

**PRELIMINARY ASSESSMENT OF THE RELEVANCE OF
NATURE CENTERS IN THE 21ST CENTURY**

A Thesis

by

MARIAN ELLEN HIGGINS

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

August 2010

Major Subject: Wildlife and Fisheries Sciences

Preliminary Assessment of the Relevance of Nature Centers in the 21st Century

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Approved by:

Chair of Committee,	Clark E. Adams
Committee Members,	R. Douglas Slack Amanda Stronza
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ABSTRACT

Preliminary Assessment of the Relevance of Nature Centers in the 21st Century.

(August 2010)

Marian Ellen Higgins, B.A., University of Wisconsin-Madison

Chair of Advisory Committee: Dr. Clark E. Adams

In the 1960s a movement by the National Audubon Society encouraged growing communities to set aside a portion of undeveloped land to be used as nature centers to teach conservation and natural history while allowing people to cultivate an understanding and appreciation of nature. This research responds to the need for a greater understanding of who is visiting nature centers in the 21st century and why. A key question is whether or not nature centers have kept up with changing times and advancing technologies. No research has been conducted to determine if nature centers are still relevant today to a society accustomed to living and learning electronically in a virtual reality.

In order to determine who visits nature centers and why, a questionnaire was developed and administered to Members and Non-members of the Fort Worth Nature Center & Refuge (FWNC) of Fort Worth, TX. It was determined that visitors to the FWNC were not representative of the general population of the surrounding area. They were older, predominantly white, and had higher education levels. Using the membership in a Friends organization as a representative population of nature center

visitors, it was determined that the Non-member visitors were similar to the Members except that they were younger. Members visited the FWNC with a higher degree of frequency than Non-members, but there was no difference in degree of visitation to other nature centers. Both groups identified “lack of time” as the primary barrier to increased visitation. Members appeared to be seeking specific, educational experiences compared to Non-members who tended to seek more general, recreational experiences. Members had more specific knowledge about benefits and services that the FWNC provided the community. Overall, both groups were satisfied with their visits, with Members having a more defined set of expectations and a higher level of satisfaction.

This preliminary assessment suggests that nature centers continue to be a relevant source for education, recreation and relaxation, and continue to remain a unique resource in keeping 21st century society connected to the nature world.

DEDICATION

This thesis is dedicated to my husband, David B. Burnett, without whom none of this could have or would have been. He recognized a dream and made it possible for it to come true. From the first moment I set eyes on him, my world has been a brighter place.

ACKNOWLEDGEMENTS

I would like to thank my committee chair, Dr. Clark E. Adams, for taking a chance so long ago on an unknown “non-traditional” student. I haven’t stopped learning new and exciting things since I first wandered into his classroom 26 years after I last journeyed out of a classroom. After all his years as a teacher, Dr. Adams has not lost that spark that encourages others to keep learning – even when they think their brains couldn’t possibly hold anymore! Dr. Adams has been a teacher, a mentor, and above all, a friend to this sometimes bewildered student. He knew when to push, when to ease up, and when to just be there. He has run through countless red ink pens trying to demonstrate proper technical writing to a brain that wants only to write creatively. Yet, there has been no end to his patience and understanding. I thank you, Dr. Adams, from the bottom of my heart.

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1. INTRODUCTION

In the middle of the 20th century, a significant demographic shift occurred in America when people began and continued to move from rural areas to urban and suburban areas (Adams & Lindsey, 2009). As such, children were raised with less connection to “the country,” which left them lacking opportunities to develop connections between their world and the natural world. In an effort to reestablish this connection to some degree, cities and towns were encouraged, by groups such as the National Audubon Society, to set aside an area of undeveloped open space to serve as nature and conservation centers. Many of these centers were built during the mid-20th century, and as such, the concept was geared toward a society that did not have the technologies prevalent in contemporary society, including cable TV, computers, the internet, DVDs, and electronic games. This new technology has resulted in an experience Zaradic & Pergams (2007) called “virtual nature,” which they defined as “nature experienced vicariously through electronic means.” The intended goals of nature centers were to provide services for the public which included: outdoor recreation; an understanding of conservation; promotion of conservation and a stewardship ethic; and cultivating a renewed appreciation of nature (Shomon, 1962). The 21st century visitor now uses many forms of technology – daily - to obtain information about his or her natural world. These technologies were unimaginable when these goals were first

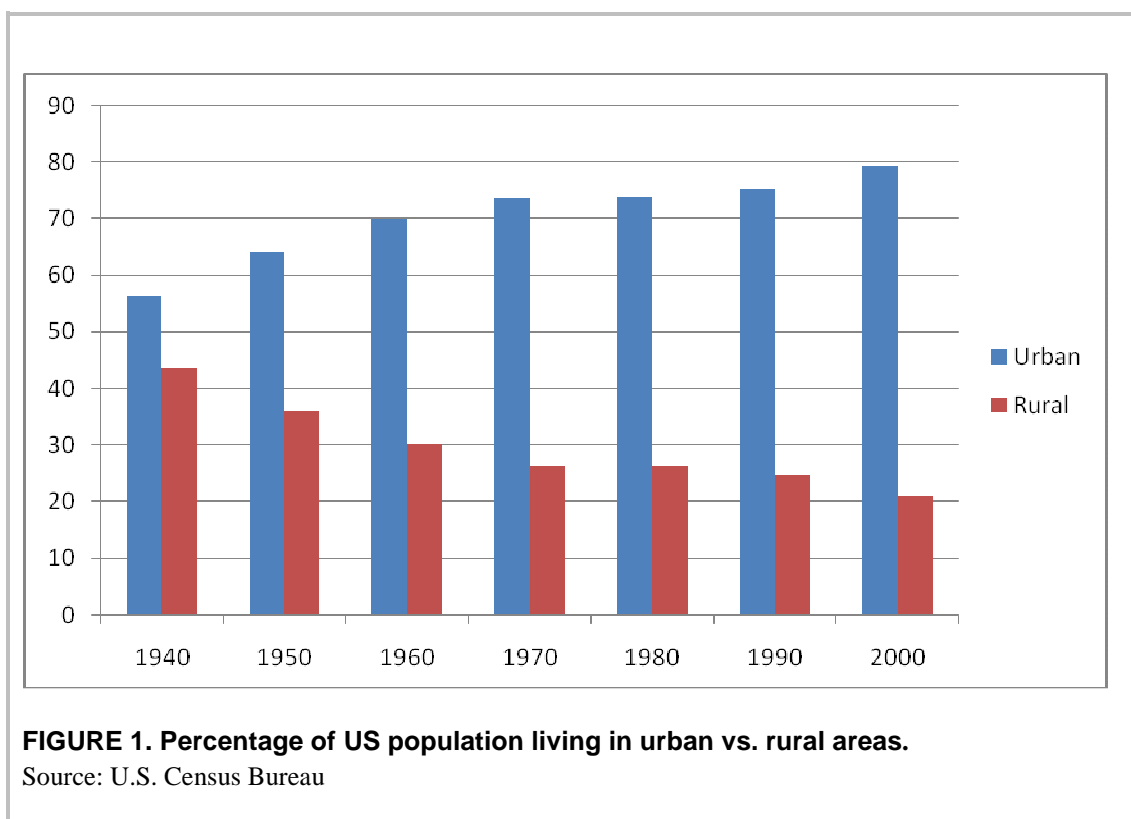
This thesis follows the style of *The Journal of Environmental Education*.

defined. A key question, then, is to what degree are nature centers still relevant in the 21st century? For example, in the mid-20th century, the primary method people used to experience nature was to get outside. Today, with access to the internet, cable, and large screen TV, people can see and watch nature, up close, from the comforts of their living rooms. These nature shows have a now common format, where a suspenseful story is built around the challenges of the show's "characters" (usually one or more wild animals), and the locations are somewhere in the wild. Today's nature shows are produced and edited to appeal to short attention spans, yet it is as if many people feel they know nature because they watch these shows (Zaradic & Pergams, 2007). Pergams & Zaradic (2006) found that 'virtual' contact with nature resulted in less direct contact with nature. Nature centers may no longer be necessary, or they may not offer enough to hold the interests of a society that has been raised on technology. Due to the lack of published research it is unknown if today's nature centers are successfully serving the needs of a technologically-savvy 21st century public. Therefore, this study was designed to determine why people visit nature centers today and how nature center programs and facilities are addressing the environmental education needs of the 21st century public.

History of Nature Centers

When World War II ended, America experienced a demographic shift from rural to urban communities (Adams & Lindsey, 2009). Several things happened to bring this shift about. Soldiers returned home from the war, began careers, and started their own families. Automobiles became more popular and affordable, resulting in what has been popularly referred to as "America's love affair with the auto." The government passed

the Highway Revenue Act of 1956, creating the Highway Trust Fund which levied a tax on gasoline. This fund was used to build and expand a network of super highways that could get travelers to their respective destinations quickly (Wright, 2008). Families began to move away from rural areas to rapidly developing urban and suburban areas (Figure 1). Many of the earlier generations of urbanites had parents or other relatives



who still lived on the farm, providing an opportunity for them to occasionally return to the natural world, while on a visit to the country. In fact, Evans & Evans (2004) even referred to today’s nature centers as “grandpa and grandma’s farm reborn.”

Eventually, the declining number of family farms, and the accompanying urban sprawl, led to a considerable decrease in natural areas. According to the American Farmland Trust (2010), urban sprawl takes two acres (0.8 hectares) of farm and ranch land every minute of every day. This loss of rural land has led to fewer opportunities for people to regularly interact with nature and children growing up with little exposure to the natural environment (Louv, 2005). As time went on, succeeding generations were raised in a world where nature consisted of the occasional vacant lot, city park, or well-manicured urban lawn. It is not difficult to understand how this disconnect between urban residents and the natural world could result in a population with no real sense of the relationship between its everyday world and the land and natural ecosystems that allow individuals to survive in that world. Aldo Leopold stated, "There are two spiritual dangers in not owning a farm. One is the danger of supposing that breakfast comes from the grocery, and the other that heat comes from the furnace" (Leopold, 1949, p. 6). If you have been raised in an urban area where all of your food comes from the grocery store, nicely packaged and wrapped in cellophane, and your heat comes on at the flip of a wall switch, how are you to know any differently? The concept of nature centers came about as a means for urban dwellers to learn about the natural world, to experience it firsthand, and to learn the importance of conserving these natural resources (Shomon, 1962).

In the late 1950s, a new concept in community education and recreation, initially referred to as "nature and conservation centers," (Shomon, 1962) was being developed

by groups such as the National Audubon Society (NAS) and individuals such as Erard A. Matthiessen and John Ripley Forbes.

The general feeling of the NAS, and Matthiessen and Forbes, was that society was losing touch with both nature and the philosophy of conservation, due to increased population growth and the movement of people away from rural into urban areas. People needed to know and understand something (nature) in order to appreciate and value it, and if generations were growing up without an understanding of the natural world, they would not be able to see the value and importance of conserving that world (Shomon, 1962). In 1959, Nature Centers for Young America, Inc. was founded by Mathiessen and Forbes for the purpose of establishing nature centers to teach children about nature and the world outdoors, and to stress principles of environmental conservation. In 1961, this group was acquired, through merger, by the National Audubon Society (NAS), who then formed the Nature Centers Planning Division (National Audubon Society Records, 1883-1991). The Nature Centers Division (NCD), as it became known, was an educational service offered by the NAS to encourage communities to set aside natural, undeveloped land to be used for conservation and natural history education, and serve as a place for urbanites to develop an appreciation of nature. The NCD provided professional guidance and technical know-how to communities who wanted to establish nature centers. Joseph J. Shomon (1962), the first director of the NCD cited the official definition of a nature center as:

...an area of undeveloped land near or within a city or town and having on it the facilities and services designed to conduct community outdoor programs in

natural sciences, nature study and appreciation and conservation. It is, in essence, an outdoor focal point where the citizens of a community, both young and old, can enjoy a segment of the natural world and learn something about the interrelationship of living and non-living things, including man's place in the ecological community. (p. 10)

The most simplistic definition, Shomon said, was "merely a parcel of natural land where people, particularly the young people, and nature can meet" (Shomon, 1962, p. 37).

In the vision of the NCD, a nature center would consist of three basic components: land, buildings, and people. The land would be undeveloped, and contain as much local plant and animal life as possible. The buildings would include an educational building where people could assemble, and exhibits could be used to teach about the area. The people would be the staff and the visitors who came to the nature center.

According to the NCD's vision, a nature center would provide the following benefits to a community: educational, scientific, cultural, and recreational. The values of this preserved natural area would also include "breathing space" for the city. For the local populace, it would provide an area for recreation, along with outdoor, hands-on nature education. Most importantly, it would provide urban residents with "esthetic enjoyment and spiritual refreshment." Shomon took it one step further and called nature centers "...a wise investment in America's future. It is one of the most worthy and noble and unselfish projects that any group can undertake and pursue in and around an expanding city" (Shomon, 1962, p. 38).

Nature Centers in the United States Today

The nature center concept gained momentum in the 1960s, a time which has often been referred to as the “Golden Age of Nature Centers” (Fort Worth Nature Center & Refuge Master Plan, 2003). The Audubon Society used to publish a directory of nature centers and related types of environmental education facilities in the United States, Canada, and the Caribbean. In 1968, there were 356 facilities listed (National Audubon Society, 1968). The second revision, published in 1971, listed 459 facilities, and the final listing, published in 1975, showed 558 facilities (National Audubon Society, 1975). (The NCD was discontinued sometime in the 1970s.) Today, according to a more recent count (Adams & Lindsey, 2009), there are at least 991 nature centers in the United States alone, with a minimum of one in every state, including Washington, DC (Table 1). These nature centers are associated (owned, leased, or shared) with over 4.8 million hectares (12 million acres) of land area which largely consists of natural habitats characteristic of their geographical location. Examples of these habitats include forests, prairies, wetlands, deserts, and riparian areas. At least 94% of the nature centers provide educational programming: formal and informal, indoors and out, geared towards both children and adults. The state of Texas has at least 40 nature centers ranging in size from a single hectare (2.47 acres) to well over 1200 hectares (3000 acres). Adams & Lindsey (2009) have offered a couple of reasons as to why there was such a difference in numbers between the various states, e.g., 2 in Alaska, 84 in New York. They suggested that states with a large number of nature centers may have been the result of environmental education being a state-mandated component of the science curriculum.

Another reason may be that some of the states with fewer nature centers have plenty of open space, e.g., western public land states, and may not need to set aside and preserve additional space in the form of nature centers.

TABLE 1. List of Number of Nature Centers by State.

Alabama	5	Kentucky	12	New York	84
Alaska	2	Louisiana	4	Ohio	72
Arizona	6	Maine	12	Oklahoma	17
Arkansas	5	Maryland	27	Oregon	10
California	56	Massachusetts	25	Pennsylvania	30
Colorado	17	Michigan	39	Rhode Island	5
Connecticut	28	Minnesota	27	South Carolina	7
Delaware	6	Mississippi	4	South Dakota	8
District of Columbia	1	Missouri	18	Tennessee	13
Florida	54	Montana	3	Texas	46
Georgia	18	North Carolina	28	Utah	7
Hawaii	2	North Dakota	1	Virginia	23
Idaho	1	Nebraska	8	Vermont	10
Illinois	51	New Hampshire	10	Washington	6
Indiana	33	New Jersey	27	Wisconsin	51
Iowa	49	New Mexico	4	West Virginia	4
Kansas	11	Nevada	3	Wyoming	1

Source: Adams & Lindsay, Urban Wildlife Management, Second Edition, 2009.

Objectives and Goals of This Study

This study began with an informal inquiry using the list-serve of the Association of Nature Center Administrators (ANCA, 2008), an international network of leaders in

the nature and environmental learning center profession. Members were asked if they had ever conducted visitor surveys to determine demographic characteristics, reasons for attending, overall satisfaction, and, most importantly, if adjustments in nature center programs were needed to address the conservation education needs of the 21st century public. The ANCA administrators were also asked if they thought visitors were actually connected with, or understood, the goals, objectives, and perceived role of the nature center as a consequence of their visit, i.e., did the visitors have an understanding of the range of services and ecological benefits provided by the nature center? Was the mission statement of the nature center being met?

The list-serve inquiry resulted in approximately fifty responses. All respondents, with the exception of two, stated that they did not do visitor studies. The two respondents who did conduct studies said their surveys were very limited and involved members only. About a third of the respondents offered useful input to the inquiries, but most said only that they would be interested in receiving the results of this study. The overall message derived from the ANCA membership inquiry was that while all nature centers have a mission statement, and most are dependent upon individual and community support to remain in existence, few have any way of monitoring their visitors' demographics or the effectiveness of their programs. The objective of this study therefore, was to undertake an exploratory effort to design a questionnaire that would provide information concerning visitor identity; their attitudes, activities, expectations and knowledge related to the nature center; factors that prevented them from visiting nature centers more often; and the overall satisfaction with their visit. In this way, nature

center administrators and staff would have a tool that would enable them to conduct and compare longitudinal assessments on the effectiveness of their conservation and education missions.

The goals of this study were:

1. To develop a questionnaire, and conduct a survey of visitors to a nature center;
2. To identify the visitors to a nature center in terms of selected demographic characteristics and psychographics, which include the visitors' values, attitudes, perceptions, interests, and satisfactions (Hood, 1983);
3. To develop and analyze a data set that describes a 21st century nature center visitor population, in terms of constraints to visitation; and the purposes, expectations, and outcomes of the visit.

Hypotheses

There was no literature available describing the characteristics of the population of people who visit nature centers with which to make comparisons. As such, this study used membership in the non-profit organization, The Friends of the Fort Worth Nature Center & Refuge, as an example of the population of visitors to nature centers. Their responses on questionnaires were used to create a database with selected variables representative of the population of people who visit nature centers. This study classified members of The Friends of the Fort Worth Nature Center & Refuge as Members and visitors who were not members of this group were classified as Non-members. Members and Non-members were compared to each other, and to the local and surrounding community to determine if they differed from each other, and if, as a whole, they

differed from the Tarrant County, TX population. The visitor classification scheme, therefore, was Member or Non-member. The study tested for significant differences among respondents in terms of socio-economic status and other demographics, visitation frequency, visitation barriers or constraints, reasons for visiting, understanding of nature center functions, and overall satisfaction with their visit.

Hypotheses Concerning Demographics of Visitors

H1: There will be differences in terms of selected demographic characteristics, such as age, socio-economic status (SES), and race, between nature center visitors (Members and Non-members as a whole) and the general population of Tarrant County, TX.

H2: There will be no differences in selected demographic characteristics between Members and Non-member visitors of the Fort Worth Nature Center & Refuge (FWNC).

The demographics of Tarrant County residents were compared to the demographic information provided by Members and Non-members. This was to determine if the nature center is serving a representative or a unique subset of the local population. Research done with museum visitors (Hood, 1983) determined that museum patrons were more likely to be of a higher SES, more educated, and younger than the general population.

Hypotheses Comparing Members and Non-members

H3: Members and Non-members will visit nature centers with the same degree of intensity.

The ANCA respondents stated that while some Members visit the nature centers quite regularly, other Members never visit at all. They became Members to show support

and they stayed current with developments through the newsletters which most memberships included.

H4: Members and Non-members will perceive the same barriers or constraints to increased visitation.

Respondents were asked to select those intrapersonal, interpersonal, and structural barriers that prevented them from visiting nature centers more often. This hypothesis suggested that there would be no differences in barrier selections between Members and Non-members. This would follow the prediction of H2, since the leisure constraints literature indicated similar patterns of constraints among subgroups differing across a wide range of socio-economic characteristics (Kay & Jackson, 1991).

H5: Members will have a different set of reasons for visiting the nature center than Non-members.

The FWNC staff and administrators were consulted to develop a list of possible reasons why individuals might visit that nature center. Respondents were then asked to select those reasons they considered most important to them. In order to test the above hypothesis, the responses given by the Members and Non-members were compared. It was predicted that Members would have a more diverse set of reasons for visiting than Non-members. By virtue of being a Member, there is an implied higher level of knowledge about and interest in the variety of features offered by the nature center.

H6: Members will have a different opinion than Non-members on what they consider to be the most important benefits and services that the nature center provides to the community.

The FWNC staff and administrators were consulted again to provide a list of what they considered to be the most important benefits and services that the nature center provided. Respondents were then asked to select the services they considered most important. There were two expectations from this part of the study. First, it was reasonable to expect that Members would know more than Non-members given an implied higher level of knowledge concerning the variety of services provided by the nature center. Second, although not one of the tested hypotheses, it could be determined if the visitors' understood the reasons for the nature center's existence in the heart of a metropolitan area, and if their version of the relevance of the FWNC was consistent with that of staff and administrators.

2. LITERATURE REVIEW

A review of the literature on nature centers revealed a lack of any organized body of knowledge on the topic. Little, if any, recent research could be found that examined nature centers and their visitors. Leisure constraint studies have been conducted to determine why people engaged in various types of leisure activities, but none focused solely on nature center visitation (Crawford & Godbey, 1987; Hawkins, Peng, Hsieh, & Eklund, 1999; Hinch & Jackson, 2000; Jackson, 1997; Jackson, Crawford & Godbey, 1993). Other studies have examined visitors to museums, national parks, botanical gardens, and other heritage attractions (Ballantyne, Packer, & Hughes, 2008; Davies & Prentice, 1995; Goulding, 2000; Hendon, 1990; Hood, 1983). Studies have been conducted that linked declining visitation to national parks with the increased use of modern electronics (Pergams & Zaradic, 2006). A more recent body of literature discussed the alienation from nature of an entire generation, through what has become known as nature deficit disorder (Louv, 2005), and extinction of experience (Finch, 2004; Miller, 2005; Pyle, 2003). Without any literature or studies pertaining directly to nature centers, this study became an exploratory effort to capture the identity of nature center visitors, and whether their visit resulted in the intended recreational and educational outcomes from the nature center experience. This study was important for nature center administrators to be able to gauge the effectiveness of their mission statement. Many nature centers depend upon members and visitors for their support and existence; lack of public interest and support could result in the closure of a nature center, and the loss of a unique source for environmental education. The closing of a

nature center could also lead to the loss of the natural, native habitat which the center conserves. The value of an undisturbed open space in the center of an urban area cannot be underestimated. Once it is lost, it is most likely lost forever.

Even though there was a lack of literature pertaining to nature centers per se, other studies were relevant and applicable. For example, an examination of other studies on leisure constraints, visitor studies in other environmental educational arenas, socio-economic issues, technological demands on time, nature deficit disorder, and extinction of experience provided useful tools for interpreting nature center visitation by the public in the 21st century.

Leisure Constraints

Past studies have investigated how people spend their leisure time, and the benefits received. These studies examined leisure constraints, or barriers to leisure pursuits. Leisure constraints have been defined as reasons, perceived or experienced, that result in obstacles that inhibit or prohibit an individual from participating in leisure activity (Hawkins, Peng, Hsieh, & Eklund, 1999; Hinch & Jackson, 2000; Jackson, 1997).

Crawford & Godbey (1987) published a succession of studies based upon their reconceptualization of leisure constraints. They discussed how early papers regarding barriers to leisure all assumed a simple framework, i.e., an individual has a leisure preference. Without an intervening barrier, the individual was able to participate in that leisure activity, otherwise he or she would not participate. They thought this framework was too simplistic and failed to take into account many other social and psychological

factors that would affect whether or not an individual or family participated in a particular leisure activity. They proposed a model that divided barriers into three hierarchically organized levels: intrapersonal, interpersonal, and structural. An individual's motivation to participate was initially faced with intrapersonal barriers, which are barriers due to one's own fears and perceptions. If intrapersonal barriers were not present or have been negotiated, the next level was interpersonal, or barriers based upon one's relationship with others. The interpersonal barriers would include lack of friends or family members with whom to participate in the activity. If these barriers were not present, or have been negotiated, the final barrier was structural, which includes time, distance, money, skills, and transportation. The questionnaire provided respondents the opportunity to identify factors that prevented or constrained them from more frequent nature center visitation.

Visitor Studies

Hood's (1983) study of museum visitors found rather than two distinct groups or "audience segments" – visitors and nonvisitors – there were, in fact, three distinct groups: 1) frequent visitors, 2) occasional visitors, and 3) nonvisitors. Hood determined through a telephone survey of randomly selected participants that each of these groups had a distinct set of experiences and values that they sought when determining their leisure activities. The nonvisitors' perceptions were that the attributes most highly valued by them (social interaction, active participation, and feeling comfortable and at ease in their surroundings) could not be found at museums. She also found that visitors' decisions were further based upon how they were socialized by family and friends

toward certain types of activities. She concluded that if museum professionals wanted to reach new audiences, especially the occasional visitors and nonvisitors, they must appeal to them based upon what satisfies each groups' requirements for a desirable leisure experience. Hood's study identified the importance of determining not just visitors' demographics, but also their "psychographics", including values, attitudes, perceptions and interests. Psychographic data identified the experiences and values that constitute a desirable leisure experience, i.e., attributes that would persuade an individual to spend his or her leisure time in a particular manner. This study examined psychographic data by asking visitors to identify their most important reasons for visiting the nature center.

Davies & Prentice (1995) further refined Hood's (1983) single nonvisitors segment into four, more detailed, groups of nonvisitors or "latent" visitors. The most relevant result from this study was their examination of the response, "lack of interest," to see if it actually concealed any underlying constraints to participation. They discovered in many instances, it was indeed, a rationalization of constraints. On the other hand, they revealed that a "lack of interest" may be just that – a genuine lack of interest on the individual's part to participate in any particular leisure activity. Leisure studies, as a whole, seemed to disregard the fact that an individual may just not be interested, without the need of any underlying reasons. For example, the underrepresentation of various racial and ethnic groups among the nature center's visitors may be due to nothing more than a genuine lack of interest in this particular leisure activity.

Socio-economic Issues

Burton, Turrell, & Oldenburg (2003) studied how different socioeconomic groups viewed recreational activity in terms of benefits and barriers. They found that the groups of higher socioeconomic status (SES) listed more and varied benefits than groups of lower SES, including social benefits, and a more balanced lifestyle. The main barrier of the higher level SES group to physical activity was an unpredictable life style. Those in the disadvantaged SES groups were least likely to participate in physical activity and cited inconvenient access to activities, poor health, and low personal functioning (health, weight, mood) as barriers. They had fewer anticipated benefits and less social support for participating. Common barriers across all groups included lack of time, competing demands, fatigue, disinterest, cost, and low skill. The benefits of and barriers to visitation, identified by the respondents in this study, were not compared to their SES (Burton et al. 2003). Instead the SES was used to determine whether nature center visitors were representative of the demographics of the population in the surrounding area. Furthermore, Burton et al. (2003) provided a more complete understanding of those factors that could be considered a barrier to leisure pursuit.

Technological Demands on Time

Technology has advanced rapidly since the 1960s' Golden Age of Nature Centers. At that time, television (TVs) was still relatively new, and there were a limited number of channels from which to choose. Most TVs were still black and white, and programming was different from what it is today. Perhaps with the realization that society was becoming disconnected from nature, 1960s TV programming began

developing “nature shows.” These included: Mutual of Omaha’s Wild Kingdom, Daktari (with Clarence, the cross-eyed lion), Gentle Ben (the lovable black bear), and Flipper (the pet dolphin - “no one you see, is smarter than he”); which all portrayed animals with anthropomorphic personalities (Classic TV, 2010). Since these early days, new technologies have been developed almost daily. The increased use of electronic entertainment, home video games, and the internet has been linked to the decline in national park visitation (Pergams & Zaradic, 2006). Their study showed that in 2003, the average American spent 327 more hours per year on home entertainment media compared to 1987 when this decline began. Pergams and Zaradic questioned whether love of nature in the United States was being replaced by love of electronic media. They cited a variety of studies showing that children must be exposed to nature if they were to develop into environmentally responsible adults. Pergams and Zaradic stated, “We may be seeing evidence of a fundamental shift away from people’s appreciation of nature...biophilia...to videophilia, which we here define as the new human tendency to focus on sedentary activities involving media. Such a shift would not bode well for the future of biodiversity conservation” (Pergams & Zaradic, 2006, p. 387). Weilbacher (2005) also commented on this phenomenon in a lecture presented to the annual conference of the ANCA. He suggested that nature centers may need to find a way to incorporate the use of modern technology to educate, entice, and remain relevant.

Nature Deficit Disorder/Extinction of Experience

Richard Louv (2005) brought the world’s attention to the growing divide between children and the outdoors, and their alienation from nature, which he called

“nature deficit disorder.” Children’s physical contact with nature was vanishing due to less access to natural areas; less time due to school, homework and organized sports; competition from electronic entertainment; and fear. Louv (2005) found there was a positive impact from nature on academics, children’s imagination and cooperation with others, and a reduction in attention deficit disorders and depression. The future stewards of nature are today’s children, many of whom, perhaps, would rather stay indoors, because “that’s where all the electrical outlets are located (p. 10).” Louv’s solution to this problem was environment-based education, using the natural settings found within the surrounding community as the classroom, as is the case with nature centers (Shomon, 1962).

On a similar note, Miller (2005) examined “extinction of experience” which he described as a cycle of widening gaps between humans and the natural world. Causative factors included increasing urbanization, lack of time, and electronic entertainment. He described a “shifting baseline” syndrome, also known as “environmental generational amnesia” where the natural environment that a child is exposed to early in life becomes the baseline against which environmental degradation is measured later in life. If a child does not have regular access to undeveloped or wild areas of nature, that child will be less inclined to expect that type of wild space in his/her surroundings as an adult. Miller suggested reconnecting to nature by maintaining high-quality natural areas in urban environments where children were allowed to play, e.g., at a nature center.

Pyle (2003), in an effort to reconnect people with nature, developed a Nature Matrix, a model consisting of a six-point program of reform. Two of his six essential

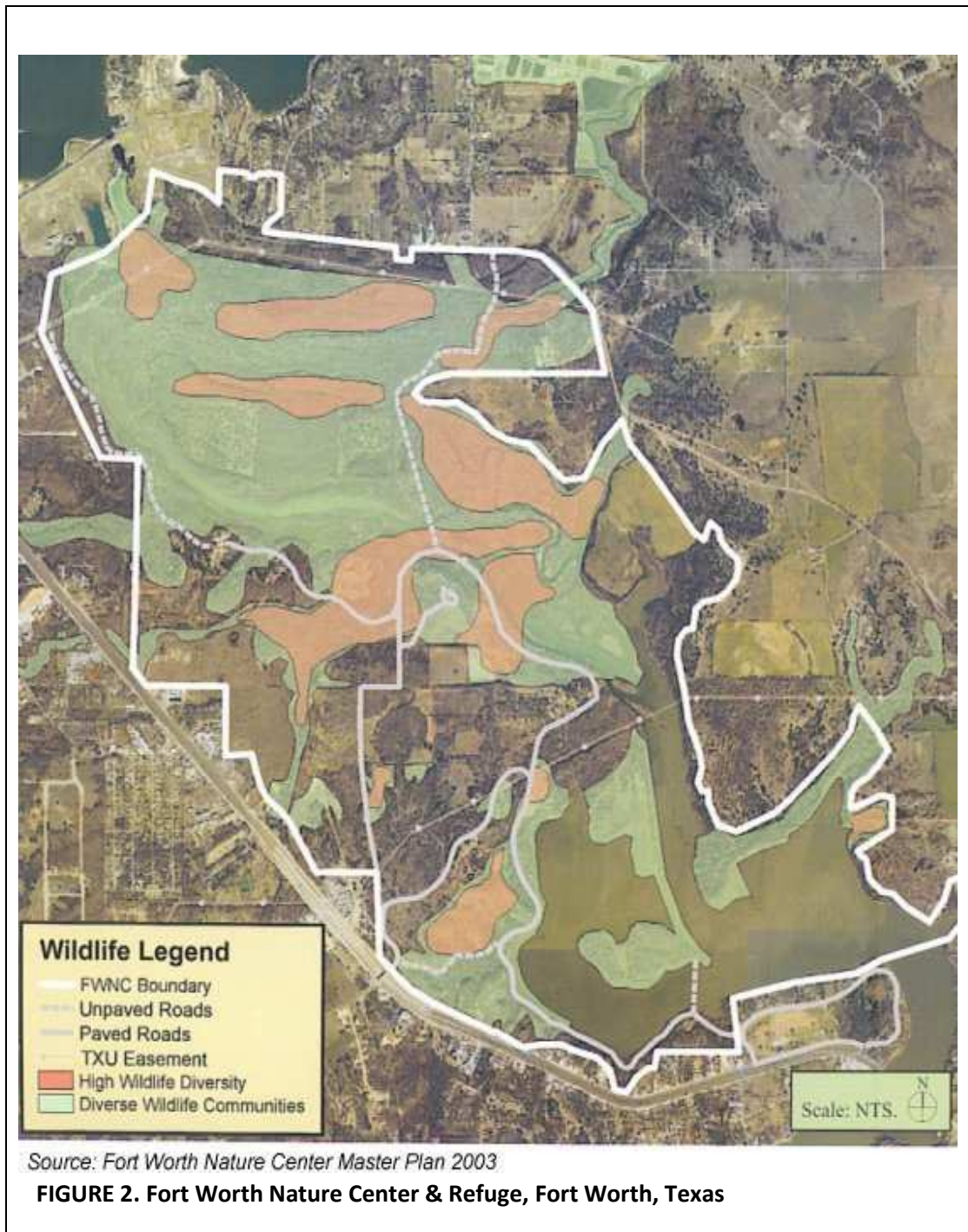
elements were nature study, and a local focus on environmental conditions. He concluded that reconnecting people to nature was an absurd statement, since people and nature were one and the same, and cannot be disconnected. Nature centers once again, would be a local resource for people to maintain their connection with nature.

3. METHODS

Research Site

The visitor survey was conducted at the Fort Worth Nature Center & Refuge (FWNC) (Figure 2). The FWNC is located in Tarrant County, Texas, 16 kilometers (10 miles) northwest of downtown Fort Worth, just inside the city limits. The FWNC is owned by the City of Fort Worth, and is a division of the Parks and Community Services Department. Additional financial support is provided by two non-profit organizations, the Friends of the Fort Worth Nature Center & Refuge, and the Fort Worth Nature Center & Refuge Conservancy. Most nature centers are nonprofit organizations, and receive funding from foundations, charitable organizations, and private individuals (Evans & Evans, 2004).

The Fort Worth Nature Center originated with the creation of Lake Worth in 1914, the first man-made lake in the state of Texas. The lake was built on the Trinity River to serve as an urban reservoir for local drinking water, and as a local recreation area. At that time, a large parcel of land around the lake was acquired by the City and set aside for public recreational use. The park officially became a nature center in 1963 with the establishment of the 150 hectare (368 acres) Greer Island Refuge and Nature Center (Fort Worth Parks & Community Services Department, 2003). By 1972, the nature center's size had grown to over 1200 hectares (3000 acres), and with the help of the Audubon Society's NCD, evolved into the Fort Worth Nature Center & Refuge. The now 1460 hectare (3600 acres) center is composed of forests, prairies, wetlands, and riparian areas. Along with the numerous habitats mentioned above, the FWNC is also



home to many natural and manmade resources, which are unique to the area. These include: historic sites where over 10,000 artifacts have been collected; numerous

Civilian Conservation Corps (CCC) structures dating from the 1930s; an interpretive center; a diverse population of mammals, reptiles, amphibians, arachnids and insects; a prairie dog village; a herd of North American bison genetically similar to the original bison that once roamed this country's plains by the millions; over 200 species of birds; more than 650 plant species; and over 32 kilometers (20 miles) of hiking trails (Fort Worth Nature Center & Refuge Master Plan, 2003).

The mission of the FWNC is "To enhance the quality of life by enrolling and educating our community in the preservation and protection of natural areas while standing as an example of these same principles and values in North Central Texas" (FWNC web site, 2009). The center offers many programs to the community, both educational and recreational. As stated on their web site "...the area beckons to those searching for a piece of nature to refresh their spirits and reintroduce a measure of tranquility to their increasingly urban lifestyles." The FWNC was chosen for this study because it is well established, located in a major metropolitan area, and was a willing participant in this research project.

Questionnaire Design

A questionnaire was developed based on Bernard's (2000) definition of self-administered questionnaires (Appendix 1). The questions included: closed and open-ended, multiple choice selections, and Likert-like scale choice responses. Questions included whether visitors were members of The Friends of the Fort Worth Nature Center & Refuge (Members) or not (Non-members); how often they visited this and other nature centers; who, if anyone accompanied them on their visits; their reasons for

visiting; barriers to visitation; what they considered important benefits and services provided by the nature center; and satisfaction with their visit. Selected demographic questions such as age, sex, ethnicity, education, and occupation were included. Respondents were also asked to provide comment on what they felt might be done to improve their visit to the FWNC. An internet version of the questionnaire was also developed and posted online using SurveyMonkey, an on line survey tool.

The questionnaire was pretested by ten individuals who had visited nature centers. Questions that were found to be vague or difficult to understand were edited for more clarity. Additional items identified as being relevant were added to the final version of the questionnaire.

Survey Administration

The nature center has a main entrance point where visitors check in and/or pay to gain admittance. It was initially decided, through discussions with nature center staff and administrators, that the questionnaire would be handed out to visitors when they arrived at the entrance gate. Visitors were asked to fill it out before they left the nature center, and return it either at the gate when they left the area, or in a return box set up at the Hardwicke Interpretive Center. An online version of the questionnaire was also developed for the Friends of Fort Worth Nature Center & Refuge. Using the list-serve directory, Friends were invited to go to a SurveyMonkey web site, and complete the questionnaire online.

The online questionnaire was administered as planned, and after two weeks the nature center staff sent a reminder notice requesting those who had not already filled out

the questionnaire to do so at that time. However, the hand delivery method suggested by the nature center staff was not successful. Other staff responsibilities precluded the effectiveness of this method. At that point, it was decided the best way to administer the questionnaires would be to go to the nature center, and hand them out individually to visitors at various locations around the nature center. Locations were set up in parking lots and other areas suggested by staff as being the best places to interact with people. Another attempt to capture visitor input included a postcard (Appendix 2) that contained an invitation to complete the questionnaire online. Visitors were also given another option to respond by completing a hard copy of the questionnaire at home and returning it in a pre-addressed, postage-paid envelope.

Respondent sample size was determined using a method devised by Zemke & Kramlinger (1982). Their formula determined the required minimum sample size of respondents needed to achieve a confidence limit of +/-5% ($\alpha \leq 0.05$). The required minimum sample size was doubled to offset nonresponse bias. For this study, the total number of Members at the end of 2009 was used to calculate the Members sample ($N=569$, $n=460$). The Non-member sample was determined by calculating the average number of Non-member visitors to the FWNC during the months of February and March (the study period) for the past three years (2007-2009). These averages were then used to obtain a sample size for Non-members ($N=4389$, $n=706$). Because all respondents are anonymous, a non-response follow-up was not possible. However, this sampling strategy was compromised during survey administration as explained in the results.

Data Analysis

After the data were collected, a SPSS database was developed by downloading the information from SurveyMonkey into an Excel spreadsheet which could be transferred into the SPSS data editor. The paper questionnaires responses were hand entered directly into the SPSS data editor.

Frequency and descriptive statistics were run in SPSS on the total visitors (Members and Non-members), and separately for each category. Data analysis included both qualitative and quantitative approaches. Qualitative analyses included comparing selected demographic characteristics of FWNC visitors with the Tarrant County population (Hypothesis 1). In addition, visitation companions, reasons for visiting, option to change number of visits, barriers, services of the nature center, ethnicity, education, and occupation, were treated as nominal level data and analyzed by obtaining frequencies. Chi square tests examined differences in responses between Members and Non-members testing hypotheses H2, H4, H5, and H6. Likert-like scale responses (opinions regarding the nature center services and level of satisfaction) and numerical responses (age, number of visits), i.e., Hypotheses H3 and H6, were treated as interval data and analyzed using analysis of variance (ANOVA).

4. RESULTS AND DISCUSSION

Response Rate

Of the 230 respondents in the Member category required in this study, 222 (96%) responded (sampling error was +/- 1.3 %, $\alpha = 0.05$). Of the 353 respondents in the Non-member category 129 (36%) responded (sampling error was +/- 8.5%, $\alpha = 0.05$). There were several factors that accounted for this seemingly low response rate in the Non-member category. The sampling frame used to estimate the required sample size consisted of the average monthly (e.g., February and March) visitation rates for the past three years, but those numbers were not sustained in 2010. There was a much lower than expected number of visitors during February and March, 2010 due to unusually extreme weather. For example, winter weather in North Texas, usually unpredictable, was a particular anomaly in February and March of 2010. According to the National Weather Service, February 2010 was the 5th coldest on record for the Dallas-Fort Worth (DFW) area, and the coldest at DFW since 1978. It was also the snowiest month since 1978 and the 2nd snowiest on record, and experienced the greatest all-time 24-hour snowfall ever for the area. In March 2010, DFW also experienced a record snowfall. Overall, the 2009-2010 winter was the 8th coldest on record for the DFW Metroplex (National Weather Service Forecast Office, 2010). The snow damaged many of the trails in the nature center which caused their temporary closure. According to the nature center staff, people were not visiting during this time due to these weather extremes (R. Denkhaus, personal communication, March 2010).

Another factor that caused the lower than expected Non-member response rate may have been related to the survey administration required by this type of study. Visitor surveys differ from traditional (e.g., mail, internet, phone) surveys in that the main method of contacting the respondent is on site during their visit. Eventually utilizing an intercept-type survey (Roose 2007) succeeded in capturing a higher number of Non-member responses.

Finally, Leslie (1972), after a review of studies on response rates and non-response bias, concluded that if the population was a relatively homogeneous group, researchers should not be overly concerned about response rates. Rudig (2008) found this to be true over 30 years later, during his studies of political demonstrators. He could not identify any substantial non-response bias even with a response rate of less than 40%.

After the intercept method was used in this study, Non-member representation improved. Since all of the people who did respond to the intercept surveys were already at the nature center, one might assume they have a basic interest in the nature center and can thus be considered a relatively homogeneous group. Therefore, a Non-member representation of 129 may have provided a low, but acceptable, number to characterize this visitor group. Since the survey was anonymous and interceptive, traditional methods of contact, and procedures for non response follow-up (Dillman 2007) were not possible.

Comparison between Tarrant County, Texas Residents and Visitors to the FWNC

The following population demographics of Tarrant County, Texas, which encompasses the FWNC, were obtained from the US Census Bureau web site (2010).

The population of Tarrant County was almost evenly divided between males (49.4%) and females (50.6%). The sex ratio for nature center visitors was almost the same (Table 2). The majority of the county's population was white (69%), followed by Hispanic (25%), and African American (13%). The majority of nature center visitors similarly were white (82%). Educational backgrounds of Tarrant County residents were almost evenly divided among high school graduates (25%), some college (23%) and college graduates (20%). A majority of visitors to the FWNC were college graduates (38%) and 29% had graduate or professional degrees, compared to only 8% of the county residents. The majority of the Tarrant County residents were employed in management, professional, and related occupations (34%), followed by sales and office occupations (28%). Occupational comparisons with FWNC visitors were difficult given different metrics used to determine job classifications. For example, many of the occupations categories of FWNC visitors (see Table on page 35) could be classified as professional.

Both groups of FWNC visitors were a distinct subset of the general population in Tarrant County in terms of sex, age, ethnicity, and educational backgrounds. Some demographic differences between FWNC visitors and Tarrant county residents were so obvious that statistical measures of difference were not deemed necessary. For example, all of the FWNC respondents were over the age of 18 compared to 72% of the Tarrant County residents. Furthermore, visitor respondents at the FWNC tended to be older (median 50 years) than the Tarrant County population (median 33 years). Hood's (1983) research also determined that museum visitors were a distinct subset of the general population in that museum patrons were more likely to be of a higher SES, more

TABLE 2. Sex, Ethnicity, and Education Levels of Tarrant County, Texas Population and FWNC Visitors.

Demographic Variable	Tarrant County Population*		FWNC Visitors	
	Total	%	Total	%
Sex ≥ 18 years of age	n=1.7 million		n=351	
Male	605,537	49.4	157	43.9
Female	620,647	50.6	190	53.1
Ethnicity	n=1.7 million		n=354	
Asian	73,303	4.3	9	2.5
Black or African American	233,210	13.7	4	1.1
Hispanic	431,472	25.3	12	3.4
Native American	8,176	0.5	10	2.8
White	1,182,950	69.3	291	82.2
Other	---	---	1.6	0.6
Education	n=1.7 million		n=351	
Elementary School	98,628	17	1	0.3
High School Graduate or GED	266,098	25	16	4.5
Military/Trade School	---	---	7	2.0
Some College	248,257	23	86	24.0
College Graduate	212,416	20	138	38.5
Master's Degree			79	22.1
Ph.D.	89,336	8	9	2.5
Professional (law, medicine, veterinarian)			11	3.1

*Source: US Census, American Community Survey, 2006-2008.

Note: Refer to questions 13, 14, and 15 of the questionnaire (Appendix A).

educated, and younger than the general population. A study of art museum visitors (Hendon, 1990) found that they were also a subset of the general population. They had

higher education levels, were involved in more professional and managerial occupations, and had higher income levels when compared to nonvisitors.

Comparisons between Members and Non-members

Demographics

Respondents were asked to identify their sex, age, ethnicity, educational background, and occupation (Table 3). Members were almost evenly divided regarding sex, with 48% male, and 49% female. Non-members, however, were 38% male and 61% female. The total of all respondents showed 43% male and 53% female. Both respondent groups were predominantly white ($\geq 80\%$). However, other ethnic groups including African American, Asian, Hispanic, and Native American were among visitors to the FWNC, more often ($P \leq 0.05$) represented among Non-members. Educational backgrounds revealed that the majority of all visitors were college graduates or had post baccalaureate degrees ($> 65\%$). Age of Members ranged from 29 to 77 years old, with a mean of 54 (Table 4). Non-members ranged from 22 to 68 years of age, with a mean age of 44. Members were older ($P \leq 0.05$) than Non-members. Overall, the mean age of respondents was 50 years. Occupations were coded based on 2000 Standard Occupation Codes (SOC) (United States Department of Labor, 2010). The most frequent occupation classification for both respondent groups was management or retired (Table 5). Members were different ($P \leq 0.05$) from Non-members in terms of sex ratio, mean age, and ethnicity, but they were a relatively homogeneous groups in terms of education and occupation.

TABLE 3. Sex, Ethnicity, and Education Level of Members and Non-members of the FWNC.

Demographic Variable	Members		Non-members		All %	χ^2 Value	P
	Total	%	Total	%			
Sex	n=222		n=129			3.952	.047
Male	107	48.2	49	38.0	43.9		
Female	110	49.5	79	61.2	53.1		
Ethnicity	n=206		n=118			17.37 ^a	.004
Asian	3	1.4	6	4.8	2.5		
Black or African American	0	0	4	3.2	1.1		
Hispanic	6	2.7	4	3.2	3.4		
Native American	9	4.1	1	0.8	2.8		
White	188	85.1	101	80.2	82.2		
Other	0	0	2	1.6	0.6		
Education	n=222		n=129			13.45 ^b	.097
Elementary School	0	0	1	.8	.3		
High School Graduate or GED	9	4.1	6	4.7	4.5		
Military/Trade School	2	0.9	5	3.9	2.0		
Some College	46	20.7	39	30.2	24.0		
College Graduate	93	41.9	45	34.9	38.5		
Master's Degree	56	25.2	22	17.1	22.1		
Ph.D.	6	2.7	3	2.3	2.5		
Professional (law, medicine, veterinarian)	6	2.7	5	3.9	3.1		

Note: Refer to questions 13, 14, and 15 of the questionnaire (Appendix A).

TABLE 4. Ages of Members (n=216) and Non-member (n=128) Visitors to the FWNC.

Age	Members	Non-members	All	df	F	P
				1	53.802	.000*
Minimum	29	22	22			
Maximum	77	68	77			
Mean	53.8	44.2	50.33			

*t-test: $t=7.335$, $df=341$, $P \leq 0.01$

Note: Refer to question 12 of the questionnaire (Appendix A).

Visitation Rates

Respondents were asked to estimate how many times they visited the FWNC and other nature centers, over the course of a year (Table 6). Some commented that they were either volunteers or doing research at the nature center, which accounted for some of the higher visitation numbers. Of the 129 Non-members, 47 (36%) stated that this was their first visit to the FWNC. As might be expected, Members reported the highest ($P \leq 0.05$) number of visits per year to the FWNC when compared to Non-members. There was no difference between groups in the number of visits to other nature centers.

Companions

Online questionnaires asked visitors to identify their usual companions when they visited the FWNC, and the paper questionnaires asked who came with the respondent that day. Results showed that 63% of all visitors came to the nature center with family members (Table 7). The next most common response for Members was that they came alone (41%), compared to Non-members who said they came with friends

TABLE 5. Reported Occupation of Members (n=211) and Non-member (n=111) Visitors of the FWNC.

Occupation	Members		Non-members		All %	χ^2 Value	P
	Total	%	Total	%			
						29.678	.159
Retired	18	8.1	38	29.5	16.2		
Management Occupations	18	8.1	16	12.4	9.8		
Business/Financial Operations	18	8.1	0	-	5.3		
Computer/Mathematical	5	2.3	2	1.6	2.0		
Architecture/Engineering	22	9.9	1	0.8	6.4		
Life/Physical/Social Science	10	4.5	1	0.8	3.1		
Community/Social Services	4	1.8	0	-	1.1		
Legal	3	1.4	1	0.8	1.1		
Education/Training/Library	25	11.3	3	2.3	7.8		
Arts/Design/Entertainment/Sports/Media	13	5.9	0	-	3.6		
Healthcare Practitioners/Technical	18	8.1	2	1.6	5.6		
Healthcare Support	4	1.8	0	-	1.1		
Protective Service	2	0.9	5	3.9	2.0		
Food Preparation/Serving Related	0	-	0	-	-		
Building/Grounds Cleaning/Maintenance	0	-	0	-	-		
Personal Care/Service	1	0.5	2	1.6	0.8		
Sales/Related	17	7.7	1	0.8	5.0		
Office/Administrative Support	3	1.4	13	10.1	5.3		
Farming/Fishing/Forestry Support	1	0.5	0	-	0.3		
Construction/Extraction	7	3.2	0	-	2.0		
Installation/Maintenance/Repair	1	0.5	0	-	0.3		
Production	0	-	4	3.1	1.1		
Transportation/Material Moving	2	0.9	6	4.7	2.2		
Military Specific	0	-	0	-	-		
Caretaker/Homemaker	17	7.7	2	1.6	5.3		
Student	2	0.9	9	7.0	3.1		
Self-Employed	0	-	3	2.3	0.8		
Unemployed	0	-	2	1.6	0.6		

Note: Refer to question 16 of the questionnaire (Appendix A).

TABLE 6. Approximate Number of Nature Center Visits Over the Course of a Year, Members (n=222) and Non-members (n=129).

Nature Center	Members	Non-members	All	df	F	P
FWNC						
Mean	29.3	13.23	22.39	1	24.445	.000*
Other Nature Centers						
Mean	3.5	3.66	3.57	1	.041	.840

* t-test: $t=4.944$, $df=349$, $P \leq 0.01$

Note: Refer to questions 1 and 2 on the questionnaire (Appendix A).

TABLE 7. Companions of Members (n=222) and Non-members (n=129) During Their Visit to the FWNC

Who came with you	Members		Non-members		All %	χ^2 Value	P
	Total	%	Total	%			
I came alone	90	40.5	22	17.1	31.8	20.714	.000
I came with family members	140	63.1	82	63.6	63.1	.009	.925
I came with friends	60	27.0	34	26.4	26.3	.019	.891
I came with an organized group	30	13.5	8	6.2	10.6	4.518	.034

Note: Refer to question 3 of the questionnaire (Appendix A).

(26%). Other comments included 17 respondents who said their usual companion was their dog(s). This may be attributed to the fact that the FWNC, unlike many city parks, allows dogs on leashes. Pet owners stated that they liked being able to walk their dogs on the trails in more natural settings.

Reasons for Visiting the FWNC

When asked to identify the five most important reasons why they visited the FWNC, Members said to explore the trails, enjoy the trees and wildflowers, and observe wildlife. In comparison, the order of preference of these items for Non-members was

observing wildlife, exploring the trails, and enjoying the trees and wildflowers. There were group differences ($P \leq 0.05$) in some categories. For example, more Non-members came to the FWNC to see the bison and picnic in peaceful surroundings, but more Members came to explore the trails and participate in nature center programs (Table 8).

It is possible that Non-members, when compared to Members, found the bison herd to be a novelty in their realm of experiences with wild things. Furthermore, the concept of a picnic in peaceful surroundings may be consistent with Non-members' desire to escape their urban environment, without necessarily requiring an understanding of what other services the FWNC provides. It is reasonable to expect the Members had a greater knowledge than Non-members about the nature center programs and the value of the trails experiences due to newsletters and activity calendars provided as part of their membership.

Barriers to Visits

Visitors were asked, if given the opportunity, would they change their number of visits to the FWNC? More Members (83%) than Non-members (78%) said they would visit more often (Table 9).

Respondents were then given a list of factors that might prevent them from visiting as often as they would like (Table 10). Structural barriers, as opposed to intra- and interpersonal barriers, were identified most often by both groups. For example, lack of free time was the most frequent reason cited for not visiting more often by both Members (46%) and Non-members (27%) followed by distance from home, 21% and 27%, respectively. According to Crawford & Godbey (1987), structural barriers were the

highest level in the hierarchy of barriers to leisure pursuits, and generally indicated that a

TABLE 8. Reasons Why Members (n=222) and Non-members (n=129) Visited the FWNC.

Most important reasons for visiting	Members		Non-members		All %	χ^2 Value	P
	Total	%	Total	%			
To escape my urban environment for a while	124	55.9	76	58.9	20.1	.311	.577
To experience how this part of the country looked before it was developed	49	18.0	30	23.3	15.9	1.402	.236
The bison herd	25	11.3	32	24.8	6.4	11.005	.001
The Civilian Conservation Corps (CCC) structures	15	6.8	8	6.2	65.9	.041	.839
To observe wildlife	141	63.5	92	71.3	72.9	2.227	.136
To explore the trails	173	77.9	85	65.9	6.7	6.069	.014
To jog along roads in a non-congested setting	18	8.1	6	4.7	64.2	1.531	.216
To enjoy the trees and wildflowers	149	67.1	79	61.2	10.1	1.238	.266
To picnic in peaceful surroundings	17	7.7	19	14.7	10.3	4.432	.035
The Hardwicke Interpretive Center	27	12.2	10	7.8	14.0	1.683	.195
The nature center programs	40	18.0	10	7.8	34.1	7.039	.008
The river	81	36.5	40	31.0	25.7	1.147	.284
To photograph nature	52	23.4	40	31.0	20.7	2.427	.119
It is a spiritual experience for me	49	22.1	25	19.4	53.4	.314	.575
It helps me relax and better deal with stress	124	55.9	67	51.9	56.4	.505	.477

Note: Refer to question 4 on the questionnaire (Appendix A).

TABLE 9. Differences Between How Members (n=222) and Non-members (n=129) Would Change Their Number of Visits to the FWNC.

How would you change your number of visits	Members		Non-members		All	χ^2 Value	P
	Total	%	Total	%	%		
I would visit more often	185	83.3	101	78.3	81.3	9.302	.026
I would visit less often	0	0	0	0	0		
I would visit the same number of times	28	12.6	13	10.1	11.7		

Note: Refer to question 6 of the questionnaire (Appendix A).

preference for that particular activity had already been established, as was demonstrated by the visitors to the FWNC. Other barriers cited included weather, as mentioned in the discussion on response rates, hours, and fear of ticks, snakes, poison ivy, and alligators.

Services

First, respondents identified what they considered to be the five most important benefits and services the FWNC provided for the community (Table 11). The two services considered to be the most important by Members and Non-members were “provides urban residents with a connection to nature” and “preserves and restores natural areas.” However, more Members than Non-members ($P \leq 0.05$) recognized the value of the public education service of the FWNC. This difference may be due to Members’ implied higher level of knowledge concerning the importance of public education about nature and the role of the FWNC in this regard. Additional important services cited by visitors included access to the river and Lake Worth for kayaks and canoes, and knowledgeable staff.

TABLE 10. Barriers to More Frequent Visitation by Members (n=222) and Non-members (n=129) of the FWNC.

Barriers to more frequent visitation	Members		Non-members		All	χ^2 Value	P
	Total	%	Total	%			
Nothing prevents me – I come as often as I want	53	23.9	43	33.3	27.4	3.674	.055
Intrapersonal Barriers							
No need to come more often – there is nothing new to see	0	0	0	0	0	---	---
Nature centers are not my first choice of how to spend my leisure time	0	0	1	.8	.3	1.726	.189
I do not feel safe here	2	.9	2	1.6	1.1	.305	.580
I am too old or not healthy enough	4	1.8	1	.8	1.4	.612	.434
The facilities, e.g., bathrooms, are too inconvenient	8	3.6	4	3.1	3.4	.062	.803
Interpersonal Barriers							
No one else will come with me	10	4.5	1	.8	3.1	3.738	.053
My family/friends think visiting nature centers is a waste of time	2	.9	0	0	.6	1.169	.280
I prefer to come alone, but I cannot get away by myself	6	2.7	4	3.1	2.8	.047	.829
The programs and other offerings do not interest me	0	0	0	0	0	---	---
It is difficult to coordinate free time with family/friends	31	14.0	17	13.2	13.4	.043	.836
Structural Barriers							
I do not have enough free time	103	46.4	35	27.1	38.5	12.691	.000
It is too far from my home	47	21.2	34	26.4	22.6	1.186	.276
I cannot afford to pay the admission fee	6	2.7	6	4.7	3.4	.938	.333
I do not have my own transportation	0	0	0	0	0	---	---
I am visiting from out of town	7	3.2	15	11.6	6.1	90974	.002

Note: Refer to question 7 of the questionnaire (Appendix A).

Next, respondents were asked whether the FWNC provided an important service to them, and to the community, that could not be found anywhere else (Table 12). They were given a 5-point (range 0 to 4) Likert-like scale ranging from “Completely Disagree” to “Completely Agree”. “Not sure” responses were given a score of 0.

Members had a higher level of agreement ($P \leq 0.05$) than Non-members regarding that the FWNC provides important services to them personally and to the community. Once again, score differences may be attributed to Members’ higher level of knowledge concerning what services they can expect during a visit and the unique benefits and services the FWNC provides for the community at large.

TABLE 11. Most Important Services the FWNC Provides to the Community as Indicated by Members (n=222) and Non-members (n=129).

Services provided by the nature center	Members		Non-		All %	χ^2 Value	P
	Total	%	Total	%			
Provides urban residents with a connection to nature	203	91.4	119	92.2	90.5	.070	.791
Preserves and restores natural	196	88.3	110	85.3	86.0	2.133	.344
Provides public education about nature	184	82.9	87	67.4	76.3	11.055	.001
Provides public entertainment and	77	34.7	51	39.5	36.3	.828	.363
Preserves the cultural history of	64	28.8	36	27.9	28.2	.034	.854
Promotes scientific studies	65	29.3	33	25.6	27.9	.554	.457
Provides a peaceful and tranquil place to visit	181	81.5	96	74.4	77.7	2.481	.115
Provides a setting to conduct various land management activities	32	14.4	15	11.6	13.4	.546	.460
Provides the community with improved air and water quality and groundwater recharge	63	28.4	30	23.3	26.3	1.099	.294

Note: Refer to question 9 of the questionnaire (Appendix A.)

TABLE 12. Opinions of Members (n=222) and Non-members (n=129) Regarding the Importance of the FWNC to the Individual and to the Community.

Opinion	Members	Non-members	df	F	P
FWNC provides an important service to me that cannot be found anywhere else.					
Mean ^a	3.64	3.33	1	8.682	.003^b
FWNC provides an important service to the community that cannot be found anywhere else.					
Mean ^a	3.79	3.34	1	23.864	.008^c

^aBased on a 5-point Likert-like scale.

^bt-test: $t=2.946$, $df=349$, $P \leq 0.01$

^ct-test: $t=4.885$, $df=349$, $P \leq 0.01$

Note: Refer to questions 5 and 8 on the questionnaire (Appendix A).

Satisfaction with Visit

Respondents were asked to rank how satisfied they were with their visit to the FWNC. They were again given a 5-point Likert-like scale, with “Completely Dissatisfied” on one end of the scale and “Completely Satisfied” on the other. “Not Sure” responses were again ranked as a 0. Members had a higher ($P \leq 0.05$) level of satisfaction with their visit than did Non-members (Table 13). It would be reasonable to attribute this level of satisfaction to the fact that Members are more aware of what to expect at the FWNC, and are more familiar and comfortable with the surroundings.

TABLE 13. Satisfaction of Visitors with Their Visit to the FWNC, Members (n=222) and Non-members (n=129).

Satisfaction	Members	Non-members	df	F	P
Mean ^a	3.74	3.51	1	7.052	.008^b

^aBased on a 5-point Likert-like scale.

^bt-test: $t=2.656$, $df=349$, $P \leq 0.01$

Note: Refer to question 10 on the questionnaire (Appendix A).

Some comments from visitors regarding their satisfaction:

- “I get exactly what I expect out of visiting. Peacefulness and nature”.
- “I believe that there is a subtle magnetism in Nature, which, if we unconsciously yield to it, will direct us aright.’ ~Thoreau. This is how we feel after every hike...and every time we visit the center.”
- “My family has been coming to the Nature Center since I was a child. Whenever I visit, I feel wonderful being connected to nature, but I also feel that connection to my personal past. I may not visit as often as I'd like to, but I know many of the trails like the back of my hand and so it's always a comforting, beautiful place to me.”
- “This area helps a person regenerate naturally from a society that is becoming more dependent on electronics, technology and being commercially fed by the BUY MORE and always stay connected (internet) marketing.”
- “My visits allow me to reconnect to nature...a critical part of my karma.”

Respondent Comments

When respondents were offered the opportunity for final comment, it resulted in some of the most interesting information derived from the questionnaire. For example, the last item on the questionnaire asked visitors to comment on what could be done to improve their visit to the FWNC. Most (259/358, 72%) of the visitors (Members and Non-members) provided comment (19 topics in all), or a series of comments on a variety of issues related to the question (Table 14). Most said that there was nothing they could suggest in terms of changes, and added words of encouragement and praise for the FWNC staff. On the other hand, trails were most often mentioned in terms of needed changes. Suggested changes included more trails in different natural areas of the FWNC, signage and/or maps to prevent visitors from getting lost, biking and jogging trails, and trail repair, e.g., boardwalks and surfaces for baby strollers. Respondents also requested more benches and picnic areas along the trails.

Many respondents focused on how long the nature center was open for public visitation. They wanted a longer time per day and season (e.g., winter). An earlier morning opening was requested by those wanting to jog, bike, or walk their dogs before going to work. Some reported that they were locked in because they stayed after the FWNC was closed for the day.

Respondents felt that there needed to be more programs that focused on birding and night walks, fishing, boy and girl scouts, family events, adults, volunteers, community outreach, photography, wildlife viewing, and guided tours.

Table 14. Overview of Comments by Respondents Regarding What Might Be Done to Improve Their Visits to the FWNC.

Comment Topic	Number of Mentions
Camping	5
Canoe launch	10
CCC Restoration	2
Dogs	5
Fear and Safety	18
Handicap access	1
Hours	36
Interpretive Center	2
More animals	5
Nothing	52
Online information	1
Programs	26
Roads/Parking	16
Shuttle Service	2
Staff	5
Toilets	27
Trails	51
Trashcans	10
Vending Machines	5
Total	279

Note: Refer to question 17 on the questionnaire (Appendix A).

Improvements in creature comforts were identified in terms of more toilets and trash cans at strategic points along trails, vending machines for food and water, parking areas along roads, and shuttle services from the Dallas/Fort Worth metroplex to the FWNC. Some requests revealed that visitors were not complete advocates of the nature experience. For example, the fear and safety comments included the eradication of poisonous plants, ticks, alligators, and venomous snakes.

The degree to which the FWNC administration and staff can respond to these requests will need to be evaluated in a time of tight city budgets, the FWNC mission, and professional evaluations of the 19 requests (Table 14). However, the comments provided by the majority of respondents can be considered to have merit in terms of improving the visitor's experience at the FWNC. All comments to this and other questions can be seen in Appendix C.

Summary

Visitors to the FWNC were not representative of the general population of the surrounding area. They were older, predominantly white, and had higher education levels. Using the membership in a Friends organization as a representative population of nature center visitors, it was determined that the Non-member visitors were similar to the Members except that they were younger. Members visited the FWNC with a higher degree of frequency than Non-members, but there was no difference in degree of visitation to other nature centers. Both groups identified "lack of time" as the primary barrier to increased visitation. There were some differences between groups as to reasons for visitation. Members appeared to be seeking specific, educational, experiences compared to Non-members who tended to seek more general, recreational, experiences. Members had more specific knowledge about benefits and services that the FWNC provided the community. Overall, both groups were satisfied with their visits, with Members having a more defined set of expectations, and therefore a higher level of satisfaction.

Even though times have changed greatly since the “Golden Age of Nature Centers,” and society has become accustomed to receiving information electronically, nature centers (e.g., FWNC) continue to make important contributions to the educational and recreational pursuits of the urban public. This study revealed that visitors were seeking the services and the natural settings provided by the FWNC. Comments by visitors also revealed, that while they understood the importance of a natural area, and preferred it to remain as natural as possible, there still remains a certain naiveté about it. For example, while praising the nature center, respondents added comments such as:

- “I think it might be nice if security cameras were placed throughout, with someone monitoring them, though, that could be an expensive venture.”
- “A zipline in the refuge would be a great way to increase attendance at the center as well.”
- “...more alligators.”
- “Spray for the poison ivy and stickers.”
- “More animals.”

These comments show education about the nature world and all its functions is needed today as much as it ever was.

5. STUDY LIMITATIONS

This research attempted to conduct a preliminary study of who was visiting nature centers in the 21st century, and determined whether nature centers were still relevant in a technologically-savvy society. The initial limitation of this study was capturing a sample of the Non-member subset of visitors. This group of visitors varied in size by month, season, and weather. It was therefore difficult to determine the actual size of this population, and capture an appropriate representative sample. Similar to Adams, Thomas, Strnadel, & Jester's (1994) study of rattlesnake round-up spectators, there was no way to determine representativeness of the interviewed sample to the total population of spectators. Furthermore, there was an implicit bias in willingness to be interviewed as was the case when FWNC visitors were asked to participate in this study. In addition, it was realized during the personal interview process that several Members had not received the invitation to participate in the survey. Perhaps the FWNC list-serve was incomplete which caused a certain amount of nonresponse bias among Members.

Another limitation in this study was the level of cooperation provided by the FWNC staff during survey administration. The original method of delivering and retrieving questionnaires to and from visitors completely relied on staff and administration. However, FWNC operation obligations prevented them from embracing this part of the study as a priority task. Once it was realized that the data collection procedure was compromised, a visitor intercept procedure was initiated. Future nature center visitor studies will need to rely completely on the efforts of the research team to obtain the required information, in the field.

This study was also limited by weather, as previously mentioned. Many respondents also commented that weather (too hot, too cold, too wet) was a factor that often prevented them from visiting as often as they would like.

6. RECOMMENDATIONS FOR FUTURE RESEARCH

The questionnaire used in this study was developed and adapted to fit the natural circumstances, benefits, and services provided by the FWNC. Studies at other nature centers would require the questionnaires to be modified accordingly. Future research should include a sampling procedure conducted over the course of an entire year, with research teams in the field administering intercept surveys. The researcher cannot, nor should not, depend on the nature center staff and administration to become actively involved in this aspect of survey administration.

7. CONCLUSION

As Shomon (1962) stated, one of the benefits to a city in having a nature center is that it provided the city with breathing space. The intrinsic value of an undisturbed open space in an urban area cannot be underestimated. Urban nature centers play an important role in providing people with a representation of regional landscapes in a natural and undisturbed state. They were designed to be the connection between urban residents and the natural environment. The nature centers also focused on conservation and preservation, while stressing environmentally responsible behavior (Evans & Evans, 2004). Many studies have shown that human health and welfare was dependent, in part, on connections to wildlife and nature. These connections can be both life-sustaining and life-fulfilling, and efforts should be made to keep these areas preserved (Balmford et al., 2002; Costanza et al., 1997; Daily et al., 2000; Millennium Ecosystem Assessment, 2005; Opshoor, 1998). The preservation of a nature center was and is most often dependent upon visitor support. The results of this study provided useful information for nature center staff and administrators to monitor visitor satisfaction and mission effectiveness. The ultimate goal was to enable more people to develop a connection with the natural world, especially children, the future stewards of tomorrow. As Aldo Leopold wrote in *A Sand County Almanac* (1949), it is “a good thing for people to get back to nature.” Today, more than ever, nature centers provide a perfect opportunity for people to get back to nature. Nature centers continue to contribute to the public’s education about conservation, preservation, and stewardship; provide a respite from a hectic world; and remain a relevant resource for the 21st century visitor.

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APPENDIX A
QUESTIONNAIRE



Fort Worth Nature Center & Refuge

This survey (co-sponsored by the Department of Wildlife & Fisheries Sciences at Texas A&M University) is voluntary and completely anonymous. The results will help the nature center staff and administration to better serve their Friends and visitors.

1. On average, how many times do you visit the Fort Worth Nature Center over the course of a year? [] This is my first time here []
2. On average, how many times do you visit other nature centers over the course of a year? [] (If none put a 0 in the box)
3. Who came with you to the Fort Worth Nature Center today? (check all that apply)
 - a) [] I came alone
 - b) [] I came with family members
 - c) [] I came with friends
 - d) [] I came with an organized group
4. Check the 5 most important reasons why you visit the Fort Worth Nature Center? (check up to 5 items)
 - a) [] I have never visited this nature center before
 - b) [] To escape my urban environment for a while
 - c) [] To experience how this part of the country looked before it was developed
 - d) [] The bison herd
 - e) [] The Civilian Conservation Corps (CCC) structures
 - f) [] To observe wildlife
 - g) [] To explore the trails
 - h) [] To jog along roads in a non-congested setting
 - i) [] To enjoy the trees and wildflowers
 - j) [] To picnic in peaceful surroundings
 - k) [] The Hardwicke Interpretive Center
 - l) [] The nature center programs
 - m) [] The river
 - n) [] To photograph nature
 - o) [] It is a spiritual experience for me
 - p) [] It helps me relax and better deal with stress
 - q) [] Other _____



5. *In my opinion, the Fort Worth Nature Center provides an important service to me that cannot be found anywhere else.*

Completely Disagree	Somewhat Disagree	Not Sure	Somewhat Agree	Completely Agree
0	0	0	0	0

6. Given the opportunity, how would you change your number of visits to the Fort Worth Nature Center over the course of a year?
- a) I would visit more often
 b) I would visit less often
 c) I would visit the same number of times
 d) Other _____
7. Which of the following factors prevent you from visiting the Fort Worth Nature Center as often as you would like? (check all that apply)
- a) Nothing prevents me - I come as often as I want
 b) No need to come more often - there is nothing new to see
 c) Nature centers are not my first choice of how to spend my leisure time
 d) I do not feel safe here
 e) I am too old or not healthy enough
 f) The facilities, e.g., bathrooms, are too inconvenient
 Explain: _____
- g) No one else will come with me
 h) My family/friends think visiting nature centers is a waste of time
 i) I prefer to come alone, but I cannot get away by myself
 j) The programs and other offerings do not interest me
 k) It is difficult to coordinate free time with family/friends
 l) I do not have enough free time
 m) It is too far from my home
 n) I cannot afford to pay the admission fee
 o) I do not have my own transportation
 p) I am visiting from out of town
 q) Other _____



8. *In my opinion, the Fort Worth Nature Center provides an important service to the community that cannot be found anywhere else.*

Completely Disagree	Somewhat Disagree	Not Sure	Somewhat Agree	Completely Agree
0	0	0	0	0

9. What do you feel are the 5 most important services the Fort Worth Nature Center provides to the community? (check up to 5 items)

- a) Provides urban residents with a connection to nature
 b) Preserves and restores natural areas
 c) Provides public education about nature
 d) Provides public entertainment and recreation in natural areas
 e) Preserves the cultural history of this area
 f) Promotes scientific studies
 g) Provides a peaceful and tranquil place to visit
 h) Provides a setting to conduct various land management activities
 i) Provides the community with improved air and water quality and groundwater recharge
 j) Other _____

10. How satisfied were you with this visit to the Fort Worth Nature Center? (check one)

Completely Dissatisfied	Somewhat Dissatisfied	Not Sure	Somewhat Satisfied	Completely Satisfied
0	0	0	0	0

Why? _____

11. Are you a member of the "Friends of Fort Worth Nature Center and Refuge"? (check one)

Yes No

12. How old are you? [] Years

13. What sex are you? Male Female



14. How would you describe yourself? (check all that apply)

- a) Asian
- b) Black or African American
- c) Hispanic
- d) Native American
- e) White
- f) Other (please specify) _____

15. What is the highest level of education you have completed? (please check one)

- a) Elementary school
- b) High School Graduate or GED
- c) Military/Trade School
- d) Some College
- e) College Graduate
- f) Master's Degree
- g) Ph.D.
- h) Professional (law, medicine, veterinarian)

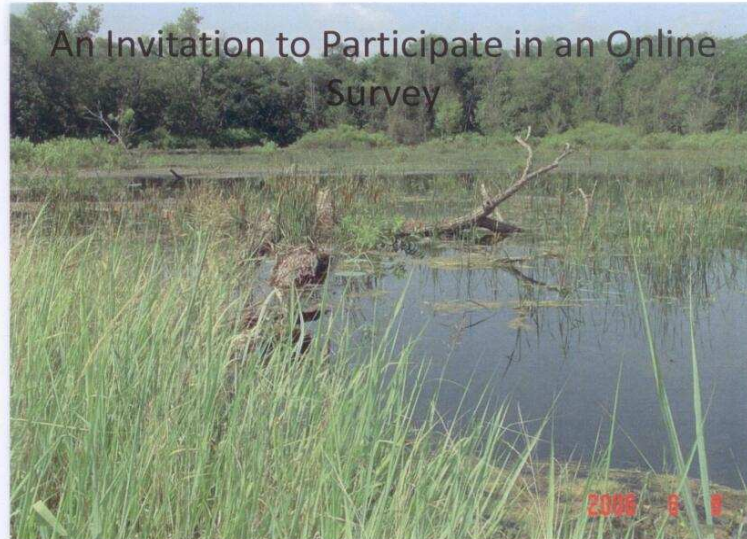
16. What is your occupation?

17. What could be done to improve your visit to the Fort Worth Nature Center?

Thank you very much for taking the time to participate in this survey!



APPENDIX B
POST CARD INVITATION



Fort Worth Nature Center & Refuge

The FWNC&R is conducting a survey during the next few weeks. The purpose of this survey is to help the nature center staff and administration better serve their Friends and visitors. It will take less than 10 minutes of your time to complete. We **thank you** in advance for your participation. Please go to the following website:

<http://www.surveymk.com/s/FWNC>

If you have any questions about this survey, you may contact Marian Higgins at marianehig@tamu.edu.

This survey is being conducted in collaboration with researchers from the Department of Wildlife & Fisheries Sciences at Texas A&M University.

APPENDIX C

ADDITIONAL COMMENTS FROM QUESTIONNAIRE

FWNC Questionnaire Respondents Comments

Question 3: Who are your usual companions when you visit the Fort Worth Nature Center?

Other comments:

1. any of the above, and always my dog!
2. With dog
3. my dog
4. my fiance
5. Rottweiler Micah
6. My dogs
7. Usually, I go alone.
8. all of the above :-)
9. About half the time alone, half with a friend
10. I usually take my dog
11. 2 Dogs
12. with my dog...
13. As a volunteer, I am there often for a variety of reasons
14. our two dogs! We love that we can take them on the trails.
15. my dogs
16. To walk my dog
17. Dogs
18. my dog
19. & Dog

20. usually attend with my 2 children
21. with my doggie
22. with my dogs
23. I bring my 3 African Grey Parrots with me
24. Dogs
25. occasional guest
26. sometimes alone , sometimes with friends

FWNC Questionnaire Respondents Comments

Question 4: What are the 5 most important reasons why you visit the Fort Worth Nature Center?

Other comments:

1. rainy weather also often prevents me from coming more often as I know many of the trails are closed and/or muddy b/c of all the trees (and it takes awhile to dry out).
2. My only free day is Saturday, and I go to synagogue in the morning. When the Nature Center closes early, there is very little time to hike before the park is closed.
3. I am taking care of an elderly mom so no time.
4. Bathrooms and pricing for big families with small children is an issue
5. Hours are too short. I want to be there at sunup in the summer. It is not open late enough to kayak after work.
6. nature center open hours and summer heat
7. Weather or other obligations which prevent me from going

8. poison ivy and grassy trails
9. I have been ill and will come back when I heal.
10. i don't feel entirely safe alone there-i have to say the alligators worry me a little
11. Rainy weather on the trails
12. poison ivy on the trails!
13. Mostly just other demands for my time
14. Weather
15. weather
16. Hours are not always convenient / can't coordinate with my free time
17. It is a little far from home but not inordinately so.
18. Hours of the park are not consistent with most people's work schedules
19. They close too early. I would prefer they remain open until dark every day.

FWNC Questionnaire Respondents Comments

Question 6: Given the opportunity, how would you change your number of visits the Fort Worth Nature Center over the course of a year?

Other comments:

1. I would like to visit more times as a "visitor" than as a "volunteer"
2. I would like to see a couple per year of true "night walks" in darkness. We participated in one a few years ago and still talk about it.
3. weekly to walk the trails
4. I would visit more often if you had longer winter hours. There is no time to visit during weekdays in the winter.

5. When my friend kayaked with me I went weekly with her.
6. I do not understand the question.
7. guided hikes are great
8. I have only recently learned of the FWNC and have just now been twice in 1 week,
and plan to visit many more times
9. In the spring
10. more spring visits
11. We live in Virginia
12. We live in Virginia
13. I would visit more often if it wasn't an admission fee. not enough to see for \$8
(family)
14. I would come every week.
15. The new fee is too steep compared to State Parks. A State Park pass is \$60/year, a
\$1-\$2 entry fee would be more in line.
16. New fee is too steep
17. I don't live in Texas, probably won't visit again
18. my time and money availability are factors
19. forever

FWNC Questionnaire Respondents Comments

Question 7: Which of the following factors prevent you from visiting the Fort Worth Nature Center as often as you would like?

Other comments:

1. rainy weather also often prevents me from coming more often as I know many of the trails are closed and/or muddy b/c of all the trees (and it takes awhile to dry out).
2. My only free day is Saturday, and I go to synagogue in the morning. When the Nature Center closes early, there is very little time to hike before the park is closed.
3. I am taking care of an elderly mom so no time.
4. Bathrooms and pricing for big families with small children is an issue
5. Hours are too short. I want to be there at sunup in the summer. It is not open late enough to kayak after work.
6. nature center open hours and summer heat
7. Weather or other obligations which prevent me from going
8. poison ivy and grassy trails
9. I have been ill and will come back when I heal.
10. i don't feel entirely safe alone there-i have to say the alligators worry me a little
11. Rainy weather on the trails
12. poison ivy on the trails!
13. Mostly just other demands for my time
14. Weather
15. weather
16. Hours are not always convenient / can't coordinate with my free time
17. It is a little far from home but not inordinately so.

18. Hours of the park are not consistent with most people's work schedules
19. They close too early. I would prefer they remain open until dark every day.
20. Monday-Friday open hours
21. I would be there EVERY day if possible. :)
22. hours are limited during prime (nice weather) months of Mar., Apr. and Oct.
23. In the summer it does not open early enough to take long walks and it also closes earlier than I would like.
24. weather
25. fear of getting poison ivy
26. the operating hours
27. work too much. summer hours should be longer
28. Limited hours. I would come much more often if it did not close at 5pm
29. When the weather is nice, my weekends are occupied by lawn maintenance!
30. weather prevents me- too hot or cold or wet
31. I am a member, but get no discounts for bringing guests or for activities. I think membership should be half of what it is.
32. Bad weather
33. It is just a matter of prioritizing my visits versus other priorities.
34. It closes too early in the day.
35. Weather
36. The crazy traffic between me and the Nature Center
37. Closing time is too early year round.

38. It's just too hot in the summer for me to get out and hike around.
39. I need to be away from wildlife for awhile since two of my kitties were eaten by bobcats.
40. I work 7 on 7off, I get off at 3:30p.m., so there is not enough time to go walk.
41. The hours during the week do not give me enough time to Walk the trails after I get off work.
42. Distance (1hr 15min drive one way) and always bad traffic on hwy 820 will keep me from visiting as often as i would like. Otherwise i would spend much more time here.
43. I am usually broke - the price is fine.
44. Dirty bathrooms; bad fishing
45. General time constraints
46. would like to see more bathrooms/trash cans
47. Weather, 2 small children, 3 and under
48. Too hot in summer
49. People bring their dogs and let them run around without a leash
50. Wish FWNC would have longer operating hours.
51. Nothing - I've just heard about it recently, so I will come more often.
52. Need of bathrooms along hiking routes
53. I still make the trip there, because it is so beautiful and relaxing.
54. We did not know it existed until recently. Just had our first visit.

55. for what you get, not worth an admission. I saw no wildlife besides caged bobcat and owl.
56. My husband is concerned for my safety - he is very ill and I take care of him.
57. Admission fee too high - see above - in comparison to other nature areas in Ft. Worth area.
58. Admission fee is too high
59. Admission fee keeps a lot friends/family from coming. My membership covers it.
60. Guilt - not working at home
61. Did not know the Center was here
62. Work
63. Fear of ticks and snakes.
64. sometimes money for entrance fee - I never had to pay for over 40 years
65. I can only afford it once in a while. I just made my very first visit ;want to come again
66. Center hours are too short
67. Weather, distance, had other things to do.
68. I work in Dallas and need more free time. In summer month, I'd like the park to stay open longer hours.
69. Time – needs to stay open later than 5:00 pm.
70. Needs to have more nature activities such as fishing, paddle boats, etc. to entice people to come. More things to get kids involved, i.e. Whitewater Park, Harrison, Ohio.

Question 7f: The facilities are too inconvenient. Explain:

1. Better restrooms / refreshments.
2. Would like a bathroom around Prairie Dog Town.
3. Better bathrooms, canoe launch.

FWNC Questionnaire Respondents Comments

Question 9: What do you feel are the 5 most important services the Fort Worth Nature Center provides to the community?

Other comments:

1. a place to kayak & hike
2. a place to hike and see Texas wildlife
3. all of these are important and not to be overlooked
4. How is water quality and groundwater affected? Need to publicize this aspect.
5. A very knowledgeable staff.
6. provides hiking trails nearby residence
7. provides a safe, inexpensive place for family outings, and provides access to the river
8. Provides access to the river and Lake Worth for paddlers (Kayaks and Canoes)
9. Place to kayak
10. ALL of the above

FWNC Questionnaire Respondents Comments

Question 10: How satisfied were you with this visit to the Fort Worth Nature Center?

Explain your answer:

1. There is nothing negative about my visits at the Nature Center. I can't help but feel good after seeing all that is being preserved - land, animals, trees, flowers, vistas, CCC structures, bison, prairie dogs, prairie, marshlands, opportunities to learn, and much much more - at this wonderful place.
2. In addition to feeling relaxed & rejuvenated, I feel fortunate to live in a town that has such an outstanding natural resource.
3. It helps the stress so much. It's always very nice and relaxing and see something new or beautiful. It's very REFRESHING! I just take deeper breaths so I can take all in.
4. Relaxed but invigorated after my hike
5. Every time we visit, I always kick myself for not going more often. It is such a beautiful place with lots to explore. I enjoy watching all the wildlife as my dog and me get some exercise at the same time!
6. I always find something new every time I visit.
7. Feel refreshed/rejuvenated
8. The Fort Worth Nature Center is such a rare gem, and we are very blessed to have it in our community. Bless the people, paid staff and volunteers, who work long hours to make the FWNC a success. I experience such peace and relaxation, and am able to completely lose the stress and fast pace of the city and of my life, while at the same time continuing to expand my knowledge of our nature and wildlife.
9. I go there to ride bike and walk the trails.

10. It refreshes me, allows me to get out into nature, breathe fresh air, get away from the busyness of the city and city life.
11. When I visit the nature center I am always surprised at how just being there makes other cares and stress drop away. Being with nature pulls me into the Now moment -- so hard to achieve in this busy world. It calms and centers me just to be there.
12. "I believe that there is a subtle magnetism in Nature, which, if we unconsciously yield to it, will direct us aright." ~Thoreau. This is how we feel after every hike...and every time we visit the center.
13. I always feel refreshed and less stressed after spending time in the nature center.
14. My wife and I kayak the river and pick up trash. I bird watch. Helping to clean the water way, exercise, and being with nature are relaxing for both of us.
15. A good hike is both stimulating and relaxing.
16. We couldn't find the prairie dog mounds. We did a lot of walking and have somehow missed them!!
17. Such awesome walking trails. And no RVs or loud boats, like almost every other park in this area.
18. I usually have a good time hiking or canoeing. I would like it better if the Nature Center were open a little longer. I feel like we are always rushing to get out because it is closing time.
19. Relaxed. Satisfied with seeing the varieties of ecosystems and their organisms.
20. It is a treasure that we are grateful to be able to experience.

21. It's fun.
22. The City needs to invest in aesthetics. The entry could be beautiful with native blooming flowers, welcoming fences, and signs that are new and freshly painted. It should be wild but loved and cared for as well.
23. I have always found the park to be clean and always an enjoyment. Usually just really glad that I came, and usually see something new that is the talk for the entire ride home.
24. We hike on the trails when we come. It is a fun form of exercise we can engage in together as a family.
25. I nearly always see and/or do what I planned to - whether it's hiking, photography, or taking child to day camp.
26. The hikes are usually just long enough to get whatever exercise or time in nature I want. I'm really glad the cross timbers trail was reopened. Also really like the Canyon Ridge trail.
27. only disappointed when a trail is closed or if we don't see any wildlife
28. I come to the nature center to get away from "town".
29. I am a hiker. I am completely happy with the trail system and the maintenance on them.
30. upon leaving i wonder why i waited so long to visit and when the soonest we can return
31. It's a wonderful place to hike for exercise, collect my thoughts, see wildlife, plenty of trails to explore, feel safe, interesting to see the seasons change, love

the canyon ridge trail which has some inclines as I walk, a peaceful place to experience.

32. Unless there is a problem with the weather, I have a good time and leave happy.
33. It provides me with a place to reconnect with the natural world and to pursue wildlife photography. Whether I achieve any photographic objectives or not, I always come away feeling rejuvenated by spending some time outdoors in a natural setting.
34. it is always a fulfilling experience. we came on the day it snowed so much and even that was wonderful and we were sad you had to close early.
35. Even though I don't get out there much, whenever I do, I always leave feeling refreshed and even more relaxed (as in ready to sleep better!).
36. I have to leave and I wish I could stay...I live in Arlington and I do not like it.
37. I love the refuge, but sometimes I wish more could be done to get rid of the privet, meaning I need to get my butt over there more!
38. I live only one mile from the Nature Center. I need exercise to stay as healthy as possible, given that I have a few health issues. I am very thankful to have a convenient place to hike in beautiful surroundings. I just feel sorry for those folks on their treadmills. :^)
39. My family has been coming to the Nature Center since I was a child. Whenever I visit, I feel wonderful being connected to nature, but I also feel that connection to my personal past. I may not visit as often as I'd like to, but I know many of the

trails like the back of my hand and so it's always a comforting, beautiful place to me.

40. I always see something I didn't see before. Maybe an animal, maybe the curve of a branch on a tree, wild flowers gone to seed. Everyday is different, every season is different. IF you take off your everyday blinders, you could never see it all.
41. I consider the Nature Center my backyard of which I come to regularly. It provides me a place to be one with nature and photograph an amazing variety of wildlife that inhabits the sanctuary.
42. I always feel better after I visit. So do all the people and dogs I bring.
43. I learn something new every time I visit, I am usually physically tired from a good hike, inspired by nature, appreciative and in awe of the way the natural world works so well when we leave it alone, and just incredibly thankful that the city I love has such a place.
44. We enjoy photographing nature, especially reptiles. I hike there frequently with my two sons, ages 8 & 4. The center is close to our home and has been a big part of our lives.
45. It is very relaxing to stroll through the woods. FWNC&R serves this purpose well.
46. The nature center is uncongested and it is great to get away into nature.
47. I go to get some exercise and to photograph wildlife, especially whitetails. When it's quiet, and the deer are friendly, it can be a near-religious experience--and

walking three or so miles at the Nature Center is far better exercise, mentally and physically, than doing laps at the mall.

48. We usually come every weekend and walk 3 - 5 miles and enjoy the wildlife.
49. I get exactly what I expect out of visiting. Peacefulness and nature.
50. I enjoy kayaking at the Nature Center. With respect to the question above, I would be "Completely Satisfied" with the Nature Center if a small floating dock were installed on the river to improve access. Austin has such a dock on Town Lake. Canoe and Kayak rentals could raise funds for the Nature Center. Take a look: <http://www.austincityguide.com/content/austin-rowing-dock.asp>
51. I've never had a bad experience. I enjoy being on the protected waters in my kayak.
52. I am often disappointed that the river trail is washed out. That is my favorite trail and nature has a way of washing it out annually. Overall I am very happy with the nature center.
53. I leave feeling recharged and centered.
54. We have been to the Nature Center at all times of the year and in all weather conditions over thirty years and have never failed to come away feeling relaxed and at ease. It is one of the most relaxing places in Fort Worth. Just walking on the trails does wonders for us and talking to the staff is always enjoyable.
55. Relaxed from a long walk and reconnected.
56. The Nature Center provides our family a beautiful, peaceful area of respite in a busy world.

57. Being outdoors is very invigorating and I for one, need this in my life with a somewhat stressful work life.
58. There are always ways to make things better, but this comes close to completely satisfied. I always feel at peace with the world after a visit.
59. I am recharged when I leave the Nature Center. When I am especially troubled, I find peace and tranquility on the trails. Some of my richest conversations with God have occurred on Canyon Ridge. I arrive anticipating that I will leave a new creature . . . and I do. Also, I discovered a love for the outdoors from the very first time I visited the Nature Center two years ago, and what I have learned and experienced there has given me confidence to hike and roam the woods, something I never thought I would enjoy doing (or be able to do). I love this place more than I can say.
60. I know what to expect there and I get what I expected.
61. usually it's only because I haven't seen a particular bird I was hoping to see! Not something the FWNC can do anything about!
62. It's just a place to go and see nature more like its supposed to be and I like to walk with my wife and/or dogs. I would prefer to keep it as natural as possible. The river upstream is an eyesore because of the garbage and trash dumped into it from private property on the right side above the bridge. I have discussed this with all the responsible people I know and so far have seen very little results
63. It is always relaxing and beautiful and there is enough space for everyone, even on the weekends. Staff are very friendly.

64. Regardless of time of year or what I see, it is always a pleasant experience.
65. The drive from near south Ft Worth seems long, but after 1-2 hours on the trails it is worth it to have been outside, getting exercise, maybe learning about flora and fauna, or being with some strangers of like mind, hiking with a guide.
66. I enjoy going for classes and learning something new about our natural environment.
67. My children and I always have a great time at the Fort Worth Nature Center:) They have always discovered or learned something new. The trails provide exercise and exploration.
68. I work in an urban hospital, hectic, stressful but I enjoy my work. My schedule is 7 on 7 off, during my time off I try to come out every day, walk the trails, or if too muddy the streets, breathe clean air, enjoy the birds and other animals I see. I start relaxing and feel totally revived, clearheaded, at peace with myself and the rest of the world. I hate to drive back into town, my fondest wish is to be one of those lucky people that live close to the center, or adjacent or in it. I have seen houses from the road and some of the trails and to actually live out there that would be bliss.
69. nearly always have a good time volunteering there
70. Away from the city pace. I do not to see a human all day long!
71. I think the Hardwick Center could be better staffed to answer questions and have more to offer in the way of educational displays and animals to see in their

natural setting. (in the outdoor fenced cages and the indoor exhibits) The board walk deck needs benches to sit on to observe the wild life.

72. I feel refreshed, energized and peaceful.
73. I love the nature center and have never left with a feeling of dissatisfaction.
74. wonderful environment, supportive and informative staff
75. The Nature Center is always great to visit. My husband and son absolutely love being there, but my daughters tend to enjoy it less, which makes it a little less satisfying for me. But, the Center itself is great.
76. We come primarily to walk the trails. To be able to get off of the cement and wonder through the trees and meadows is wonderful exercise.
77. My family and I enjoy connecting with nature and being in a tranquil setting. The Fort Worth Nature Center is like a sanctuary for us where we can just get away for awhile.
78. The nature center was much better maintained years ago (been going there since 1970's). Seems to get worse with every input the city of Fort Worth makes, especially since the charged admission policy.
79. Regardless of the reason for my visit (volunteer, researcher, student, or escapee) to the nature center, I always feel more relaxed, tranquil, and closer to our cultural and natural heritage. I leave blanketed with a sense of pride and a deeper understanding of my sense of place in the Western Cross Timbers. As the last tree disappears in my rear view mirror, I am thankful to have this oasis so close to the city. A place where I can escape from the rat race and observe the dancing

of the butterflies and listen to the birds' melodies. A place that I always look forward to returning to experience nature at its best.

80. Its a relaxing getaway for me
81. Any chance to get into the wild is a way to bring peace and joy to one's life. This is God's church.
82. There is a need for more parking options along trails, especially circular trails so that one does not have to back track. I would also like to see the ruins rebuilt for picnic opportunities with a restroom facility as it used to be.
83. We love biking and hiking along the roads and trails. It is a beautiful escape from our busy lives. The people in the office are not very inviting and I have been going to the center for 13 years.
84. Always in a better mood, and always feel more physically fit, following a trip to the Nature Center.
85. My family and I have thoroughly enjoyed every visit to the Nature Center, whether for a program or to hike on our own. It is a wonderful break from our usual (unnatural) surroundings and we always feel refreshed and more connected to nature.
86. Usually we have a great time.
87. This area helps a person regenerate naturally from a society that is becoming more dependent on electronics, technology and being commercially fed by the BUY MORE and always stay connected (internet) marketing.
88. Relaxed, refreshed

89. What I get from and enjoy the most at the Nature Center is escape into a different setting where I can enjoy the wildlife, plants, etc. without dealing with humans. I'm never completely satisfied because many of my trips are volunteering, taking friends, etc., plus there are a lot of visitors.
90. I JUST ENJOY VISITING THERE.
91. answered in question #4
92. Visiting the Fort Worth Nature Center is always a rewarding experience.
93. We are blessed to have the Fort Worth Nature Center and Wildlife Refuge. There is no place like it in the Metroplex. It is peaceful, beautiful, tranquil, NATURAL! The opportunity to observe plants and animals in their natural settings in this area is unparalleled! The staff at the Center is great - caring, and committed!
94. I always enjoy the peace and quiet at the center
95. I live in Arlington and in question 2, the "nature center" i visit 48 times a year is local and has some nature areas. I like the deserted feel of the FWNC and the fact that there are no bikes on the trails. This alone time with nature restores me in a way that I have not found at any other location. The kayaking is the same. When I go down what I call the canal with my kayaker friend, I never fail to think of LAND OF THE LOST. There is nowhere like the FWNC and in my opinion, the trails are the most important part....that's where I want my membership money to go!

96. It is a chance to relax and see nature as it occurs. There is never a need to hurry or rush through the Center.
97. I always hope to see more wildlife than I do, but I realize that it is up to the wildlife to decide whether they wish to be seen, so I leave completely satisfied, because I have been able to "get away from it all" for a time and enjoy God's creation.
98. Have only seen the Bison once on our way out at closing time. They had come up to the watering tanks. Would like to be able to observe them more consistently like the prairie dogs.
99. It is peaceful and beautiful.
100. i'd like to actually see an alligator but then again, it might be good that i don't
101. the only way i could be more satisfied. is to stay longer
102. Safe place to ride from traffic and relieves stress
103. Whether hiking, visiting the Hardwick Center, or just driving around we find it very relaxing to escape our busy work lives. We enjoy the extra activities, particularly the Chili Cook off.
104. It's nice but noisy. Canoeing gets you further from the noise.
105. I feel recharged and energized. I feel more hopeful about the future of the earth.
106. I feel refreshed after biking at the Center.
107. It's not the most interesting or photographic area that I visit but one of the most convenient.
108. love the nature center

109. Walking the trails, working as a volunteer, seeing the occasional coyote, listening to the birds, viewing the lake/river fills me with a peaceful feeling. My dog and I enjoy it very much.
110. I most often come to see the buffalo with my grandchildren and they enjoy it very much. We also enjoy the boardwalk.
111. I feel good getting out and enjoying nature and the added plus of getting in some exercise.
112. My visits allow me to reconnect to nature...a critical part of my karma.
113. Reminds me of the wonders of God's creation. I feel less stressed, or unstressed afterward. I feel closer to nature.
114. I feel very rejuvenated after visiting the nature center. I go to exercise, and I am usually pleasantly surprised to see wildlife, or the changes in the amount of foliage, and greenery. It is not located too far from my house in Keller, but it seems like it is a world away, with some nice hikes.
115. For me, it's easy to get to, inexpensive to visit, large enough that it's usually not crowded, and wild enough to provide a satisfying nature experience with every visit.
116. I love the trails and the exercise. It is satisfying to see and identify the different types of animals, birds and vegetation. I always leave hoping to do something to help preserve this wonderful area for others to enjoy.
117. We always enjoy the various trails to hike and my children like and benefit from the summer nature classes.

118. I try to find time to visit sites that either I have hiked over the years or trails that I helped to built or just look at the flora and fauna of the season—from buffalo to small birds, from post oaks to small bluets.
119. the nature center is where I share my interests and education
120. The environment provides a natural place for wildlife to be observed and not stressed by having to encroach on urban developments to find a place to eat and drink, build nests, burrows and other places to live and reproduce.
121. We enjoy just watching nature
122. I feel relaxed and uplifted in spirit. I enjoy wonderful memories of birds, animals and flowers.
123. We go to the Fort Worth Nature Refuge to walk the trails. However, the gates close too early year round and the view is always blocked by all the 'NO PARKING' signs. In addition, the trailhead parking for Canyon Ridge just south of the Y is too limited. We find that a better option is the new Eagle Mountain Lake Park that is 'free" and open dawn to dusk.
124. We see lots of wildflowers, grasses, and trees to photograph and identify during the different seasons. We see lots of wildlife, such as birds and bugs. There is always a delightful surprise of something unexpected or new to discover. We enjoy the nature walks and presentations. The staff are very helpful. We always leave with pleasant experiences. When we post photos taken at FWNC on our blog, people from other parts of the country are jealous that we have such a wonderful natural area to visit.

125. Feel refreshed and ready to face the rest of the week.
126. total connection to the earth
127. I feel that I need to get away from busy, crowded, continually going cities and crowded, fast paced lives. Also the highways are crowded and unsafe. I need to be able to walk among quiet, peaceful trees and wild flowers. In other words, I am badly in need of some peace and quiet and want to commune with nature.
128. I am renewed
129. I always have a wonderful experience. It is always refreshing to walk the trails and see deer, birds, bison... I also learn something new about this region every time I go to the nature center.
130. The only thing that keeps me from being completely satisfied is that I'm on a quest to spot some unusual wildlife, which remain elusive (bobcats, turkeys, others). Other than that, it's a great experience.
131. The Nature Center is about a 10 minute drive from my home. It provides a variety of activities. My favorite are hiking and canoeing. It's easy for me to get some exercise in a wonderful environment without taking up too much time.
132. I am always able to accomplish my main goal; relaxation in the outdoors, and I almost always experience something new. I leave feeling refreshed and energized.
133. I enjoy visiting the center.
134. Relaxed and de-stressed.
135. Completely relaxed

136. Hard to put into words.
137. Feel I have made an effort to expand my horizons.
138. It's very satisfying to breathe fresh air, get some physical activity, see nature, learn a thing or two, and escape into a world where "what time is it" doesn't matter.
139. A visit excites me, renews my spirit and my soul, comforts me, entertains me.
140. The nature center is a k "known" for me. After visiting I feel more in touch with nature, more at peace with myself. It could be better only by being larger or more removed from development which is unlikely considering its location virtually within the metroplex.
141. I enjoy kayaking the river and hiking the trails.
142. this is the best nature center in our area
143. It is relaxing and quiet.....
144. There are times when the wildlife is a bit shy and reclusive for my camera. I'm working on developing more patience ...
145. riding on a safe and quiet road is great
146. After spending a day out in the open surrounded by nature and wildlife I feel rejuvenated. It's good to know that nature is still thriving. Bird watching, animal scouting, identifying flora--it's endless investigation for a nature lover.
147. I feel more relaxed and at peace with myself, for some visits it comforts me by calming me down, eases my concerns, can look at life in a peaceful way.

148. It is always a pleasure to be at the Nature Center. There is something different in nature everytime you visit. It is simply a beautiful place.
149. I have a high-stress job and walking at the center is extremely calming. I love all the wild life I have been able to observe from my first alligator to deer, armadillos, birds, etc. My family also uses the center and I also attend the programs at the headquarters, I feel safe walking the trails there.
150. I work in an office around electronics. I come to the Nature Center to get out of the house, get some exercise and get some time in the woods. I feel like I escaped the City and the world for a mini hiking trip. I enjoy the views, the scenery and the chance sighting a deer, wolf or buffalo. I feel recharged for the coming week after getting my hike in on a Saturday or Sunday morning.
151. We enjoy hiking the trails -- it makes me feel alive to be outdoors with nature.
152. I have only been twice because of recently learning of the FWNC, but both times i left feeling very satisfied with what i came for, which is kayaking up the river, seeing nature in a natural mostly undisturbed setting. It is a very relaxing and liberating experience for me.
153. I like the feeling of being in nature and I need some exercise
154. This place brings me a great deal of peace.
155. peaceful, stress free, relaxing
156. We get to see habitats and animals that occur in the Ft. Worth area.
157. I LOVE THE FWNC!!!!
158. I love the size of this preserve. I will be coming back again and again to explore.

159. Would like to somehow turn Greer Island into a camping spot- doesn't need electricity, just a spot to camp. P.S. - with water spickets please! LOL
160. Lots of animals, kid-friendly trail - Limestone Ledge
161. Canyon Ridge was closed.
162. Peaceful, well maintained setting
163. It is what I came for - peace and quiet while getting some exercise with my dogs.
I love the fact that dogs are allowed.
164. Want closer view of prairie dogs
165. I am refreshed and rejuvenated. It's a wonderful place to see nature as it should be and get away from traffic and people and noise.
166. My husband and I love visiting and wish we could do it more often. Every time we go we discover something new.
167. The FWNC offers a variety of trails that are interesting and invigorating. This place actually helps me exercise MORE, because I come here more often and walk/hike the trails longer. It doesn't feel like exercise. It feels like exploration. I can see deer, bison, birds, water, trees, wild flowers, etc. It helps me reduce the stress of working in the city. And it's in Fort Worth where I live. It's a refuge for the plants and animals AND for humans who come here.
168. I love to take a long walk through several part of the park. The wife and I go to eat afterwards and I get my batteries recharged
169. Very nice clean Port A Potty! Nice staff. Canoe trip a blast!
170. Just got here

171. Bathrooms (lack of)
172. I love going to the refuge to see the animals, explore local wildlife and see how our country in this area looked before it was developed. It gives me and my children an appreciation about life and nature. I love it and have been coming here for a long time.
173. The staff is friendly, it is incredibly inexpensive for what it is, and it's not too crowded.
174. It is great to come here whenever I can. I like to canoe and hike and always see something new.
175. Sometimes trails are difficult to make out or follow so better signage matching trails with the map provided and better trail maintenance would be good.
176. It is a great place but not well known to many people.
177. no explanation needed
178. The nature center is a very large and valuable place so close to the city. I feel very fortunate to live so close and enjoy every visit. I also enjoy reminiscing about decades of visits with family and friends.
179. It is refuge from city life.
180. The FWNC is simultaneously beautiful, peaceful, and stimulating. We enjoy the trails which are clearly marked, and the map we were given will enable us to explore new areas on our next visit without accidentally repeating our same hike--unless we choose to.

181. the picture above is the first proof to me that there were actually bison there. saw nothing. and most disappointing part of the whole experience was the lady at the front entrance that was rude, and let us know right away, "we close at 5, so you only have an hour. its still 8 dollars. " and then later went on to say, "we lock the gates at 5, so if your in, your stuck". I said wow, I think I might just need my money back, and not even go in. very very rude. I also said, well, if my family is stuck in here over night, I will find a way out. her response "that's why we get your license plate number".
182. I love nature, the wildlife, plants, and I enjoy studying them. It fills me with joy!
183. I come often - am familiar and comfortable with the site and the people.
184. I love nature
185. Love this place
186. beautiful and peaceful
187. Would have enjoyed more pull-offs and parking options. Unable to stop and enjoy wildlife. Dissatisfied completely over possum. Needs more blankets! It's going to be cold tonight. Also needs more room, this type treatment of this animal is shameful and unacceptable.
188. more pull-offs and parking options
189. Trails need to be maintained better. Parking (need more room)
190. Parking
191. Initially Somewhat Dissatisfied, because trail closure not listed on website. In general, Completely Satisfied

192. Beautiful weather, high water, good paddling - good group- good wildlife
193. This place is an amazing resource for people and students that live in urban areas.
It provides valuable education for people of all ages.
194. Canoe program is great.
195. A wonderful time to collect plant specimens - many things are in flower. Good weather.
196. Offers a diverse environment for research for cross timbers and prairies, aquatic and wetlands
197. Great guides
198. It's spectacular here
199. Escape from all worries
200. I enjoy the solitude and the opportunity of discovery. I love admiring the wildflowers, cacti, rocks, birds-- and sneaking a glimpse of deer. The preserve is very unique in that I feel like I'm the only person there. On the flip side-- that also scares me. My first visit two years ago I got lost on a trail-- Oak Motte. The signs for trails are a little confusing-- especially for those that are new to the preserve. I do wish there were numbers on the signs and the numbers were also marked on the trail map. The problem isn't knowing what trail I'm on-- the problem is figuring out where on the trail I am on. In terms of safety-- I do wish there was a number I could call in case of emergency. My past visit I encountered a very long, scary snake while on a trail. I was lucky that I noticed before stepping on it-- but what if? What would I have done-- who could I have

called? I realize it's a delicate balance-- preserving nature while also ensuring safety. It's the most 'raw' or 'natural' place I visit-- and it's a love / fear thing for me. I do have to think long and hard however before I visit again. The snake was probably 3-4 feet long-- fascinating but terrifying.

201. I always have enjoyed being able to "get out of town" with such an awesomely wonderful environment to explore and enjoy. Over the years I have walked every single trail many times over. In fact, one time on a night hike, we temporarily got "lost ", and to have the Naturalist ask me the way out was a big compliment. I love it out there. Always have since I was 16 (I am 60 now), still do, and always shall love the FWNC. I have even kinda kept it a secret because I don't want too many others finding out my "secret ". Needless to say ... it makes me feel so much better whenever I am able to visit the FWNC for awhile .
202. it is a great place but improvements are needed...ie: rest rooms
203. I didn't get to see as much as I wanted (this was my first visit) .The others with me were too tired to walk more and we also had a certain time to be home. What I saw was wonderful, and I plan to return when I can.
204. Vague question I feel tired elated exited just depends
205. Meets or exceeds expectations
206. We recycled our papers, enjoyed a walk on the Oakmott Trail, enjoyed a picnic lunch. We also used the facilities at the Center, bought a wildflower book and got information form the staff about the flowers we saw and the birds we heard.

207. Simple. I LOVE NATURE. I love seeing NATURE protected and preserved for birds and other wildlife. Fort Worth Nature Center is clean, close to my home, beautiful and good exercise in beautiful, peaceful serenity.
208. Would like to see more animals and flowers
209. I went hiking with a friend for the first time. It was a great experience and I look forward to coming back.
210. It's very beautiful, every time I visit I experience something new.
211. It is large enough to offer plenty of exploration, and has a variety of things to see and learn.
212. 1st visit, can't complain.
213. Wish there more walking areas that are accessible for a stroller.
214. Clean, well maintained.
215. Plenty of natural things around. Need more people related activities to entice people to come more.
216. Relaxing and that's what I came to find.
217. Good hiking, relaxation.
218. Great facility. Great preservation.
219. Weather, flora, Interpretive Center.
220. Well, I just got here today, but I've enjoyed every visit I've made to the nature center so far.
221. Love the place.

- 222. Nice change of pace – peaceful way to spend the day and the trails sure beat walking the streets of Mansfield!
- 223. It provided a complete release from daily cares.
- 224. It was a nice place to walk.
- 225. Should open earlier.
- 226. Always enjoy the trails and opportunity to observe birds.
- 227. Peaceful place to hike and photograph.
- 228. Wonderful place to bring the kids for exploring, etc.

FWNC Questionnaire Respondents Comments

Question 14: How would you describe yourself? Check all that apply (ethnicity question).

Other comments:

- 1. abstaining
- 2. happy
- 3. Do you really care?
- 4. Human
- 5. Full blooded AMERICAN
- 6. American...race has nothing to do with this
- 7. Hawaian
- 8. Caucasian
- 9. Combo
- 10. American
- 11. American

12. Mayan
13. Mixed - Heinz 57
14. Texan
15. I am originally from Europe, and came here 20 years ago.
16. Texan
17. Human
18. American
19. Something

FWNC Questionnaire Respondents Comments

Question 17: What could be done to improve your visit to the Fort Worth Nature Center?

1. A couple more parking areas so you don't have to walk five miles to make a round trip to where you started.
2. Increase the hours open. Have composting restrooms. Permanently fix the levee between the river and Lotus Marsh to keep the Crosstimbers Trail open. Show science projects at work. Repair/renovate CCC structures. Improve parking at Greer Island. Hang a zip line from Lone Point to Little Greer. Know that the area will be preserved from commercialization, urbanization, recreation-light, development, poor-management, understaffing, and greed for centuries to come.
3. Have a few more bathrooms and for sure, some trash cans along the way. People always throw bottles etc and I would pick up and put in the trash but no trashcans!
4. Cannot think of anything. It is a wonderful place to visit.

5. Better trail map - I've been many times and still get lost. The signs could also be improved, especially for those folks who don't frequent them often or like to take a different trail each visit. I would love, love, love more outlook spots (like the one to the left and down a bit from the Visitor's Center). It'd be nice to have several spots similar to that where you can just hang out after a hike and enjoy the view. It seems like that one is always so crowded. Longer hours, especially during the summer hours and on the weekends. Public restrooms that aren't connected to the Visitor's Center. There have been a few times when I needed to go after it had closed. Other than that, great job. This is such a special place!
6. Hummmmmm ?????? I don't know.
7. More porta potties
8. Nothing, really, that I can think of.
9. Nothing - I love it - maybe stay open a couple hours more - at least till sunset.
10. I can't think of a thing. I like it the way it is.
11. more handicap access? my husband is able to walk only short distances.
12. more staff
13. Permanent bridge/levy to insure access to Crosstimbers even when Corp of Engineers is draining h2o from Eagle Mtn...it's one of our favorite trails.
14. Improved and expanded parking areas.
15. I would love to see more animals, but I don't want a zoo either. It's a fine line, I know, but I love seeing the bison and prairie dogs.

16. It is too bad that Tarrant co. water board cannot implement warnings and fines for polluting the river, our drinking water. Most of this comes from fishermen who access the river above the nature center. The owner of this property should be held accountable for allowing the trash to be littered on and around his property. We have made a huge improvement in eliminating the amount of trash in the nature center, but it continues to be a problem and is uninviting for other guest to the nature center.
17. Can't think of anything. The park meets my expectations, and I am only limited by how far I can hike.
18. Help me find the prairie dogs. hee hee!
19. A few more outhouses.
20. Bike trails
21. Allow bicycles on certain trails. Stay open a little longer.
22. Overnight camping
23. Don't remember name of trail, but on map it is the one at the top. The walk to the woods from the parking area has large gravel which goes quite a distance. That stretch would be easier with crushed limestone.
24. I especially like birding walks.
25. Designate areas for people to fish. More informational signs on all the roads. A dog park would encourage more people to meet up regularly. The big fences are needed for the Bison, but it makes everything very forbidding. I would love to see things more welcoming to people that do not know where they are going.

26. Funds are tight for a lot of people, perhaps a day on the weekend or during the summer, a half off price for admission during the week or something. I also would love to see more advertising about the events going on, perhaps posting at local libraries in surrounding areas, Springtown, Azle, and Weatherford to name a few. That's all I can think of at the moment. Would love to get the word out about the FW Nature Center!
27. Maintaining the trails
28. Would really like to see the Board Walk area repaired. Also, a few more picnic tables would be nice. I also think you could use some Trash cans down by the port-a-johns by the parking lot at Greer Island. Last time I hiked the canyon ridge trail I picked up a lot of trash, but there was no place to put it when I got to the parking lot. Unfortunately, I think you need to make it a little easier for people to do the right thing and not litter.
29. open longer hours.
30. maybe longer hours and not having to check in each time we enter FWNC is such a wonderful place to walk my Rottweiler Micah, let him explore and teach him respect for the wildlife that we encounter. It's been a great training tool as well as so much fun. If I had children, they'd be enrolled in the summer programs you provide. Last summer Ken Seleske answered a question about how I might help a deformed toad that was hanging around my house at night. Not many other resources for that!! God bless the nature center.
31. Could use more drinking water sources and restroom facilities.

32. Nothing, get off the worrying about dogs on leashes, this is not a city park. How retarded to have three dogs on a leash on a single track trail in the woods.
33. visit more often with others and alone
34. The only thing I sometimes wonder about, is how safe it truly is for a person like me to be exploring alone on the trails. I think it might be nice if security cameras were placed throughout, with someone monitoring them, though, that could be an expensive venture. For example, I wonder if someone could enter the refuge by climbing a fence instead of entering through the main entrance without being detected, or venture off the noted trails to hide. But I have never had an unpleasant experience, and generally feel very comfortable and safe.
35. I wish you would get with the girl scouts and boy scouts and gear programs towards their badges. You have the stuff and offer some classes already you just don't connect with them. Spray for the poison ivy and stickers. Make it a little safer for families with children. You already have alligators, maybe alligator education packet when visitors come.
36. If I could bring a tent and stay a while.
37. Even more trails!
38. I would like to see canoes available all of the time. i wish there were home school classes during weekdays, for us home schoolers.
39. I'm not sure. I haven't taken advantage of all the programs already offered. My favorite so far has been the bird watching tour. I appreciated the one-on-one moments throughout that tour, even though it was a group event.

40. I think it is fine the way it is.
41. It would be good if the volunteering included education. I would be more inclined to make room in my schedule.
42. Improve the kayak/canoe launches to make them less slippery and gooey.
43. I should first say that I definitely appreciate the efforts of all of the Center employees. I also deeply appreciate the philosophy of nature preservation that drives their effort. I know and agree with almost all the thoughts that are prompted in consideration of maintaining a natural environment. That said, There is one visitor safety issue that I would mention. The ticks that hatch as the seasons warm can be more than a minor annoyance. Most that I have seen are likely seed ticks, but I am concerned that there may be others that carry disease. I have suffered Lyme disease in the past, over 20 years ago. It is a very dangerous, debilitating malady that I battled for years. Covering completely with clothing and Deet sprays were inadequate last summer to avoid tick bites. I hope that there is a solution for this concern that will allow regularly bringing the grandchildren to the Nature Center. Thank you for asking. Again, we appreciate you efforts.
(respondent included name and e-mail address)
44. I don't mind hiking Caprock or the Boardwalk when I'm by myself, but I sometimes get a weird vibe from people hanging out in their cars out by Greer Island. I love the trail that goes from there back to the main part of the Center but would never do so by myself anymore. Would be great if I felt safer out in that area. Also...inside the Interpretive Center... personally, I love the touch table,

etc... but that's because it reminds me of my childhood. But I think that area could be updated a bit.

45. My visits are fine. I know what is there and I know what I have to bring. BUT maybe using some natural bug repellent in the port o potty? Something like a weekly spray of diluted orange oil. I have seen black widow spider web, with actual black widow in it! in the port o potty facility. I think that would be really off-putting to a first time visitor. (However, the port o potties never stink)
- Actually, I mostly stay on the road. Hiking is very limited for me due to the poison ivy all over the trails. I have fantasized that if the trails were cleared in a wider path, I would be more likely to take my kids hiking. I don't know how feasible that would be but it is everywhere on the trails. After the last time I got a systemic reaction to contact with it, it really isn't worth the risk. Thanks!
46. I would like the times changed to open at 6:00am and close at 9:00pm daily. This would afford me the opportunity to photograph wildlife in the most optimal lighting conditions. I would pay extra for a special PASS if necessary. I would like to see the boardwalk expanded to encompass a larger area within the Marsh area similar to ones located in Florida. I would like to see permanent restrooms erected where the current port-o-potties are located. I would like to more blinds erected to view wading birds and other type wildlife. I would like to see less motorized fishing boats within the boundaries of the refuge. I would like to see more signs posted within trails of the dangerous snakes present. I have seen many

parents letting their children run along trails where cotton-mouths tend to be in the warmer months.

47. better restroom facilities on trails.
48. I love all my visits.
49. Four day work weeks.....:o)
50. Increase number of trails and maintain them more often.
51. We are happy with the programs offered. We have attended FWNC school, camps, bison hayrides, and intend to participate in more this coming year. Keep up the good work! P.S. Love the gates being attended. Feel much safer there today with my children.
52. I'd prefer you not do anything. Most park improvements start with bulldozers. Damn trees are always in the way of progress! No trams, shuttles, concessions, ballfields, paved trails, etc. The less you do the better...and cheaper...and easier to maintain. If you have cash burning a hole in your pocket, put half in the bank and use half to advertise.
53. Trails could be better maintained and marked better
54. Find a way to teleport me there instantly; I'm 25 miles away. Seriously, the FWNC&R is a true treasure. We are blessed to have such a fantastic resource so close to home. Thanks to all the employees and volunteers who work so hard to keep it in such fantastic shape.
55. More "night walks". We participated on one several years ago with Laura and still talk about the activity that goes on after dark.

56. Roads need work (potholes) and frequently have sand/gravel on them. The trail to Greer Is has fallen trees across it.
57. Longer evening hours
58. Better canoe launch
59. I am satisfied.
60. Build a small dock on the river to improve access to the river for canoes and kayaks.
61. I'd like to see latter hours in the late spring/summer.
62. let members have access at times when wildlife is moving (early and late).
63. My greatest desire for the nature center is to see the former CCC sites restored. It is a big part of our history and would only add the many assets of the nature center.
64. I'd like to camp overnight at the park, or back country hike.
65. Not too much. Actually we would like to participate in more of the programs offered, such as the work programs on Thursday but we just do not have the time to do so. The trails are well kept for the type of place it is supposed to be and the staff is very helpful and friendly. As I have said earlier it is just a most delightful place to visit and use. We would use it more often if possible.
66. Since I use the park for exercise, for safety purposes, more and improved signage for trails and trail crossings. I got lost once (I had a map) on a VERY hot day and it was not a good feeling since there is so little traffic. Signage might include direction indication (N, S, E, W) and signage naming parking lots (Prairie Dog

Town Parking Lot, etc). The icons used to designate specific trails are not highly intuitive and can be misleading. A few more port-a-potties scattered around would be helpful.

67. Change hours to later time so that after work visits are feasible.
68. I would visit more often if they didn't close at 5:00 pm in the winter and 7:00 pm in the summer. I think you should remain open until dark year around.
69. arrange more family friendly events.
70. I think most people drive way to fast through there, I think putting giant speed bumps would help or just making the people leave. The only other thing is when it gets busy theres alot of very Rude people on the trails, thats when I leave. It ruins my day. Maybe posting signs to be polite on the hiking trails or don't get on them. Besides that I love the place, I always go in the morning to avoid the people.
71. More programs!
72. Better signage
73. People not leaving their pet waste on the trail. Signs about keeping their dogs on a leash. Sometimes their friendly pet is not so friendly.
74. With the exception of being farther than was comfortable from a toilet, I've never once thought, "Gee, I wish they would..." while visiting the Nature Center. It's just a very well taken care of treasure, and the staff are well-informed and friendly. The toilet issue isn't really a problem anymore, now that I've learned to pace my water consumption while on the trail. Still, I am always VERY grateful

for those well-maintained port-a-potties. :) One thing I have enjoyed is talking with the folks that work or volunteer at the Center. I learn much from them, even in casual conversation. They are passionate about where they work, and it shows.

75. You need a better map.
76. nothing comes to mind
77. Keeping the trail conditions in top shape.
78. Expressed in first statement
79. Extended hours during the shoulder months. It's too hot in the summer to do much hiking and I'd really love to get over to the refuge when it is still light in the evening and cooler, like in March, April and October. Opening very early (6 a.m.) on weekend day would be nice, too. You also briefly offered a runners group but canceled it due to lack of participation. I would love to see a runners group at 5 or 6 a.m. on weekdays and any early a.m. time on weekends.
80. Nothing.
81. Nothing that I can think of.
82. More adult classes.
83. Longer hours, more trails to explore.
84. expand hours of operation
85. Better signage out by the highway 199.
86. not a lot at this time ... very good program considering the budget. Maybe some more community outreach to improve volunteer participation would help the Center, but my visits are great.

87. Improvements to the Hardwick Center and the Boardwalk. Longer hours in the summer. More staffing available at Hardwick Center.
88. fix the boardwalk
89. as far as I am concerned nothing.....I love it like it is
90. More good bathroom facilities throughout would be nice.
91. Add better signage. The signs can be a bit confusing. And I understand that the Oak Motte trails has an exit near the service center but we never saw it. And it's a long hike back to the car when you need a toilet.
92. more restrooms, improved center facility, better trail signs.
93. Nothing that I can think of. I really enjoy it just the way it is.
94. Keep the marsh boardwalk repaired! Plant some food for wildlife.
95. I believe that Suzanne, Rob, Michelle, and the gang do a fantastic job in providing the best experiences possible for visitors. I only wish I could spend more time there.
96. Longer summer hours in conjunction with daylight savings
97. Boat dock / ramp to launch kayaks and canoes.
98. My four children and I LOVE it. Thank you!
99. Extended hours of operation for early jogging and for visiting after a long day at work. A zipline in the refuge would be a great way to increase attendance at the center as well. Finally, the opportunity to be able to camp overnight at the center would be a big plus.

100. More and better PAID help that will welcome the public. Better advertising in the immediate area so more people would visit and buy memberships to support the center. Getting the sex offender that lives in the private community inside the center out. There has got to be some law that can get him removed. I don't feel like I can let my teens go biking alone there.
101. Consider occasional photo contests.
102. Come more often and take advantage of more programs offered.
103. Overnight "wilderness" camping opportunities
104. Allow dogs to go on the naturalist-led trail hikes.
105. Unfortunately it appears that encroachment has made it to the borders of the FWNCR. More land/Area would of been a great advantage for man and wildlife alike. Trails for mountain bikes would also be an asset, but I'm unsure if area is sufficient and may spook wildlife.
106. Acquire more land, make it bigger!
107. I worry most that the pressures from society will be to turn the Nature Center into a mowed and manicured, developed, money making, city park, or worse, sell it for development. The Nature Center as a wild and natural place is a unique and increasingly rare facility, keeping it as such will be difficult if not impossible. The existing master plan suggests the battle to retain it as a fully natural area is already losing ground, however, the plan does hold the promise of retaining some natural aspects which is probably all that can be hoped for.
108. Micro-brew on grounds for after hike.

109. Unknown
110. Can't think of anything at this time. I love the FWNCR!!!
111. Open earlier and stay open later.
112. Have canoes, kayaks, life jackets available to rent for \$5 for 3 hours so I can bring guests and show them around. Sit on top kayaks would probably be best so the people won't fall in with the gators if they are inexperienced kayakers. Binocular rental would probably be cool too at \$1....maybe these items could be donated by people who no longer use them and bike rentals would be fun too....I would rent a bike for \$5.
113. Continue to expand the restroom facilities throughout the center area.
114. More bird blinds and instructors/instructions on good locations for viewing wildlife and how to behave so as not to scare them away.
115. Fix some of the damaged trails.
116. longer hours... lower admission costs
117. longer hours of operation.
118. Improve roads and more parking
119. Expansion of some of the trails.
120. A few more porta pots near trailheads/crossings would be nice. A family picnic, play area near the Hardwicke would be nice to allow for an all day experience.
121. Bulldoze Lake Worth and expand the FWNC&R.
122. Longer opening hours especially in winter.

123. I have been very pleased with my visits. The people at the check in booth and at the center are helpful and pleasant, and I enjoyed the many volunteers who helped out the time I came and tried the canoes.
124. Nothing
125. I cannot think of anything.
126. Right now we enjoy the wildness.
127. label more plants and natural areas, more interpretive signs, etc.
128. portable toilets at more locations, probably at parking areas.
129. Longer hours.
130. Longer hours.
131. In general, I feel that the staff is doing a good job, within their limits, to provide a good experience with every visit. I believe the city could enhance the experience by restoring some of the stone structures to their original condition. I also believe any master plan should include a new or redesigned interpretive center, perhaps a "green" building that better blends in with its environment.
132. My most frequent activity at the Center is riding through on my bike as part of a longer ride. Until I got a membership for Christmas, the biggest obstacle was paying \$4 to ride through. I think a \$1 fee for cyclers to go through would be sufficient. That is what Benbrook charges to go through the park by their lake...I bike there as well.
133. I can't think of anything. The city and the staff of the Nature Center are doing a great job.

134. Perhaps a more detailed map with more information about landmarks or other interesting things to watch for on the trails.
135. Unfortunately due to city budget constraints we have to pay more to enter or get the annual pass, but the main thing I would like to see is as little development as possible. I like it that I can bring people out there who want to go to the " hill country," but enjoy the Canyon Ridge trail, seeing the buffalo, and feel like they are miles from the development in Lake Worth. I like hiking the trails from season to season too.
136. I am helping them and they are helping me - a very happy combination
137. Repair and maint. of paved roads within the Nature Center. Also continuing to maint. the existing facilities i.e. dams, boardwalks, benches, trails, bird observation blinds and bird houses.
138. I can visit any time I want but children of low income can't. I was one of them while raising my children and if We would have had to pay my children would not appreciate nature the way they do today. I hope there is a way to deal with this. I think being at the N.C. or other city parks keeps minds and hands occupied and out of trouble.
139. longer hours
140. See comments to question #11.
141. More places to pull off the road to access some of the trails. Benches at the boardwalk observation deck. Little signs on the trees to identify them, especially going to the boardwalk, so that people will stop and look and become familiar

with them. Another picnic area near the service center. Looks like there used to be one, but it needs to be restored.

142. I would like to see a small dock built at the Big Parking Lot for launching kayaks/canoes. Many people use this area for launches due to its great location, but the bank has become unnaturally worn such that it is often inconvenient and slightly hazardous.
143. Nothing. I think it is great and perfect. But the trailer sales along the side of the road going into the Nature Center is unsightly and also unneeded.
144. More trails
145. Perhaps more organized groups that are getting together to hike (I know there is a nature hike but that seems more like stopping to examine plants, etc., and less a hike through the woods). I have been to the Nature Center alone and have never had a safety issue, but I do feel like it could be dangerous to be hiking alone in the woods (as a woman).
146. Can't think of a thing. Kudos to the hard-working folks who keep the trails clear and in general keep the Center in such great shape! The Center is truly a treasure; it would be the envy of every metropolitan area on the planet if they knew about it.
147. I can't think of anything right now.
148. maybe bird blinds or other wildlife observation structures. the Pavillion at the end of the boardwalk is one of my favorite spots to visit.
149. i pretty much like it the way it is.

150. It seems it is not open very long which is why my husband does not go there to jog after work.
151. I would like the more trails and the trails maintained better. The Canyon Ridge Trail needs to be maintained better during the summer and fall months. The ticks become a big problem if the shrubs or grass are not cut back. Overall, it is a great place to go.
152. I wish we had the resources to better control invasive plants and animals.
153. Nothing
154. n/a
155. Build a small dock at the big parking lot on the river to aid water entry for kayaks and canoes. Go to www.rowingdock.com for ideas on how this could be accomplished. This dock is in Austin on Town Lake and rents equipment. It could be a money maker for the Nature Center.
156. Nothing...I think it is wonderful....except for the nettle along Canyon Ridge ...that's what I usually hike on.....
157. Keep it as -- a nature PRESERVE.
158. More benches/resting areas to sit along the trails ...
159. smoother road surface fix the pot holes
160. Nearby camping and longer hours on Sundays would entice me to visit more often.
161. trail running
162. Longer hours but since the city is cutting services that does not seem possible.

163. Better Parking for the Canyon Ridge Trails. Fix Cross Timbers Trail. I have been here lots of times and it's never been open. I guess the rest of the ways are up to me, like reading your calendar more often.
164. Signage could be better. Trail markers direct you which trail is in which direction, but there is no indication as to which direction will take you to the Visitor Center (parking). Even entering the FWNC, once past the Gate House, there are no signs to direct you where to park for trail hiking.
165. Not much at this stage. I'm still new to the area and am thoroughly enjoying it. I think it is an untapped resource and will definitely be spreading the word.
166. It's great just the way it is. Sometimes I don't go because I think the trails may be muddy. It would help if there were some way to know trail conditions. I live 50 miles away.
167. longer hours
168. I am currently pleased.
169. Few more garbage cans would be nice!
170. got exactly what we wanted and paid for. It's beautiful! Thank you!
171. We got exactly what we wanted and what we paid for - it's beautiful! Thank you!
172. More bathroom facilities and trash receptacles.
173. move on this property in a small cabin :)
174. Better fence line access to view the buffalo
175. More trash cans with locking lids so the doinks stop throwing their crap on the ground; camping on Greer Island; open later hours - you guys don't give us

enough time :) and a place to put your kayaks in easier, and if u really love us u could put in a few more benches on the tracks; and more restrooms :) We have been coming here for 10+ years and LOVE U folks - it's medicine for our brains -
Thanks bunches

176. more parking
177. -Better labels on the trails -More mile markers -Info on the trails - ex. openings at lookouts
178. Few more picnic tables
179. Some of the trails were closed.
180. People are allowed to bring their dogs without a leash and let them run around and scare people and wildlife are allowed in the park. I have complained on numerous occasions to Mary Thomas. **NO DOGS SHOULD BE ALLOWED IN THE PARK-** on or off a leash. I walk around the trails with my 3 parrots on my shoulders and dogs have jumped on me and scared my birds and me too. The folks who run the Refuge allow their good friends to bring their dogs to the park to defecate on the trails and on the roads. It's disgusting. They scare the deer and the turkeys and the other wildlife. Shame on the park for allowing it. I've only seen 1 or 2 people obey the leash law in the park for dogs therefore, **THEY SHOULDN'T BE ALLOWED TO ENTER THE PARK.**
181. Would like to see more available options for viewing the nature center (more canoe excursions, etc)

182. Perhaps check the weathering of the trail signs and replace them more often. Have earlier hours and stay open later hours. I don't like the 5pm cut off time. If possible, try to acquire even more land to expand the FWNC.
183. Nothing
184. Put it closer to Dallas!!
185. Bathrooms around the facility
186. There could do more programs and give animals new tanks for turtles, snakes, fish, and a habitat for the prairie dogs that have been injured.
187. Get the Trinity Railway to go closer to the Refuge so we could ride the train out from Dallas.
188. Give more money to the center from the city, so that the animals (like the abandoned prairie dog and the bobcat) can have better habitats. It is great otherwise.
189. Sometimes trails are difficult to make out or follow so better signage matching trails with the map provided and better trail maintenance would be good.
190. Nothing
191. more waste disposal areas
192. 1. It was rumored that the CCC structure next to maintenance would be reopened to some degree. This would be really nice since many of us have memories there. Even if the structure were not rebuilt maybe just clean the area up and make a place to park so people could stop by or picnic there. 2. Also if there was some way to parallel another trail to the ridge trail so it could be done as a "loop"

or partial loop instead of the current out-and-back along the same trail. The road is available to do this but it's not quite the same. 3. Another place to park for access to the ridge trail that is closer to the maintenance facility or entrance would be nice. Most people don't feel all that safe about leaving their cars at the one down on the lake road.

193. Fix some trail signs that have fallen. Clearly mark trails.
194. Literature or pamphlets in Chinese
195. Overall we are very please with our experiences at the FWNC&R. Perhaps some more obvious signage from the highways leading to and at the entrance would be a plus.
196. friendlier staff. no charge/admission to only see one caged bobcat and one caged owl. I should have walked around eagle mountain lake for free. feel free to contact me about my experience. the gate attendant was truly the most disheartening experience. by the way, we never got more than 50 yards from the visitor center out of fear of being locked in, (we had no watch). (respondent included name and contact information)
197. A bathroom in the Prairie Town Parking Area. Also two benches out on the Marsh Boardwalk over the river. They removed the one they had there. My husband can't stand for very long so I can't take him out there to watch the river and wildlife.
198. Trails on East side. Develop canoe launch facility.
199. Make my visits longer

200. Increase parking areas, specifically at Greer Island.
201. Better roads and pic-nick tables
202. Want to see the Goatman. Ha
203. Before the fee was enacted this was one spot where the very poor people could come and enjoy nature. That was taken away from them and is quite sad. Some times we are fixed on "the educational" efforts we can see and fail to see the impact on what we cannot see, such as children who used to visit here, but who cannot do such now because of their family's' financial situation. Education is more that teaching; most of the time, it's all the personal experience.
204. Reduce fees - even the National Park Pass if on \$80 per year. No pets allowed. More observation blinds. Observation tower. More places to pull off the main road.
205. Put more parking
206. There's never enough parking at the first lot going to Greer Island. Please keep trails moved and cut back
207. Add more hours
208. Recover the cost of entry
209. Need to come early in the day to enjoy the center more
210. Provide info online re: closures. We came to hike Cross Timbers and learned at the gate it was closed.
211. Nothing
212. Vending machine or water somewhere More wildlife

213. Vending or concessions
214. Eliminate entry fee
215. I only need more time in the day to be able to enjoy it more!
216. I enjoyed it
217. More educational programs during the week
218. I was completely satisfied and only wish I could afford to spend more time out here.
219. more alligators
220. More signs along the pathway so that you know you're going in the right direction
221. More interpretive signs -> wildlife and plant life; more signs in relation to hiking
222. more bathrooms
223. Flip Flop Friendly - Ha!!
224. Selling of refreshments
225. 1. Need more restrooms 2. Need checkpoints/phone stations for emergencies. I'm not saying I'd ever use-- but I'd feel a lot safer knowing they were available. 3. Better signs on trails 4. Place to purchase water / trail snacks 5. Flyer on dangers-- ie-- Watch out for the following snakes, ticks, etc. Identifying and informing empowers visitors. 6. Remind visitors at entry what time the refuge closes. (I got locked in on last visit) 7. Keep the Refuge a secret. I love how no one knows about it.
226. I really don't like to see people being able to fish up next to the nature center's property banks or in the surrounding areas. It seems that there should be some

way to stop this. The fish in those nearby and surrounding waters aren't really protected the way it is now. We need some sort of buffer area in and around the center.

227. I won't know until I've had time to see it all.
228. Longer hours. 30 minutes before sunrise 30 minute after sunset
229. Signs in some of the parking areas pointing to trail beginnings. Keep up the good work -
230. More places to picnic. More restrooms.
231. Keep it open longer hours.
232. Put up better signs about where not to park – I got a ticket for parking on a turn-around that looked like parking.
233. More restroom facilities.
234. More animals.
235. More bathrooms.
236. More parking.
237. Long hours, more trails.
238. A shuttle service
239. NA
240. Expansion is always welcome. One great attraction would be to install a protected trail through the buffalo areas.
241. No opinion yet.
242. Like it as it is!

243. More paved or packed trails for use with a stroller.
244. Guided tours.
245. Canoe launch. Real bathroom.
246. Previously stated on park improvements.
247. N/A- When I lived in the area, I came often.
248. Better outlying bathrooms. Canoe launch.
249. No changes.
250. Come more.
251. I don't know. I'm pretty happy with it like it is.
252. More bathroom stops.
253. We had a great time – just wish it wasn't so far from our in-laws (we live in California) in Mansfield. We should have visited when we lived in DFW!
254. More animals in their environment. Love the bison and prairie dog centers.
255. New facilities.
256. Note – I visit twice a year from New York City.
257. More trails and a bird blind.
258. A few more trails (?)
259. Can't think of anything.

VITA

Marian Ellen Higgins received her Bachelor of Arts degree in Psychology from the University of Wisconsin-Madison in 1980. She went on to have several interesting and varied careers. She returned to graduate school in 2006 to begin a new career. With her acceptance into the Department of Wildlife and Fisheries Sciences at Texas A&M University, she began her studies in the Human Dimensions Lab. She received her Master of Science degree in August 2010. She plans to continue her studies in pursuit of a Ph.D. in the Department of Ecosystem Science and Management at Texas A&M University beginning in August 2010. Her research interests include the human dimensions of conservation and natural resource use. With a Ph.D. in hand, she hopes to save the world.

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