly well-paying career.

Explanations of differences between members' and non-members' zip codes could be based on race (Arnold and Shinenew 1998; Floyd 1999; Johnson et al. 2001; Lee et al. 2001; Martin 2004; Shores et al. 2007; Virden and Walker 1999; Walker et al. 2001). As Abigail points out, "It doesn't seem to be very racially diverse." Marie also noticed that people at the nature center are "almost always white. I don't think I've ever seen an African American here. Asians sometimes. Hispanics rarely." However, other leisure constraints such as time, age, distance from the home, health, and lack of information could also be factors (Bialeschki and Henderson 1998; Scott and Jackson 1996). In fact, several of the members cited distance to the nature center and other parks as influencing their participation. For example, James said, "The nature center and [park] are closest to us. Uh, just stuff that's kinda close." Since proximity to the center includes considerations of drive time, Benjamin noted this as a constraining factor on participation at the nature center: "I would say...people who have that kind of time to donate to that activity" are more likely to participate. Lily said that personally her only restriction to go to the center is because she "just hasn't had the time."

Socio-economic status variables could also be factors in explaining nature center use (Arnold and Shinenew 1998; Cordell et al. 2002; Lee et al. 2001; Shores et al. 2007).

An individual's level of income, level of education, and occupational status has considerable influence on outdoor recreation and park use (Arnold and Shinen 1998; Lee et al. 2001; Scott and Munson 1994; Shores et al. 2007). For example, Abigail noticed that members seem to be "higher educated." Cost and physical ability related to income could also be directly related to center participation (Lee et al. 2001). The commodification of nature is an especially interesting dynamic here, as member-based nature centers have fees associated with them. Elle expresses that she hesitated to participate at the nature center "at the beginning because of the cost of the membership, but I understand what they're doing, why they need the money for the membership." Members' descriptions suggest this may be especially true for nature centers because it is an activity, which is closely tied to social status and requires some resources, either financial or cultural. Members' discussions of the nature center as being "less crowded" hint at the social differentiation between those who have access and those who do not. While a public park with no user fees is clearly a different space than one with a yearly membership, findings do suggest that an individual's opportunity to participate in nature center membership may be constrained due to travel costs, entrance fees, and other participation costs.

Interestingly, gender inequality appears to experience an opposite effect in nature center participation. When asked about the types of people they noticed at the center, respondents said they often saw more women than men. Susan said, "There've been a few times we've gone out to there to walk the trails. You know, I feel like it's a safe place to go alone or with another woman." This suggests that the nature center is, in fact, an outlet where women are able to maintain active participation in outdoor settings without

the typical constraining feelings of fear and endangerment (Arnold and Shiness 1998; Bialeschki 2005; Coble et al. 2003; Day 2001; Henderson and Bialeschki 1993; Koskela 1999; Manning et al. 2001; Wesely and Gaarder 2004). This is a remarkable finding for leisure research. Several studies are devoted to the geography of fear and women's fear of outdoor spaces, yet the nature center appears to be the opposite- making women feel safer. More studies should look to see if the nature center is a place where women feel safer; and if so, what differentiates feelings of safety in a nature center from feelings of fear in other outdoor settings.

The second major component of this study highlights the relationship between how nature is socially constructed by members and their nature participation. As noted, an evaluation of the environmental-social interaction as portrayed between the social construction of nature and the creation of local member-based parks is needed to highlight these intersections. By focusing on the demographic characteristics of members, along with in-depth interviews regarding their views of nature, I am able to examine not only the presence of inequality regarding center use, but the ways members view nature and use the nature center. In this way, I explore park views and use from a critical realist perspective that neither reifies nature, nor diminishes its relative role in people's lives.

Therefore, along with the critical realist perspective, members' views suggest that nature centers are multi-use. Such indicators that a single space can be viewed in many ways also exemplifies how nature can be socially constructed. However, while members construct nature, it is also a real place, used in purposeful, objective ways; for example, as an education or resource outlet. Nature centers provide members with perceived, yet

tangible benefits. In this way, the nature center is both a material space for human use and a constructed space underscored with ideals regarding nature (McEvoy and Richards 2006; Proctor 1998).

The environmental goods of nature centers relate to their benefits. Nature centers provide members with myriad benefits including not only physical, psychological, and spiritual well-being, but social and educational benefits as well, suggesting that the social meanings of consuming nature has shifted to include education. Likewise, education appears to be an emerging and important benefit for nature participants. Appraisals of this new benefit and its functional role in parks and nature use are needed by future research. It appears that nature centers have arisen from this new perceived benefit and social construction of nature. This also empirically suggests the presence of a new element within socio-environmental relationships. Since there is inequality among members and non-members, it stands to reason that there are perceived benefits members derive from the nature center that are not currently experienced by the larger metropolitan population.

A limitation of these qualitative findings is the small sample size. While qualitative themes are identified in this research, they cannot be generalized to or assumed representative of the entire population of nature center members. Regardless, determining from this research that there is individual evidence to support quantitative findings of socio-demographic and spatial inequality, serves as a starting point for further exploration of nature centers, mixed methods approaches, and critical realist environmental research. As previously mentioned, the new perceived benefit of education should be studied further as it appears to be a unique characteristic of nature

centers. Additionally, the presence of a reverse form of environmental inequality suggests that other studies should undertake evaluations of disproportionate access to environmental benefits, perhaps in the form of other nature center studies.

While the nature center appears to disproportionately serve a predominately white, middle-class, educated segment of the community, this thesis should be replicated on a larger scale. In order to establish that this inequality is consistent among the entire population or other nature center communities, future research should include socio-demographic analysis of the entire member population of a nature center in tandem with interviews of members from those zip codes. Research should also undertake evaluations of nature centers located in other states and communities that are more socio-demographically diverse than the one presented here.

That the entire metropolitan-area was somewhat homogenous in race and socio-economic characteristics is certainly a limitation of this research. While racial and socio-economic variables were found to be significant, their significance may differ with a nature center located in a more racially and economically diverse area. Likewise, as Smith (2009) notes how environmental inequality scholars are often trying to see which, race or socio-economic inequality, is the better predictor; and while findings here indicate that socio-economic variables are more significant, they could change with varying socio-demographic characteristics of other nature center areas.

Finally, geographic limitations may affect these results. Members in this research are all from Texas. That homogeneity is present in the form of members' geography may have a significant influence on the findings. Social dynamics and views are likely to vary from one state to another. Therefore, members' social constructions of nature and nature

centers reflected here are likely to be more positive or negative than views of members of nature centers outside Texas.

As findings here confirm, disparities among members and non-members indicate that a large segment of the population is not receiving the numerous benefits nature centers have to offer. For federal and local funds, as well as programs and policies relating to nature centers, to reach their maximum effectiveness they should look to this inequality and make changes that encourage participation from all sectors of the community. This could be done through decisive marketing techniques that outreach to lower socio-economic or minority parts of the community. Additionally, local and national policies should be reflective of engaging all types of demographic groups in nature center participation. Until these efforts are made, nature center use will remain in the domain of white, college-educated middle class groups leaving a large amount of the population unable to derive the benefits of its unique experience.

## APPENDIX A

### Interview Guide

#### **I. Background Questions**

When did you begin participating in outdoor recreation?

What race/ethnicity do you consider yourself?

How long have you lived in Texas? What is your occupation? Education level?

How long have you been participating in member-based programs? Is this your first member-based outdoor recreation program? What motivated you to choose the center?

How did you get involved in this program? Did you ever hesitate to participate in the Wildflower Center? What gave you pause?

#### **II. Current Participation**

When was the last time you went to the center? Please describe this event. Why did you go? Who did you go with? How long were you there? What did you do?

What is your primary reason for participating in these activities?

Who do you generally go with? (family, partner, children, friends, etc.)

Notwithstanding your most recent visit, what do you consider to be your main reason for attending the center? What activity/activities attracts you the most frequently?

Do you feel that you derive any personal benefits from being outdoors at the Center?

In your opinion, does the center serve as a place of community for you? If the respondent does not view the center as a community (a place for social gathering) then what is the main motivation for attending?

What types of people do you see when you go? (young/old, couples/single, etc.)

Do you go to any other public parks in Central Texas? Which ones and why? What different experiences do these parks offer that the Wildflower Center does not?

### III. General Opinions

When you think of 'nature' and 'outdoors', what places come to mind? activities? benefits?

What attracts you to the outdoors?

Do you view the environment as valuable? Do you perceive nature to have value? Can you give an example/ explain more what kinds of value?

Do you think nature provides you any additional spiritual benefits? physical?

Do you think Nature has any benefits? Or participating in nature activities provides you with benefits? How does it benefit you?

Do you often go to parks or nature areas for extended stays? Do you often go for day trips?

Do you view the Center differently than say, a public park? Your own backyard?

Would you consider your backyard as 'outdoors' or a 'nature' area? Would you say that your backyard can provide you with any of the same benefits as park or nature areas?

What types of reactions do you receive when you tell people you are a member of the Center?

Would you encourage people to join the Wildflower Center? If so, what might be some reasons for encouragement?

Would you advocate for more nature areas like the Wildflower Center? If so, What might be some reasons why? If not, what are some reasons why not?

Would you advocate for more nature areas like public parks? If so, what might be some reasons why? If not, what are some reasons why not?

What do you think about national parks? What do you think about having areas of nature for public use?

Do you think having parks is 'good'? What about the Wildflower Center?

What advice would you give to people who want to participate in a member-based program, such as the one at the Center, but don't know how?

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