Appendix A:
The Role of Urban Forestry in Sustainable Tourism Development: A Case Study of Savannah, Georgia

Stacy Casinelli, Jinyang Deng, Chad Pierskalla, & Jason Siniscalchi

West Virginia University, Morgantown, WV

Introduction

Known as "America's First Planned City", Savannah, Georgia, was designed around 24 squares placed at regular intervals throughout the city. This unique grid layout allowed for the development of wide open streets lined with shady public squares and parks. The squares and trees are an integral part of Savannah's beauty, character and charm. There are still 21 squares in existence today and number 22 is in the process of reconstruction. Because of its long standing commitment to urban forest management, Savannah has been recognized by the National Arbor Day Foundation as a Tree City USA since 1983.

Urban forestry is the maintenance and management of urban forests in order to preserve the resources that promote environmental, sociological, economic, and aesthetic benefits. Urban forests not only include all the trees, wildlife, watersheds and vegetation surrounding our communities, but they encompass the roadways, the open spaces, parks, residential yards and the undeveloped land within the local boundaries. The importance of linking forestry 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 sustainable urban tourism development.

The purpose of this study is to identify a range of stakeholder (tourism providers, resource managers, elected officials, tour operators and tourists) perceptions, issues and concerns of Savannah, Georgia's, urban forests to help develop and promote opportunities for the growing sustainable tourism industry. This study will present the preliminary findings of a multi phase study on sustainable urban tourism focusing on Savannah.

Methods

Selected findings from a mixed methodology, quantitative and qualitative, will be produced to help answer several research questions. The research team has conducted four visitor surveys and three scenic beauty assessments in Savannah from February 2008 to present to allow for seasonal comparisons. The first round of stakeholder interviews were conducted in January, 2009, and the second round will be conducted in the summer of 2009. The three methods are summarized below.

Visitor Surveys

The first survey examined urban forests' contribution to the city's beauty, tourism experience, satisfaction, and destination loyalty. The second, third and fourth survey focused on the importance and performance of specific attributes of urban forests relative to other urban tourism system components. Visitors were contacted in the Savannah Visitors Center located in the historic area and on the Riverfront Plaza.

Scenic Beauty Assessment

Videos were taken to simulate scenic drives along five streets in historic downtown Savannah during three seasons (Summer, Winter, and Spring). Visitors were contacted near the Riverfront Plaza and asked to evaluate the scenic beauty of a randomly selected video by using the Continuous Audience Response Technology (CART). CART technologies use computer hardware and software to collect subjects' reactions to stimuli, usually a videotaped message. Continuous audience response technology combined with survey methods, provide advantages while overcoming limitations of either approach used independently (Long, 1989).

Visitors were asked to turn the CART dial to rate the importance of each clip as it relates to the scenic beauty of the areas. Data will be used to develop Geographical Information System (GIS) scenic beauty maps. The maps, when combined with existing GIS data on the urban forest, provide opportunities to examine associations between scenic beauty ratings and setting attributes of the urban forest.

Methods

Stakeholder Interviews

Stakeholders in Savannah's urban forests and tourism industry have and will continue to be invited to participate in an interview session based on an open ended, semi-structured questionnaire. Thus far, stakeholder participants include members of the Park and Trees Department, Convention of Visitor's Bureau, and Leisure Services Bureau. Future participants may include members of the Savannah Tree Foundation, elected officials, city planners and tourism companies. The previous offices and companies were chosen based on their relationship with planning, maintaining and managing the urban forests and tourism industry in Savannah. Data will be analyzed to identify the range of values, meanings and desired conditions working toward a sustainable future. To date, three interviews have been conducted.

The following is a sample of three interview questions:

• How do you view urban forestry as a contributor to sustainable communities?

• What are the positive and negative contributions of urban forests?

• What role do trees play in attracting visitor's to Savannah.

Preliminary Results

Visitor Surveys

A total of 306 visitors were approached in February 2008, and half of them were willing to participate, resulting in a response rate of 50.0%. The majority of respondents (54.05%) strongly agreed that urban forests in Savannah have made the city more beautiful. About 23.0% of them strongly agreed that urban Forests in Savannah are among the main tourism attributes that attracted them to the city, and 46.5% indicated that urban forests in the city increased their tourism satisfaction.

Table 1 presents visitors' perceptions of urban forests based on a percent scale from 0 to 100. As shown, urban forests in the city contribute to 69.9% of the city's beauty, 67.8% of city's image, 69.6% of the city's attractiveness, and 66.1% of tourism experience. In addition, experiencing urban forests is one of main motives to visit the city, accounting for 54.5% on the 100 percent scale.

-Urban Forests in Savannah have made the city more beautiful
▪ 54% Strongly Agree
▪ 12.5% Neutral
▪ 0.0 % Strongly Disagree

-Urban Forests in Savannah are among the main tourism attributes that attracted me to the city
▪ 23 % Strongly Agree
▪ 41% Neutral
▪ 2.8% Strongly Disagree

-Urban Forests in Savannah increased my tourism satisfaction
▪ 46.5 % Strongly Agree
▪ 16.7% Neutral
▪ 0.0 % Strongly Disagree

Preliminary Results

Table 1. Visitors' perceptions of urban forests based on a percentage scale ranging from 0 to 100

Item	Minimum	Maximum	Mean	Std. Deviation
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

Scenic Beauty Assessment

Although data were collected during three seasons to asses scenic beauty of 5 streets, only Summer season data (June 27-29, 2008) are reported as the preliminary findings (N=46). Selected findings of 3 of 5 streets examined in this study are reported in Figures 1 and 2.

Using ARCGIS 9.3, CART data was joined to a Savannah, GA, roads layer and using the Inverse Distance Weighted function, a spatial layer of scenic beauty was developed for each travel route (Figures 1 and 2). Scenic beauty ratings were extrapolated to a tree point layer and the following were assessed:

Scenic value of squares
Scenic value of tree by size (DBH) and location (in square)

Trees in squares (shown in green in Figures 1 and 2) are significantly more preferred than trees not in squares t(102)=9.9, p<0.001 (non equal variances). Future analysis will examine tree condition, species, & density.

	Mean	SD
In square	66.4	7.5
Not in	50.8	14.1

Scenic beauty of squares is significantly higher than other visual landscape features (structures, etc) F(5,787)=67.8, p<0.001.
▪ Larger trees (DBH) are preferred outside of squares (mean=64 vs. 50; t(87)=2.5, p=0.013).

▪ Smaller trees are preferred in squares (mean=57 vs. 66; t(10)=-2.2, p=0.049 - equal variances not assumed
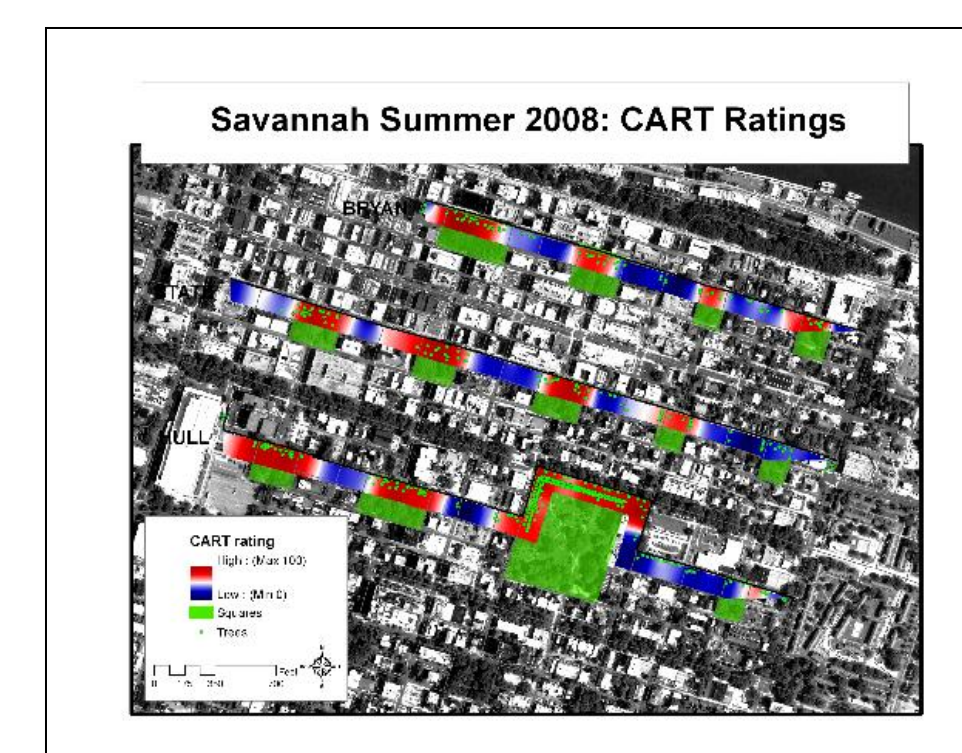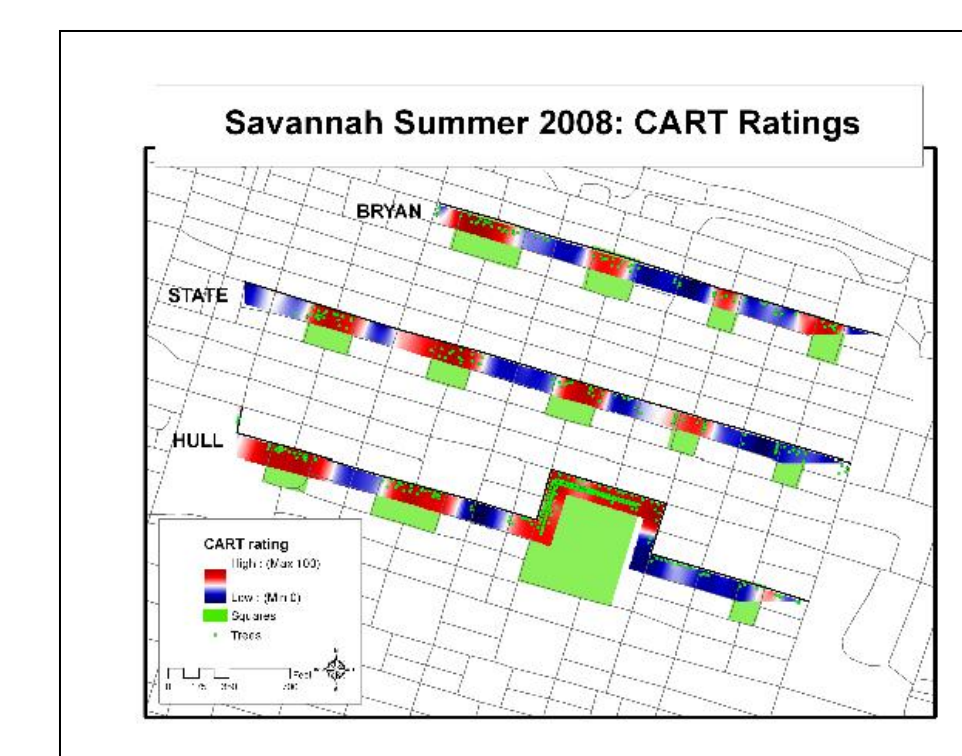

Figure 1. Summer 2008 Aerial View

Figure 2. Summer 2008 Street View

Preliminary Results

Stakeholder Interviews

Selected quotes from the stakeholder interviews are provided below. The quotes were selected to show a range of responses from the three previous interview questions reported in the Methods section.

▪ "Savannah 20 years ago was not a tourism destination. We are one of the four economic drivers of this town. The port is one and tourism is two."

▪ "Maintaining what we have is critical to the future of this town."

▪ "The visual affect of driving down streets that have a canopy over them creates a better environment for pedestrians and in some areas it helps mitigate storm water issues and basically an overall improvement to the environment."

▪ "The beauty, benefit to the environment, as far as providing shade, cleaning the air and the aesthetics of it all."

▪ "It makes development harder. Savannah has an ordinance where your going to develop, it doesn't matter where you are, you have to have so many tree points."

▪ "We are at the point now we get a category 2 or category 3 hurricane, we'll lose a lot of our urban forests."

▪ "Savannah is very much a walking city. The trees are part of the show and are part of what makes this town so charming."

▪ "Just the way we showcase the trees, the impact of the trees on the visitor experience is huge, its huge."

Discussion

The purpose of this study was to develop a range of perceptions, issues and concerns in Savannah's urban forests and sustainable tourism industry. This multi-phase study focused on visitor survey's, scenic beauty assessments, and stakeholder interviews.
▪ Savannah is a distinct destination based on design, history, and the urban forests.

▪ Tourism is the number two industry in Savannah, and urban forests are the primary reason for visiting.

▪ Visitors view the parks, squares, and tree lined streets as a visual benefit and positive feature that enhance the tourism experience.

▪ Squares are significantly more scenic than other visual features (walls, buildings, etc). Different trees species, tree sizes, and tree location have different scenic values. Understanding those differences can help managers better develop tree planting plans to enhance beauty in the city.

▪ Stakeholders feel the trees add to the walkability in Savannah, making it a more attractive destination.

▪ All new developments must adhere to tree point ordinance.

▪ Regular tree maintenance and management is necessary to reduce liability issues. Future analysis will examine tree condition and beauty.

▪ Stakeholders agree we must all be good stewards of the land to preserve Savannah's urban forest's for the future.

Acknowledgements