WHERE ON EARTH ARE THE MOON TREES?

A study of the impact of the moon trees on the physical and social landscapes of the communities in which they were planted

by

MELANIE JATTUSO FORD

(Under the direction of Eric A. MacDonald)

ABSTRACT

This thesis describes the history of the moon trees and how they were planted as part of the Bicentennial celebrations in the United States in the mid-1970s. This thesis discusses the moon trees and their image as a symbol of pride in the scientific and technological advancements in United States. The impact of the moon trees on the landscapes in the communities in which they were planted is analyzed as it relates to both the physical and social landscape environments. It explores the concept of sense of place and how the moon trees create that sense of place for so many people in their communities.

INDEX WORDS: Thesis, Landscape Architecture, Moon Trees, Sense of Place, Stuart Roosa, NASA, US Forest Service, Setha Low, Randolph Hester, Dolores Hayden, Actor Network Theory, Storytelling, Bicentennial, Space Travel

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MELANIE JATTUSO FORD

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Melanie Jattuso Ford

Major Professor: Eric A. MacDonald

Committee: David Williams, Robert 'Alfie' Vick, Jason Gordon

Electronic Verson Approved:

Ron Walcott
Dean of the Graduate School
The University of Georgia
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Moon Tree chasing has been such a fun adventure for the last few years. Finding out about moon trees from that first random discovery in Athens, Georgia has led to more adventures than I could have ever imagined. Searching for them across several states, engaging friends to visit and photograph them during their own travels and torturing my youngest, Jessica, with detours while on our own vacations has quite honestly just been fun. I have had the opportunity to talk to Rosemary Roosa, the daughter of astronaut Stuart Roosa, to learn stories from Dave Williams, the NASA archivist, and to hear from so many people about how much the moon trees have meant to them. They have given me the opportunity to take my first ever trip to Europe, and even better than that, to share that with my son, Dominick.

My boyfriend, Eric Vowell, has learned that this is just part of who I am now, and every time we plan a trip, he searches out nearby moon tree locations to see if there are any in proximity for us to photograph. He introduced me to the OnX Hunt app, where I hope to be able to set up a platform for moon tree adventuring, until such time that someone smarter than me can create a moon tree app.

My major professor, Eric MacDonald has been such a source of inspiration for me, subtly encouraging me to improve my writing, even providing me with politely written critiques with text longer than my original writing excerpts at times. His vast knowledge of all things landscapes and historic preservation has been an incredible and invaluable resource for me. In addition to that, he has looked for opportunities to push me out of my comfort zone and

supported me in getting my first article published. He also coached me through writing an abstract worthy of acceptance by the Royal Geographical International Society which is what afforded me the opportunity to speak in London, England. That absolutely would never have happened. Eric, thank you for teaching me to shoot for the moon.

Lastly, I want to acknowledge my dad, Edward Bernstein, from whom I inherited a lifelong love of learning.

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Preface

"Our two greatest problems are gravity and paperwork. We can lick gravity, but sometimes the paperwork is overwhelming." ~ Werner von Braun

Some children grow up on farms surrounded by agriculture, plants, and farm animals. Others grow up in the heart of metropolitan cities learning to navigate them through subways and elevated public transportation systems. My childhood was a mixture of listening to and watching the developments of space exploration and civil rights discussions, supplemented by solitary explorations through Huntsville, Alabama's Maple Hill Cemetery (figure P.1), fostering my affinity for history and landscapes. The informal education I received from watching and exploring these as a child shaped my thought processes as an adult. The memory recall and association collided when I re-discovered the moon tree in Athens, Georgia (figure P.2).

Figure P.1. Maple Hill Cemetery, Huntsville, Alabama where I played as a child, walking along the perimeter walls many afternoons after school, eating candy purchased at the little general store located across the street from the corner picture. (photo by Edward L. Bernstein.)

Figure P.2. Athens, GA moon tree standing in this same location since it was planted in 1976, and how it looked (with no identifying sign) when I 'discovered' it. (photo by MJ Ford.)

Growing up in Huntsville during the 1960s and 1970s, home of the U.S. Space and Rocket Center, I was surrounded by children whose parents, like my father, worked for an entity somehow associated with the space program. The civic center in Huntsville is named for Wernher von Braun, a German-born citizen, who in 1942 launched the first rocket into space while still living in Germany and working for the German government. Following the end of World War II, von Braun and his team of scientists fled Germany and surrendered themselves to the United States Army in 1945. As acknowledged by the National Air and Space Museum, "Von Braun freely admitted after the war, much of (his) design was directly borrowed from the writings of American rocket scientist Robert Goddard."[1] Von Braun and his group of scientists were known as the 'Operation Paperclip Scientists' because their files were marked with paperclips.

After teaching rocketry to the US government in Texas and then performing live firings in New Mexico, von Braun and his team were transferred to Alabama in 1950. "Von Braun said that Huntsville reminded him of his hometown of Wirsitz, Germany."[2] The mountains surrounding the town in Huntsville bore a physical resemblance to Wirsitz. In Huntsville, von Braun and his team continued their space adventures in the construction of new rockets and in "public relations, raising the interest of the American people in space exploration."[3] The 1960s were a time of huge successes in space exploration, and the last year of that decade saw the crew of Apollo 11 land the first humans on the moon.

[1] New Mexico Museum of Space History, accessed August 11, 2023, nmspacemuseum.org.
[2] New Mexico Museum of Space History, accessed August 11, 2023, nmspacemuseum.org.
[3] New Mexico Museum of Space History, accessed August 11, 2023, nmsapcemuseum.org.

All of this was occurring as I was entering the world and beginning elementary school. I grew up alongside the space program as it was maturing and gaining notoriety. Just before beginning my senior year of college at Auburn University, I accompanied my father and sister to their auditions as extras on the set of the movie *Space Camp* that was being partially filmed at the U.S. Space and Rocket Center in Huntsville. While there, I overheard a college student apologizing to the casting director because he had been unable to locate any additional students from Auburn University who were still in town. As he left, I stepped into his place to ask the casting director why the interest in students from Auburn. The casting director indicated that they didn't start back to school for a couple of more weeks, while other students were already returning to classes at other universities. She needed people older than age eighteen to participate in the film where possible. That discussion culminated with me being offered the position of a movie stand-in for Joaquin 'Leaf' Phoenix for the final three weeks of filming in Huntsville. During that time, I spent countless hours in and out of the recesses of the U.S. Space and Rocket Center, read interpretive displays and chatted with the other cast members about the facility, the cast and crew, our experiences on set, and our lives as they were unfolding.

For several years, I sent my son to the U.S. Space and Rocket Center for a one-week adventure at Space Camp to foster in him that same feeling of pride that I feel myself when visiting my own community in which I was raised.

My familiarity with the space program and my association with my hometown brought about a sense of nostalgia and kinship when I haphazardly stumbled upon the unmarked, little-known moon tree. It was unassumingly spreading its branches over the parking lot for the building that houses the Athens-Clarke County Building Department and Planning and Zoning

Commission. The instant connection, the bond, and the excitement that I felt was rather remarkable, and probably not very surprising. Thus, was born the topic for my thesis, which has culminated in countless adventures through parts of the eastern United States in search of moon trees, flying across ‘the pond’ to London to speak about them to a group of geographers interested in tree stories, and plotting them on an app for others who may be interested in their own moon tree adventures. They have added interest and sparked excitement and a re-discovery of things long ago forgotten, as well as created a renewed interest in those marked and remembered.

Chapter 1 – Introduction

"Research is what I'm doing when I don't know what I'm doing." ~ Wernher von Braun

This thesis delves into the history of moon trees and their impact on the lives of people, communities, and landscapes. Moon trees are a collective group, but each has individually shaped their surroundings in different ways. This thesis discusses the moon trees, describes their site locations and surroundings, and evaluates from different perspectives what impact, if any, they have had on the communities in which they were planted.

Moon trees are trees that grew from seeds that orbited the moon with Astronaut Stuart Roosa, the command module pilot of the 1971 Apollo 14 Mission. Most of those seeds were germinated by the US Forest Service and subsequently disseminated across the United States as part of the Bicentennial Celebration in 1976. Community celebrations were held for the planting of these trees, typically on the grounds of a public institution, such as a government building, a public school or university, or a building that had some association with the forest service. In some instances, however, they found their way to an obscure or unusual location.

Through the years, many of the moon trees and their known locations were slowly forgotten. Physical signs and other markers identifying their national significance disappeared, or in some cases, never existed.

Twenty years after their planting, an ordinary lesson plan from an elementary school teacher brought their plight to the attention of NASA archivist, Dave Williams, who began a national inquiry into their story. Thus began their fight for awareness and re-discovery. Locating

and identifying the moon trees has become a national challenge for the United States. With assistance from the public at large, through shared stories and actor network relationships, we are beginning to answer the question, “Where on Earth are the Moon Trees?” There are currently sixty-six living moon trees planted across the United States whose whereabouts are known. There are forty-five moon trees whose planting is documented, but have been removed in the name of progress, fell victim to natural disasters, or suffered an untimely death due to disease or malnutrition. There are potentially many more moon trees, as many as 389, whose whereabouts are yet to be discovered. The table below categorizes the general site locations for each of the known planting locations.

Table 1.1: Moon Tree Site Typology

Facility Type Description	**Quantity at each Facility Type**
Private Residence	6
Kindergarten – 12th Grade School	4
Higher Education Institution	13
Library	2
State Capitol or Statehouse	13
Courthouse	5
Government Building Complex	2
Police Station	2
Civic Plaza	1
State Historic Landmark or Park	26
Botanical Gardens or Arboretum	6
Facility Associated with US Forest Service or Tree Education	19
Girl Scout Camp	2
Facility Associated with Space Exploration	7
Veterans Affairs Medical Center	2
Church	1

‘Discovering’ a single moon tree sparked curiosity about the nature of the moon trees. Why isn’t ‘moon tree’ a commonly known educational piece of United States’ history? Where

are all the moon trees located? Is there one in each state? Is there more than one in each state? Are they all known, yet unknown? Are they still alive? Are any of them celebrated? Do they have meaning to the communities in which they are planted, and have they somehow impacted the landscape that surrounds them? Those are the nature of the questions that might be pondered when contemplating the moon trees.

To answer these questions, this thesis research discusses the topic of the moon tree locations and begins to delve deeper into the physical and social impacts of these trees. To understand what impact they have had on the communities in which they are planted, it was necessary to visit moon trees in situ. Evaluations of their site conditions and environments were documented. Research was performed to locate people familiar with the moon tree at each location who could share their affiliation and history with the moon tree. This shared history was incorporated with the current context and information available to develop an analysis of each location visited. The specific approach and methodologies utilized in this research are described below.

Methodologies

The research methods employed to inquire into the nature of the moon trees involved a variety of strategies. The first of these was the use of classification strategies. Understanding the information already available on the moon trees as well as the framework under which they were being evaluated involved performing literature reviews and searching for existing documentation. Literature reviews are a type of classification strategy that is “typically used by

researchers to establish a baseline for available knowledge on any given topic […] with a framework for interpretation or evaluation."[4]

The research methods employed for gathering and documenting information about the moon trees also included descriptive strategies, which are "well suited for […] telling stories to raise awareness in communities about landscape character and dynamics as a basis for greater involvement."[5] The types of descriptive strategies used included case studies and actor-network-theory.

The other methodology included was interpretive strategies. According to landscape scholars, Demming and Swaffield, "interpretive strategies are well suited to investigate landscape issues that involve communities or social interrelationships, making sense of the way people represent, write, or talk about landscape and the values they represent, investigating situations where the historical evidence is incomplete, fragmented, or contested […] opening lines of inquiry that have previously been overlooked."[6] This method offered the opportunity to make inquiries of people through personal interviews and to analyze the responses in relationship to the social impacts of moon trees. The research strategies are further defined regarding their specific applicability to this thesis below.

Literature Reviews

This classification strategy was used to search for available information to inform the process of determining what new information was needed for this thesis to add to the

[4] M. Elen Deming and Simon Swaffield, *Landscape Architecture Research: Inquiry, Strategy, Design* (Hoboken NJ, John Wiley & Sons, 2011) 146.
[5] Deming, *Landscape Architecture Research*, 85.
[6] Deming, *Landscape Architecture Research*, 169.

knowledge base of this field. Given that the focus of this thesis is on the social and physical impacts of the moon trees within the context of 'sense of place,' it was necessary to clarify the theoretical framework that existed surrounding this concept.

In addition to providing a foundation for the research, the literature review was able to "demonstrate how the present study advances, refines, or revises what is already known."[7] NASA's moon tree website hosts documentation regarding moon tree locations and was used in conjunction with individual media sources that the website references to verify what existing data was previously collected. This listing was then used to inform the selection of case studies and to afford this researcher the opportunity to investigate moon tree sites that had been lost to time.

Case Studies

Using case studies as a descriptive strategy was beneficial to gather specific information relative to the impact of individual moon trees in their communities. According to Dr. John Zeisel, a well-known Sociologist who taught in the Harvard architecture department for eight years, "a case study is appropriate when investigators are interested mainly in information specific to the particular study object and context."[8] More importantly, Robert Yin, American social scientist and authoritarian on case study research, advises that the "case study method

[7] Sharan B. Merriam, *Qualitative Research: A Guide to Design and Implementation* (San Francisco, CA: Jossey-Bass, A Wiley Imprint, 2009).
[8] John Zeisel, Inquiry by Design (New York, NY: W. W. Norton & Company, Inc., 2006).

allows investigators to retain the holistic and meaningful characteristics of real-life events – such as individual life cycles, small group behavior … and neighborhood change."[9]

The case study approach involved non-probability, purposeful sampling. According to Sharan Merriam, professor of adult education at the University of Georgia, "purposeful sampling is based on the assumption that the investigator wants to discover, understand, and gain insight, and therefore must select a sample from which the most can be learned."[10] One subset of this type of sampling is considered 'convenience sampling,' in which samples are selected "based upon time, money, location, and availability of sites or respondents."[11]

Using this approach, several known moon tree sites throughout the United States were explored. Case studies of these sites are presented with photographs and documentation of their existing conditions and surrounding site imagery. An evaluation of modifications to the site since the initial planting of the moon trees used in the case studies is discussed. The documentation also includes images, if they exist, of the graphic interpretations that identify the trees.

The case study details also include descriptive information obtained by interviews of people in the community. This is beneficial, as "in case studies, multiple research techniques, especially participant observation, are often needed for investigators to get sufficient data about different aspects of an object … observation of behavior and physical traces, as well as interviews."[12] Collectively, the information captured in the case study research was used to

[9] Robert K. Yin, Case Study Research Design and Methods (Thousand Oaks, CA: Sage Publications, 2009).
[10] Merriam, *Qualitative Research,* 2009.
[11] Merriam, *Qualitative Research,* 2009.
[12] Zeisel, *Inquiry by Design,* 2006.

provide a holistic image of the site context and sense of place for each moon tree for which a case study was performed.

Actor Network Theory and Literary Genre

Actor-Network-Theory was a descriptive strategy used to gain information by tracing the social networks that developed around the trees who served as non-human agents. Their individual stories often bear a resemblance to each other in that the love of a tree and its significance in their life developed into a lifetime of relationships, both with the tree and with the community that it impacted.

While Actor Network Theory (ANT) is typically considered a theory as its name implies, it also can be a methodology. Using ANT in this manner is most practical where research involves stories, such as those associated with the moon trees. The search for the location of the trees, some of which were not easily accessible or publicly available, warranted a different research approach and this naturally developed from the use of ANT. This approach used information available through internet searches as guidance for tree locations and potential people to contact to trace the social networks that developed around the trees. Once contact was made with someone regarding a specific tree, that network quickly broadened to include additional references and resources. The ANT methodology was utilized to follow traces to discover some of the undocumented facts, and to weave accounts of unique stories of each moon tree. Travelling to the moon made a difference in the lives of each of these trees, along with the people they met and influenced to act on their behalf.

The writing style for this thesis is of paramount importance. Because the case studies presented in this thesis include personal encounters in which this author was a participant, they are written in first-person with the understanding that it is an important part of telling the story of each of these trees. In this research, first person narration reflects both methodological and rhetorical considerations. ANT emphasizes detailed empirical research. It requires tracing the relationships and interactions between actors in specific contexts to understand how social order and technological systems emerge and are sustained. Researchers often engage in in-depth, descriptive case studies to uncover the complexities of these networks. In terms of method, ANT scholars are essentially focused on creating accounts of the action that can be observed in the present moment or past action that can be inferred from encounters with 'traces' of past action. (For example, a photograph captures a 'trace' of a past event). ANT scholars tend to regard the observer as part of the network that is under observation, and to deny that there is any real distinction between 'objective' and 'subjective' perspectives. For these reasons, accounts of actor-networks are often reported in first person.

As a demonstration of this point, Bruno Latour, French anthropologist and sociologist and one of the three primary developers of ANT,[13] begins his collection of essays, *Pandora's Hope*, from the first sentence of "I have a question for you," as a friend poses to him a question to which he embarks upon a scientific exploration and response, told solely in first-person perspective.[14]

[13] D. Leslie, accessed September 12, 2024, https://www.sciencedirect.com/science/article/abs/pii/B9780080449104001425.

[14] Bruno Latour, *Pandora's Hope: essays on the reality of science studies* (Cambridge, MA: Harvard University Press, 1999) 1.

The first-person perspective also has value from a storytelling and rhetorical perspective. The anonymity of the third-person approach unnecessarily complicates the writing, making it less effective and detaches the reader from the personal connection that the first-person communicates. Although first-person narration has traditionally been discouraged in scholarly writing, acceptance of this approach has been growing in recent years. Several articles and papers written about the use of first-person in academic articles point to the fact that the first-person perspective has grown more acceptable in recent years. For example, the Duke University Writing Studio, a recipient of the Conference on College Composition and Communication Certificate of Excellence, notes that, "for many years, the standard pedagogical position on using the first person in English-language academic writing was simple: just say no. The logic behind avoiding the authorial *I* was that by eliminating self-references, writers could supposedly address their subject more clearly and objectively."[15] The authors add that writing without using the first-person is a rhetorical strategy that simply creates the appearance of objectivity but does not actually create objectivity.[16]

The increasing acceptance of the first-person writing perspective stems from an interest in using writing methods that most effectively reach the reader. Many educational institutions are now experimenting with a variety of methods of teaching resulting from an increased awareness that students learn differently. Also, considering the potential decrease in students' attention spans of recent years resulting from the increased use of technology, the use of first-person writing is beneficial in communicating information, in telling stories, in portraying the

[15] Duke University, accessed August 11, 2024, https://twp.duke/edu.
[16] Duke University, accessed August 11, 2024, https://twp.duke/edu.

impact of events. As Eric Brennan states in *"I" versus "the author*," not being able to write in the first person takes away his agency. From his research, Brennan concludes that "Authors should use a writing style that they believe allows them to best communicate their message and connect with the reader ... forcing authors to write in third person does not serve the needs of the current readers in the digital age of the 'attention economy' where we are competing for readers' limited bandwidth."[17]

The intertwining of ANT methodology with the moon trees gives these trees agency. The first-person perspective provides the necessary emphasis to demonstrate the bond they forged with the people they encountered to tell their compelling story.

Interpretive Strategies

Using this thesis strategy, telephone interviews were conducted with NASA representatives, state forestry representatives, research of websites for these organizations, as well as media searches to understand people's associations with moon trees. This approach was also used to locate 'lost' moon tree sites and specific information about the moon trees at each of these locations. Interviews of individuals or organizations that are either formal or informal caretakers of the trees were conducted. Their stories are shared, giving life to the trees and their history, and in some instances, their future.

Thesis Synopsis

The successive thesis chapters were developed utilizing the methodologies noted. Chapter two discusses the concept of place. It defines the theoretical concept that identifies

[17] Eric Brennan, "I" versus "the author": The power of first-person voice when writing about science, last modified May 22, 2024, accessed August 11, 2024, www.pnas.org/doi/10.1073pnas2316966121.

how and why moon trees are important. It clarifies how moon trees have made their way into our hearts and minds and why they are culturally significant. Chapter three provides the context and historical background of the moon trees. It follows the inception of the moon tree concept from the seeds' space travel through to the current day and documents the significant events that shaped the history of the moon trees. Building upon these chapters, the case studies of several moon trees are presented in chapter four. Chapter four tells the stories of individual moon trees and the lives they shared with various members of the communities in which they live. Finally, chapter five provides an analysis and summary of the information presented in this thesis. It clarifies the impacts the moon trees have had on those that are fortunate to know them.

Limitations

The limitations for performing the research include available time and cost. The moon trees are not centrally located, but rather spread across the United States in twenty-three different states. Limited travel time and financial resources resulted in visiting only a sampling of the trees for case studies. Additionally, as the whereabouts of many of the trees are unknown, visiting all of them is not currently possible.

Chapter 2 – Concept of Sense of Place

"There is…a politics to place construction ranging…across material, representational, and symbolic activities which finds their hallmark in the way individuals invest in places and thereby empower themselves collectively by virtue of that investment. ~ David Harvey, From Space to Place and Back Again

There is a concept of 'sense of place' that can be broadly defined as the idea that people assign meanings to or form emotional connections or attachments to places. This is not a new concept. Ancient Roman civilizations used the phrase 'genius loci,' a Latin phrase that translates to 'genius of place,' to refer to a spiritual connection to a place where one might experience a 'sense of place.' This spiritual (or religious) undertone ascribed significance and meaning to a place that allowed a person to feel connected to a location or object within a space. This concept of 'sense of place' has been prevalent in civilizations throughout the centuries in various forms within differing cultures and areas of study.

However, in more modern times, the idea of 'sense of place' became popularized in the 1970s by Yi-Fu Tuan, in his book, *Place and Space: The Perspective of Experience*. Tuan was a geographer and a writer and often referred to as the father of humanistic geography. Tuan said that geography is not just about landforms but is "also about place – its emotional tone, social meaning, and generative potential."[18] Tuan's approach to places intertwined the human element of thought and experience and considered it from several vantage points, such as from architecture, philosophy, literature, the environment, as well as others. Tuan contemplated and

[18] Mary Ellen Gabriel, "Yi-Fu Tuan," American Association of Geographers, accessed October 3, 2024, https://www.aag.org/memorial/yi-fu-tuan.

wrote about the 'sense of place' in the manner that Donella Meadows discusses in her book, *Thinking in Systems,* the need for environmentalists, landscape architects, and other practitioners to think in terms of systems and the holistic impact of cause and effect of changes in the environment and how to effectively plan for such.[19] Tuan's idea is that 'sense of place' is not a linear concept, but rather is influenced by and interrelated to many perspectives and thought processes and should be discussed in the concept of systems.

'Sense of place' as a system gained momentum and other geographers from the same time period, such as Edward 'Ted' Relph, explored and penned their own thoughts on this concept. Relph is emeritus professor of the University of Toronto and has focused his efforts on the nature of everyday geographical places and their influence on 'sense of place' in the form of how places show themselves to people and the importance that people give to their surroundings.[20] Relph's book, *Place and Placelessness*, written in 1976, followed by *Rational Landscapes and Humanistic Geography* in 1984 and *Modern Urban Landscapes* in 1987, described thoughts on 'sense of place' and the meanings of landscape and place. This idea of re-capturing 'genius loci' but with a broader, more systemic approach to experiencing the essence of a place as 'sense of place' influenced the prevailing thought in many environments.

As an example, the book *Place Attachment*, published in 1992, is a compilation of writings that expounds upon 'sense of place' from various perspectives. This book was compiled and edited by Irwin Altman, a former professor at the University of Utah who focused his education and research in the fields of psychology and social and behavioral sciences and the

[19] Donella Meadows, *Thinking in Systems* (White River Junction, VT: Chelsea Green Publishing, 2008).
[20] Edward Relph, Accessed October 3, 2024, https://utoronto.academia.edu/edwardrelph.

relationships between humans and their physical environments[21] and by Setha Low, a professor at City University of New York who has received numerous awards and accolades for her studies and writings in the fields of anthropology and historic preservation. The authors of the writings within *Place Attachment* describe 'sense of place' from many vantage points and assign it qualities that relate to the systems that form its circle of reference. One thing that all the authors seem to agree upon is that the 'sense of place' and the formulation of place attachment have a correlation and a corresponding effect upon emotions and feelings. In other words, places that derive special meaning, that invoke emotions and feelings, are places that individuals or cultures attach themselves to, and that create within them a feeling of a 'sense of place.'

The authors of the writings in *Place Attachment* describe these place attachments and the assignment of 'sense of place' to something from the perspective of their various disciplines. Louise Chawla, a psychologist and professor emerita in the College of Architecture and Planning at the University of Colorado, whose interest is in children's learning behaviors as they relate to places and environments, describes how in their early, formative years, children form attachments to places based upon where they trace their roots to or to places where they feel patriotism. Clare Cooper Marcus, an educator in the landscape architecture and architectural fields, talks about childhood memories related to environmental locations and

[21] Irwin Altman, Accessed October 4, 2024, https://csbs.utah.edu/alumni-spotlights/altman.php.

how a person links themselves to an environment, particularly during childhood, and views this time in their lives as almost sacred and transformative.[22]

The development of place attachment to a feeling of 'sense of place' as a "set of feelings about a geographic location that emotionally binds a person to that place as a function of its role as a setting for experience"[23] is described by Robert Rubinstein and Patricia A. Parmelee, an anthropologist and a social psychologist, respectively. Setha Low further defines this attachment and develops the idea of that experience as the idea that for "most people there is a transformation of the experience of a piece of land into a culturally meaningful and shared symbol, that is a place."[24] Low discusses cultural and historical sites and their assigned importance in this realm of place attachments and pilgrimages that people make to them for the purpose of forging bonds and creating linkages to these sacred locations. She also addresses the idea of telling stories as a method for perpetuating a bond with a place, solidifying the 'sense of place' within an individual. Additionally, Low points out that being aware of humans 'sense of place' can be used by designers and planners for awareness to understand environments and their significance.[25]

From a broad perspective, Denise L. Lawrence, professor of architecture at the College of Environment and Design at California State Polytechnic University, advises that "a strongly

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[22] Clare Cooper Marcus, "Environmental Memories" in *Place Attachment,* ed. Setha M. Low and Irwin Altman (New York, NY: Plenum Press, 1992), 87-89.

[23] Robert Rubinstein and Patricia A. Parmelee, "Attachment to Place and the Representation of the life course by the elderly" in *Place Attachment,* ed. Setha M. Low and Irwin Altman (New York, NY: Plenum Press, 1992), 164.
[24] Setha M. Low and Irwin Altman, *Place Attachment* (New York, NY: Plenum Press, 1992).
[25] Setha M. Low and Irwin Altman, *Place Attachment* (New York, NY: Plenum Press, 1992).

evocative place may suggest nostalgia, sentimentality, or inspiration as a result of its infused meanings."[26] Mary Hufford, Director of the Center for Folklore and Ethnography at the University of Pennsylvania notes that "the notion of place entails human experience, physical setting, and culturally based meanings and … the physical aspects of any space are attached to socially constructed worlds through inscriptions. Some of these inscriptions are physical, some mental."[27]

All these descriptions, from various perspectives identify the complexity of the concept of 'sense of place.' An attachment to a physical location can be initiated by any number of events, beginning with childhood attachments, a response to an identity, the way that a place affects a person through any of the senses, but a place that evokes feelings and emotions nonetheless, and leaves impressions and inscriptions upon our memories.

Irwin and Low, much like Tuan, present the importance of analyzing the concepts of 'sense of place' from a systemic viewpoint to understand all the reasons and the values associated with and assigned to this concept. In recent years, Low collaborated with Dolores Hayden, an architect, author, and urban historian. Hayden is professor emerita at Yale University. Hayden, like Low, has studied the concept of 'sense of place' from her own vantage point and authored several books relating to her field of expertise.

In her book, *The Power of Place*, Hayden observed that "the authors of books on architecture, photography, cultural geography, poetry, and travel rely on 'sense of place' as an

[26] Denise Lawrence, "Transcendence of Place" in *Place Attachment,* ed. Setha M. Low and Irwin Altman (New York, NY: Plenum Press, 1992), 212-231.
[27] Mary Hufford, "Thresholds to an Alternate Realm" in *Place Attachment,* ed. Setha M. Low and Irwin Altman (New York, NY: Plenum Press, 1992), 232-237.

aesthetic concept but often settle for 'the personality of a location' as a way of defining it."[28] In substantiation of this idea, Keith Eggener, the Marion D. Ross Distinguished Professor of Architectural History and head of the Department of the History of Art and Architecture at University of Oregon, writes about famous cemeteries and defines them in terms of their personality. Eggener waxes poetic about Pere Lachaise (figure 2.1), one of the largest cemeteries in Paris France. He describes its urban quality with cobblestone streets and tombstones mimicking little houses and neighborhoods[29] and creates a visual personality of the cemetery even for those who have never frequented it.

Indeed, my own personal experience with the Maple Hill Cemetery in Huntsville, Alabama (figure 2.2), creates for me a similar sense of place, and the mere mention of it brings about the visual imagery of the high stone walls that surround its perimeter, creating a fortress of protection for its inhabitants. I feel a fondness for my memories of time spent during childhood on its streets and atop one particular mausoleum. Sometimes, if I am feeling nostalgic, I long for the days that I used it as a playground retreat.

[28] Dolores Hayden, *The Power of Place: Urban Landscapes as Public* History (Cambridge, MA: The MIT Press, 1995) 15.
[29] Keith Eggener, accessed October 5, 2024, https://design.uoregon.edu/keith-eggener-worlds-most-famous-resting-place.

Figure 2.1. Père Lachaise Cemetery, illustrating the bordered streets and the mature landscaping, as well as the multitude of gravesites and mausoleums. (Photo by www.thepoortraveler.net.)

Figure 2.2. Maple Hill Cemetery entryway, showing the bordered streets and the mature landscaping, imagery like the Père Lachaise Cemetery. (Photo by Edward L. Bernstein.)

This idea of how memories can bring about nostalgia for a physical location is mentioned in *Place Attachment* by Lawrence as noted previously, and is explored in more detail in the book *Inhabiting the Sacred in Everyday Life*, written by Amber D. Nelson and Randolph T. Hester, Jr. Nelson is an architect, landscape architect, and author, and focused her graduate studies on the idea of public sacred spaces[30] and Hester is professor emeritus at the Department of Landscape Architecture, University of California, Berkeley, and director of the Center for Ecological Democracy. Hester is well known in the landscape architecture community for his ideas and writings about place and community design processes.

Inhabiting the Sacred in Everyday Life was written to provide practical guidance for design professionals, community leaders, and the public to collaborate to create meaningful spaces and places in the community. Nelson and Hester argue that design professionals

[30] Amber Nelson, accessed October 5, 2024, https://www.berkelyside.org/2017.

oftentimes focus their efforts on making design statements at the expense of the project budget, or on creating functional spaces to meet the immediate needs of the community. It is a thoughtful art to create a meaningful space that will serve the intended needs for which it was designed and becomes a meaningful space within the community. Nelson and Hester communicate the importance of recognizing that design professionals need input from community members to fully understand their internal perspectives and the hidden meanings of spaces. It is this valuable collaboration, the intertwining of the actor-network relationships with the physical geography, that begins to create and to link the spaces and places to the people.

Nelson and Hester explore various case studies and provide practical information for the reader to successfully maneuver this challenging approach to design. The end goal is to develop places and spaces that imbue meaning, connection, and value into the everyday fabric of the community landscapes. The book's overarching themes focus on the concept of place, a discussion of sacred places, the caretaking of them, the potential for forgotten places and the resurrection of them, and their meanings and benefits to individuals, as well as to the communities in which they exist. Nelson and Hester point out, "while we have articulated one way to intentionally create valued, healthy, and beautiful places, we realize we have merely broadcast seeds that others will cultivate and reap the harvests."[31]

[31] Randolph T. Hester, Jr. and Amber D. Nelson, *Inhabiting the Sacred in Everyday Life*, (Charlottesville, VA; George F. Thompson Publishing, 2019), 17.

That line ironically could be applied literally to the moon trees and the spaces that their establishment created. Consider the idea of broadcasting Stuart Roosa's moon tree seeds across the United States to various communities. The communities rallied during the Bicentennial celebrations to plant and pay homage to the trees as symbols of a great country that has seen scientific and technological advancements. In a way, it is a little ironic that a very basic element of nature is the chosen symbol for human progress. But then consider that these trees that grew from the seeds that were broadcast then became the catalyst for the creation of a cultural resource. This cultural resource became the home for school children's field trips, an educational centerpiece for libraries and heritage sites, landscapes for state capitals and other community buildings. And occasionally they nestled in the front or back yard of someone's personal residence. And here we are, so many years later, and they are a subject of discussion and a place to visit or to return to, a sacred place for this future generation to reap the harvest from seeds broadcast over fifty years ago.

The moon trees, perhaps initially an unlikely candidate to embody 'sense of place,' might be seen as such. With the various meanings, descriptions, thoughts, and discussions surrounding the ideas of 'sense of place' from different disciplines, from well-known academics, speakers, storytellers, and authors, the idea is worthy of consideration.

Chapter 3 – Context and Historical Background

"If you want to understand today you have to search yesterday." ~ Pearl S. Buck

Moon trees are trees borne from seeds that orbited the moon with Stuart Roosa, the command module pilot of the Apollo 14 mission. The majority of those seeds were germinated and subsequently disseminated across the United States as part of the Bicentennial Celebration of the United States in 1976. Many of those seedlings were planted and publicly celebrated with formal dedications. Public officials spoke, community color guards presented the flag, community high schools performed patriotic songs, and everyone present had an opportunity to revel in the celebration. Media documented the planting with photography and enumerated the event as local news and afforded everyone the opportunity to learn of the momentous occasion.

As time passed, most moon trees, particularly those without signage, were largely forgotten. They looked like any other tree of their species. As the trees aged, so did their active actor networks. The institutional knowledge of the trees began to fade, as did their existence. What happened to them? Did they survive? That is part of the question to be answered, as well as whether they had any meaningful impact upon the places and the people in the communities in which they were planted. If they hadn't been forgotten, could they have had an even greater impact?

Moon Tree Plantings

The story of the moon trees begins in 1971 with the United States Apollo 14 space

exploration mission. The crew consisted of Mission Commander, Alan Shepard, Command Module Pilot, Stuart Roosa, and Lunar Module Pilot, Edgar Mitchell.[32] Stuart Roosa, who had formerly worked for the United States Forest Service (USFS), was asked by his former employer to travel with 500 seeds from five tree species: loblolly pine, redwood, sweet gum, douglas fir, sycamore (figure 3.1).

Figure 3.1. Stuart Roosa with customized cannister fabricated to hold 500 seeds. (Photo provided courtesy of Rosemary Roosa.)

The USFS intended to study the seeds and their growth patterns in hopes of determining how, or whether, deep space travel would have any impact upon the trees. Following Apollo 14's successful mission to the moon, the seeds were returned to NASA, who used them in a year-long trial of germinating some of the seeds and growing them as seedlings. NASA subsequently abandoned the project due to their lack of suitable facilities to sustain the trees. They returned

[32] NASA's History Division, accessed August 11, 2024, www.history.nasa.gov.

the remaining ungerminated seeds to the USFS, who successfully germinated and developed a significant number of the remaining seeds. Scientific experimentation with the seeds and seedlings began to conclude just as the bicentennial of the United States was approaching. The USFS decided to disseminate these seedlings, which had become known within the agency as 'Moon Trees,' to various states for planting in local communities. Newspaper articles that were written about the planting of these seedlings suggest that the trees were planted as a tangible symbol of the bicentennial celebration which was intended to instill pride in the citizens of the United States for its accomplishments, particularly as related to space exploration.

Moon tree dedications were held across the United States, celebrations occurred, and in some instances, plaques were placed next to the trees to identify and commemorate them. And then, in many cases, those plaques became just another part of the 'landscaping,' often overlooked and unnoticed. Some deteriorated or were mowed down. And the trees became 'just' trees. Years passed and many of these moon trees were forgotten entirely.

Moon Tree Resurrection

In 1996, the story of the moon trees resurfaced. A third-grade teacher in Indiana, Joan Goble, was working with her students on a project about trees. One of her students mentioned to her that she knew of a moon tree near her Girl Scout camp, Camp Koch near Cannelton, Indiana. Goble was unfamiliar with what a moon tree was and visited the camp and discovered a sign identifying the tree as such. Subsequently, she emailed NASA to learn more about the moon tree and its significance.[33] She was directed to David Williams, NASA Space Science Data

[33] The Moon Trees, accessed August 24, 2023, https://nssdc.gsfc.nasa.gov/planetary/lunar/moon_tree.html.

Archivist, who also was unfamiliar with moon trees. However, this one e-mail prompted him to do some research and he eventually learned the story of the moon trees through newspaper clippings, letters, and memos discovered in the archives, and through discussions with employees of the USFS. He learned that no one possessed formal records or documentation regarding the seedlings' distribution and planting locations. Shortly thereafter, Williams created a web page dedicated to the moon trees, inviting people to submit images and information about the known whereabouts of any of them. That website is still active and Williams updates the information about each moon tree as he receives it, after verifying its legitimacy.[34]

The website, https://nssdc.gsfc.nasa.gov/planetary/lunar/moon_tree.html, provides a brief summary of the history of the moon trees, of Stuart Roosa, his relationship to the US Forest Service, and a table of the known moon tree locations, organized alphabetically by state. The table separates the moon trees that are still living from those that no longer exist and includes a section identifying trees that people have reported, but the accuracy of which has not yet been verified. Within this table are clickable links for moon tree images as well as links to media sources at each location: newspaper articles, videos, dedications, educational data, etc. These media sources provide a variety of documentation, ranging from articles announcing the coming of the moon trees, celebrating the original planting, planting anniversaries, educational events surrounding the moon trees, or re-dedication celebrations for 'found' moon trees.

[34] David Williams, telephone conversation with the author, 2021.

Several communities never ‘lost’ their moon tree, and they have honored them throughout the years with events held in their midst. Many communities employ the moon tree to foster education about space exploration and forestry and regularly host educational programs that showcase their moon tree.

The following chapter provides some insight into the varied lives of the moon trees through case studies of a random selection of trees. Some of them were planted and, with the passage of time, ignored, waiting for their day of resurrection. Others thrived as caretakers steadfastly nurtured and protected them. Regardless of their fate, each case study shows the individual life of the moon tree and some of the people whose lives were impacted by their existence.

Chapter 4 – Case Studies: Physical and Social Impacts

"Any landscape is a condition of the spirit." ~ Henri Frederic Amiel

Each moon tree has its own story to tell, as each tree has become enmeshed in networks of relationships that range from a close relationship with a caretaker to a small circle of friends to a broader transient audience of sightseers or educational groups. The case studies presented in this chapter describe the lives of several moon trees. All had similar origins yet their paths diverged markedly depending upon the level of actor-network involvement. Untangling the lives of these trees required maneuvering through people's memories, discovering tangible objects, and researching stored data. The result of this research unfolded into remarkable stories that culminate with pride in a community historic resource. The initial research centered on the trees that were planted in the state of Georgia, of which there are five, although the whereabouts of one remains undiscovered, for now. In addition to those in Georgia, there are several others discussed and these were selected based solely upon convenience during travel adventures throughout the course of the research.

The moon tree case studies below are told in the form of stories, as the adventure of re-discovering the trees and visiting those already documented is an important part of the research. The demonstration of actor-network theory that led to the re-discovery of some of these was not always a straight-line path to find the tree. Additionally, even when the tree's whereabouts were known, often unfolding the layers of the trees and their meanings to different people took some additional digging to unearth the heart of the stories.

Case Studies in Georgia

The following case studies detail the accounts of the re-discovery of the moon trees located in Georgia. As I began researching the locations of moon trees, it became apparent that there was only one well-known moon tree in Georgia, and it is the one located in the small town of Waycross at the Okefenokee Regional Educational Service Agency (RESA). It is, in fact, the only moon tree in Georgia that had a sign identifying it when I embarked upon my moon tree documentation adventures, and it seems logical to conclude that this is why it is the most well-known, and perhaps proof that inscription is successful. Many locals familiar with the moon tree in Waycross proudly proclaim Waycross as home of the only moon tree in Georgia, as evidenced by James Burchett's, Georgia State House Representative, announcement at the Waycross moon tree re-dedication event held in May, 2019.[35]

What started my research into the locations of moon trees was not the Waycross moon tree, however. I had not, in fact, heard of any moon trees prior to re-discovering the moon tree in Athens. A class project, a pollinator assessment of a public building, was the catalyst that brought to light the existence of the moon tree in Athens. This event subsequently prompted my exploration into the possibility that other moon trees existed in Georgia as well. Over a year's worth of research and networking revealed documentation of four Bicentennial moon trees planted in Georgia in the following locations: Athens, Atlanta, Macon, Savannah.[36] The surprising revelation is that the Waycross tree is an outlier. It was not one of the official Bicentennial trees.

[35] James Burchett, accessed May 20, 2019.
[36] *Georgia Forestry Magazine*, May 1976.

Athens, Georgia

My indoctrination into the moon tree mysteries began during the summer of 2020 in the town in which I live, while taking an online class entitled 'Plants and Pollinators' during the height of the COVID 19 pandemic. Our final project for the class entailed writing an assessment of the pollinator-friendliness of a public facility of our choosing. Given my career background is construction management, I selected the local government building that housed the building inspections department. We were required to contact the building officials and obtain permission to be on the grounds prior to performing the assessment. Because I was already familiar with the building occupants, I used my network to avoid having the police called on me for suspicious behavior.

During the writing of my final project report, I chose to research the history of the building to incorporate some context for the landscaping and the grounds. I searched the internet for the building address, 120 Dougherty Street, Athens, Georgia, and one of the images that appeared was a scanned newspaper article of the moon tree dedication in 1976 (figure 4.1).

The 'Moon Tree' Arrives

Representatives of the Athens Sertoma Club and local dignitaries met recently to plant a "Moon Tree" on land adjacent to the Athens Regional Library.

Athens was one of four Georgia communities selected to receive a moon tree from the U.S. Forest Service, and the Sertoma Club made the tree planting a Bicentennial project.

The moon trees are plants which have been developed from seeds carried to the moon by astronauts on Apollo 14. The seeds were planted by the Forest Service and the resultant seedings are now being transplanted in communities around the nation.

Let's hope the Athens moon tree will grow strong and tall and serve as a continuing reminder of the nation's achievements in space and the teamwork and dedication that made space exploration possible and successful.

Athens already has some famous trees. There's the one Spec Towns got at the 1936 Olympics in Berlin and, of course, the one that owns itself. The moon tree should feel right at home in our community, and we're glad to have it.

Figure 4.1. Article in the Athens Banner Herald 5/16/76 announcing the arrival of the Moon Tree to Athens, GA.

The thoughts that immediately occurred to me as I began to read the article were: “I don’t recall seeing a tree that I couldn’t identify, and that’s not a species that I recognize; what even is a moon tree?” As I finished reading, my excitement at this discovery grew rapidly. For context, I grew up in Huntsville, Alabama, home of the Marshall Space Flight Center and the Redstone Arsenal. My father was a ‘rocket scientist’ who worked on Skylab. Most of my high school friends had parents who also worked in similar careers and many of them now follow in their parents’ footsteps. Having a past affiliation with the space program connected me immediately with this moon tree and I was instantly enamored of it. My next question to myself was: “Why didn’t I know about this tree? Does anyone else know about this tree?” I determined immediately that it needed recognition. After all, Athens is home to ‘The Tree that Owns Itself.’ In my opinion, this tree needed similar recognition.

The following morning, I contacted the Athens-Clarke County Grounds Manager, Andrew Saunders, while I was on my way to a construction site meeting. I was aware that Andrew’s office was previously located in the 120 Dougherty Street building. I inquired if he was familiar with the moon tree there and whether I could donate funds to have a plaque erected to bring awareness to the public of this historic cultural landscape feature. Andrew responded rather apprehensively that he was aware of the tree’s existence, and that as the Grounds Manager, he could orchestrate the erection of a sign, but he cautioned me that the tree was likely to be reduced to a pile of mulch in the very near future. I was appalled and stated flatly that I would make sure that didn’t happen and inquired regarding the reason why the tree’s days were numbered. Andrew said that there was a large public housing project being undertaken that would involve several blocks of development in the area. There were currently negotiations

ongoing between Athens-Clarke County and the Athens Housing Authority to sell the building and its grounds for development. Andrew directed me to contact the local mayor if I wished to discuss the issue further.

I immediately placed a call to a friend who was also a former county commissioner. She was unfamiliar with the moon tree and was delighted to hear of such a treasure in our midst and eagerly contacted the mayor. She called me back after speaking with him to tell me that she was very disappointed in his response, which was that we should plan to gather seeds from the moon tree and be prepared to plant the 'son' of the moon tree. The response incensed me and as I hung up the phone, I simultaneously walked into my meeting, grumbling loudly to one of my co-workers about the issue. The meeting had not yet begun, as we were waiting for a couple of additional attendees to arrive. In the meantime, my uttering the words 'moon tree' piqued the interest of those already present and they asked for an explanation. I finished the story with, "so I just need to find someone who is working on that project so that I can make them aware of the existence of the moon tree." At that point, Buck Bacon, the civil engineer in the room raised his hand. I looked at him questioningly and he admitted that he was the site designer for the master plan that was currently underway for the proposed development. I retorted, "Well, you just need to go ahead and draw yourself a courtyard around my moon tree!" He laughed and said that he would include it in the agenda for the next meeting, and I requested that he please keep me informed of any updates.

Meanwhile, I continued to delve into the history of the moon tree and learned from the former Director of the Building Inspection Department, Phillip Seagraves, that the Athens Sertoma Club, an organization dedicated to improving the quality of life for those at risk or

impacted by hearing loss through education and support,[37] had been the group that had requested the seedling from the Forestry Commission for planting in Athens. The Athens-Clarke County Government Building where the moon tree was planted was formerly home to the Athens-Clarke County Public Library, and this was the facility originally selected for planting of the moon tree (figure 4.2). In conjunction with the tree planting, a fragrance garden was planted on the library grounds to allow those who were visually impaired to enjoy a garden. A sculpture was also installed in this garden entitled 'Shoot for the Moon' (figure 4.3) that was erected to continue the space theme across the building campus.[38] The overarching theme of inspiration, education, and inclusivity permeated the built environment at this location.

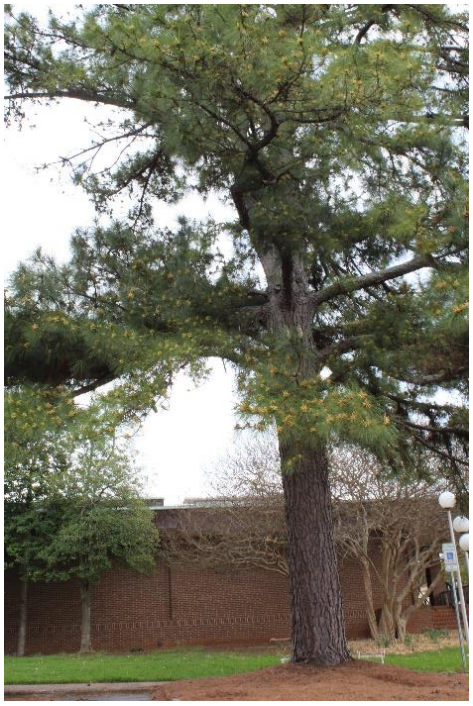

Figure 4.2. Athens Moon Tree located in front of the Athens-Clarke County Government Building, formerly the Athens-Clarke County Public Library. (Photo by MJ Ford.)

Figure 4.3. 'Shoot for the Moon' sculpture erected in the fragrance garden of the Athens-Clarke County Government Building, formerly the Athens-Clarke County Library. (Photo by MJ Ford.)

[37] Sertoma, accessed September 11, 2024, www.sertoma.org.
[38] Phillip Seagraves, telephone conversation with the author, 2021.

As the weeks following my conversation with Buck stretched out, he was unable to provide any real updates about any movement that might be occurring regarding saving the moon tree. Despite my numerous phone calls to the Athens-Clarke County Grounds Department for an update on the sign, they never seemed to show any progress. I began to fear that I was being pacified and that I would soon see construction fencing appearing around the site. I grew concerned and contacted the local newspaper, the *Athens-Banner Herald.* I shared with them the original 1976 article that they had published identifying the moon tree and requested that they bring awareness to the potential destructive situation. They were happy to oblige, and the article appeared in the paper within the week. I immediately began fielding phone calls from the local historical society and from interested citizens. The historical society offered to fund a sign, but I explained that was already supposedly in the works. They offered to host a re-dedication when the sign was installed, and they agreed to keep me informed of their plans.

Eventually, with the additional clamor created from various citizens, the sign did get produced and did get installed. I learned that the re-dedication plans included volunteering me to speak about the moon tree and its place in the nation's history as well as in the history of our community. I also learned that I was somehow suddenly responsible to request that David Williams, NASA's archivist and keeper of the moon tree website, and Rosemary Roosa, the astronaut's daughter, speak at the event. All of this was a bit of a last-minute adventure, but very fortunately, we were able to host an in-person re-dedication at the moon tree site (figures 4.4 and 4.5) and then to follow that up an hour later with a Zoom Meeting with David and Rosemary. Overall, it was a very successful 'saving of the Athens moon tree,' event. Several months later, I was able to successfully nominate the Athens moon tree to the status of a state

of Georgia Landmark. The Athens community created sufficient hype around its moon tree such that it will not soon be forgotten again.

Figure 4.4.Athens Moon Tree located at the Athens-Clarke County Government Building with the new sign installed during the re-dedication in 2021, the 50th anniversary of the Apollo 14 mission. (Photo by Jessica L. Ford.)

Figure 4.5. Athens Moon Tree sign installed during the re-dedication of the Moon Tree in 2021. (Photo by MJ Ford.)

For me personally, this one re-discovery of the Athens moon tree inspired me to fight for its survival. It seems to have been a convergence of several things that I am passionate about: community, history, my childhood memories, solving mysteries. Learning that we had been granted the opportunity to care for such a seemingly important part of our country's history inspired me to make every effort to protect it. It also sparked my curiosity to learn the entire history of the moon trees, which has led to an adventure attempting to locate the remaining three forgotten moon trees in the state of Georgia. My researching adventures via ANT have led to the successful identification of the locations of two of the missing moon trees: a loblolly pine

located in Macon, Georgia at the Georgia Forestry Commission's headquarters and a sycamore planted on the State Capitol Grounds in Atlanta, Georgia.

Atlanta, Georgia:

There is a Sycamore in Atlanta, located on the state capitol property (figure 4.6). It was planted by John W. Mixon, former Director of the Georgia Forestry Commission (1973-1995), when he was working for the Urban Tree Commission.[39] There was never a sign provided for it, but a conversation with Mr. Dixon revealed his fond remembrance of the sense of pride he felt in being a part of the dedication in 1976 and being able to be the one to plant the tree (John Mixon, 2024). Unfortunately, as the years passed, this tree was forgotten, as were so many others. The possibility of installing a sign to commemorate this tree is under discussion.

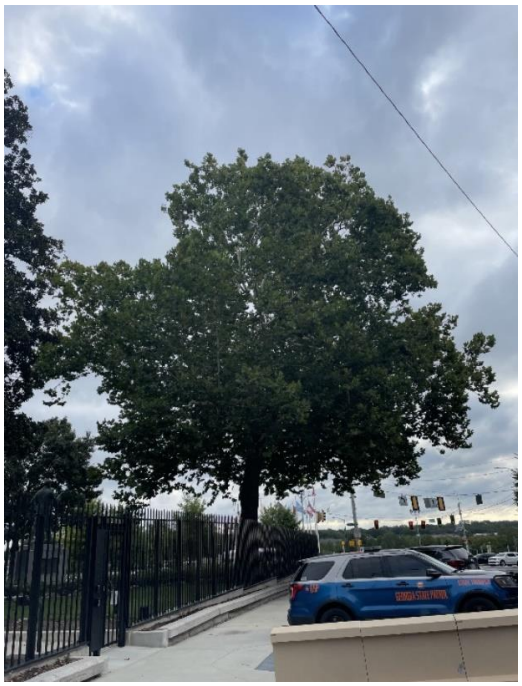

Figure 4.6. Sycamore Moon Tree planted at the Georgia State Capitol in July 1976. John Mixon, former Georgia Forestry Commission Director was present during the planting and identified its location. (Photo by Patrick Brown.)

[39] John Mixon, telephone conversation with the author, May 5, 2024.

Macon, Georgia

I learned from reading the article, "The 'Moon Tree' Arrives" published in the *Athens Banner Herald* on May 16, 1976[40] that there were four locations within the state of Georgia where moon trees would be planted. Athens was one of the four. Unfortunately, that article did not identify where any of the other three locations were. I should mention here that just about anyone who has ever heard the words 'moon tree planted in Georgia' has likely heard of the moon tree located in Waycross, Georgia. It has been touted as 'the only moon tree in Georgia' for a very long time (figure 4.7).

Figure 4.7. Facebook post by James Burchett, Georgia House District Representative, on May 20, 2019, erroneously identifying the Waycross Moon Tree as the only Moon Tree planted in Georgia. (Photo screenshot by MJ Ford 11/3/24.)

[40] The Moon Tree Arrives, *Athens Banner Herald,* May 16, 1976.

Even today, that is likely thought to be the case, as the rediscovery of the others is relatively recent. The Waycross moon tree is the only moon tree in Georgia that was identified with an interpretive sign acknowledging its significance and this likely is the reason why it is the one moon tree in Georgia that did not get lost to history.

When I read the article in the *Athens Banner Herald* about the Athens moon tree and learned that there were four total moon trees planted in Georgia, I searched the internet looking for the locations of the other three. The only other moon tree in Georgia that appeared was the one in Waycross. "Two known, two to re-discover," I thought at the time, although what I was unaware of was that the Waycross moon tree is an outlier and is not one of the Bicentennial four.

My resources to research historic periodicals was limited, as I had no idea in which cities to search. During my internet search, I did discover that there was a periodical entitled the *Bicentennial Times* (figure 4.8) that documented the planned upcoming events in each state for the Bicentennial celebrations but saw no mention of the Georgia moon trees in any articles that I was able to access.


Bicentennial Times

Centennial State Forges '76 Spirit

Radio and Television Syndicators Polled

Boston Mayor Views '76

Figure 4.8. Example of the Bicentennial Times that was published to identify activities surrounding the Bicentennial celebrations. The publication ran from 1973 – 1976. (Photo by MJ Ford.)

Fortunately, a chance encounter on a construction site tour of mass timber framing construction with the Director of the Georgia Forestry Commission, Tim Lowrimore, resulted in the eventual rediscovery and identification of the Macon moon tree. Lowrimore was unfamiliar with the moon trees and as I explained to him what they were, their significance, and the US Forestry Commission's role in the inception and dissemination of them, he became interested enough to assume the cause. Upon his return to his office, he asked one of his employees to search through the Georgia Forestry Commission's archives for articles written in 1976. The employee, Aubrey Deane, located an article that included an image of the planting and dedication of the Macon moon tree (figure 4.9).

►A "Moon Tree", a loblolly pine seedling grown from a seed that journeyed to the moon and back aboard Apollo 14, was planted at the Georgia Forestry Center near Macon. Participating in the ceremonies were, standing, Ray Shirley, director, Georgia Forestry Commission; Mrs. Carolyn Crayton, Kinder-Care Kindergarten; and Don Johnson, chairman, Macon Beautification Committee. John Clarke, forester, Macon District, assists Ben Bradshaw and Danielle Allen, both five, with the planting. Ben is the son of Mrs. Marion Bradshaw. Danielle is the daughter of Mr. and Mrs. Charles Allen. Similar "Moon Tree" plantings were held in Athens, Atlanta and Savannah.

Figure 4.9. Article from the Georgia Forestry Magazine showing the planting of the Macon Moon Tree in 1976. The two children chosen to assist with the planting of the moon tree are Ben Bradshaw and Danielle Allen. (Photo courtesy of the Georgia Forestry Commission.)

That article clearly states the location of the four Bicentennial moon trees in Athens, Atlanta, Macon, Savannah. Waycross is conspicuously absent from the list. The article also provides the address of the Macon moon tree as Lowrimore's own place of employment. I later learned from one of the older facilities employees at the facility that he had heard rumors quite some time ago about the moon tree having been planted on their site, but no one was familiar with it, nor did anyone have any idea where it might have been planted.

Lowrimore set about trying to identify the tree. His education and expertise as a forester proved beneficial, as he was able to identify the loblolly pines on the site and to determine which were in the potential 50-year-old age range. He was not, however, able to determine positively which of these was the moon tree. I visited the site and spent several hours exploring the grounds and came to the same determination that Tim did, that there were only two trees that could possibly be the moon tree. My determination was based upon the size and species of the trees as well as the location of them in proximity to the roadways as shown in the historic photograph. To determine conclusively which of the two trees was the moon tree, we needed an eyewitness.

The article itself mentions several names: four of these were the adults in the photograph and two were of five-year-old children who participated in the event and assisted with the planting of the tree. The only adult in the photograph still living is Carolyn Crayton, who is a long-time resident of Macon, Georgia. Ms. Crayton, now in her 90s, was a pre-school teacher at Kinder-Care Kindergarten, and it was two of her students who were pictured in the photograph. I contacted Ms. Crayton, and while she originally agreed to meet me to assist with

the identification of the moon tree, she later recanted, unsure if she could identify the tree and concerned about providing inaccurate information.

Months went by, and a fortuitous encounter at a construction conference afforded an introduction to Sam Macfie, a long-time resident of Macon. When I learned that he had lived in Macon his entire life, I showed him the image from the magazine, shared with him the tale of the moon trees, and asked if he knew or recognized any of the children in the image. He did not, but throughout the course of the conference, he continued to search the internet for the whereabouts of the two children named in the article. When the main portion of the conference ended and everyone broke for the construction jobsite tour, Sam said he was skipping the tour in favor of a trip to a house where he believed one of the now-grown children might live. He said he would return before the afternoon reception that followed the tour. I was surprised that this man, whom I had just met, was going to this extent to assist me in my research, but as a long-time Maconite, he was just as eager as I was to locate the child and excited to rediscover the tree.

While Sam's efforts that day were not fruitful, it was only a couple of weeks later that I received a phone call from him in which he excitedly shared that he had located Ben Bradshaw, the little boy from the image. He said he had not yet spoken to Ben but had met his wife. Following up on leads that he had obtained from his previous excursion, Sam was able to locate where Ben lived, and when he knocked on Ben's front door, his wife answered. Sam assured her that he was not selling anything. He asked whether the words "moon tree" meant anything to her. She was very surprised, and at the same time very excited and said, "Are you kidding me?" She then produced an electronic photograph on her cell phone of the image that I had shared

with Sam from the *Georgia Forestry Magazine*. Hers was a photograph of the copy that Ben's grandmother had kept on her refrigerator from the time it had appeared in the periodical until she passed away several years ago. Ben later told us that the paper copy was disintegrating when he removed it from her refrigerator, so he took a picture of it to document it before throwing away the original (figure 4.10).

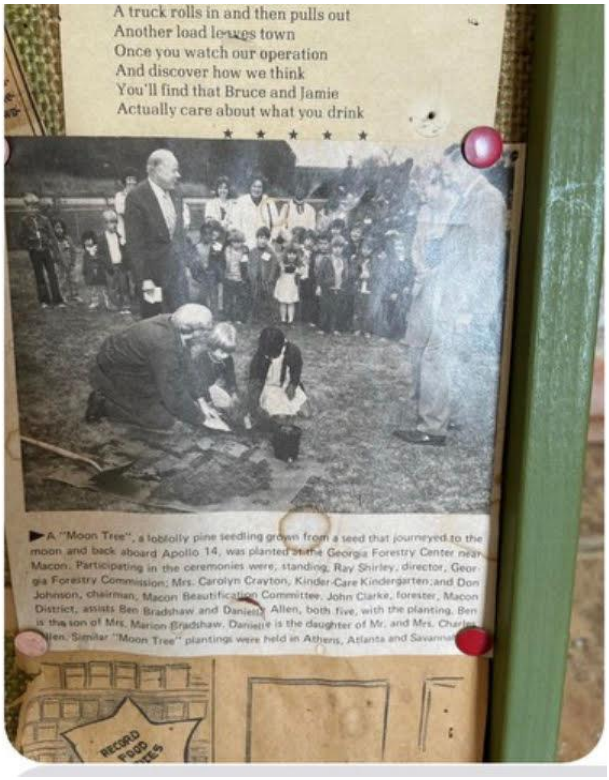

Figure 4.10. Image from Ben Bradshaw's grandmother's refrigerator where she had affixed a clipping of the article from the Georgia Forestry Magazine showing her grandson, Ben, assisting with the planting of the moon tree. This article remained on her refrigerator until she passed away. (Photo by Ben Bradshaw.)

Following that day's events, Sam and I both spoke to Ben on a three-way phone call and inquired about his memories of the moon tree. It was only a few weeks later that Sam also located Danielle Allen, the little girl that was also named in the article. Sam and I, thereafter, had a similar conversation with her. Ben and Danielle both commented on how the experience of that day had impacted their perception of space and inspired in them an affinity for space travel. Danielle commented that she had begged her mother to send her to Space Camp in

Huntsville, AL and Ben mentioned that he had developed an interest in astronomy stemming from that experience with the moon tree. They both mentioned how special they felt, beaming with pride at five-years old, for having been selected to help plant this special tree.[41]

With all of this, however, the Moon Tree still had not been identified and was still essentially lost. Despite being thought to be one of two trees, there was no conclusive evidence to indicate which tree it was. Ben was eager to visit the site, having wondered often throughout the years just exactly where the tree had been planted. It is interesting that the original dedication article says quite plainly where the tree is planted, but somehow Ben had never really noticed that and thought that it was located in the Ocmulgee Burial Grounds that are located a short distance from the Georgia Forestry Headquarters Facility.

I obtained permission from Tim Lowrimore to bring Ben onto the Georgia Forestry Commission Headquarters site (figure 4.12), which is a gated, secure site. I met him, one of the facility managers, and Sam and I took Ben first to the tree that I felt was most likely the correct tree based upon its proximity to the roadway, as well as the type and height of the fence line. I will add here that the profile of the roadway did not quite match up, but the fence line at the second tree didn't make sense to me either. Ben wandered around the tree but said that it didn't seem quite right to him. He didn't recall walking up the slight hill. He also recalled a building beyond the tree, and this didn't seem to fit his memory. We started walking towards the other potential tree (figure 4.11) and before we had quite gotten there, he got very excited and said, "this is it! I am positive! I remember walking from the bus this way and I remember

[41] Ed Grisamore, "Nearly 50 Years Later, Macon Reconnects with its Moon Tree," *The Macon Melody*, June 28, 2024.

that building and I remember we parked over there (as he pointed) and we walked this way!" Ben recounted every memory from excitedly raising his hand to volunteer to plant the tree, to getting dressed that morning and their arrival and the planting. It all sounded great, but one thing still bothered me, and that was the fence line wasn't quite right with the image in the photograph. The roadway profile and the tree aligned with the photograph, but not the fence. I commented on that, and the facilities manager casually said, "oh, we replaced that fence a few years ago." I inquired what the height was previously, and he held his hand off the ground a few feet. That clarified the discrepancy, and we were able to solidify the location of another Georgia moon tree.

Figure 4.11. Ben Bradshaw standing next to the Macon Moon Tree whose location he was able to identify and confirm. (photo by MJ Ford.)

Figure 4.12. Georgia Forestry Commission headquarters where the Macon Moon Tree was planted in 1976. (Photo by MJ Ford.)

Savannah, Georgia

The *Georgia Forestry Magazine* identifies Savannah as one of the four bicentennial trees planted in Georgia,[42] and the *Athens Banner Herald* mentions that the four moon trees to be planted in Georgia are two loblolly pines and two sycamores.[43] Considering that the two loblolly pines are in Athens and Macon and there is a sycamore planted in Atlanta, it can be deduced that the tree located in Savannah is a sycamore, but that is as much as is known about it. This moon tree's whereabout remains a mystery.

Waycross, Georgia

There is a moon tree, a loblolly pine, planted in Waycross, Georgia, at the Okefenokee Regional Educational Service Agency. The seed for this tree was provided to Don Berryhill in the spring of 1971 by Dallas Stewart, the Science Specialist for the Georgia Department of Education, shortly after the seeds had been returned from the moon. They nurtured this seedling until it was strong enough to be planted outside their facility.[44] However, it is worth noting that this moon tree was transferred to its permanent location as a seed. It was not a part of the Bicentennial celebration tree seedling disseminations. For approximately five years, this tree was the only moon tree in Georgia and until only a few years ago was thought by many in the area to still be the only moon tree in the state, until the re-dedication of the Athens moon tree in 2021.

[42] Georgia Forestry Magazine, May 1976.
[43] The Moon Tree Arrives, *Athens Banner Herald*, May 16, 1976.
[44] NASA's Goddard Spaceflight Center, accessed August 11, 2023, https//gsfc.nasa.gov.

The Okefenokee RESA is a science center that supports the educational missions of local school systems by focusing largely on science education and hands-on practical applications of science. Due to the influence of the moon tree and its notoriety, there is a dedication educational area on space exploration at this facility. Reba Smith, School Improvement Specialist, said they had re-dedicated their tree in 2019 in anticipation of the moon tree's 50th birthday and to honor Don Berryhill, who attended the celebration.[45] The re-dedication was also attended by Rosemary Roosa, astronaut Stuart Roosa's daughter, and James Burchett, one of the Georgia State House Representatives.

Waycross, a town of under 14,000 residents,[46] proudly displays its moon tree in front of the Okefenokee RESA educational building on the edge of Augusta Avenue, a short street connecting US Routes 82 and 23 (figures 4.13 and 4.14). Like many of the moon trees, there was no plaque installed when the tree was planted. However, the tree's celebrity status was well-known in the community due to the close-knit network of the community residents. It was officially labeled, however, when a plaque was installed approximately twenty years after its initial planting. As part of the rededication ceremony, the original plaque, which was beginning to wear, was replaced with a new one (figure 4.15). This will ensure the significance of the tree can be known by future generations. This tree has been a source of pride for the local Waycross residents since its arrival in town and their interest in maintaining awareness of the moon tree is demonstrated in how well they care for it. The facility is visited frequently by local school

[45] Okefenokee Regional Educational Service Agency, accessed August 11, 2023, https://okresa.org.
[46] United States Census Bureau, accessed August 11, 2023, https://www.census.gov.

systems and the moon tree is the welcoming committee, waving its branches in the wind, as the visitors turn into the parking lot adjacent to its home.

Figure 4.13. Waycross Moon Tree located in front of the RESA station on Augusta Avenue. (Photo by MJ Ford.)

Figure 4.14. Waycross Moon location for context in relationship to the building and the street. (Photo by MJ Ford.)

Figure 4.15. Waycross Moon Tree signage installed during the re-dedication ceremony. (Photo by MJ Ford.)

Bracey, Virginia

There is a moon tree that is situated on private property in Bracey, Virginia, according to NASA's moon tree website, but the address for it indicated that it was located within the River Ridge Campground. A phone call to the campground revealed that that it was a gated, residential community and visitors were prohibited unless they were expressly invited by a resident. Interested in visiting the tree to photograph it and its surrounding landscape, I implored the person on the other end of the phone, the office manager, to allow me to visit the site, explaining that it was related to my thesis research. The request was vehemently and firmly denied. I pondered how I could possibly change the office manager's mind and it occurred to me that, much like the moon trees, I needed an actor-network connection. I recalled that the

name of the person who planted the tree was Lavern Toone (figure 4.16), so I asked if he was a resident.

Figure 4.16. Lavern Toone, the man who planted the Bracey, VA moon tree. (Photo courtesy of Donna Toone.)

The manager's voice softened, and she stated that Lavern was a long-time former resident who had passed away only a couple of years prior. I said that the tree was a national monument of sorts, and I implored her to provide access to it. I offered that I was traveling in that direction in hopes that I could see it by the time I arrived in two hours. If she could find it in her heart to change her mind about allowing me into the campground, I would greatly appreciate it. She relented and said that she would check with her supervisor and call back shortly to confirm or deny whether admittance would be allowed. About 30 minutes later, she called me to confirm that I could visit the tree. I commented to my daughter, who was travelling with me, that the Bracey moon tree must be in a very well-to-do neighborhood. It was, after all, a gated community, and they seemed to be very strict about enforcing their rules about who could pass through those gates.

Upon arrival, I was rather surprised to find that the community was quite the opposite of a well-to-do exclusive neighborhood. What had been established in the 1970s as a summer season occupancy lakefront property and primitive campground, had subsequently grown into a collection of year-round residents who had placed permanent trailers or constructed ramshackle houses on their small lots. I met the facility manager at the entrance gate, introduced myself, and was surprised when the manager said, “Okay, where do we go? Where is this tree located?” I indicated that I really didn’t know, only that Lavern had planted it. My daughter and I climbed into the manager’s golf cart, and together and headed towards Lavern’s former residence (figures 4.17 and 4.18).

Figure 4.17. Lavern Toone’s carport adjacent to his house in Bracey, VA. Lavern scratched his name into the construction of the pilaster capitals below the blue spheres pictured in this image. (Photo by MJ Ford.)

Figure 4.18. Lavern Toone’s house in the River Ridge Campground in Bracey, VA. (Photo by MJ Ford.)

A quick walk around the premises revealed there was no moon tree on the site. The house itself was a patchwork quilt of cobbled-together materials, and the site was not much larger than the house itself. The manager was puzzled as to the potential whereabouts of the moon tree, and my daughter suggested that she look at the image of the tree from NASA’s website on my phone. The tree had a very distinctive tombstone-like, fully-engraved granite marker at its trunk base that would seem to be difficult to overlook (figure 4.19).

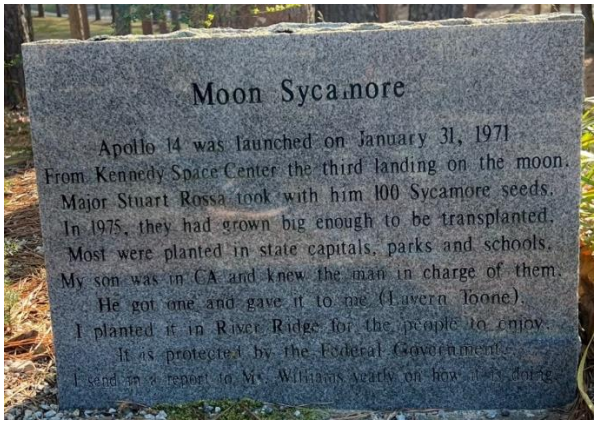

Figure 4.19. Granite marker installed by Lavern Toone at the Bracey, VA moon tree stating how Lavern obtained the moon tree seedling and the fact that he is in touch with Dave Williams, NASA archivist, regarding the annual health of the moon tree. (Photo by MJ Ford.)

The manager noticed that the picture indicated that the tree was in an open space. As all the houses in the campground were close together, she suggested that there were only two open space areas where she thought it might be.

As we travelled to the first of the two open spaces the facility manager suggested, we ran across one of the facility maintenance crew members travelling in the opposite direction in a similar golf cart. The manager stopped to ask him if he knew the whereabouts of the moon tree. He was unfamiliar with it. As we arrived at the first open space, it became apparent that the tree also was not there. Fortunately, we encountered another man in another golf cart travelling in the opposite direction, and he happened to be the former neighbor of Lavern Toone. No sooner did the manager inquire as to whether he knew of the moon tree than he exuberantly exclaimed, “Oh yes! Of course! Lavern talked about it often. I will take you right to it.” And he did take us right to it (figure 4.20). Ironically, the tree was situated just near the entrance to the residential community. We had passed it on the way to Lavern’s place without even noticing it.

Figure 4.20. Bracey, VA Moon Tree planted by Lavern Toone at the River Ridge Campground. (Photo by MJ Ford.)

After surveying and photographing the tree and its surroundings, nothing about the site was extraordinary, nor had anything beyond the usual growth patterns significantly changed since it had been planted. As we turned to leave, we thanked Lavern's neighbor. When we returned the golf cart to the office, the office manager mentioned that her aunt had been friends with Lavern's now-deceased wife. She had their daughter's phone number and would have her call me.

Several days later, Lavern's daughter, Donna, did call me. She told me about her father's passion for the tree, how it had inspired him and energized him, gave him purpose, and provided him with something that he saw as extraordinary to share within the community that he lived in and loved.

Gainesville, Florida

There is a sycamore planted at the corner of Museum Road and McCarty Drive on the University of Florida (UF) college campus (figure 4.21). It is a moon tree. This moon tree is unmarked, a decision that was made initially for its own protection, as the grounds crew was concerned that students might attempt to steal it. Inquiries of several UF staff and former students, including a former student who is currently on the UF Board of Directors, leads me to believe that this moon tree is likely known by only a small population of the UF students, faculty, and staff members. Even the former assistant facilities director was unaware of its existence until I made him aware of it by inquiring what he could tell me about its history and its impact on the community.

Figure 4.21. University of Florida's Moon Tree marks the entrance of a small pathway through a naturalized area. (Photo by MJ Ford.)

The moon tree was sited to allow it to serve as the entrance marker to a path through a natural, wooded area. Three moon trees were initially planted at this site: two loblolly pines and one sycamore. Unfortunately, the anonymity of the moon trees resulted in the two loblolly pines demise, as they were inadvertently killed by the grounds crew members who were unaware of their significance. There have been many changes to the built environment in this

area of UF's campus during the moon tree's 50-year life span. However, all these changes seem to have developed with indifference to the moon tree's existence. If anything, the moon tree seems to be impinging on the available development area. When I visited the site to observe the moon tree, there was an enormous amount of active construction occurring on two of the four corners of the intersection, and additional traffic cones had been placed at the moon tree site.

However, a thoughtful landscape architect, Jeremy Marquis, who was contracted to create a multi-use path between the Astronomy Lawn and the Physics building, became aware of the moon tree and was inspired by it, particularly given the nature of the facilities in this area. He decided to create continuity within the campus by referencing it as a design feature. The multi-use path will incorporate five offspring from their original moon tree (figure 4.22). It is anticipated that the new path will be completed prior to the end of 2024. Featuring the moon tree offspring will broaden the awareness of the original tree and should instill a sense of pride in the campus community. After all, they are one of only ten college and university locations in the United States that can claim to have a living moon tree as an educational resource on their campus.

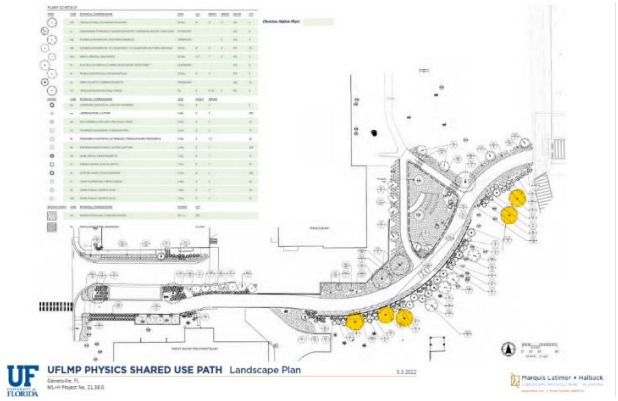

Figure 4.22. Image of University of Florida design for the new moon tree path adjacent to the campus Physics building. The moon tree path will be planted with five second generation moon trees (shown highlighted in the photograph). (Drawing courtesy of Jeremy Marquis.)

Keystone Heights, Florida

The sycamore moon tree in Keystone Heights is documented on NASA's website, and its location is easy enough to find using the information in Dave Williams' moon tree table.[47] Like the other moon trees, it is planted at a public space where it is accessible to everyone. It is located beside the Keystone Heights Public Library and on the edge of the Veteran's public park (figures 4.23 and 4.24). A granite marker at its base identifies it as a moon tree, and a glass display case to its side houses pertinent information about its history and its planting (figures 4.25 and 4.26).

Figure 4.23. Keystone Heights Public Library adjacent to where the Keyston Heights Moon Tree is planted. (Photo by MJ Ford.)

Figure 4.24. Veterans Park adjacent to where the Keystone Heights Moon Tree is planted. (Photo by MJ Ford.)

Papers affixed inside the glass display case reveal that the moon tree in Keystone Heights was promised to the city by a US Forestry Representative based upon a request by Bob Byrnes, a local nursery owner. Mr. Byrnes had requested one of the moon trees at the time of the

[47] The Moon Trees, accessed August 24, 2023, https://nssdc.gsfc.nasa.gov/planetary/lunar/moon_tree.html.

Bicentennial; however, the city of Keystone Heights did not receive their tree until the University of Florida gifted one of their seedlings to them in 1984.

Figure 4.25. Keystone Heights, FL sycamore moon tree located adjacent to the Keystone Heights Public Library and Veterans Park. Photo by MJ Ford.)

Figure 4.26. Keystone Heights, FL sycamore moon tree location adjacent to the Keystone Heights Public Library and Veterans Park and identifies the information about the Moon Tree for the general public. (Photo by MJ Ford.)

City residents demonstrated their pride in their moon tree by hosting a ceremony on February 7, 2015, to commemorate the anniversary of the planting of the moon tree. They regularly make efforts to make people aware of their tree for history and forestry lessons. Inside the library, there is an educational poster created by library staff for use in programs teaching about the moon tree and the space program (figure 4.27). The Keystone Heights Public Library staff is also collaborating with a Scottish artist to whom they have provided a collection of their moon tree leaves for her to use in an art installation in Istanbul, Turkey. The artist has promised to give credit to the Keystone Heights Public Library for their assistance with their art and they are excited about being a part of bringing more awareness to their ties to the space program.

Figure 4.27. Keystone Heights Moon Tree and educational poster created and sharing information about the Scottish artist who is fabricating art from the leaves. (Photo by MJ Ford)

Adjacent to the Keystone Heights Public Library is the Veteran's Park, which has a monument that includes a plaque with the heading "I am a Veteran," along with additional words honoring the meaning of being a veteran. The main plaque is surrounded by smaller symbols of all branches of the armed forces, as well as a plaque for the United States Space Command. The inclusion of this plaque pays homage to the symbolic moon tree standing erect in salutation, as if honoring each other, providing a fitting tribute for the part each has played in the history of the space program.

Tuskegee, Alabama

This loblolly pine moon tree is located at the intersection of Ola L. Mize Street and Tuskegee Airmen Memorial Drive on the Veterans Affairs Central Alabama Health Care System East Campus. A visitor enters the property via an allay of strikingly large trees and a parade of

American flags border the entry drive, creating a formal arrival procession (figure 4.28). It is an impressive entrance and forms a stark contrast to many of the buildings on the campus which suffer from neglect and deferred maintenance. They bear evidence of this with the plywood covered openings, the greenery growing from the roofs and the peeling paint on most surfaces.

Figure 4.28. Allay of trees at the entrance to the Veterans Affairs Central Alabama Health Care System East Campus where the Tuskegee Moon Tree is located. (Photo by MJ Ford.)

The moon tree, however, standing boldly at the first intersection beyond the allay (figure 4.29), is honored with a sign identifying its prominence and its proper place in history. The tree is fronted by a sidewalk but has a curved walk that stretches behind it as well, offering visitors and campus workers the opportunity to explore it on all sides. It has well-maintained shrubs planted beneath its canopy, and it is obvious that extra care and attention is given to this part of the campus that is home to an important resident.

Figure 4.29. Tuskegee, AL Moon Tree located on the Veterans Affairs Central Alabama Health Care System East Campus. The Moon Tree is identified with landscaping that identifies it as an important element on the campus. (Photo by MJ Ford.)

The tree is honored with a sign that reads, “In 1976, the Veterans Administration dedicated this tree to America’s Medal of Honor recipients whose gallantry and dedication to duty helped make America’s Bicentennial possible. This Loblolly Pine tree grew from seeds that orbited the moon aboard the Apollo 14 mission.” It is obvious from the care that is given to this tree that it is much more than just a symbol. It is as if the tree itself gives life to the men and women it represents.

While the modifications to the landscape resulting from this moon tree planting are fairly minimal and simplistic, there is as much attention given to formalizing this landscape with the additional shrubs and hardscape as there is to the remainder of the campus.

Case Study Summary

From the case studies presented, in each instance where the moon trees are planted, there is a story to be told. Sometimes that story is obvious and well-known. Sometimes, though, that story is hidden, sometimes waiting for re-discovery and the right moment to emerge. Many

of the moon trees have already been documented, but there are many more to be re-discovered and through the process of the actor-network theory, the hope is that they will all be re-discovered and allow their stories to be documented and heard.

Chapter 5 – Conclusion

"Finally, in conclusion, let me just say this." ~ Peter Sellers

The questions posed by this thesis, "Where on earth are the moon trees?" and "What impact, if any, they have had on the communities in which they were planted?" have been posed in an effort to evaluate, research further, and learn more about both the existing knowledge base of the moon trees and what is left to discover. This approach explores the moon tree's impact on landscape architecture, not only from a physical, geographical and design perspective, but also from a social and behavioral perspective as it relates to 'sense of place' and this concept as a holistic, emotional feeling of a place.

As described in Chapter 2 of this thesis, Amber Nelson and Randolph Hester describe how 'sense of place' is a culmination of several concepts: the concept of place, a discussion of sacred places, the caretaking of them, the potential for forgotten places and the resurrection of them, and their meanings and benefits to individuals, as well as to the communities in which they exist. The moon trees as presented in this thesis can be evaluated against these concepts.

Moon Trees as Concept of Place

Nelson and Hester's discussion of the concept of place centers on "places that touch our hearts and give meaningful form to everyday environments … each of us can create such places for our own welfare and for the public good in concert with others in our home communities."[48] Each person has meaningful places that are special to them, that invoke feelings and emotions

[48] Randolph T. Hester, Jr., *Inhabiting the Sacred in Everyday Life,* 13.

when contemplated and remembered. The National Historic Preservation Act of 1966 was borne from such places. It was created in response to a lengthy struggle by a grassroots movement to stop the federal government from destroying those places that held meaning for so many individuals. On a much smaller scale, local acts occur more frequently. People strive for change in their communities that will bring about positive results. Sometimes this is in relation to saving sacred places that have 'touched their heart'. Sometimes this is about creating special places, such as the moon tree sites.

Each moon tree was planted as a symbol of community pride, having been planted as a symbol of the Bicentennial celebration for the purpose of bringing each community together to celebrate the birth of the nation 200 years later. Whether they voiced this intention or not, those who suggested the moon tree plantings surely hoped for the outcome that Nelson and Hester described: to create a positive change for the public good. The simple act of planting a moon tree created places that symbolized the collective accomplishments of so many. They provided a tangible agent that gave meaning to everyday environments: the colleges and universities, the school systems, the parks, and the many other locations in which they were planted. The moon trees dug their roots in deeply not only to the soil, but to the communities where they lived. The moon tree plantings served as tangible markers in the earth that people could visit and remember America's fight for freedom and its accomplishments. Sending men to the moon, albeit with moon tree seeds in tow, was a significant achievement.

Moon Trees as Sacred Places

As the moon trees grew and became members of their communities, each of these locations became a sacred place, or place of significance. The moon trees, like "all sacred places, form a connection between architecture and landscape, past and present, public and private, macro and micro, near and far, dependency and autonomy, precision and intuition, community and self, life and death…"[49] The moon trees are tangible places to visit, to remember, and to reminisce. In many cases, they are places to provide shade for picnic places, to sleep and to dream, places to learn about history, places to play hide-and-seek, places to learn about America's scientific and engineering feats and technological accomplishments. They are places to imagine a future yet unknown, symbolizing the vastness of space travel yet to be explored. And they are also just places to 'be.' They are sacred places that mean something to someone.

The Caretaking of Moon Trees

The idea of caretaking is a self-explanatory concept: to take care of. But what makes someone take care of someone or something? Sometimes it is from a sense of obligation and other times from a sense of desire. There can be multiple reasons for caretaking, including a sense of pride or a sense of ownership. Feeling responsibility for a place, regardless of legal ownership, oftentimes incites a desire for caretaking.

The moon tree plantings occurred in multiple states in a variety of types of locations, each of them unique, each creating an opportunity to create a sense of place for someone in the community. The documented locations of the trees exist because someone retained the

[49] Randolph T. Hester, Jr., *Inhabiting the Sacred in Everyday Life,* 57.

history of the planting, made a site visit, or because of an actor-network relationship. These locations have become sacred places for someone. But these sacred places are only meaningful when their whereabouts are known. Nelson and Hester expressed the importance of caretaking to ensure the longevity of sacred places. “Places that touch our hearts and give meaningful form to everyday environment– in our homes, places of work, neighborhoods, public landscapes, towns, and cities – must be cared for and created.”[50] Without proper caretaking, many of the trees slipped into anonymity.

The moon trees that became well-known within their communities were cared for in a variety of ways. Some were simply carried around in peoples’ memories or were documented amongst a small group, such as within the college archives of the campus where they were planted. The most common, and arguably the most successful, caretaking method was by being honored with a sign recognizing them for their space travel and the important symbology of this event. President Gerald Ford, United States president at the time of the moon trees’ flight, said in a telegram that was sent to be used for the Bicentennial tree planting ceremonies, “This tree which was carried by Astronauts Stuart Roosa, Alan Shepard, and Edgar Mitchell on their mission to the Moon, is a living symbol of our spectacular human and scientific achievements.”[51] This statement was inscribed on the dedication signs for many of the moon trees. It seems appropriate to correlate this to Shel Silverstein’s book, *The Giving Tree*, in which the little boy that he gave so much too eventually came to retire on his stump as an old man. The giving tree, with nothing left to give, was finally having his own needs met. Silverstein

[50] Randolph T. Hester, Jr., *Inhabiting the Sacred in Everyday Life,* 13.
[51] NASA, accessed August 24, 2023, www.nasa.gov.

declares “and the tree was happy.”[52] I cannot help but think that placing the sign adjacent to the tree is akin to the old man sitting on the tree stump, and thinking to myself, “and the tree was happy.”

Moon Trees Forgotten and Resurrected

Unfortunately, many moon trees did not receive signs, whether because of lack of forethought, funds, or any number of other reasons. In the case of the moon trees planted on the University of Florida’s campus, the facility grounds department was concerned about theft, given the trees’ notoriety and the Greek Life’s penchant for pranks.[53] The moon trees needed caretaking, and as Nelson and Hester point out. “Any place you take care of is special. The most essential and least glamorous aspect of inhabiting the everyday sacred is taking care of a place in both large and small ways…it is sustained only so long as it has formal and informal custodians – the users themselves – to love and care for it. Another measure of affection for place is to defend the spot when it is threatened with disrepair and change. A guardian would probably be motivated to fight for its preservation because of its importance in daily life. To steward the community as a sacred place requires knowing its ecology and people, its strengths and weaknesses, and conveying that knowledge to others. Then the place can offer benefits not only to individuals, but also to the community and environment … effectively they become symbolic owners.”[54] Although moon trees are capable of surviving in nature as just an ordinary tree and living a normal life expectancy barring any adverse weather impacts or negative human

[52] Shel Silverstein, *The Giving Tree*, (New York, NY: Harper Collins Publishers, 1964).
[53] Krausneker, Verena. Transcript of interview with Noel Lake. April 15, 1996.

[54] Dolores Hayden, *The Power of Place*, 229.

interactions, without being cared for, without interpretive knowledge, without a caretaker to perpetuate their history, the trees eventually become lost as a sacred space.

The lack of interpretive information for some of the trees eventually led to many of those trees being forgotten about or being lost to history. As the moon trees aged, so did their network. And with the aging and eventual disappearance of actors within their networks, many of the moon trees relied on their interpretive signage to be their voice. And with this voice, they were able to grow a new network. Unfortunately, many of the trees did not have this alternate voice and they faded into anonymity.

However, the loss of a sacred space can also be temporary. Nelson and Hester discuss the potential for forgotten places and the resurrection of them as an additional act of caring for a sacred space. In the case of the moon trees, there have been several that were seemingly lost forever, but the use of one or a combination of periodical research, investigative research, and actor-network relationships divulged more than one moon tree location, despite their lack of interpretive signage. The resurrection of these locations has resulted in rededications, a resurgence of pride, and renewed ownership.

One recently resurrected moon tree was planted on land owned by the Georgia State Forestry Commission in Macon, Georgia. Although the tree is visible from the public roadway, it is located behind fencing and guarded by security personnel and is available to visitors by appointment and special permission only. Despite these physical limitations, public awareness of a tree of such significance has been greeted with excitement, renewed interest, and a hope for a re-dedication, including support for the installing a sign documenting its spectacular

beginnings. The June 28, 2024, *Macon Melody* newspaper headline "Nearly 50 years later, Macon reconnects with its moon tree" provides a glimpse into the article that tells the tale of the two now-grown children who took immense pride in being part of the moon tree planting celebration in 1976 when they were both five-years-old. One of these then-children, Ben Bradshaw, is quoted as saying "The biggest thing for me was remembering where it was, to see how it has grown, and to think 'I planted that … well, I patted some dirt.'" The other then-child, Danielle Allen, says, "I just remember that day feeling cute and special in my little dress … and I was glad I got a chance to be one of the ones to help put it in the ground."[55] Both Ben and Danielle shared that they are excited and thankful to see the moon tree re-discovered and have wondered for 50 years where the tree had been planted and whether it still existed. They had often wanted to visit its location but simply didn't know where the tree was. Now that the site is documented on NASA's moon tree website, and Maconites are aware of its existence, there is renewed interest in its significance as a tangible piece of Macon's historic landscape.

The Meanings and Benefits of Moon Trees

As with all sacred spaces, the inherent benefits and meanings can be tangible, as well as intangible. Each moon tree is inherently characteristically and physically different. While some are planted in similar types of places, such as within the landscaped space of an important public building, a college campus, or a K-12 school yard, each moon tree creates a physical space with an individual personality.

[55] Grisamore, *The Macon Melody*, June 28, 2024.

Just as people are drawn to other people by their personalities, people are similarly drawn to places with distinct qualities. Attachments are formed and "the power of place – the power of ordinary urban landscapes to nurture citizens' public memory, to encompass shared time in the form of shared territory"[56] applies to the moon tree landscapes just as it applies to other places. "Environmental psychologists Setha Low and Irvin Altman define 'place attachment' as a psychological process similar to an infant's attachment to parental figures. They also suggest that place attachment can develop social, material, and ideological dimensions, as individuals develop ties to kin and community, own or rent land, and participate in public life as residents of a particular community."[57] The attachment to these places "nurtures their inhabitants, and they, likewise are nurtured in a cycle of mutually beneficial give-and-take. In this reciprocity, places are not inert, but active players … what people share as most valued in their public landscapes creates civic pride and a safer environment, increases acts of voluntary care and stewardship, strengthens the local participation in a ground-up democracy, beautifies and heals an area, and offers a greater sense of belonging."[58]

Inquiries into the individual stories of the moon trees reveal that there is a bond between the moon tree landscape and the individuals of the community, as well as a bond between the tree and the community that chose it. In her book, *The Power of Place*, Dolores Hayden argues that "public space can help to nurture the more profound, subtle, and inclusive sense …" and "identity is intimately tied to memory: both our personal memories (where we have come from and where we have dwelt) and the collective or social memories interconnected with the

[56] Dolores Hayden, *The Power of Place*, 9.
[57] Dolores Hayden, *The Power of Place*, 9.
[58] Randolph T. Hester, Jr., *Inhabiting the Sacred in Everyday Life,* 14.

histories of our families, neighbors, fellow workers, and ethnic communities."[59] The collective memories of those involved with the original planting of the moon trees, those selected to plant the trees as well as those who were present and who observed the moon tree planting demonstrate a sense of pride and feeling of being distinguished. That memory forges their bond with that space. "The places of everyday urban life are, by their nature, mundane, ordinary, and constantly reused, and their social and political meanings are often not obvious." "The power of place – the power of historic urban landscapes to help nurture ordinary citizens' collective memory…people in a landscape have unique understanding of its landmarks …"[60] Research revealed that some people think of the moon trees as 'just' trees; there is no visible physical difference nor any inherent structural or genetic alteration of the moon trees. Their differentiation from any other tree lies solely in their humble beginnings as space travel companions. Yet, those who carried them, planted them, observed their planting, nurtured and attended to them, or learned of their unusual beginning find a connection, the creation of a sense of place that they command, when they are in their presence.

Concluding Commentary

Is a tree that developed from a seed that traveled to the moon and back 'just' a tree? According to Gerald R. Ford, who was the president of the United States during the bicentennial, "This tree is a living symbol of our human and scientific achievements. May this young tree renew our deep-rooted faith in the ideals of our founding fathers. May it inspire us

[59] Dolores Hayden, *The Power of Place*, 9.
[60] Dolores Hayden, *The Power of Place*, 227-229.

to strive for the kind of growth that benefits our own citizens and all mankind."[61] How does a moon tree accomplish that renewal and provide inspiration? Traveling to the moon provided it with the ability to cause others to act on its behalf. It gave the tree agency and power.

Moon trees were planted in a very deliberate manner, typically in a central community location, accessible to the public to instill pride in the community and in the United States. Dedication ceremonies were held in honor of the trees as symbols of pride in America and they were celebrated. They had newspaper articles written about them, and in some cases, they were honored with plaques quoting Gerald R. Ford's words. People made personal connections with these trees, and they told and re-told their stories. The networks grew and the influence of the moon trees grew with the networks.

Much like my own story of the Athens moon tree, where I now have a personal attachment to the tree resulting from my experiences with it, there was someone before me who holds a similar personal attachment. And it's not just one person, but many people, who can claim that a moon tree in a particular city, or all the moon trees in general, hold some meaning for them.

Unfortunately, though, sometimes the actor-network relationship falters or breaks. The communication stalls and relationships fade, halting the ability of the trees to have agency upon others. In the case of the moon trees, people make the false assumption that others know what they know, and the memories may die with them. Unless the information is documented

[61] Lee Mohon, accessed September 11, 2024, www.nasa.gov/history-of-moon-trees-stand-as-living-testament-to-first-voyages-to-moon.

somehow, the trees can be lost forever. Fortunately, many of the moon tree dedications were documented, and with the advent of the internet, and scanning of historical documents, a good internet search engine can be used to find information that might otherwise be difficult to retrieve. The internet also provides an incredible method for communication to enable sharing of information, such as that provided to David Williams to post on the NASA moon tree website.

Ultimately it is incumbent upon actor-network relationships to ensure the survival of the moon trees and their history. People react to places and spaces differently, however, and what is appealing to one person may not spark interest in another. Some of the moon tree case studies reference trees that were planted in a stagnant environment; their surrounding landscape remains the same today as the day the trees were planted. Some moon trees were planted and landscapes purposefully developed around them to distinguish them and to set them apart from ordinary trees. It is not possible to say that one of these approaches to landscape design is more appropriate than the other, given the difference in peoples' perceptions of what connects them to a place. However, what is apparent, is that the more well-known moon trees do have some form of human intervention, such as interpretive signage, or a distinguishable landscape. Additionally, they often have activities and events surrounding them. The moon trees with viable actor-network relationships seem to be the ones that thrive, whose stories are widely told and are broadcast on media outlets. Creating the broader network, through interpretive signage, through public awareness through educational activities, through periodic, and perhaps annual, celebratory events, seems to be a crucial element in maintaining a healthy network of actants to perpetuate the awareness of the moon trees.

Each moon tree has a story to share, and they rely on actors to share their stories and to grow their networks to insure their survival. The moon tree networks include people like Rosemary Roosa, whose father, Astronaut Stuart Roosa, was responsible for the inception of the moon trees. It includes David Williams who hosts the moon tree website and provides the repository to capture all the moon tree stories. Lavern Toone took such pride in the moon tree he planted that he set up a monument whose words engraved in it clearly demonstrate the pride he felt in caretaking for it. Jeremy Marquis has been fortunate enough to design a landscape walk meandering amongst the moon tree children, knowing that the momma is not far away. And there is Don Berryhill who must have held a particular sense of pride, having one of the seeds and successfully germinating it to plant one of the first moon trees to grace public land. These are a small subset of the stories of the moon trees and how their actor-networks illustrate the agency of the moon trees, demonstrating their strong will and their resilience and how their relationship with the moon has forged for them the ability to enrich the lives of their ever-expanding networks.

So, repeating the question, is a tree that developed from a seed that traveled to the moon and back ‘just’ a tree? The answer to that is in the stories that have been told and re-told of the different moon trees scattered across the United States and beyond. The answer is in the landscapes that have developed around and because of the moon trees to pay homage to their history. And that answer is a simple two letter word: no.

Areas for Further Research

There are potentially many more moon trees yet to be rediscovered and with some effort and research through historical periodicals and ANT, location of them should be possible. Documenting the remaining trees and their impacts on the landscapes is one possible area for additional research.

There are many second-generation moon trees and understanding the correlation between these and the first-generation moon trees to create a family tree is another possible area for additional research. Additionally, considering that the moon trees are living beings, they have a finite lifespan. Addressing their ultimate demise, gathering peoples' thoughts on how best to honor their legacy, either with a 'child' of the moon tree or some other means, is a topic that should be addressed.

Recently, NASA's Office of STEM Engagement partnered with US Department of Agriculture Forest Services to fly five species of tree seeds aboard Artemis 1. It will be interesting to learn if we have learned anything from the anonymity of many of our original moon trees and whether we apply that knowledge to ensure that we don't 'lose' any of the Artemis moon trees. Documenting them and studying their community impact, as well as their possible correlation to the Apollo 14 moon trees would be an interesting research adventure.

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