LINKING URBAN FORESTS AND URBAN TOURISM: A CASE OF SAVANNAH, GEORGIA

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The importance of linking forests and tourism has long been recognized and studied in forest management, community development, and tourism. However, little has been written specifically about urban forests' role in urban tourism development. Based on data collected from Savannah, GA, this article develops a structural equation model to explore the linkages among urban forest appeals, city beauty, tourism experience, tourism satisfaction, and destination loyalty. The results indicate that urban forests can positively and significantly contribute to the enhancement of city beauty and enrichment of tourist experience, which, in turn, positively and significantly contributes to tourism satisfaction, which can significantly lead to destination loyalty. This study also finds that urban forests not only function as a main attractor for most visitors, but also serve to complement other tourism attractions (i.e., historical sites) in the city.

Key words: Aesthetics; Destination competitiveness; Image; Planning; Urban forests; Urban tourism

Introduction

Urban tourism, according to Law (2002), can be loosely defined as "tourism in urban areas" (p. 4). This broad definition of urban tourism can refer to tourism activities that are specifically motivated by one or more urban attributes or attractions. More recently, Edwards, Griffin, and Hayllar (2008) define urban tourism as a type of tourism that "encompasses an industry that manages and markets a variety of products and experiences to people who have a wide range of motivations, preferences and cultural perspectives and are in-

volved in a dialectic engagement with the host community" (p. 1038).

Urban tourism was established as a significant and distinctive field of inquiry in the early 1990s (Law, 2002; Pearce, 2001) and urban tourism research has increasingly gained popularity among researchers since then. That being said, the majority of existing studies are case specific and descriptive which, according to Page (1995), "contribute little to the theoretical or methodological understanding of urban tourism" (p. 7). Obviously, much research is needed to examine urban tourism in a comprehensive and systematic approach, as

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noted by Pearce (2001), who, after reviewing previous studies on urban tourism, concluded that "the complexity, fragmentation, and lack of coherence [in urban tourism studies] calls for a clear, analytical framework which provides a more systematic perspective on urban tourism issues" (p. 928). He then proposed an analytical framework by which urban tourism can be examined in terms of themes (i.e., demand, supply, development, marketing, planning, organization, operations, and impact assessment) and scale (i.e., site, district, citywide, regional, national, or international). As a study subject, each theme or scale can be located in any cell within a matrix and the relationships among them can be examined, both vertically and horizontally. Page (1995) also proposed a systems approach in analyzing urban tourism, wherein urban tourism's demand and supply are principal inputs; and tourist experience, being the central feature of the system and directly related to the environmental, social/cultural, and economic impact on the locality, is the main output.

Based on these two conceptual frameworks from Pearce (2001) and Page (2005), a comprehensive attribute-based model for studying urban tourism is proposed. As shown in Figure 1, the scales and themes are the same as those proposed by Pearce (2001). However, instead of theme or scale, attributes or attractions can be located in any cell of the matrix. The attribute or attraction can be studied at any scale in relation to any theme. Moreover, the study scope should incorporate environmental, social/cultural, and economic dimensions. For example, an attribute could be any museums, events/festivals, or other attractions, for which demand and supply can be examined at citywide or district level in terms of these three dimensions. Such an examination can also be compared regionally or internationally. More specifically, if urban forests, as an attribute, are located in the cell of A_{11}, the demand for urban forests at the regional/national/international level should be examined. Likewise, if placed in the cell of A_{mn}, the impact assessment of urban forests should be examined at the site level. Such examinations should be conducted in relation to social, economic, and environmental dimensions.

This attribute-based approach is one of two dominant methodological strategies to analyze the world's city system (Smith & Timberlake, 1995). This approach has been adopted in urban tourism studies that examined either a single attribute (Finn & Erdem, 1995) or a set of attractions (e.g., Limburg, 1998; Shoval & Raveh, 2004). According to Shoval and Raveh (2004), tourists "have to choose which of the attractions they wish to visit
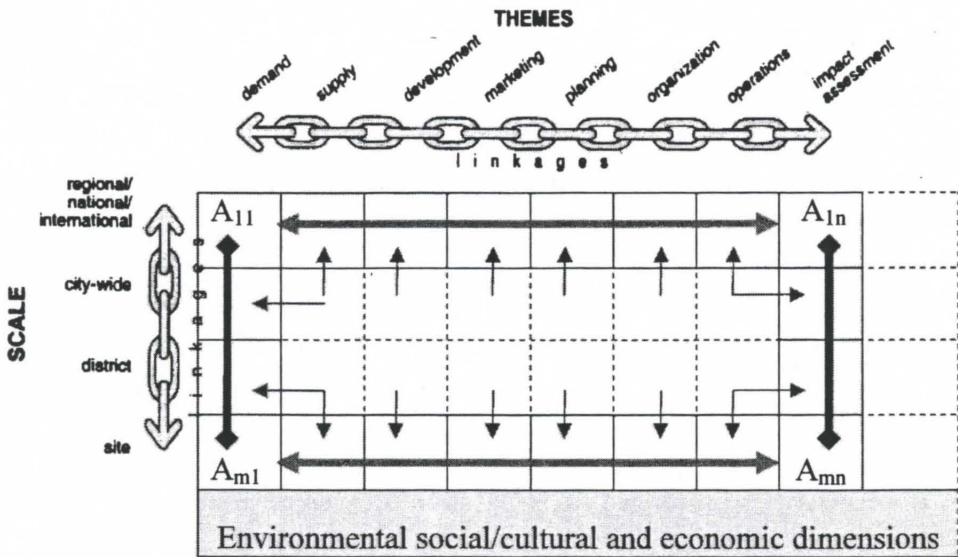

Figure 1. An integrative framework for urban tourism research (modified after Pearce, 2001).

and which to skip" (p. 742) due to time limitation and varying preferences for attributes, which may not be equally important for them during a trip. Thus, urban tourism experience is rarely dependent upon the totality of a city's attractions; rather, it is largely determined by one or several attributes.

Not all attributes are of the same significance for the tourist during a given trip. Certain attributes may be more important than others for a particular trip and other attributes may become more important in another situation. For example, when in full blossom, cherry trees in Washington, DC become a major attraction. Furthermore, all attributes, regardless of their relative importance, could complement a visitor's tourism experience. To this end, the relationships among attributes should also be examined. Such examination can provide managers with information about the product package and promotion for a variety of targeted tourist groups. Urban forests are such an attribute that their role as a tourism attraction may vary with occasions or seasons, and such a role may complement or be complemented by other urban tourism attributes.

Urban Forests and Urban Tourism

Urban forests refer to forested lands or a collection of trees and associated vegetation in urban areas. Urban forests are conceptually different from forests found in natural areas where forests are conventionally conceived to be primitive in nature and extensive in size. Urban forests are also referred to as "green infrastructure" as opposed to "gray infrastructure," which consists of buildings, roads, utilities, and parking lots (American Forests, 2010). Miller (1997) defines urban forests as "the sum of all woody and associated vegetation in and around dense human settlements, ranging from small communities in rural settings to metropolitan areas" (p. 27). By this definition, urban forests include trees, both planted and naturally occurring, in streets, residential yards, urban parks/gardens, and recreational areas around urban areas. The Ontario Professional Foresters Act of 2000 includes wetlands and riparian areas in and around urban vicinities as part of urban forests (as cited in Dwyer & Nowak, 2000). The urban forest eco-

system varies among a spectrum of locales, from urban cores, through suburban areas, and to rural communities (Konijnendijk, Ricard, Kenney, & Randrup, 2006).

Urban tourism is often perceived as "gray tourism" because of its urban setting featured by built environments. However, such gray tourism always includes "elements of the 'green'!" (Ashworth, 2004, p. 1). In fact, for some cities, such as Hangzhou, China (Shi & Zhao, 2007), Melbourne, Australia (Son, 2005), and Savannah, Georgia (Ratterree, personal communication, 2007), the green infrastructure (i.e., parks, gardens, and other green areas) are among the top urban tourism attractions. The green elements are also identified as primary elements of an urban tourism system by Jansen-Verbeke (1988; as cited in Law, 2002). Despite this, parks and green spaces in urban areas, as opposed to the built environment (cultural/historical sites and/or events/festivals), have not been regarded and examined as the basis of urban tourism (Law, 2002). Rather, they have been studied as recreational areas mainly for local residents.

Urban forests as tourism attractions can be divided into four general categories. First, tree- or flower-related festivals and events are often part of the economic development strategy and image enhancement for both large cities and small towns. For example, the National Cherry Blossom Festival (NCBF) attracted over 1 million visitors to Washington, DC in 2006 and contributed millions of dollars to the region's economy (Holly, 2006). Cherry blossoms, along with other significant cultural and historical sites in the city, make Washington unique, compared to other metropolitan cities such as New York.

Second, street trees or trees in neighborhoods can attract visitors. For example, to entice tourists to the city, palm trees were planted in San Francisco after the 1989 earthquake. These palm trees have become part of the city's symbol, as much as that of the automobile, movie stars, and beaches. In San Diego, visitors are astonished at jacaranda trees in full bloom during May and June along Ash Street in the downtown and in front yards throughout the city's neighborhoods.

Third, trees or forests can also function to attract tourists in the form of urban parks, botanical gardens and arboreta. The US National Arboretum

in Washington, DC is a must-see place for many domestic and international tourists. Each year, the Arboretum accommodates 500,000 to 600,000 visitors (US National Arboretum, 2006). Other examples are Boston Commons in Massachusetts and the Chicago Park District in Illinois.

Finally, displayed trees or flowers that beautify streetscapes can also attract visitors. The decoration of China's Tiananmen Square with about 400,000 pots of flowers was a highly desired attraction visited by more than 100,000 visitors on October 1, 2007—China's National Day (Xinhuanet, 2007).

The above four types of urban forests can serve as a main attractor for a city or as a supplementary attractor to complement other major attractors. Whether as a main or secondary attractor, they can increase visitors' tourism experience, enhance their positive images of a city, and affect their duration of stay, consumption behaviors, and visitation motivations.

As discussed thus far, urban forests can function as tourism attractions at any scale depicted in Figure 1. These green attractions can play an essential role in enhancing a city's image, attracting tourists, and increasing their tourism experiences. Linking urban forests and urban tourism is so important that Mr. Mark Buscaino, the then Director of the USDA Forest Service Urban and Community Forestry Program, visited the town of Sisters, Oregon in 2003, where issues of urban forests and tourism were discussed (Neamtzu, 2003). This article examines visitors' perceptions of the role of urban forests in enhancing their tourism experience based on data collected in Savannah, Georgia, USA. Specifically, this article develops and tests a structural equation model (Fig. 2) that links tourists' perceptions of urban forests, city beautification, tourism experiences, tourism satisfaction, and destination loyalty, which are closely related to destination competitiveness of the city.

Destination Competitiveness and Destination Image

Studies on the competitiveness of tourism destination are rooted in Michael Porter's works on competitive advantage for a firm (1985) and for a nation (1990). Ritchie and Crouch (2000) stressed

that destination competitiveness has "tremendous ramifications for the tourism industry and is therefore of considerable interest to practitioners and policy makers" (p. 6). Their best known approach to tourism destination competitiveness includes five major components: *destination policy, planning and development, destination management, core resources and attractors,* and *supporting factors and resources* (Ritchie & Crouch, 2003). The *core resources and attractors* refer to the primary elements of the destination appeal. These primary elements include physiography, culture and history, market ties, activities, special events, and the tourism superstructure. Obviously, urban forests, as the collection of woody plants and associated vegetation of an urban area, belong to the physiographic aspects of the destination competitiveness model. As mentioned above, urban forests (i.e., parks and green areas in a city) are also identified by Jansen-Verbeke (1988, as cited in Law, 2002) as the primary elements of an urban tourism system. The physiographic aspects of a destination are further comprised of landscape and climate, which have been extensively examined, along with other elements, in previous studies focusing on the destination image.

The image of cities represents the tourist's attitudes towards a number of attributes (Silvestre, 2005). According to the most commonly adopted definition, the image of a tourism destination can be defined as "the sum of beliefs, ideas, and impressions that a person has of a destination" (Crompton, 1979, p. 18). The role of image in the mind of potential tourists is thought to be critical in their choice of destination (Law, 2002; Son, 2005). Two sets of city images may exist among the general public, one negative and the other positive. On one hand, cities are often perceived to be dirty, crowded and congested, noisy, and unsafe; on the other hand, cities are seen as lively, exciting, civilized, and full of opportunities (Law, 2002). For some cities, the positive features will outweigh the negative images. These cities are more attractive to visitors.

Previous studies have found visitors who held more positive images of a destination were more likely to visit the destination again or recommend it to others. Some of these studies applied the structural equation model (SEM) to simultaneously
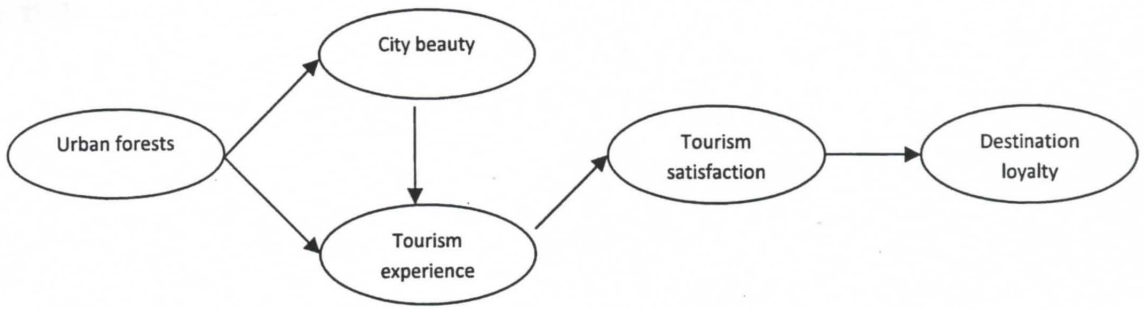
Figure 2. The hypothetical structural equation model linking urban forests and tourism.

examine the relationships between image, satisfaction, and destination loyalty. For example, Murphy, Pritchard, and Smith (2000) investigated the relationship between intention to return and other variables such as environmental quality, infrastructure quality, destination quality, and trip value. Bigne, Sanchez, and Sanchez (2001) examined the relationship between the image of a destination as perceived by tourists and their behavioral intentions, and between that same image and the post-purchase evaluation of the stay. Cole and Illum (2006) examined the relationship among performance quality, experience quality, overall satisfaction, and behavioral intentions. More recently, Chen and Tsai (2007) proposed a tourist behavior model by including destination image and perceived value into the "quality–satisfaction–behavioral intentions" paradigm.

Although urban forests can play an important role in improving city beautification and city images, few studies have been conducted to focus on trees and green areas in a city when city images were examined. Pike (2002) reviewed 142 papers about tourism destination images. None of those 142 papers focused on urban trees, forests, or tree-related festivals. Although some studies from 1973 to 2000 as reviewed by Pike and those published after 2000 did consider trees or greenery (e.g., Jutla, 2000; Konecnik, 2005) as an important attribute when examining a city/destination's image, they did not separate trees from other attributes in terms of their importance. Some studies did calculate relative importance of an attribute, but they did not include trees as an attribute or did not separate trees from other natural scenery (e.g., Choi, Chan, & Wu, 1999; Murphy et al., 2000; Son,

2005). Thus, it is unclear how much trees and green areas in the eyes of tourists as an attractive attribute can contribute to the formation and enhancement of a tourist's images of a city. Kweon, Ellis, Woolee, and Rogers (2006) stressed that "environmental perception should consider the effects of content. The influence of different content such as trees, water, pavement, or structures on environment perception is not clear" (p. 74). It is also unclear to what extent urban forests can contribute to a tourist's willingness to return and to recommend to others. To this end, a structural equation model is built to simultaneously examine the relationships between visitors' perceptions of urban forest appeals, city beauty, tourism experience, tourism satisfaction, and destination loyalty (Fig. 2).

It is hypothesized that urban forests in Savannah make the city more beautiful. The beauty of city then enhances tourists' tourism experience which, in turn, contributes to their tourism satisfaction. In addition, the more satisfied tourists are, the more likely they would revisit again and say positive things about the city to their family or friends or, in other words, they would be more loyal to the city. It is also hypothesized that while urban forests can positively affect tourism experience indirectly through their contribution to the city's beauty, urban forests can directly affect tourists' experience, too. Specifically, three hypotheses were proposed:

H1: Urban forests will positively contribute to the beauty of the city.

H2: Urban forests will positively contribute to tourism experience directly or indirectly through their impact on the beauty of the city.

H3: Tourism experience will positively contribute to tourism satisfaction which, in turn, will lead to destination loyalty.

Methods

Study Area

Savannah, founded in 1733, is located at 32°3′3″N, 81°6′14″W with a total area of 202.3 km². It is the largest city in, and the county seat of, Chatham County, Georgia (Fig. 3) with an estimated population of 127,889 in 2006 (US Census Bureau, 2008).

Savannah is internationally known as the first planned city in the US and its downtown area is one of the largest National Historic Landmark Districts in the country because of its richness in cultural and historical attractions featured by unique architecture and historic buildings, including: the Telfair Academy of Arts and Sciences (one of the South's first public museums), the First African Baptist Church (one of the oldest African American Baptist congregations in the US), Temple Mickve Israel (the third oldest synagogue in America), the Central of Georgia Railway roundhouse complex (the oldest standing antebellum rail facility in America), The Savannah Waving Girl (Savannah's symbol of southern hospitality), Tybee Island Lighthouse (Georgia's oldest and tallest lighthouse), and the Mercer-Williams House Museum (the place of the shooting death of Danny Hansford, the assistant of Jim Williams, a local antiques dealer and restorer of historic homes, and the central character in John Berendt's 1994 nonfiction bestseller *Midnight in the Garden of Good and Evil*), among others.

In addition to its richness in cultural and historical attractions, Savannah is also famous for other nature-based attractions, such as coastal islands (i.e., Tybee Island), one of most popular tourist destinations in the city, botanical gardens, city parks, and 22 squares, which are made up of the main component of urban forests for the city.

The squares along with trees in streets, gardens/parks, and neighborhoods are a major part of the character, charm, and beauty of Savannah (Savannah Park & Tree Department, 2008). Urban forests as seen today in the city are a result of over one century's persistent efforts in tree planning, planting, and maintaining. For example, as early as in 1896, the Park & Tree Commission was established to assure the orderly forestation and beautification of the entire City (Savannah Park & Tree Department, 2008).

Because of its long-standing commitment to urban forest management and resulting achievements, Savannah has been recognized by the National Arbor Day Foundation as a Tree City USA
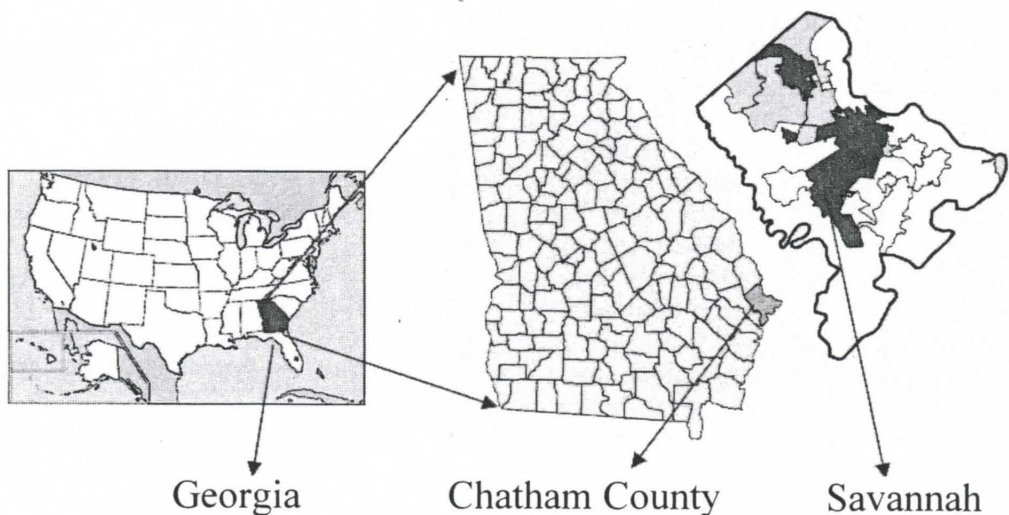

Figure 3. Location of the study area.

since 1985, and has also received Tree City USA Growth Awards eight times in the last 9 years for advancements made in its urban forest programs. The Forestry Division was also honored in 2000 with the Outstanding Customer Service Award by the Georgia Urban Forest Council (Savannah Park & Tree Department, 2008).

Unique and elegant architecture, ornate ironwork, fountains, and green squares are among the top motives for visitors to patronize the city (Savannah Area Convention & Visitors Bureau, 2008). During the 1990s, the city has been visited by 5 million of visitors each year on average from across the country and around the world (Savannah Area Convention & Visitors Bureau, 2008). Savannah offers a wide array of tourism activities to meet tourists' varied demands and flavors. Among these activities are sightseeing around the city by trolley tours, cruising the Savannah River, shopping antique and souvenir stores, dinning in restaurants and bars, attending guided night walks, taking the carriage tour, and attending festivals and events, etc.

Data Collection

A questionnaire consisting of visitors' trip characteristics, their perceptions of urban forests for tourism in Savannah, relative importance of urban forests for tourism in the city, economic measurement of their tourism experience, and background information was designed by the authors. This questionnaire was then reviewed by staff from the Savannah's Park & Tree Department, Savannah Visitor Information Center, and other project collaborators. A face-to-face onsite self-administered survey was conducted using the convenience sampling method by the lead author and three graduate students in February 2008 at the Savannah Visitor Information Center as well as at the riverfront street, one of the most popular outdoor relaxing and sightseeing places in the city.

The Savannah Visitor Information Center has a main entrance from which most trolley bus visitors, after they finish their trolley tour, enter the visitor center looking for more information about the city, or just for using the restroom in the center. Visitors entering through this entrance were approached by surveyors who introduced themselves and the study first and then asked visitors if they were willing to take the survey. If the answer was "no," the surveyors then approached next available visitor. If the visitor was willing to help, the questionnaire on a clip board was then handed to him or her to fill out. That questionnaire was collected by the surveyors once it was done onsite. This similar approach was used to conduct surveys on the riverfront street.

Convenience sampling method is a type of nonprobability sampling method, which has been widely used by "almost all of the major public opinion polling groups, political polling groups, and market research organization" (Fowler, 1993, p. 49). Convenience sampling is also known as Opportunity Sampling, Accidental Sampling, or Haphazard Sampling. It is used in a situation (i.e., street surveys) in which it is difficult to set up a predetermined procedure that sets a rate of selection for defined population. At Savannah, this method was used to stop or approach whoever was available and was willing to take part in a survey at the two locations.

Measurement

Information about visitors' trip characteristics was obtained by asking them to answer questions concerning their main purpose for visiting Savannah, things experienced, frequency of visits to the city, lengths of stay, group size, and importance of Savannah as a multidestination trip if the city was not a visitor's only destination for this trip.

Visitors' perceptions of urban forests for tourism in the city were measured by 15 items on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree), with items 7 and 8 measuring tourism experience, items 12 and 15 measuring tourism satisfaction, items 13 and 14 measuring destination loyalty, and the remaining nine items measuring visitors' perceptions of trees and associated beauty.

Relative importance of urban forests for tourism was measured by five questions concerning beauty, image, attractiveness, tourism experiences owing to urban forests, reasons for visiting Savannah, and attribute ranking. The first four questions were measured using a percentage scale ranging from 0 to 100. An example is "If Savannah's beauty is evaluated by 100 points, then how many

points can be attributed to urban forests in your opinions?" As regards the attribute ranking, respondents were asked "Please rank the following eight attributes (i.e., cultural facilities, urban forests, historic attractions, sport facilities, amusement facilities, infrastructure, accessibility, and social cultural features) in Savannah from 1 to 8, wherein 1 = the least important and 8 = the most important."

Finally, respondents' background information was collected by asking questions about gender, age, education, occupation, and residency. An open-ended question was included for comments about the study and urban forests for tourism in Savannah or other cities.

Data Analysis

Descriptive analysis was first conducted, followed by a factor analysis of nine items concerning visitors' perceptions of urban forests and beauty using a principal component factor analysis (with Varimax rotation) with an eigenvalue of 1.00 or over being used to identify potential factors. Factor loadings more than 0.45 were used to select variables (Comrey & Lee, 1992). These analyses were conducted using SPSS 16.0. A structural equation model was then created and analyzed using LISREL 8.8. to link respondents' perceptions of urban forests and beauty, tourism experience, tourism satisfaction, and destination loyalty. LISREL is a procedure to model causal relationships among variables and has been widely used in both social and natural sciences.

Results

Sociodemographic Characteristics of Respondents

A total of 306 visitors were approached. Half of them were willing to participate in this study and completed the questionnaire, resulting in a response rate of 50.00%. Male participants (59.71%) outnumbered their female counterparts (40.29%). Most participants (63.57%) were over 40 years old while the age groups from 26 to 39 and from 18 to 25 accounted for 26.43% and 10.00%, respectively. The majority of participants were well educated with 42.86% and 37.86% of them having

one postsecondary degree and postgraduate degree, respectively. In addition, 20.14% of participants were from within state, and 29.49% of respondents were from nearby states (i.e., Florida, South Carolina, and North Carolina).

Trip Characteristics

The majority of participants (72.60%) came to Savannah for leisure. Approximately 74.66% of respondents had either visited parks/gardens or squares as opposed to 78.77% of respondents who had visited historical sites in the city. In addition, 71.09% of those respondents who reported having visited historical sites also visited gardens or squares. Some 45.21% of participants were first-time visitors and 36.99% had visited the city for between two and five times in the past while 17.81% had visited Savannah more than six times. All participants stayed in Savannah for at least 1 night with an average stay of 2.57 nights. About 58.90% of participants reported Savannah was their only destination. For those who traveled to multidestinations, Savannah was considered either very important or extremely important as a destination by some 59.32% of respondents.

Perceptions of Urban Forests for Tourism

Table 1 presents the percent, means, and SDs for visitors' perceptions of urban forests for tourism in the city. As shown, visitors' responses to those 15 statements were very positive, particularly for the last three items on repeat visit ($M = 4.61$), willingness to recommend ($M = 4.60$), and overall satisfaction ($M = 4.56$).

The nine items on trees and beauty were factor analyzed, resulting in two factors: city beauty and urban forest appeal (Table 2), which explained 66.00% of the total variance. The standardized Cronbach's α value for each factor is 0.86 and 0.80, respectively.

Relative Importance of Urban Forests for Tourism in Savannah

On a percentage scale ranging from 0 to 100, urban forests contribute 69.86%, 67.78%, 69.58%, and 66.09%, respectively to the city's beauty, image, attractiveness, and visitors' tourism experi-

Table 1

Summary Statistics of Respondents' Perceptions of Urban Forests for Tourism in Savannah

Items	Percent of Respondents					Descriptive Statistics	
	SD	MD	N	MA	SA	M	SD[a]
1. Savannah is one of the most beautiful cities in the USA that I have visited in my life	0.0	4.2	28.5	36.1	31.3	3.94	0.88
2. Urban forests in Savannah have made the city more beautiful	0.0	0.7	12.5	32.6	54.2	4.40	0.73
3. I am so impressed by the beauty of the city	0.0	1.4	17.5	41.3	39.9	4.20	0.77
4. My impression about Savannah has been enhanced because of urban forests in the city	0.7	0.7	11.9	42.0	44.8	4.29	0.76
5. I am amazed at the greenery of the city	0.7	0.7	15.4	44.8	38.5	4.20	0.77
6. Urban forests in Savannah are among the main tourism attributes that attracted me to the city	2.8	11.1	41.0	21.5	23.6	3.52	1.06
7. My tourism experience in Savannah has been enriched by the city's beauty	0.0	2.1	15.3	39.6	43.1	4.24	0.78
8. My tourism experience in Savannah has been enriched by urban forests in the city	0.0	2.8	18.1	41.7	37.5	4.14	0.81
9. Urban forests in Savannah make the city a better place to visit	0.0	0.7	10.4	40.3	48.6	4.37	0.70
10. Urban forests are aesthetically pleasing in the city	0.0	0.0	7.6	34.7	57.6	4.50	0.64
11. Urban forests are well designed and maintained	0.0	0.7	17.4	34.0	47.9	4.29	0.77
12. Urban forests in Savannah increased my tourism satisfaction	0.0	0.0	16.7	36.8	46.5	4.30	0.74
13. Savannah is a place worthy of visiting again	0.7	0.0	7.6	21.5	70.1	4.60	0.69
14. I will recommend Savannah to my friends	0.7	0.0	4.9	31.9	62.5	4.56	0.66
15. Overall, I am satisfied with my trip and stay in Savannah	0.0	0.7	6.3	24.3	68.8	4.61	0.64

Respondents were asked "Please indicate how much you agree or disagree with each statement by circling your response" on a 5-point Likert scale (1 = strongly disagree, SD; 2 = mildly disagree, MD; 3 = neutral, N; 4 = mildly agree, MA; 5 = strongly agree, SA).
[a]Standard deviation.

Table 2

Factor Analysis of Tree-Related Images of Savannah

Factor (Proportion): Scale Name/Items	Rotated (Varimax) Factors	
	Factor 1	Factor 2
Factor 1: City beauty		
1. Savannah is one of the most beautiful cities in the US that I have visited in my life	**0.82**	0.12
2. Urban forests in Savannah have made the city more beautiful	**0.65**	0.47
3. I am so impressed by the beauty of the city	**0.84**	0.16
4. My impression about Savannah has been enhanced because of urban forests in the city	**0.62**	0.58
5. I am amazed at the greenery of the city	**0.69**	0.37
Factor 2: Urban forest appeal		
6. Urban forests in Savannah are among the main tourism attributes that attracted me to the city	0.09	**0.74**
9. Urban forests in Savannah make the city a better place to visit	0.17	**0.84**
10. Urban forests are aesthetically pleasing in the city	0.44	**0.69**
11. Urban forests are well designed and maintained	0.42	**0.65**
Eigenvalues	3.06	2.88
% of variance	34.0	32.0
Cumulative %		66.0
Standardized Cronbach's α	0.86	0.80

ence. In addition, urban forests explain 54.65% of reasons for visiting the city (Table 3).

Table 4 presents participants' responses on the importance of urban forests relative to other attributes such as cultural facilities, historical attractions, sports facilities, and others. As shown, the majority of participants (54.89%) ranked the historical attractions as the most important among eight attributes while a large number of participants (49.60%) ranked sports facilities the least important. Overall, historical attractions were ranked the most important ($M = 6.48$ out of 8), followed by urban forests ($M = 5.60$) and social/cultural features ($M = 5.58$) (Table 4).

Structural Equation Model

As shown, the five latent variables (urban forest appeals, city beauty, tourism experience, tourism satisfaction, and destination loyalty) are all positively related (Fig. 4, Table 5). Specifically, urban forests significantly contribute to the city's beauty ($t = 10.72$, $p < 0.001$) and tourists' experience ($t = 3.99$, $p < 0.001$) while the city's beauty also significantly contributes to tourism experience ($t = 3.30$, $p < 0.01$), which, in turn, significantly enhance visitors' tourism satisfaction ($t = 8.28$, $p < 0.001$). Finally, tourism satisfaction significantly contributes to the destination loyalty ($t = 12.06$, $p < 0.001$). Thus, all three hypotheses are fully supported by the model.

Because the standardized solution was used to estimate the path coefficients, the standardized estimate between two variables can be interpreted as an increase or change of standard deviation of a dependent variable resulting from 1 SD increase of an independent variable (Hayduk, 1987). For example, as shown in Table 5, the standard estimate between urban forest appeals and city beauty is 0.85. This indicates that a 1 SD increase in urban forest appeals is expected to result in an increase of 0.85 SD in city beauty. Likewise, a 1 SD increase in city beauty is expected to lead to 0.48 SD increase in tourism experience. It should be noted that the path coefficient between tourism satisfaction and destination loyalty is close to 1.00, indicating one unit change in tourism satisfaction will lead to one unit change in destination loyalty.

The standardized solution is also convenient to estimate the variance explained by a predicting variable for a dependent variable by simply squaring the path coefficient between the two variables. For example, urban forests directly explain 72.25% (i.e., $0.85*0.85 = 0.7225$) of variances for city beauty while tourism experience accounts for 67.24% (i.e., $0.82*0.82 = 0.6724$) of variances for tourism satisfaction, which explains 98.01% ($0.99*0.99 = 0.9801$) of variances for destination loyalty.

Several measures (Table 5), including the chi-square value, have been used in the literature to assess the overall model fit. The value in this study is $\chi^2(85) = 179.87$, $p < 0.001$, suggesting that the predicted and actual models were not significantly different. However, because the chi-square statistic is sensitive to sample size and model complexity (Anderson & Gerbing, 1982; Bollen, 1989), a ratio between 1 and 5 has been suggested as an acceptable range for adequate fit (Marsh & Hocevar, 1988). Thus, the ratio of 2.12 in this study suggests a fair model fit.

Other measures such as Normed Fit Index (NFI), Non-Normed Fit Index (NNFI), Comparative Fit Index (CFI), and Incremental Fit Index (IFI), among others, have also been used to assess the model fit in previous studies. These measures are 0.97, 0.98, 0.98, and 0.96, respectively, which are above the recommended level of 0.90, indicating support for the proposed model. Another measure to assess the model fit is the Root Mean Square Error of Approximation (RMSEA), which is 0.089, slightly greater than recommended level of 0.05. In sum, the proposed model in this study is statistically valid.

Discussion and Conclusion

Urban forests can be an integral part of urban tourism system. However, few studies have exam-

Table 3

Visitors' Perceptions of Urban Forests Based on a Percentage Scale Ranging From 0 to 100

	Minimum	Maximum	Mean	SD
Beauty	10.00	100.00	69.86	18.86
Image	10.00	100.00	67.78	19.13
Attractiveness	5.00	100.00	69.58	20.00
Experience	10.00	100.00	66.09	21.03
Reason	0.00	100.00	54.65	24.29
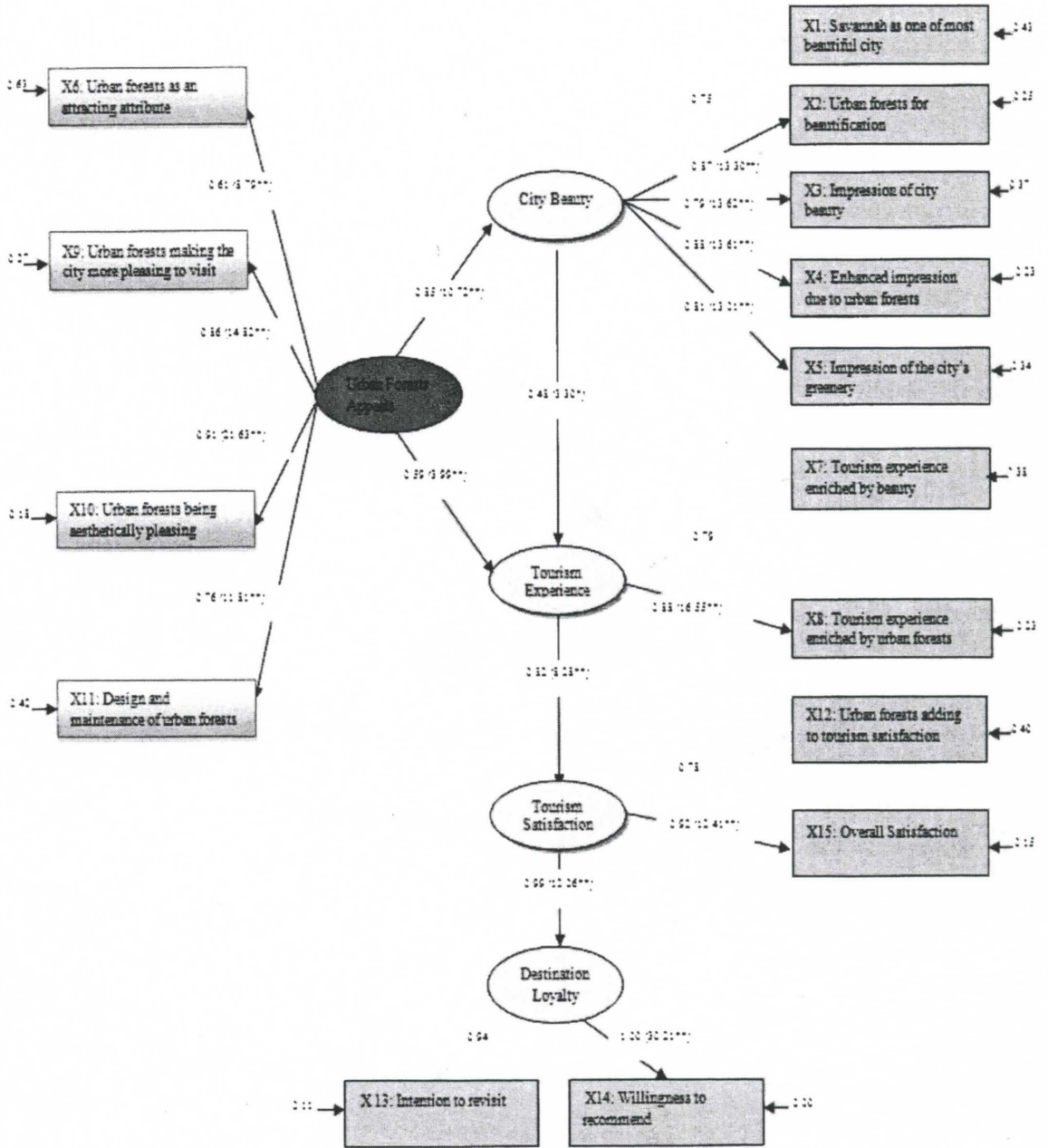
Chi-Square=1⁻9.8⁻, df=85, p-value=0.00000, RMSEA=0.89

t values are in parentheses
*g < 0.01, **p < 0.001
No *t* values are estimated for fixed parameters in the model

Figure 4. The structural equation model linking urban forests and tourism.

Table 4

Ranking of the Importance of Urban Forests Relative to Other Attributes

| Ranking | Percent of Responses | | | | | | | |
	Cultural Facilities	Urban Forests	Historical Attractions	Sports Facilities	Amusement Facilities	Infrastructure	Accessibility	Social Cultural Features
1	3.79	3.01	9.02	49.60	37.80	11.72	8.53	4.72
2	10.61	6.77	3.76	17.60	8.66	12.50	11.63	3.15
3	5.30	5.26	1.50	8.00	10.24	12.50	11.63	7.87
4	13.64	12.03	3.76	4.00	9.45	14.06	15.50	13.39
5	18.94	17.29	4.51	4.00	10.24	16.41	12.40	14.96
6	15.15	15.79	7.52	2.40	7.09	13.28	14.73	18.11
7	18.18	20.30	15.04	4.00	11.81	11.72	7.75	15.75
8	14.39	19.55	54.89	10.40	4.72	7.81	17.83	22.05
Mean	5.23	5.60	6.48	2.70	3.38	4.37	4.76	5.58
Ranking of mean	5	7	8	1	2	3	4	6

1 = the least important, 8 = the most important.

ined the role that urban forests play in urban tourism promotion and development. For urban tourism, urban forests are often thought to play a supplementary role in the whole urban tourism system. This prototypical thinking is proved to be wrong at least for Savannah. As found in this study, the majority of respondents (45.1%) either strongly agreed or mildly agreed that urban forests are among the main tourism attributes that attracted them to the city as opposed to 13.9% of respondents who either strongly disagreed or mildly disagreed with the statement. This finding is generally consistent with three other findings of this study. First, urban forests explained 54.5% of the reasons for visiting the city. Second, approximately 74.1% of respondents have either visited parks/gardens or squares. This percentage is very close to 78.8% of respondents having visited his-

torical sites in the city. Third, urban forests were ranked the second most important attribute among the eight attributes, only second to historical sites.

Urban forests not only functioned as a main attractor for the city, but also served to complement other attractors. For example, it can be seen from the above findings that historical sites were ranked number one in terms of importance and were visited the most. Thus, visiting historical sites could be the primary reason for the majority of respondents; however, 71.1% of those respondents who reported having visited historical sites also visited gardens or squares. This indicates that urban forests are also a must-see attribute for most visitors who were motivated to visit the city mainly by its historical attractions. Quite a number of participants emphasized in the open-ended question the importance of urban forests for enhancing their

Table 5

Standardized Path Coefficients and Model Fit Statistics

Variables	Path	Variables	Standardized Estimate	t-Statistic	p-Value
City beauty	←	Urban forest appeals	0.85	10.72	<0.001
Tourism experience	←	Urban forest appeals	0.59	3.99	<0.001
Tourism experience	←	City beauty	0.48	3.30	<0.01
Tourism satisfaction	←	Tourism experience	0.82	8.28	<0.001
Destination loyalty	←	Tourism satisfaction	0.99	12.06	<0.001

Model fit statistics: $\chi^2 = 179.87$, $df = 2.12$; NFI = 0.97, NNFI = 0.98, CFI = 0.98, IFI = 0.96, RMSEA = 0.089.

tourism experience in the city. For example, one visitor noted that "the trees add to the tourism experience and enjoyment of the vacation." Another visitor indicates that "the trees are an important part of savannah and are what makes the city so beautiful along with the architecture. It would not be the same city without them nor would they attract tourists without them."

It should be noted that up to 72.6% of visitors came to Savannah for leisure. This percentage is comparable to 74.1% of respondents who have either visited parks/gardens or squares and 71.1% of those respondents who reported having visited historical sites also visited gardens or squares. Thus, urban forests play an essential role in assuring the quality of leisure for most visitors to the city. This role is also verified by the SEM results, which indicate that urban forests in the city contribute significantly and positively to city beauty and tourism experience which, in turn, contributes significantly and positively to tourism satisfaction and destination loyalty. It is worth noting from the SEM analysis that urban forests explained 72.2% of variances for city beauty. This percentage is also comparable to the finding based on a percentage scale ranging from 0 to 100, wherein 69.9% of the city beauty is attributable to urban forests.

It should also be noted that city beautification through urban forestry programs is increasingly gaining popularity among leaders of both large cities and small towns in the US as well as in other countries (i.e., China's city beautification campaigns and ecological landscape urban construction) (Yu, 2006). In order to attract more business and tourism, city and community leaders are increasingly looking for ways to beautify their living surroundings and to make them more attractive and unique (Leston, 2001). This study for the first time quantified the contribution of urban forests to city beautification.

This study has important implications not only for the US, but also for other parts of the world. Findings from this study may be used to oppose the Bush administration's fiscal 2009 budget proposal which calls for reducing Forest Stewardship funding by 83% and Urban and Community Forestry funding by 82% (Koehn, 2008). Evidently, it is a wise investment to fund urban forests over the past century in Savannah. Without the well-

planned and maintained urban forests, Savannah cannot become a leisure destination in the southern US as it is now.

Worldwide, land use in the city is highly competitive. Trees, parks, and green areas are always under pressures for commercial development (More, Stevens, & Allen, 1988). Social and economic benefits generated from the green infrastructure as tourism`attractors can help decision makers better understand the trade-offs among different land use choices. Ashworth (1992) noted that "there will be few major cities in the world whose current planning policies do not include a major section labeled 'tourism' " (p. 3). This case study of Savannah shows that green elements in the city can increase the city's image and make the city more attractive. Thus, it is wise for a city/town to integrate the green elements into the overall urban tourism planning. It should be noted that the major attractor of Savannah urban forests consists of the green public squares that are nationally or even internationally unique and that may not be readily replicated by other cities. It is this uniqueness that makes the city more competitive. Thus, it is important for any cities that wish to use urban green elements to increase tourism competitiveness to design and develop urban forests that are aesthetically unique. A national survey conducted by Wolf (2005) showed that streetscape trees as an urban forest amenity can attract and welcome consumers.

While "green" is usually referred to as green infrastructure, urban green tourism in some cities (i.e., Toronto) is far more inclusive. For example, The Toronto's Green Tourism Association's definition of urban green tourism involves four main domains: appreciation of natural areas and cultural resources, experiential richness, environmental responsibility, sustainability (Gibson, Dodds, Joppe, & Jamieson, 2003). Thus, future research should examine if appreciation of urban forests would lead to the increase of environmental concern or awareness, and if this increased environmental concern would result in any environmentally friendly behaviors.

This study is not without limitations. First, data collected using the convenience sample method may not be representative of the population although survey was conducted at the two places

that are among the most visited in the city. Second, survey was conducted only in the winter season, which may not represent the best season for the appreciation of urban forests. Although visitors' responses in this survey were very positive, their responses may be much more positive in other seasons (i.e., spring or summer). Thus, more surveys should be conducted in other three seasons. This will allow for a seasonal comparison of urban forests for urban tourism.

In conclusion, this article is among the first to link urban forests and urban tourism. It is a response to Pearce's (2001) request that "It should offer both a general overview of the field and a means of putting specific studies and problems in context" (p. 928).

Acknowledgment

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