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GIS on the Qualla Boundary: Data Management for the Eastern Band of Cherokee Indians Tribal Historic Preservation Office

Emma Mason

GIS ON THE QUALLA BOUNDARY:
DATA MANAGEMENT FOR THE EASTERN BAND OF CHEROKEE INDIANS TRIBAL HISTORIC PRESERVATION OFFICE

by

EMMA C. MASON

Under the Direction of Jeffrey B. Glover, PhD

ABSTRACT

The use of Geographic Information Systems (GIS) has become increasingly important for the preservation of cultural resources by tribal entities. This project serves as a platform for the management of archaeological site data on the Qualla Boundary to be used by the Eastern Band of Cherokee Indians (EBCI) Tribal Historic Preservation Office (THPO) members. Over the course of a year, data was gathered from various agencies in order to export and create geospatial data that can be visualized, analyzed, and managed using ArcGIS software. A map and detailed data set were created to provide the user with the locations and attributes of archaeological sites, which can be used by the EBCI THPO as a tool for archaeological research and to protect sites on the Qualla Boundary. Additionally, a preliminary settlement pattern study was performed for the broader Qualla Boundary, along with a more in-depth analysis of sites along the Oconaluftee River.

INDEX WORDS: Cherokee Archaeology, Geographic Information Systems (GIS), Digital Data Management, Digital Archaeology, Eastern Band of Cherokee Indians (EBCI), Indigenous Archaeology, Settlement Pattern Research

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DEDICATION

To my parents, Carl and Jennie, for instilling in me early on

the importance of pursuing my dreams,

And to Forrest for being beside me through it all –

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1 INTRODUCTION

1.1 Purpose and Long-Term Goals

This project is a GIS-based compilation of archaeological site data and a study of settlement patterning within the Qualla Boundary (Figure 1.1), the official land boundary of the Eastern Band of Cherokee Indians (EBCI) in southwestern North Carolina. The Qualla Boundary is approximately 57 thousand acres and is part of the Appalachian Summit. This region is defined by Kroeber (1963) as the Cherokee heartland and highest point in the Appalachian mountain range that lies within the Blue Ridge Province (Duncan and Riggs 2003:3). The purpose of the project is to create a storage locale of comprehensive archaeological data for use by the Eastern Band of Cherokee Indians Tribal Historic Preservation Office (EBCI THPO) for the management of study of their cultural resources.

Due to the history of archaeological research and cultural resource management, archaeological data for the Qualla Boundary is spread across various agencies, making it difficult to easily access pertinent information for fieldwork and resource management by the EBCI THPO. The purpose of this project is to create a single database, including previously existing data and also newly added data, as a tool for the EBCI THPO. Additionally, using GIS software, I conducted a preliminary settlement pattern study to serve as a test case for the types of analyses that can be performed using these data and GIS. Given that the main deliverable of the project is the GIS database and associated map for the EBCI THPO, site locations and other specific data are left out of this thesis due to the sensitive nature of the data.

In order to understand the importance of an archaeological site database for the ECBI THPO, it is necessary to provide context for what the office does. The EBCI THPO manages cultural resources over a vast landscape. They are responsible not only for archaeological and

historical sites on the Qualla Boundary, but also for land across parts of eight states once occupied by the Cherokee Nation (Townsend 2011). Given the sheer amount of land coverage and the extensive amount of cultural resources in these places, the dedicated staff has a very intense workload. Additionally, the office has obligations to their community, and they act as the liaisons of cultural heritage to Cherokee Elders and the rest of the community. Given the significance of their work for the community and the vast area they have to cover, a comprehensive GIS database of all the recorded cultural resources on the Qualla Boundary will help the EBCI THPO members to conduct their work more efficiently.

The process of building the database included identifying as many archaeological sites on the Qualla Boundary by sorting through site forms and site reports spread across North Carolina and Tennessee. After referencing USGS (United States Geological Survey) Quadrangle maps marked with sites and existing data from records, I compiled a preliminary list of sites. From here, I created a spreadsheet with lists of various attributes for all known sites. The list includes all recorded archaeological sites to date within the Qualla Boundary and, thus, provides the EBCI THPO with a strong and flexible foundation that can be added to in the future.

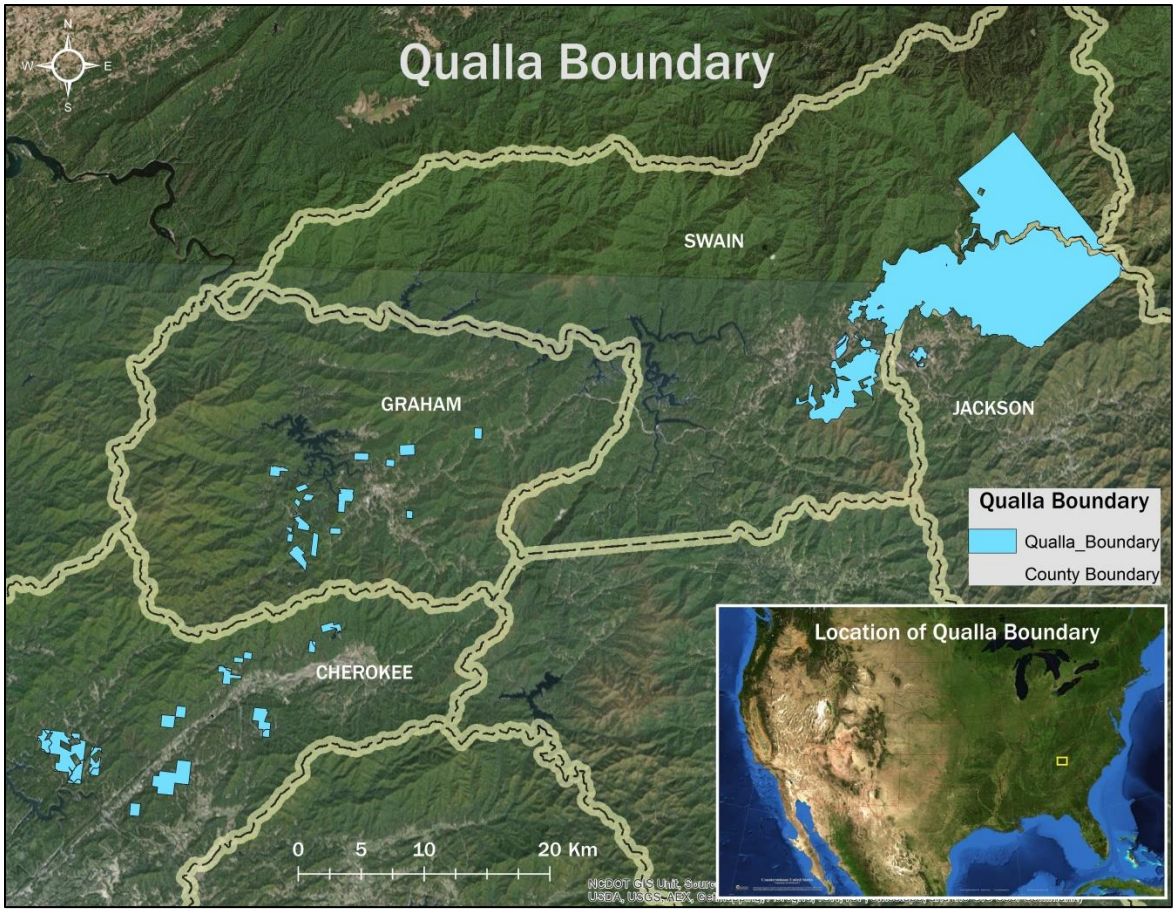

Figure 1.1 Project area showing the Qualla Boundary in southwestern North Carolina.

Sifting through site reports and other records led to the creation of a substantial amount of data for this project that was transformed into files for ArcGIS. Site dimensions and shapes were transposed into shapefiles in the map that were color-coded by time period. Points and polygons representing sites were placed in their approximate locations within the Qualla Boundary. The key georeferenced images that constitute the basemaps are satellite imagery, North Carolina hydrography, North Carolina county boundaries, a demarcation of the Qualla Boundary, and USGS Quadrangle maps of the area. These images are layered in such a way that the Qualla Boundary lies on top of the county boundaries, which lie on top of the hydrographic data, and so

forth. Combining these layers with the site shapefiles allows to EBCI THPO to visualize the spatial scale of all data included in the map.

1.2 Building a Digital Repository for the EBCI THPO

A number of digital archaeological repositories in the United States are available for public and private use, and their accessibility varies depending on who is using the platform (i.e. the Georgia Archaeological Site Files, tDAR). Creating a digital repository of archaeological data is crucial in keeping with modern practices of the management and storage of data. Additionally, having a singular database containing locational and descriptive data for sites is beneficial and convenient for the EBCI THPO, as archaeologists within the office can use the database and map as a point of reference before survey or research.

McGuire (2008) notes that true indigenous archaeology entails building a lasting relationship between archaeologists and the indigenous community with whom they work. A primary facet of this type of archaeology is going beyond standard community archaeology and developing a partnership with the community (McGuire 2008: 80). The nature of this particular project is ongoing and will require regular maintenance, both in the social and technological sense of the word. As more sites are discovered and more data becomes available, this information will need to be added in order for the platform to be up-to-date and sustainable. It will be necessary to continue working with the EBCI THPO in order to address any technological issues and to provide assistant in retrieving and inputting data. Additionally, in order for this to be a truly sustainable endeavor, it will be necessary to demonstrate the basic functions of data entry, management, and modification to the EBCI THPO. There are many challenges in learning the interface and vast array of functions within ArcGIS software, and

because of this and for many other reasons, it is proper to maintain a working relationship with the THPO.

The following chapter outlines the necessary components of the project. First, I discuss theoretical insights on the role of GIS technology in archaeology, the use of GIS for cultural heritage purposes by indigenous communities, the importance of collaboration between archaeologists and tribal groups, and the importance of digital data management to cultural resource management.

The third chapter examines the history of settlement pattern studies in the Southeast and, more specifically within the Appalachian Summit. In reviewing the settlement pattern literature, I discuss how interpretations of the role of the built and natural environment within Cherokee culture have changed over time. In particular, I look at how the concepts of space and place shape scholarship in the area.

The fourth chapter discusses the ecology of the Appalachian Summit, and explains the important role of geography in constituting Cherokee culture. I give a brief overview of the chronological periods of human history leading up to the present in the region, from the Paleoindian period to the Trail of Tears. Within these sections are descriptions of artifacts, architecture, and subsistence characteristic of each period. Major sites such as Garden Creek Mound No. 2 and the Warren Wilson site are also examined. This chapter concludes with a discussion of Cherokee ethnogenesis, what it means to have a shared Cherokee identity, and how aspects of language, architecture, and community contribute to this idea.

The fifth chapter of this thesis details the methods used in completing this project. I discuss how the project was started, how I gathered archaeological data from various agencies, and how this information was entered into a standardized database. I discuss limitations in the

above processes, and detail the process of creating a mapping platform to store these data. Next, I describe the layers that make up the map, and how these datasets ca be separated according to attributes. Examples of what the map looks like for certain cultural components are provided.

The following chapter discusses the results of the project which include quantified data about sites, details of the layout and organization of the map, limitations encountered during the project, and a preliminary settlement pattern analysis of the Qualla Boundary.

The concluding chapter reexamines the goals and outcomes of the project, and also discusses potential future directions of research within Cherokee archaeology stemming from this collaboration. I also emphasize the importance of collaboration between agencies and the importance of incorporating digitized data management into archaeological projects.

2 GIS AND INDIGENOUS ARCHAEOLOGY

Heightened collaborative research between indigenous groups and scholars has occurred on a large scale in recent years, and the increase in the use of Geographic Information Systems (GIS) within collaborative efforts has led to constructive and relevant knowledge for all involved (Chapin et al. 2005; Ferguson 1996; Harmsworth 1999; Kerber 2006; Khan 2014; Kyem and Saku 2009; McKinnon 2001; Middleton 2010; Murray 2011; Runk 2014; Silliman and Ferguson 2010; Smith and Jackson 2006; Tsai and Lo 2013; Tripathi and Bhattarya 2004; Watkins 2005). GIS technologies have played an increasingly important role in archaeology over the past few decades as a way to synthesize, manage, and analyze spatial data across landscapes on large and small scales (e.g., Gillings 2012; McCoy and Ladefoged 2009; Rennell 2012; Rodning 2009). Spatial analyses conducted by means of GIS have contributed to the visualization and understanding of landscapes within indigenous cultures.

Geographic information systems have been used for the advancement of geography, geology, public health, and other disciplines (Khan 2014; Kyem 2009; Poole 1995). The technology and science of GIS is useful in many aspects of archaeological studies. Spatial analyses and statistical analyses are useful in interpreting the density of sites across a landscape and location in relation to others. Due to advancements in funding and distribution of resources, although limited in scope and selection, Tribal Historic Preservation Offices, in general, have gained a firm grip on GIS technology and its benefits.

The following chapter discusses the use of GIS in indigenous archaeology, and demonstrates the effectiveness and benefits of such technology in case studies that highlight collaboration between archaeologists and indigenous groups. I begin by explaining how GIS has become a widely used platform for many sectors of archaeology, and how archaeologists and indigenous groups collaborate for a shared beneficial outcome. I provide a brief history of the relationships between archaeologists and indigenous groups in North America, and demonstrate through select case studies how recent work has bridged the gap between the two.

2.1 Indigenous Archaeology and the Importance of Collaboration

The passages of NAGPRA in 1990 and the amendment of the National Historic Preservation Act of 1992 have led to increased partnerships and interactions between indigenous groups and archaeologists. The latter piece of legislation required archaeologists to seek consultation with tribes before performing excavations and surveys. A combination of these laws and an increasing awareness of ethical concerns have allowed for more collaborative and beneficial archaeological research and practice to take place (e.g., Kerber 2006).

Perhaps one of the most important issues regarding indigenous studies in the United States, and especially concerning collaborative, practice-based research is to recognize that Native

American groups are diverse in beliefs and culture, and should not be lumped into one single category (Ferguson 1996:64). Countless native groups subscribe to the identification of being indigenous to America, and each group identifies with its own set of unique cultural signifiers. In developing a mapping project for a specific indigenous group, such as the EBCI in this case, there is a need to recognize the particular contexts and perspectives of their culture, and to tailor the project to their needs. The incorporation of indigenous values and beliefs is essential in the creation of a GIS-based project that will be used by the EBCI THPO. In this sense, the EBCI THPO act as stakeholders who share a common concern and value for the data.

McGuire (2008) acknowledges an early resistance by indigenous individuals and groups to archaeology, as the discipline's practices served as an additional oppressive force. These criticisms have created ripple effects that are reflected in current scholarship emphasizing the importance of indigenous voices and values, along with increasing amounts of indigenous archaeologists – as in members of tribes working as professional archaeologists. McGuire recognizes the importance of conducting ethically responsible indigenous archaeology and lists four facets which are essential for its praxis: it must (1) *serve the community* at hand, while practicing a (2) *collaborative method* that recognizes (3) *multivocality* among the community, and (4) *should be of use* to the indigenous people (McGuire 2008:80).Collaboration between indigenous groups and archaeologists is essential in breaking out of the colonial context that has historically characterized the discipline of archaeology. When proper collaborative methods are enacted, it is assumed that both parties benefit. Archaeologists must possess respect for the group with whom they are working, be humble and open to ideas (Lippert 2005; Zimmerman 2005). Colwell-Chanthaphonh and Ferguson (2004) also emphasize committed and continual relationships between indigenous groups and archaeologists as a way to develop sustained

relationships, which can aid in further research projects and the development of lasting partnerships outside of archaeological pursuits (McGuire 2008).

The practice of collaboration with indigenous groups is not limited to archaeology, and is done in a variety of disciplines for a plethora of purposes. In the majority of cases, and in all cases below, the practice of collaboration is done for the benefits of the group at hand. Incorporating GIS as a component of collaborative projects with indigenous groups is seen as a pursuit that combines indigenous knowledge with innovative technology. The use of GIS and other mapping technologies can be used as a tool of empowerment for indigenous groups (e.g., Kyem and Saku 2009, Rambaldi et al. 2005).

2.2 GIS as a Tool for Indigenous Groups

In creating a singular database for the EBCI THPO, information about the culture history of the Cherokee people can be more easily understood at varying temporal and spatial scales. It is possible to locate sites containing certain artifacts and architectural styles and compare their dimensions and distance from one another. Being able to simply visualize site distribution allows the archaeologists of the tribe to understand the relationships between different communities and how major landforms such as rivers and mountains play a role in where people made a living. There are many possibilities in researching Cherokee culture history using GIS software. While archaeologists have conducted settlement pattern studies for decades, GIS allows for easier visualization of data that in turn allows the researcher to execute different types of analyses on those data. Below are examples of how GIS has aided indigenous groups in heritage preservation and resource management.

Indigenous mapping projects take many forms, and should always correlate with the traditional knowledge of the group at hand. GIS, geographic positioning systems (GPS), and

remote sensing offer tools for indigenous groups in land tenure, natural resource management, cultural resource management and historic preservation, and educational projects, and quite often these themes overlap (e.g. Aporta and Higgs 2005; Duerden and Keller 1992; Harmsworth 2002; Johnson and Pramano 2006). Melinda Laituri (2011:204) recognizes Indigenous Knowledge (IK) as the foundational set of ideas behind the use of mapping for indigenous groups. Indigenous Knowledge includes folk wisdom, traditional knowledge, traditional ecological knowledge, and local knowledge about the landscape of a particular region (Laituri 2011:216). These sets of indigenous knowledge have contributed in various ways, and with great impact, to global databases about ecological knowledge. Indigenous Knowledge of the EBCI is an important component in resource management, and can be integrated into the project moving forward.

2.2.1 Making Maps for Indigenous Use

Collaborative projects involving indigenous groups and scholars have been conducted with increasing frequency over the years, with projects utilizing a number of technological innovations. GIS projects done by indigenous groups and outside parties have made significant strides in improving the relationships between natives and non-natives on a global scale. Chapin et al. (2005) discuss the widely successful use of technical applications of map-making within indigenous communities throughout Canada and Alaska. The increasing use and accessibility of GIS technologies in the United States and Canada have made map-making a more common collaborative activity between indigenous groups and outside parties. As Chapin et al. (2005) note, the goal of mapping indigenous lands is for political purposes of land and resource defense. While political purposes such as this are considered the main driver in this instance, there are several other parts of these indigenous cultures that can gain from the activity. By protecting cultural and natural resources the economies of these groups will also benefit. These maps also

provide detailed and salient documentation of the cultural attributes and history of the involved indigenous groups. In doing so, group identities can be better understood and reinforced.

Mapping strategies used by and for indigenous groups were implemented in the past 30 or 40 years, and advances in computer technology and the widespread adoption of GIS in the 1990s allowed for groups to expand their spatial databases (Chapin et al. 2005:620, 626). The more recently expanded capacity of GIS technology has allowed for resource management to be conducted and maintained from within tribes by tribes who wish to use these technologies (Bohnenstiehl and Tuwaletstiwa 2001). Bond (2002) describes the use of GIS by the Cherokee Nation in Oklahoma for the purpose of land jurisdiction. The population of the Cherokee Nation is not bounded by a specifically outlined boundary, but is instead made up of a "checkerboard" pattern (Bond 2002:284). GIS technology provides a mapping system that outlines the tribal lands that are scattered on the landscape, thus making it easier to locate the specific locations.

2.2.2 Indigenous Knowledge of the Landscape

In seeking to understand the relationship between indigenous landscapes and knowledge systems, environmental scientist Garth Harmsworth of the First Nations Development Institute, conducted collaborative and participatory research with Maori people in New Zealand. The Maori make up 14 percent of New Zealand's total population, and with elders growing older, the preservation of cultural knowledge is increasingly important to the community. Traditional knowledge transfer systems were on the decline beginning with European influence, so the Maori and Harmsworth created a GIS database to store different categories of information (Harmsworth 1999).

The data are separated by geographical group, and are also classified according to the sensitivity and confidentiality of the data. Maori elders record their knowledge of sacred,

ancestral places on the landscape that is stored and displayed using GIS technologies. Indigenous information spans from individual- and group- level data, to tribal and regional-level databases. Finally, there are national, publicly accessible data. Once the data are put into these categories and classified based on information types, it is formatted into layers that are then visualized using GIS. Information that is accessible to the public includes vegetation, soil, animals, and water of certain geographic regions on the landscape, while restricted information includes "special places" like historical and archaeological sites and sacred sites like burial grounds (Figure 2.1).

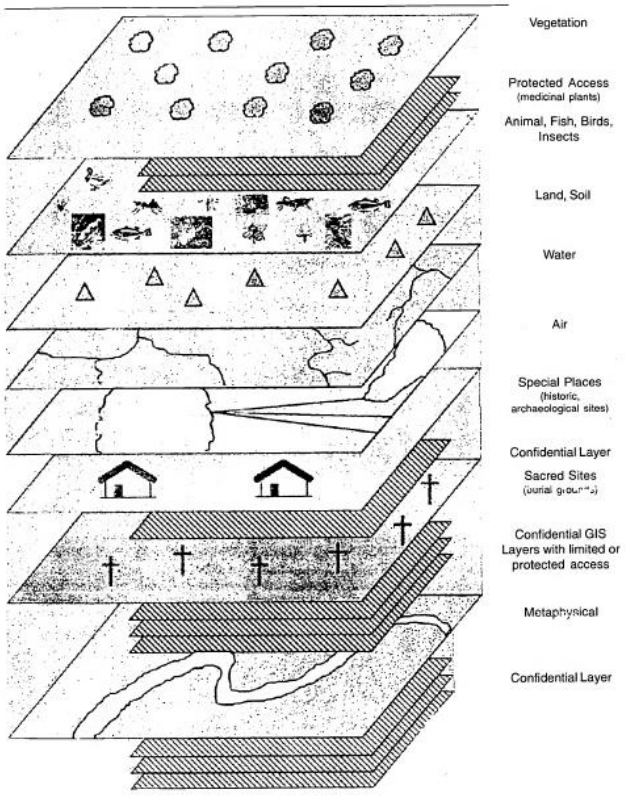

Figure 2.1 Publicly accessible and confidential layers in Maori project (Harmsworth 1999:13).

Maori communities have access to very specific knowledge about medicinal plant use, particular species of animals, special landmarks, and detailed information about sacred sites. The

environment – land, water, air – is an integral part of landscape and is archived for the use of future generations by using GIS. It is noted that the efforts of the project are the result of several Maori organizations and individuals in New Zealand who came together to create such a platform. The model for incorporating indigenous knowledge about particular places on the physical landscape offers a strong argument for the preservation of culture and how these preserved data can be used by the larger Maori community. This project is intended for the use of indigenous Maori people who have the no limitations in accessing the detailed information, while other, more generalized data is accessible to the public.

2.2.3 Indigenous Participation in Mapping Projects

Rambaldi et al. (2005) describes participatory GIS as an emerging practice that is used to manage spatial information and communication of a local community's knowledge. It is driven by members of a community and seeks empowerment through its applications, and relies on the active participation of stakeholders involved in a project. Rambaldi contextualizes participatory GIS practice by saying it is meant to be used and accessible by "less-favoured" groups in order to use of their own spatial knowledge for the benefit of the community (Rambaldi 2009:3). Tsai and Lo (2013) implemented a spatial knowledge program with indigenous groups in Taiwan.

Work with the Kavalan tribe examined how the people perceived spatial dimensions of their land by utilizing public participation geographic information systems (PPGIS) (Tsai and Lo 2013:393). Digital elevation models (DEM) were created for the tribe's geographic range, which allowed the members to visualize and understand the topography and landscape from a perspective they had yet to see. Scholars, the non-indigenous counterpart, put explicit effort into their roles as *assistants* who were present to help with technical issues, yet remained distanced as to not influence the efforts and creation of the maps themselves (Tsai and Lo 2013:394).

Participatory mapping has also been used with scholars and indigenous groups in the Peruvian Amazon. In this case study, participatory GIS was implemented in order to understand the link between the landscape and inhabitants of the area. The use of GIS in this sense helped to provide the group with a voice in the political sphere, feelings of pride, and the chance to learn new skills (Young and Gilmore 2013:809).

2.2.4 Political, Social, and Economic Constraints of GIS

While there are many indigenous GIS success stories, there are also many political and economic factors that can inhibit the use of such technology for certain groups. The inaccessibility and overall lack of published research of indigenous mapping projects in Latin America, Africa, Asia, and also the United States is said to be due to "either no incentive (or time) to write about their work, or they are reluctant to broadcast their activities because of the political, legal, economic, and cultural sensitivities involved" (Chapin et al. 2005:620). The work that is published, however, is often times done my academics and GIS professionals leaving the indigenous voice to be "incompletely represented" (Chapin et al. 2005:620).

Organizations such as InHerit and Murkurtu seek to provide cultural heritage preservation to indigenous groups through their respective platforms. InHerit's objectives are to "1) amplify the voice of indigenous communities, 2) encourage cultural survival through self-reliance, 3) harness the power of media and technology to further indigenous goals, 4) honor the world's vibrant heritage, and 5) cultivate cross-cultural collaboration" (in-herit.org). Similarly, Mukurtu works with indigenous communities to provide mapping resources and services to aid in the preservation of cultural heritage (mukurtu.org). It is my hope, shared by countless others, that accessibility to these crucial technological resources will become the norm so that all groups have the necessary resources for preservation of culture.

2.3 Collaborative GIS with the EBCI THPO

The purpose of designing and creating a map of archaeological sites within the Qualla Boundary is to provide the EBCI THPO with a valuable resource for managing and preserving cultural and archaeological sites through an interactive and multi-layer map. Archaeologists have worked for many years in conjunction with the EBCI THPO to further research on Cherokee culture history (Riggs 2002; Steere 2015). The map can be used to identify the location of sites in relation to one another and also to the surrounding geographic landforms and significant places. Information about sites, such as cultural occupation and site type, can be accessed with the click of a button. The development of this map will ideally make it easier to understand and visualize the spatial relationships of places on the Cherokee landscape. In conjunction with necessary consultation, collaborative methodology, and ethical standards, I hope to aid in the production of a constructive and useable resource which will benefit the EBCI THPO, and subsequently the entire community which has a stake in their own cultural heritage.

3 SETTLEMENT PATTERN STUDIES OF THE SOUTHEASTERN UNITED STATES AND CHEROKEE HEARTLAND

In this chapter, I examine the history of settlement pattern studies in the southeastern United States and the Appalachian Summit, and explain their relevance in a temporal and spatial project such as this. I also examine relevant theories on the concepts of landscape in archaeological research, and how ideas of space and place fit into studying Cherokee culture. Within this section, I use examples of the Garden Creek No. 2 Mound and Warren Wilson site to describe the organization of structures on the landscape and how spatial arrangement is an

importance aspect in understanding the sacred geography of an area such as the Cherokee homeland.

Settlement pattern studies in the southeastern United States have sought to define the changing landscape use and population shifts of groups that have inhabited the region from the Paleoindian period to European contact. Willey's (1956) publication of *Prehistoric Settlement Patterns in the New World,* a compilation of regional settlement studies from a number of scholars, represented a turning point for American archaeology. The publication of this foundational text in settlement archaeology supported the large-scale recognition of the necessity and importance of such studies. Landscape studies, focusing on spatial dimensions and socially meaningful constructs of the built and natural environment, provide both large-scale and local-level analyses on the interaction between humans and their surroundings. From these studies, researchers are able to understand political, social, religious, and economic aspects of culture in the context of the environment. Christopher Tilley (2010:26) alludes to the symbolic significance of the natural and built environment:

> Landscape is fundamental for human existence, because it provides both a medium for and an outcome of individual and social practices. The physicality of landscapes grounds and orientates people and places within them; it is a physical and sensory resource for living and the social and symbolic construction of life-worlds.

Here, Tilley describes the significance of the landscape and how humans interact with and shape both their physical and sensory surroundings. To the Cherokee, the landscape represents much more than their physical surroundings; its meaning is imbued in who they are. Tom Belt, a member of the EBCI THPO, states: "You don't come from a place, you are of a place" (Duncan and Riggs 2003:332).

3.1 Settlement Pattern Theory in the Southeastern United States

Theoretical frameworks for settlement pattern studies in Southeastern archaeology have shifted over time in response to trends within the discipline. Earlier studies of settlement patterns recognized the importance of subsistence and ecological indicators and their influence over peoples' interactions with their surroundings. Over time, archaeologists also began studying occupation spans and patterns of habitation in particular areas of the Southeast. On a macro-level, the distribution of sites in relation to one another was a topic of interest in the region. Additionally, micro-level analyses were performed on the arrangement of structures within a cluster of a village. These studies set the stage for future settlement pattern research, which is a major component of Southeastern archaeology today.

Brose (2002) explains the directions that Southeastern archaeology took were paralleled by that of museums containing artifacts from the region. In the pursuit for an understanding of the prehistory of the Southeast, museums and universities set the agenda for research goals and questions. These directions likely set in motion how settlement patterns were designed and executed. Following are descriptions of larger settlement pattern studies conducted in the Southeast. Each study seeks answers to different theoretical questions while approaching the questions from varying conceptual backgrounds such as ecological influence, functionality, adaptation, power dynamics, and architectural placement.

Research conducted by Harry Winters (1969) on the Wabash River system is perhaps one of the earliest examples of settlement pattern study done in the Southeast and examines the functionality of sites within particular environmental settings. In identifying

three different sites, Robeson Hills, Swan Island, and the Riverton site, Winters argues that the distinct local settlements represent a broader pattern of a shift to semi-sedentism during the Archaic period. Contemporaneity among the sites also supports the idea, as each could possibly have been utilized during different seasons and for different purposes. Examination of the material culture at the three sites suggests that people inhabited the areas for relatively longer periods of time than was previously thought. As one of the first settlement studies conducted in the southeast, this research shows the importance of examining the material culture at sites in order to assess occupation spans and boundaries.

Quentin Bass's (1977) Master's thesis focuses on shifting settlement and subsistence patterns of the Great Smoky Mountains. His work focused on identifying these patterns on a period by period basis. Permanence of occupation was analyzed by artifact type and density, along with how local the material was. He examined the environmental setting of sites by quantifying artifact types, and made conclusions on where percentages of the population were living – whether it be the floodplain or upland zones. By looking at the spatial distribution over of lithic and ceramics resources over time, Bass suggests that changes in the utilization of these resources are a direct result of settlement and subsistence strategies. This work, along with others by Bass, serves as a foundation for much modern Cherokee archaeology.

Anderson and Hanson (1988) examined subsistence strategies in the Savannah River Valley at sites like Rucker's Bottom and the G.S. Lewis site in order to understand occupation in the region. Adaptive strategies were likely the result of utilizing the available resources in the area. In order to understand these strategies more closely, Anderson and Hanson focused on the

seasonality and availability of resources, biological interaction in mating networks, information exchange between groups, and demographic structure relating to size and spacing (Anderson and Hanson 1988:280). The authors recognize ecological theory as a way to interpret the residential patterns, which seem to be based on resource availability in the Savannah River drainage. Hypothetical distances are drawn for potential foraging areas in relation to camp sites.

Wesson et al. (1998) examines the social dimension of architecture as symbolically representing sacred places on the landscape. The interactions between people and their built environment create socially meaningful places. At Moundville, Wesson et al. (1998) argues that the early contemporaneous construction of the central mound plaza and its surrounding constructions show a symbolically meaningful spatial arrangement. As the sacred landscape was purposefully created to represent social ideas of the inhabitants, concepts of cosmology, specifically the axis mundi, are reinforced. The authors state that earthen mounds, found all over the southeastern United States, share certain spatial characteristics. Recognizing and recording the spatial aspects of southeastern earthen mounds contributes to deeper understandings of the values of inhabitants of these places.

Wahls (1986) recognizes that while there are similarities in placement and organization of mound centers across the Southeast and Midwest, a number of factors result in variation of the patterning and complexity. Of the 39 mound centers surveyed, all but two were aligned with local topography and waterways. Local-level topography and socially-constructed constraints result in skewed spatial patterning of mounds. This theory explains the variation of character and patterning of individual sites, and can aid in the understanding of sacred landscapes of particular local-level cultures.

Cobb (2003) explains the general trends in Mississippian chiefdom theories, and looks at the variables that contribute to the dynamics at play in chiefdom societies. When chiefdom studies were first considered by researchers, they studied the value of hierarchical organization of sites. Later studies emphasized the relationships, or power links, between chiefdoms. More recent chiefdom studies have begun to examine the practice-based approaches and agency-based approaches to the individuals and groups making up the chiefdoms. Cobb examines theoretical trends in settlement pattern studies by emphasizing the role of the spatial dimension of landscape in Mississippian chiefdom societies. He describes the shift from a strictly functional analysis of integrated sites to relatively recent trends in phenomenological underpinnings of the landscape. Cobb's argument shows that not all chiefdom sites, or sites interpreted as chiefdoms, share the same characteristics. Labor, mortuary customs, feasting, and tribute are aspects of different Mississippian mound sites in the Appalachian Summit that can be examined to show the functional aspects of power relations, and also the phenomenological aspects of these sites (Boudreaux 2007).

Settlement distribution specifically within the Piedmont and Blue Ridge provinces during the Mississippian period was likely dispersed and comprised of a few individual families (Hally 1994; Kowalewski and Hatch 1991), while the Ridge and Valley and Coastal Plain were settled in relatively larger sites with higher concentrations of people. Platform mounds were the center of ceremonial and political activity at sites during the Mississippian period, and were the geographic foci for the individual polities. The function of mounds and their relationship with the rest of the structures at a site changed over time. The flat top of Mississippian chiefdom mounds were used for a variety of purposes. Residential structures for elites, council houses for political activities, and mortuary temples are among the most common uses of buildings atop the

mounds. Dismantling and rebuilding of mound-top structures is a common occurrence during this time and demonstrates the importance of place on the landscape (Hally 1999:98).

Hally, known for his work in chiefdom settlement pattern research, focuses on political and social implications of polity organization in the Mississippian period. In order to understand the spatial relations between chiefdoms, Hally (1999) suggests a focus on a select few sites that can be representative of the settlement patterns within the Southeastern region. Platform mound sites are candidates for this type of evaluation due to their visibility on the broader landscape, their role in the settlement system, and their relevance to current settlement pattern studies (Hally 1999:96). Hally makes his observations about Mississippian settlement patterns based on the distribution, spatial organization, temporal dimensions of the platform mound chiefdom sites.

Hally's (2008) account of the King site in northwest Georgia explains the wider context and settlement patterns of Late Mississippian period sites. Hally acknowledges the difference in scale and social practices between Mississippian period settlements and eighteenth and nineteenth "ethnographic tribes" like the Cherokee. These earlier Mississippian societies were generally characterized by politically centralized, hierarchically divided social groups (Hally 2008: 9). These societies, aptly considered chiefdoms by many scholars (See Pauketat (2007) for general critique of chiefdom concept), consisted of multiple outlying towns where the political and social focus was the administrative mound center. This center included a platform mound, or mound complex, on which elite residences or ceremonially important structures were constructed (Hally 2008:9). Outside of the chiefdom mound centers, the hinterland polities likely served a different function than the politically higher-up chiefdoms. However, when collapse of a central place and polity occurred, there is evidence for population decline and even abandonment of the

site. In many cases, the abandoned centers and hinterlands were reoccupied in later years (Hally 1996).

Research conducted by Thompson and Andrus (2011) at the coastal site of the Sapelo Island Shell Ring complex examines the functionality of these constructions and their role in social activities among inhabitants. Decomposition rates and radiocarbon dating were examined on oyster and clamshells, the latter, which revealed the season of death. Evidence for gradual accumulation of shells through daily activities, along with evidence for short-term, rapid accumulation is present at Sapelo Island. Thompson and Andrus (2011) conclude that both year-round settlement and shorter, more intense occupations likely for ritual feasting purposes occurred at the site. Social organization was a major aspect of settlement theories in Southeastern archaeology and it continues to provide insight into understanding the patterns of occupation and land use.

Settlement pattern analyses have changed over time in response to changing research questions and goals. Kantner (2008) provides a historical context to regional settlement pattern studies and then explains the developments in more modern regional settlement studies and how they have changed due to digital technologies. Kantner (2008) argues that these technologies contribute in diverse ways to settlement pattern theories, by building on previous theories and practices to become more multiscalar. He argues that GIS allows archaeologists to organize data spatially for many purposes, and boasts the ability of the technology to analyze large amounts of data in a fast and efficient manner (Kantner 2008:49). Overall, Kantner (2008:62) questions the frequency and usefulness of regional settlement pattern studies in modern archaeological practice, and emphasizes that regional "*perspectives"* (emphasis in the original) have perhaps taken over by allowing for a multiscalar approach to analyzing archaeological data.

3.1.1 Space, Place, and Landscape in the Appalachian Summit

Over time, archaeologists have critically evaluated the use of the terms "space" and "place" to better suit the needs of current research. While the two terms are often mistakenly used interchangeably, they describe two different concepts. Each idea explains the relationships between humans and the natural and built environment, and how cultural activity influences the way past landscapes are understood and constructed. It is easier to make a distinction between the two by first addressing "space". Spaces on the landscape are transformed when humans apply socially meaningful ideas to them – thus creating places on a landscape. Place-making has made its way into archaeological research in order to examine land use and human activity. As Rodning (2009:180) explains, "[a] human activity has spatial and temporal dimensions, of course. It is cultural activity – and cultural knowledge – that gives meaning to particular spaces in the landscape and that makes them 'places'." As Rodning (2009) notes, places are not passive in their role in culture, they are a direct outcome of human activity. Utilizing these concepts, landscape archaeology, the study of past landscapes, seeks to understand how humans interacted with the natural and built environment by studying factors such as ecology, politics, economics, social memory, and identity (Ashmore and Blackmore 2007).

Figure 3.1 Typical natural landscape in Cherokee, North Carolina (photo by author).

The landscape of the Appalachian Summit differs greatly from surrounding regions, as the mountainous landscape is made up of a diverse set of characteristics (Figure 3.1). It has been suggested that the rugged terrain of the Appalachian mountain range has provided the inhabitants with a more isolated landscape (Marcoux 2010). Without an understanding of the environmental and geographic characteristics of this region, a full assessment of Cherokee settlement patterns cannot be made. As discussed above, the Appalachian Summit is mostly comprised of mountain ranges with high reliefs and narrow stream valleys and floodplains, but a handful of basins are also present at the modern-day cities of Asheville, Hendersonville, Canton, and Murphy (Dickens 1978; Thornbury 1965).

The Cherokee people have continually regarded their land as part of a sacred landscape (Duncan and Riggs 2003). During times leading up to European contact, the importance of the landscape is demonstrated by architecture and the layout of villages. Rodning (2009b) discusses townhouses as places of symbolic importance within local Cherokee communities by looking at the Coweeta Creek site. This site contains a continual reconstruction of townhouses in the same place, furthering the notion of importance of place in Cherokee landscapes. Rodning argues that

understanding the significance of townhouses is a necessary point in understanding the identities and interactions among people during the Contact period in the Southeast (Rodning 2009b: 627). The six sequential reconstructions of the townhouse at Coweeta Creek date to the protohistoric period (A.D. 1500 - 1700) in between Spanish exploration and English interaction. Rodning argues that the townhouse sequence at the site "is an example of how one Cherokee community materialized its identity as a town in the aftermath of early encounters with European colonists and European trade goods" (Rodning 2009b: 628). Again, the rebuilding of townhouses shows the symbolic importance of place.

Despite the interaction with Spanish explorers, the people of living at the Coweeta Creek site sought to affirm and reaffirm their connection with community centers – townhouses – that played an integral role in the reinforcement of social and political life. Within this study, Rodning (2009b) names the process of reaffirming a relationship with place as "emplacement" which he defines as "the set of practices by which a community attaches itself to a particular place through formal settlement plans, architecture, burials, and other material additions to the landscape" (Rodning 2009b: 629). Architecture in Cherokee villages, made up of mounds, townhouses, summer houses, and other public structures provides a medium for political, social, and ritual communication. Rodning suggests that through archaeological investigation, supported by ethnohistoric evidence, architectural remains can provide insight into the spatial structure and how people related to and interacted with the places that were part of the Cherokee landscape (Rodning 2009b:630). Social and political bonds were reinforced by activities occurring at the council house at Coweeta Creek. This important political center likely served as a culturally significant central place within the broader regional landscape (Rodning 2001).

The Cherokee occupied five geographically distinct areas in the early eighteenth century: the Lower towns, the Middle towns, the Valley towns, the Overhill towns, and the Out towns (Figure 3.2). Within each of these geographically distinctive areas were several towns, each having its own political and social underpinnings, and speaking different regional dialects of the Cherokee language. It is suggested that individual towns were made up of anywhere from 100 to 600 people (Schroedl 2000). Each of the towns is suggested to have had a centralized townhouse and associated structures within a central plaza area (Schroedl 1986). Smith (1979) suggests that settlements that did not have townhouses were not regarded as towns. This idea furthers the understanding of importance of symbolic architecture such as the townhouse on the Cherokee landscape.

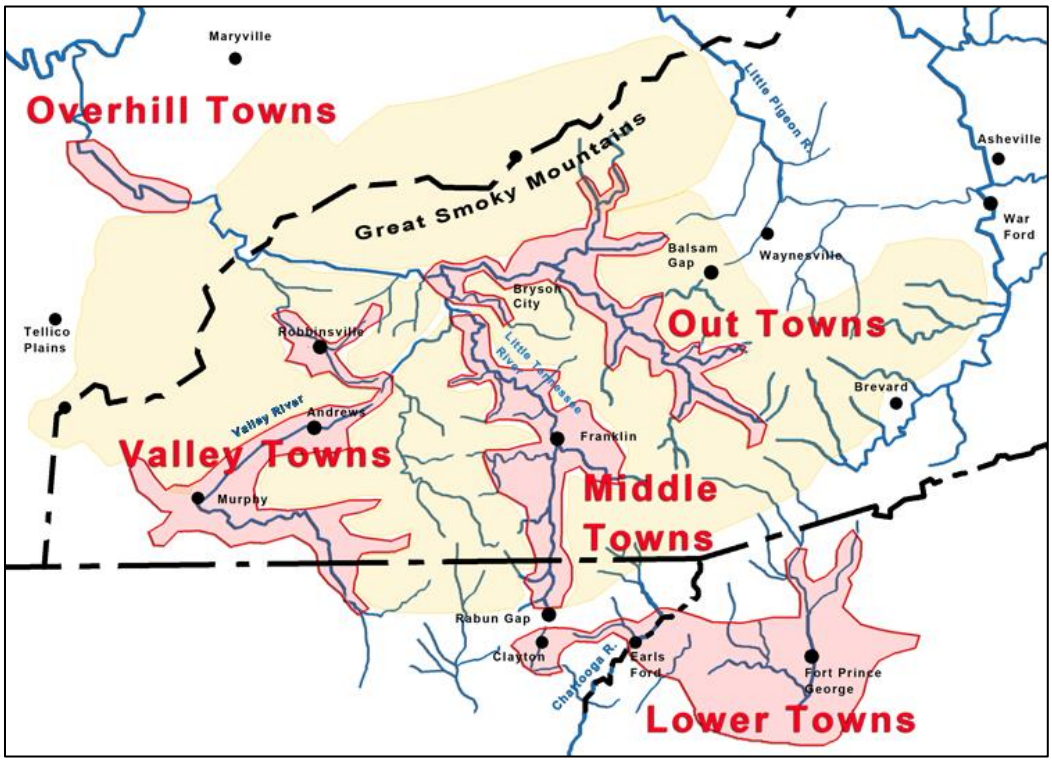

Figure 3.2 Cherokee historic towns in Tennessee, North Carolina, South Carolina, and Georgia (cherokee.wildsouth.org).

As discussed below, the late prehistoric period of the Appalachian Summit is subdivided into two chronological categories assigned directly to the Appalachian Summit. The Pisgah phase (A.D. 1000-1450) and the Qualla phase (A.D. 1450 – 1838) together represent the archaeological manifestation of late Prehistoric and Contact period for Cherokee culture (Dickens 1976; Rodning 2008). While each of these phases has archaeological elements that span the entirety of the Appalachian Summit, there are some general patterns that distinguish th two. Dickens (1978) notes that Pisgah phase sites are generally found in the eastern and central reaches of the Summit, while Qualla phase sites are concentrated more in the southern and western stretches (Dickens 1978:132). The Qualla phase is differentiated from its predecessor by changes in ceramic styles and transitions in local community settlement. Early Qualla occupations were more like preceding Pisgah settlements, but some notable changes are identified in the later parts of the Qualla period as a result of European influence. Moreover, the Pisgah settlements tend to lie within the basin areas, while Qualla settlements form a linear distribution along valleys. Dickens (1978) finds that Pisgah sites are more closely clustered with villages surrounding mound sites. Qualla sites, however, seem to be more dispersed. This transition, Dickens notes, is likely representative of broader settlement trends within the southeastern late prehistoric period.

The Warren Wilson site reveals the functional aspects of individual domestic structures within a settlement. At this site, houses had depressed floors, wall trench entrances, and four interior post molds that supported a roof. Burials, along with storage, cooking, and borrow pits were found under floors or just outside of the structure. The proximity of burials to residences represents a shift in mortuary customs (Sullivan and Rodning 2007). In analyzing the relationships between structures at the Warren Wilson site, Dickens (1978) notes the circular

arrangement of houses, each with their entrances facing the open plaza area. The village had at least seven enlargement episodes as evidenced by post hole overlap and palisades that were enlarged to enclose all structures. On a broader scale, Pisgah sites like the Warren Wilson site were mostly located on "bottomlands" or floodplains (Dickens 1978:132). It is noted that the majority of later Qualla sites were also located in floodplain areas or low terraces, with a few exceptions for both phases.

Thomas Pluckhahn (2010) examines the trends of household archaeology in the Southeastern United States and places emphasis on the importance of this approach within the larger scale landscape studies. By looking at households as parts of the landscape, Pluckhahn suggests that valuable inferences regarding production, consumption, identity, power, ritual, and symbolism can be made (Pluckhahn 2010:331). Intensive archaeological studies on households gained footing in the discipline more than 30 years ago and incorporated aspects of a diversity of theoretical underpinnings.

By understanding the concepts of "space", "place", and "landscape" within the broader scope of Southeastern archaeology, this project provides additional context for spatial and temporal understandings of Cherokee settlement. In addition to historical maps and other GIS analyses, this project provides a visual dimension of understanding landscapes for this region and highlights ways in which GIS analysis contributes to settlement pattern studies of Cherokee sites. The notion of a sacred landscape is compatible with Cherokee values, as the entirety of the Qualla Boundary and surrounding region is considered a deeply sacred land. Aspects of the environment can be visualized and created through the use of GIS in order to provide a greater understanding of the spatial organization of Cherokee mound sites and other important sites within the Qualla Boundary.

4 CULTURE HISTORY OF THE APPALACHIAN SUMMIT

In order to understand the dynamic culture history of the Cherokee people, it is important to recognize environmental characteristics of the place where Cherokee people and their ancestors have lived. The ecological components of the Appalachian Summit, the heartland of the historic Cherokee people, play a major role in the interaction and utilization of flora, fauna, landforms, and how the overall landscape was conceptualized by people, past and present (Dickens 1976:3). The vast majority of the area is made up of deciduous forests, with higher elevations home to spruce and balsam fir trees. White-tailed deer, wolves, black bears, gray foxes, raccoons, squirrels, and other mammals were important resources prior to European settlement in the area (Shelford 1963).

4.1 Environment and Ecology of the Appalachian Summit

The Southern Blue Ridge Province encompasses the Appalachian Summit, a culture area defined by Kroeber (1963). This province contains a portion of the Appalachian mountain system, and is comprised of steep ridges and narrow valleys (Figure 4.1). The mountains are oriented southwest-northeast and vertical faces occur in the southern portion of the area. However, the mountaintops are generally rounded. Lower elevations in the Appalachian Summit include floodplains and coves. The floodplains, averaging three miles in width for major rivers, have proven to be invaluable for inhabitants of the area for cultivation and living purposes (Keel 1976:4). Waterways, such as rivers and streams, are present in the area and their gradients are considered gentle with the exception of the western side of the Eastern Continental Divide, where waterfalls and cascades occur (Keel 1976:4). Additionally, geologic minerals such as quartz, quartzite, diorite, schist, gneiss, mica, steatite and talc naturally occur in the area.

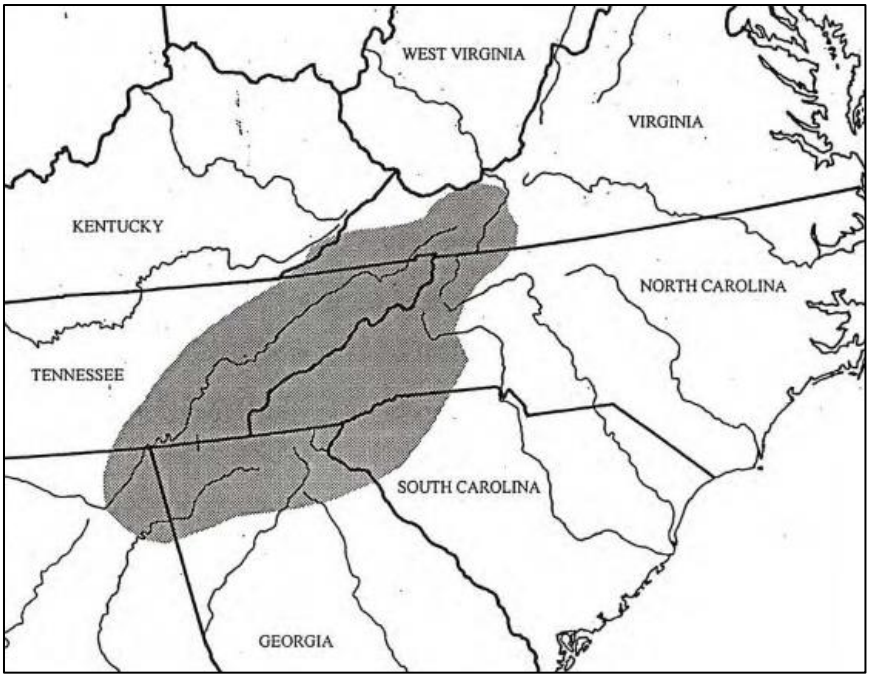

Figure 4.1 Location of the Appalachian Summit (Adapted from Greene 1996:4).

4.1.1 The Role of Geography in Cherokee Culture

Historic Cherokee people, while acknowledging their shared cultural identity through cultural practices and language, inhabited five distinct cultural areas which were clustered in three distinct settlement groups: 1) Lower, 2) Middle, Valley, Out, and 3) Overhill Settlements (Gilbert 1943:178) (See Figure 3.2). The Lower Settlements were located in present-day northeastern Georgia and northwestern South Carolina. Western North Carolina was home to the Middle, Valley, and Out Town settlements. Overhill Settlements were found in eastern Tennessee. As discussed above, Rodning (2002:171) notes that the people living in these towns were "culturally related" yet "independent" from one another. These divisions were expressed through their geographic locales, variances in dialect, and differences in political practices (Gilbert 1943; Marcoux 2010). The remaining portion of this chapter describes the cultural periods in the Appalachian Summit leading up to a shared Cherokee identity, and concludes with

an evaluation of Cherokee ethnogenesis. Sites associated with these time periods have been identified within the Qualla Boundary and are included in this project's geodatabase. As discussed in this chapter, it is crucial to recognize the influence of geography in these themes discussed below.

Table 1. Chronological periods of Cherokee culture (adapted from Rodning 2008; Steere 2015).

Period	Subperiod	Phase	Dates
Paleoindian			
Archaic			
	Early Archaic		8000 - 6000 B.C.
	Middle Archaic		6000 - 3000 B.C.
	Late Archaic		3000 - 1000 B.C.
Woodland			
	Early Woodland	Swannaoa	1000 - 300 B.C.
	Middle Woodland	Pigeon	300 B.C. - A.D. 300
		Connestee	A.D. 200 - 800
	Late Woodland		A.D. 800 - 1100
Mississippian			
		Pisgah	A.D. 1000 - 1450
		Qualla	After A.D. 1350
Protohistoric			A.D. 1500 - 1700
Historic			A.D. 1700 - 1838

4.2 The Paleoindian Period

Humans have inhabited the Appalachian Summit since the Paleoindian period (ca. 10000 – 8000 B.C.). Unlike the Piedmont and Coastal Plain provinces, however, the evidence is minimal. The evidence that does support this early occupation is provided by the presence of fluted lanceolate projectile points found in many of the counties that make up the region. Most of the tools found in the mountainous region of North Carolina were made from local materials. This suggests long-term occupation of the area and not merely incidents of people passing through (Perkinson 1973). The Hardaway site is perhaps the best example of a potential Paleoindian site in North Carolina, though it is debated whether or not it is actually later Archaic period site

(Ward and Davis 1999: 2). While not much is known about subsistence practices of the Paleoindians in the North Carolina mountains it is suggested that large herd animals which are now extinct were likely hunted in this region (Ward and Davis 1999:46).

4.3 The Archaic Period

Evidence for occupation during the Archaic period (ca. 8000 – 1000 B.C.) is also found in the Appalachian Summit through identification of lithic tools and other artifacts. Projectile point types indicative of the Early and Middle Archaic such as Hardaway, Palmer, Kirk, Le Croy, Stanly, and Morrow Mountain have been found at multiple sites in western North Carolina (Dickens 1976: 11). Morrow Mountain points, a Middle Archaic type, were found in association with the oldest deposits at the Warren Wilson site in Bumcombe County (Dickens 1976:11). By the Late Archaic period (ca. 3000 – 1000 B.C.) population increases and a greater number of sites suggest denser occupations in the mountains of North Carolina (Ward and Davis 1999).

This period is represented in the Appalachian Summit by the presence of large-stemmed projectile points, hammerstones, soapstone vessel fragments, and other Savannah River phase (ca. 3000 – 600/700 B.C.) artifacts (Dickens 1976:11). Excavation and survey carried out by Quentin Bass (1977) and Jefferson Chapman (1977, 1985) in eastern Tennessee's nearby Ridge and Valley province prove to be important studies relevant to the archaeology of the Appalachian Summit. Within the lower Little Tennessee River valley, side-notched and stemmed points make up a majority of the tool assemblage. Similar types have been found, though minimally, in the Appalachian Summit (Purrington 1980, 1983).

4.4 The Woodland Period

The Woodland period (ca. 1000 B.C. – A.D. 1000) in the Appalachian Summit is characterized by changes in architecture and settlement patterns, and diversification of ceramic

assemblages (Ward and David 1999). During this period, there is evidence of ceramic production and bow and arrow production which contribute to the diversification of the material assemblage for this time (Dickens 1976:11). Dickens (1976) considers these cultural attributes to have been passed on and elaborated upon from the Late Archaic period in the area. The Woodland period is represented by the Swannanoa (700 – 200 B.C.), Pigeon (200 B.C. – A.D. 300), and Connestee (A.D. 300 – 1000) phases.

4.4.1 The Early Woodland Period and Swannanoa Phase

The Swannanoa phase, originally defined by Keel (1972), is the Appalachian Summit manifestation of the Early Woodland period and is differentiated from Archaic cultures by evidence of ceramic production (Ward and David 1999:146). Holden (1966) aptly named the pottery assemblages at Early Archaic, or Swannanoa sites, the "Early Phase". The ceramic assemblage is made up of early cord marked and early fabric marked ceramics. Also indicative of the Early Archaic period in western North Carolina are short-stemmed projectile points, fish net weights, pigment stones, and tubular ceramic pipes.

4.4.2 The Middle Woodland Period and Pigeon and Connestee Phases

The Middle Woodland period in the Appalachian Summit region is divided into two chronological-delineated phases: the Pigeon and Connestee. Many changes in the material culture come about during this time, which are suggestive of broad-scale interaction. The earliest mound sites, including Garden Creek and the Biltmore mound, were constructed during this time. At these mound sites, it is suggested that ritual events and social gatherings occurred episodically (Keel 1976; Kimball 1985). However, continued research of the landscape, suggests that the Middle Woodland period is indicative of the beginnings of sedentary lifestyles in the Appalachian Summit region (Rodning 2011).

During this time, the people in the Appalachian Summit played a role in a trade network that spanned much of the eastern portion of the country, referred to as the Hopewellian Interaction Sphere. While the central point for this ceremonial complex was the Ohio River Valley, its influence of burial customs, earthen mound construction, and the trade of sacred objects spread throughout the Eastern Woodlands. Inhabitants of the southern Appalachians participated in the trade of ideas and crafts by producing artifacts made from mica and quartz (Ferguson 1974; Margolin 2000; Wright and Loveland 2015). The Garden Creek site along the Pigeon River sits within proximity to a mica outcrop, and provides evidence of interaction in the trade sphere through its earthwork features and a ritualized craft production center (Wright and Loveland 2015).

The Garden Creek site's Mound No. 2 provides remarkable insight into mound construction and activity in the Appalachian Summit during the Middle Woodland period. Extensive research has been conducted at the Garden Creek site beginning with the Valentine excavations during the late 19th century. Later research and excavations conducted by Keel (1976) suggest two distinct construction phases of the mound during this period, evidence of Hopewellian trade, and presence of artifacts that suggest the platform mound was used for ceremonial purposes (Keel 1976:153). Wright (2013) revisits earlier analyses of the Garden Creek Mound No. 2 and provides a more holistic theory that the Garden Creek site was not used solely for ritualistic purposes. Instead, by analyzing overlapping posthole patterns, she finds evidence for domestic practices at the mound as well. It is suggested by Wright (2013) that there are limitations in the "ritual" versus "domestic" dichotomy, and the functional aspect of occupation at the Garden Creek site should be reconsidered.

The earliest Middle Woodland phase is called the Pigeon phase and is represented by shifts in ceramic technology and style showing a brief cessation of cord-marked and fabric-impressed ceramics. Instead, people living in the Appalachian Summit during this time are believed to have adaopted Georgia's Deptford-style paddle stamped traditions. Simple and check stamped pottery and tetrapod-style vessels, side-notched points, scrapers, celts, and other artifacts are also representative of the Pigeon phase (Dickens 1976).

The more recent of the two Middle Woodland period phases is the Connestee phase (200 – A.D. 600). Connestee pottery consists mostly of thin-walled, sand-tempered plain, brushed, or -simple stamped pottery. Cord marked, fabric-marked, check stamped styles are reintroduced during this phase. Triangular points, ground-stone discs, conical celts, grooved stone pendants, cylindrical hammerstones, and other types and styles of artifacts are assigned to this phase. Evidence of the Hopewellian trade is found in western North Carolina at the Garden Creek Mound No. 2. Keel (1972) notes that the prismatic blades, copper, figurines, and other exotic goods are representative of long-distance Hopewellian exchange at the site, and are distinctively found above deposits representative of previous phases (Keel 1972:212).

4.5 The Mississippian Period and Historic Cherokee Transition: The Pisgah and Qualla Phases

The Mississippian period of the Appalachian Summit area is also represented by wide-spread changes in architecture and the built environment. Mound use and architectural forms changed fundamentally during this time, as shown in shifts toward more ceremonial and politicized social structures. The entirety of the Appalachian Summit region and its cultural traits are said to be part of the South Appalachian Mississippian tradition in which nucleated villages and mound centers are characteristic (Ferguson 1971; Keel 1972). Platform mounds were

architectural constructions that served as central places on the landscape, and were used for political, economic, and ceremonial purposes but are noted as being smaller in scale than other surrounding platform mound sites in the Southeast such as Etowah and Moundville (Rodning and Moore 2010; Steere 2013, 2015; Sullivan 2009). In the Appalachian Summit, this period is divided into the Pisgah (A.D. 1000 – 1250) and Qualla (A.D. 1300 – 1838) phases, with the latter encompassing the period of historic European contact and protohistoric Cherokee culture.

It is widely recognized that earth lodges, mounds, and their associated mound-top structures served a number of political and ritual purposes. Earth lodges were common during early Pisgah culture, and but as they were destroyed or burned, other structures were built atop them. Early and Middle Qualla structures on top of platform mounds were used as chiefly residences. A very notable type of architecture, the town house, played an integral role in the political networks across Cherokee territory. The building, destroying, and rebuilding of town houses were common practices during this time and has symbolic importance within the culture. When a town house was burned, the structural components would collapse in the middle, and before new construction occurred, a layer of soil would be laid on top of the remains as the foundation for the subsequent structure (Ward and Davis 1999).

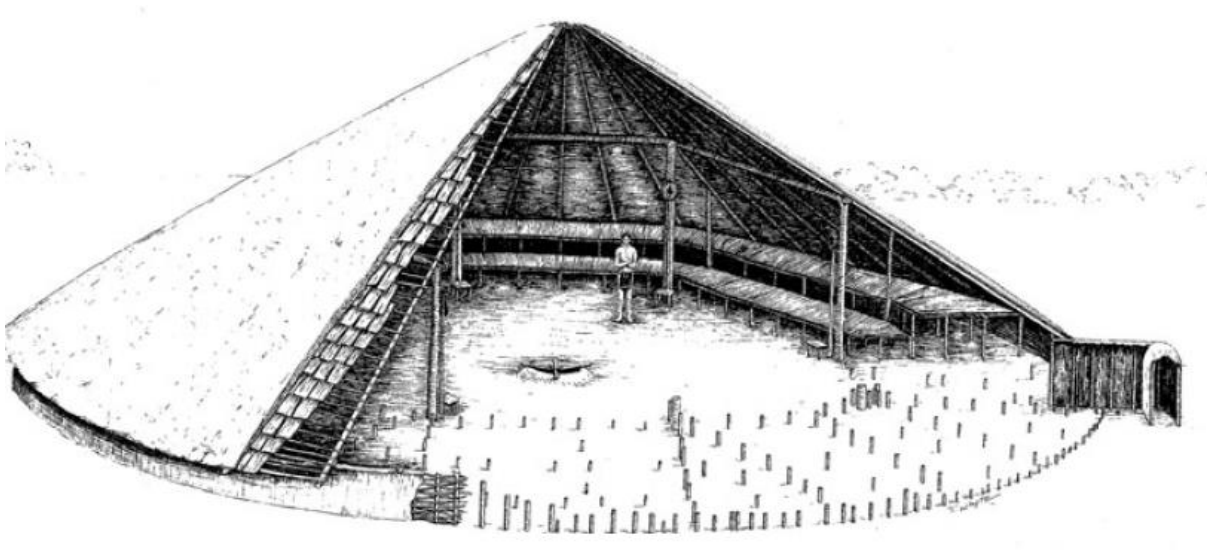

Figure 4.2. Depiction of an eighteenth-century townhouse at Chota-Tanasee. Drawing by Tom Whyte (after Schroedl 1986: Figure 4.43).

4.5.1 The Pisgah Phase

The Pisgah phase (A.D. 1000 – 1450) is recognized by Dickens (1976) as important for understanding settlement pattern development and the use of ceremonial architecture during the Mississippian period. This phase is marked by a diverse artifact assemblage including items made of wood, stone, clay, bone, and shell (Dickens 1976:208). Small tools and small flakes make up much of the lithic assemblage for this phase, while rectanguloid celts, discs, elbow pipes, burnishing stones, pigment stones and traded stone artifacts are also found.

Ceramics representative of the Pisgah phase are Rectilinear Complicated Stamped, Pisgah Curvilinear Complicated Stamped, Pisgah Check Stamped, and Pisgah Plain styles (Figure 4.3). Globular jars with everted rims and collars were common while handles, nodes, and lugs were found on some vessels. In some cases, the vessels were decorated with corncob, woven-reed, cord, or net. Pisgah settlements vary in scale from small, individual farmsteads to larger villages (Ward and Davis 1999). Most Pisgah sites are found in floodplain areas,

convenient to fertile soil for agricultural practices. In these fields, cultural inhabitants of the Pisgah phase planted corn, beans, squash, and sumpweed (Yarnell 1976). This agrarian diet was supplemented by collecting and hunting wild resources.

Figure 4.3 Pisgah Check Stamped bowl (left) and Pisgah Rectilinear Complicated Stamped jar (right). (Research Laboratories of Archaeology, University of North Carolina).

The Warren Wilson site, located on the Swannanoa River, has long been an important research locale understanding daily practices during the Mississippian period in the Appalachian Summit. While the site has components of earlier Archaic and Woodland periods, as discussed above, the Pisgah phase of the Mississippian period represents the site's main occupation. Ward and Davis (1999) also note that the site is the most extensively excavated of all western North Carolina sites. Research conducted at the site has led to many theories about how the inhabitants of the site interacted with each other and the built environment. The three-acre village holds evidence for at least seven palisade construction episodes, but it is suggested that at least one of those was used for a barrier between the central plaza area and the remaining village (Dickens

1976:50; Ward and Davis 1999). Based on research done at the Warren Wilson site, it is recognized that Pisgah phase houses are defined by rectangular houses with sides measuring 20 feet and individual posts supporting the walls. Most houses had central hearths, entry trenches, and central support posts. Burials during the Pisgah phase are found inside or just outside of houses and oriented west-to-east, and occasionally covered with river cobbles (Dickens 1976:33; Ward and Davis 1999:). Through analysis of house arrangement, palisades, storage pits, burials, and unusual artifacts, this site proved to be a place of many important milestones in understanding the Pisgah phase of the Appalachian Summit.

4.5.2 The Qualla Phase

The Qualla phase (A.D. 1450 – 1838) is considered to be the manifestation of late prehistoric and protohistoric Cherokee culture (Keel 1976). The Qualla phase is further subdivided into Early, Middle, and Late subphases that show transformations in ceramics, settlement patterns, and broader cultural trends. Rodning (2008) provides a temporal model of Qualla ceramics based on assemblages recovered from the Coweeta Creek site in the upper Little Tennessee River valley in order to understand the relationship between Qualla phase and Pisgah phase material culture. Generally, Qualla vessels include globular jars with folded or pinched rims, carinated bowls and bottles, and restricted-rim bowls (Rodning 2008; Ward and Davis 1999). Characteristic ceramics were grit-tempered with burnished or polished interiors, with mostly complicated stamping and incised motifs on the exterior (Rodning 2008). Rodning (2008: 9) also suggests that the introduction of these ceramics patterns in the area is due to movement of Cherokees from the western portion of the region into the Overhill towns during “geopolitical destabilization”.

Figure 4.4 Middle Qualla vessels from Coweeta Creek site showing incised, punctated, and applied-clay decorations (top two) and incised decorations (bottom two) (Research Laboratories of Archaeology, University of Chapel Hill).

4.5.2.1 The Early Qualla Subphase

Early Qualla (A.D. 1300 – 1500) ceramics show a mixture of Pisgah styles and Lamar (figure nine designs, filfot stamp motifs) styles (Williams and Shapiro 1990). Distinctive forms of vessels with bold complicated stamps, check stamps, and incising represent this subphase (Figure 4.5). Sand and grit were used as tempering agents in ceramic production, and interiors

were polished or burnished (Rodning 2008). Subsistence strategies included farming beans, squash, and maize along with additional hunting, gathering, and fishing. Square and circular structures made of wattle-and-daub with a central hearth were typical during this time. Settlements were mostly comprised of small villages surrounding a plaza and mound center. Atop the mounds were structures that were similar in shape, but often larger than the residential buildings surrounding them (Dickens 1976; Ward and Davis 1999).

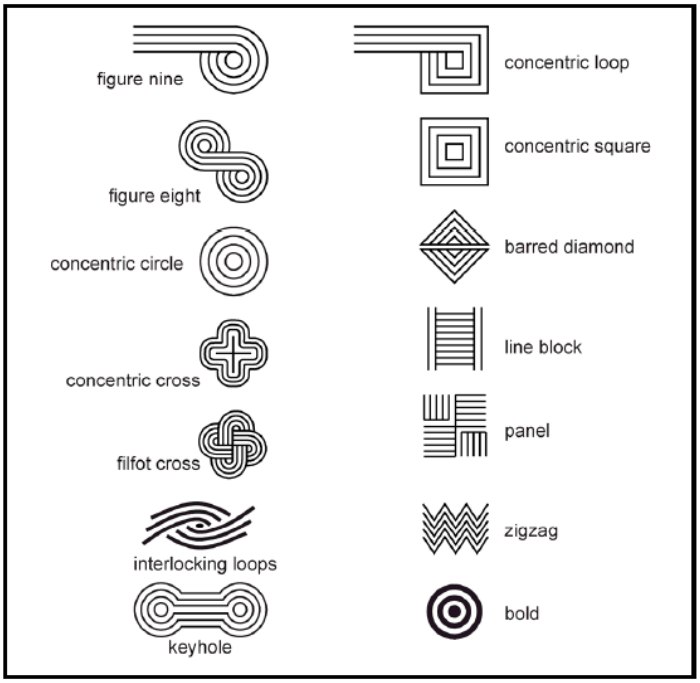

Figure 4.5 Qualla series complicated stamp motifs (after Rodning 2008: Figure 9).

4.5.2.2 The Middle Qualla Subphase

Middle Qualla (A.D. 1500 – 1700) ceramics are represented by grit-tempering, burnished interiors, and complicated stamping. Vessels had flared rims and paddle stamped surfaces (Rodning 2008). Designs common on pottery during this subphase are concentric circles, figure nines, chevron, rectilinear line blocks, and parallel undulating lines (Ward and Davis 1999)

(Figure 4.5). The widely recognized cazuela bowls were first manufactured during the Middle Qualla, and sometimes incorporated the above designs.

4.5.2.3 The Late Qualla Subphase

The Late Qualla subphase (A.D. 1700 – 1838) is represented by interaction and trade with Europeans as European goods are present at many sites. Ceramic assemblages show traditional types and forms similar to Early and Middle Qualla phase ceramics, while rectilinear complicated stamping is more prominent than during the Middle Qualla subphase. While ceremonial structures remained relatively constant throughout the historic period, construction of dwellings transitioned from traditional structures to European-style cabins. Dickens (1976) notes that many of the cultural changes that occurred within Cherokee populations during the Qualla phase were influenced by European culture (Dickens 1976: 15). Ensuing political conflict and disease also occurred as a result of European contact, which ultimately affected the traditional Cherokee economic system, technology, and settlement (Dickens 1976). This is evidenced by migrations of people to and from towns, thus building alliances and creating a shared sense of Cherokee identity (Rodning 2002). This topic will be discussed in the following sections.

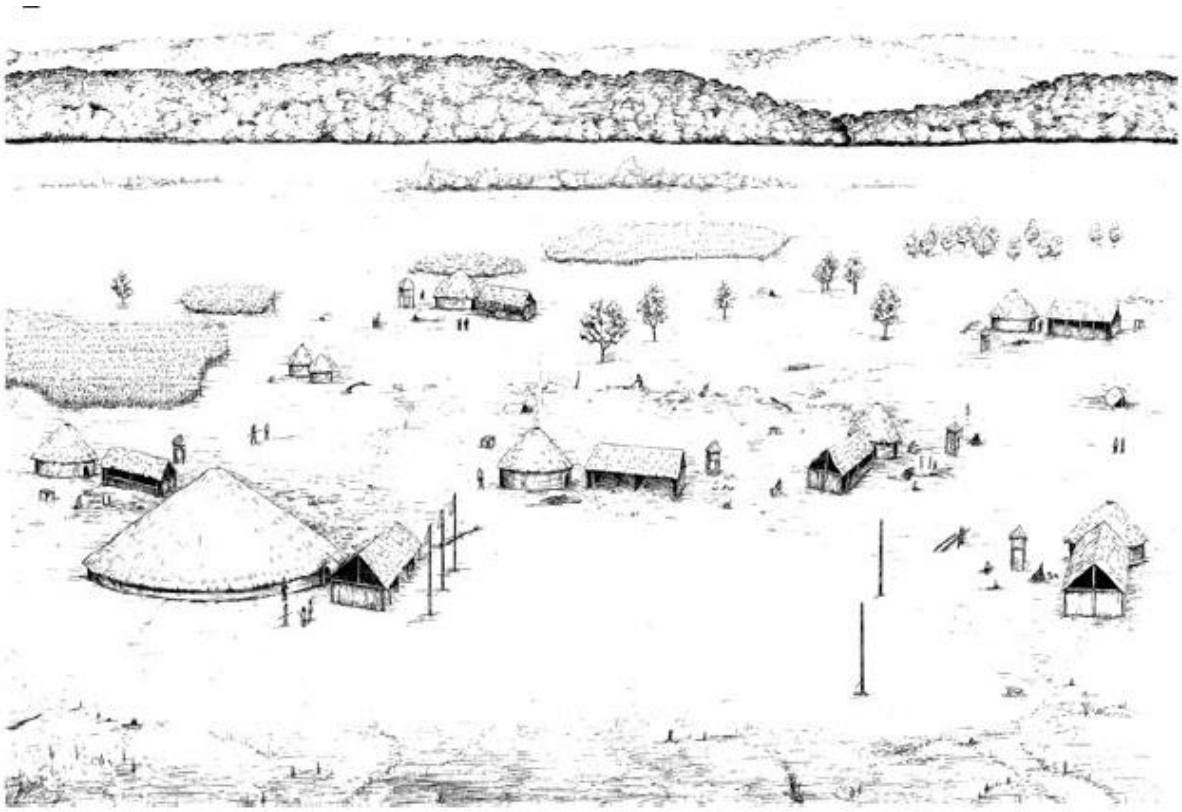

Figure 4.6 Depiction of an eighteenth-century town based on the Chota-Tanasee site. Drawing by Tom Whyte (after Schroedl 1986: Figure 5.14).

4.5.3 The Trail of Tears and Becoming a Sovereign Nation

The 18th and 19th centuries brought about sweeping political and economic changes for the Cherokee people. For years, peace and land owning treaties were agreed upon by tribes and European settlers. Eventually, the American government pushed legislation coercing native groups to be relocated westward. Initial legislation offered money and land across the Mississippi River. Many groups, including a percentage of Cherokee people, decided to leave their homes and relocate. Many others, however, remained in their homelands and fought to secure their right to stay. In 1828 Andrew Jackson was elected as President of the United States, and shortly thereafter, the Indian Removal Act of 1830 was passed which sought to displace native people across the eastern United States. Strong resistance efforts by Cherokee people

made it clear that the fight over land ownership would not be easily reconciled. The Cherokee Removal Act of 1838 called for the forceful removal of all remaining Cherokees in Alabama, Tennessee, Georgia, and North Carolina. In what came to be known in later years as the Trail of Tears, governmental officers corralled Cherokee people out of their homes and forced them into stockades where they were held in close quarters before being forced to walk more than 2,000 miles in the winter of 1838-39 to unknown territory that would be their new home. It is estimated that as many as four to eight thousand people lost their lives during this time (Duncan and Riggs 2003).

Back east in North Carolina, it is suggested that four to five hundred Cherokee people went into hiding in the mountains in order to escape the forced removal. Search efforts were coordinated by the government to locate the remaining people. Among the few that were found were Cherokee leader Tsali and his sons. All three men were executed by the U.S. Army as a result of their resistance. Once search efforts had ceased, this group of remaining Cherokees in hiding were granted the right to stay. It is suggested that many people who had endured the Trail of Tears escaped and made it safely back to North Carolina.

Throughout Post-Removal southwestern North Carolina, Cherokee people were finding ways to reestablish themselves and their culture. William Holland Thomas, a one-time chief and adopted son of Cherokee leader Yonaguska, helped efforts to win back land. By finding work as laborers, Cherokee people saved money and gave it to Thomas, a white man, who was allowed ownership of land. Thomas bought land and kept it in his name until Cherokees were eventually given property rights. After returning from battling in the American Civil War, Cherokee people experienced major hardships, as loss of life and disease transmissions from war were high. In February 1866, the state of North Carolina granted Cherokees the right to permanent citizenship.

The population at the time, while only a small percentage of pre-removal population, acted as the foundation for future generations of Cherokee people in Appalachia (Duncan and Riggs2003:31-32; Finger 1984:102).

Decades later, in 1868, after the signing of numerous treaties and rigorous efforts to remain on their land, the Eastern Band of Cherokee Indians was recognized by the federal government as a sovereign governmental body. The toll of the removal of Cherokee people and other native groups alike serves as a reminder of the tribulations endured and strength of those affected. The narratives are still told as a reminder of who the Cherokee people are today, and how this part of the past provides insight into Cherokee identity today.

4.6 Seeking a Shared Identity

The origins of a distinctive Cherokee culture are often debated and seen as complex and dynamic (Boulware 2011; Dickens 1979; Duncan and Riggs 2003; Goodwin 1977; Marcoux 2010; Rodning 2011; Whyte 2007; Wolf 1984). Scholarship surrounding the ideas of Cherokee origins and a shared identity take many forms. Rodning (2001, 2009a, 2009b, 2010) addresses this concept through examining architectural forms and seeking to understand their purpose in creating a unified sense of Cherokee culture. Others look towards linguistic commonalities, ceramic styles, and settlement distribution to determine origins. Keel (1976: 214) argues that while certain origins will never be known, an *in situ* development of culture is demonstrated by continuous traits shown through time. Migration theories, Keel stated, are based on unsubstantial support, though some argue culture change that occurred in late prehistoric times were the result of outside influence (Keel 1976; Ward and Davis 1999).

4.6.1 The Role of European Encroachment in Cherokee Ethnogenesis

Cherokee community development, in all geographic areas, was shaped by "social and political interactions that took place at several different spatial scales, from the interregional level to the level of social dynamics within towns" (Rodning 2002:160). From early on, interaction with other indigenous groups contributed to shaping community life, from sharing techniques and ideas to participating in warfare. Over time, Europeans arrived in the New World and eventually began encroaching into Cherokee territory, causing many groups to be relocated (Rodning 2008; Ward and Davis 1999). The changing dynamics of this time led to changes in resource availability, food procurement, and agricultural practices. Additionally, the effects of foreigner encroachment led to the migration of Cherokee families away from their homes.

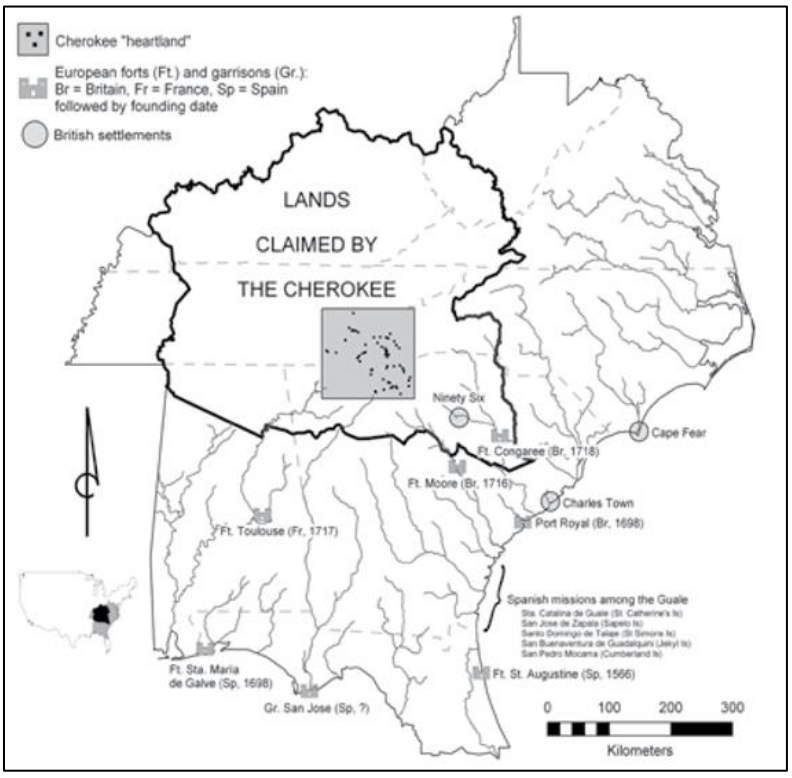

Figure 4.7 Cherokee-claimed land and European forts (Gragson and Bolstad 2007:439).

Marcoux (2010) provides an archaeological narrative to demonstrate coalescence of Cherokee people and resistance from European encroachment. The Tuckaleechee Towns were located in the northern reaches of Cherokee territory and were mostly isolated from other Cherokee communities. Evidence from archaeological survey (Figure 4.8) in the area revealed highly diversified styles and forms of pottery, along with the adoption of a single year-round housing style as opposed to using both winter-houses and summer houses which was traditionally found in Cherokee communities. Marcoux (2010) suggests that due to the disorder occurring across the landscape during the time of European contact, geographically separated groups of people coalesced to form an adaptive strategy of resistance. He argues that these groups of people were not passive in response to the changing dynamics of their culture, but were proactive and utilized "flexibility and improvisation" during this time (Marcoux 2010:130).

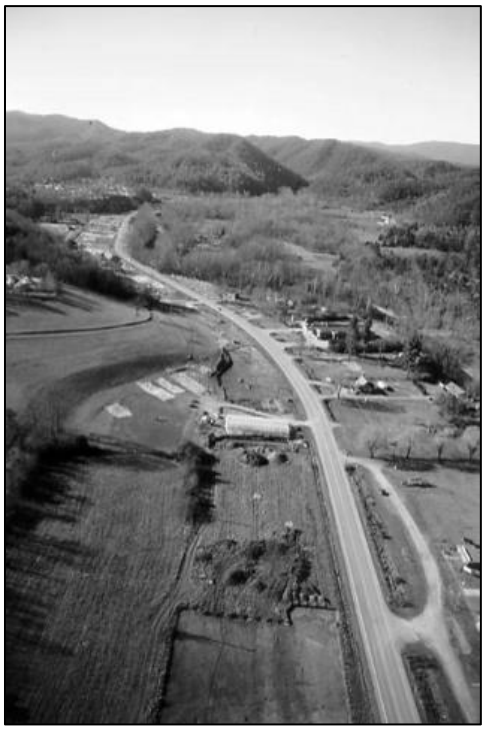

Figure 4.8 Aerial photo of excavations at the Townsend site (Courtesy of University of Tennessee Archaeological Research Lab via Marcoux 2010:61).

Eric Wolf (1984) suggests that larger-scale changes resulting from European interaction contributed in part to the formation of the naming of indigenous groups like the Cherokee, Creek, and Iroquois. He notes that these groups did have distinctive identities before European contact, but the division between "prehistoric" and "historic" indigenous groups is correlated with the relationships between the indigenous groups and colonizers.

Rodning (2002) looks at various factors that contributed to the coalescence of Cherokee communities. He notes that upon arrival into Cherokee territory, English traders observed divisions of Cherokees into multiple towns and settlements. Over time, however, the deerskin trade led to a coalescence of Cherokee communities, who together utilized the opportunity to trade (Rodning 2002:157). He further posits that although a shared Cherokee identity likely formed around the late seventeenth century, "the greater Cherokee community was a diverse and perhaps even multiethnic congeries of towns in the early eighteenth century" (Rodning 2002: 157). While various factors are suggested to have contributed to this social dynamic, it is believed that European contact is partially responsible for this formation. Rodning (2002) notes that ceramic chronologies for western North Carolina are not as comprehensive and precise as surrounding regions, thus leading to difficulty in reaffirming cultural origin theories based solely on material culture. If distinctions existed among Cherokee communities, how else are they tied together?

4.6.2 Theories of Cherokee Ethnogenesis

Joffre Coe's research during the 1950s incorporated a theory that set aside the migration theories of Cherokee culture. Many during this time were having trouble grappling with the diversity of material culture for the Southern Appalachians. Coe (1961) noted an important parallel: while distinct archaeological assemblages revealed a diversity of artifacts for different

areas, it was known that historic Cherokee groups were also divided by geographic area and had shown differences in material culture during historic periods, too. Coe's reasoning supports the notion that culture origins date back to more than two thousand years (Coe 1961).

Dickens (1979:28) argues that development of Cherokee culture can be analyzed by observing trends in South Appalachian Mississippian tradition of the Piedmont, Ridge and Valley, and Blue Ridge provinces. Developments are shown by looking at the phases that correspond to the provinces respectively – Etowah/Wilbanks-Lamar, Hiawassee Island-Dallas, and Pisgah/Qualla. While the traits of each of these phases were invariably influenced by external factors to some extent, they remained as distinctive sets of characteristics and correspond to the Lower Towns, Overhill Towns, and Middle Towns of Cherokee history. In this discussion, Dickens argues that Cherokee culture is likely the "end product" of a long-term and multilinear developmental evolution in this region (Dickens 1979: 28).

Rodning (2002) makes note of the variety of perspectives used to understand Cherokee ethnogenesis. Perhaps one of the most important aspects of Cherokee culture is the connection to the landscape. The landscape accounts for diversity among Cherokee groups, as geographical divisions of towns shows variances in dialects and activities. Additionally, and just as importantly, coalescence between groups within southern Appalachia occurred during the late 17th century as a result of conflict with Europeans and other Southeastern indigenous groups. Rodning proposes that a specifically distinct Cherokee identity formed and was embraced by members of the coalesced groups (Rodning 2002:157). Rodning suggests that a more holistc understanding of Cherokee origins will come about by continuing to study the town divisions which are all major foci of their culture (Rodning 2002:160).

Rodning's (2011) work with towns and townhouses contributes to understanding of Cherokee culture formation and notes that towns and townhouses are fundamental aspects of their culture (Rodning 2011:8). Rodning also emphasizes the complexity in understanding Cherokee origins by recognizing both short-term and long-term dimensions that are part of ethnogenesis. Continuity of material culture, as evidenced by ceramic traditions and mound building, along with language components can be traced back to prehistoric periods in the Appalachian Summit (Rodning 2011:8). Cherokee culture, as distinct from other Southeastern groups, incorporated these traits into historic occupations that further separated them from others. Mooney's (1900) early accounts of mythology within Cherokee culture aid in interpreting the importance of towns and townhouses, and also contribute to understanding the origins of a specific Cherokee identity. Recorded myths collected by Mooney reveal several stories of townhouses and towns. One particular story about the formation of the world involves an island with four corners, of which townhouses can be seen as a manifestation of this myth with the townhouse representing the island and its posts as the corners of the world (Rodning 2002, 2009a, 2009b, 2010). .

While there is difficulty in determining the exact time and context of the formation of a distinct Cherokee culture, the precursors and development of a unified identity as Cherokee can be inferred through historic text and oral tradition. Architectural styles provide a starting point for separating the Cherokee people from other southeastern groups. As demonstrated by Rodning (2002, 2009a, 2009b, 2011), towns and townhouses were significant structures incorporated into daily and ritual activities. The evolution of Cherokee language as early as the Late Archaic is also an indication of differentiating this group from others in the Southeast (Whyte 2007). Historical accounts of Europeans also provide some insight into people identifying themselves as

Cherokee. Much scholarship utilizes theories of coalescence to define distinctive Cherokee origins. It is often argued that encroachment of Europeans into the Appalachian Mountains led to a unified, or adapted, Cherokee identity (Marcoux 2010).

4.7 Thoughts on Current and Future Cherokee Culture

Cherokee people residing in the Appalachian Summit region today maintain a strong culture built on their dynamic past. However, it is wrong to only consider the past in determining the cultural values that are practiced every day. The Eastern Band focuses much effort into language and cultural revitalization, and maintains a thriving arts sector. Many historically important aspects of Cherokee culture, such as landscape and the environment, continue to play a major role in their daily lives. Preserving archaeological sites and learning about past practices is just one way the Eastern Band of Cherokee Indians continues to create a vibrant culture in their homeland (see Middleton 2011 for discussion of mound acquisition by EBCI). Mound sites, in particular, are a priority in the preservation of Cherokee heritage. To date, the properties containing the sacred historical places of Kituwha and Cowee have been acquired by the EBCI. More recently, in 2015, the EBCI purchased land in Graham County, North Carolina that was once home to a thriving town called Tallulah. This mound site was lost as a direct result of the forced removal of Cherokees in 1838 (McKie 2015). Acquiring and guaranteeing protection of these sites, along with other sites, allows Cherokee people to continue preservation efforts, learn more about the past, and cherish and protect the sacred landscape.

In order to better understand the culture history of Cherokee culture, archaeologists within the tribe and archaeologists from outside agencies can use resources such as this geospatial database of archaeological sites to add to the literature of sites and occupation intervals. New theories of Cherokee culture will arise within the discipline, and should be tested by using

tangible and easily-accessible resources. These theories can shed light on many facets of Cherokee culture, and have potential to change the way archaeologists observe social dynamics of the past.

5 PLANNING, COLLECTING, PROCESSING, AND ANALYSING QUALLA BOUNDARY DATA

The initial stages in developing this project revolved around the EBCI THPO's desire and need for a single database for archaeological sites on the Qualla Boundary. Through previous work with Dr. Benjamin Steere, I was introduced to the EBCI THPO director, Russ Townsend, and his staff who met with me at their office outside of Cherokee, North Carolina. During this initial meeting, we discussed the importance of a GIS database for the EBCI THPO, aims and goals of the project, and what would come of the data later on. Before leaving,the EBCI THPO granted me permission to begin work. This initial discussion laid the groundwork for the remainder of the project, and also for future discussions.

During the project, a wide range of data sets were integrated. Drawing from early accounts of survey and excavation, along with more recent cultural resource management reports, I synthesized and compiled information in an attempt to create a complete data set for Qualla Boundary sites. Once the information was compiled, data for 216 sites were exported into ArcMap to formulate a comprehensive and thorough representation of all recorded archaeological sites within the geographic scope of the project. This chapter focuses on the methods used to complete these processes, and also notes some limitations that occur not just within the parameters of this project, but also within the broader scope of archaeology.

5.1 Data Collection

The intensive process of collecting useable data for this project included making several trips to the North Carolina Office of the State Archaeologist's (NCOSA) western division location in Asheville. Linda Hall, the Assistant State Archaeologist, advised me on the collections of various types of analog data available in the form of site reports, forms, and quadrangle maps stored for the state's archaeological records. The first aspect of data collection was to compile a list of all archaeological sites within the Qualla Boundary. In order to complete this task, I referenced physical USGS quadrangle maps that have been edited with site locations and site numbers. From here, I began making a list of all sites that appeared within the Qualla Boundary, focusing on the sites along the Oconaluftee River from Smokemont campground area in the Great Smoky Mountains National Park just north of downtown Cherokee, down to the junction of the Oconaluftee and Tuckasegee Rivers which lies just northwest of the town of Whittier (See Figure 5.4).

Another important step in the data collection process was to contact other agencies in an attempt to gather the most available and updated data for the project. My first contact was the North Carolina Office of the State Archaeologist in Raleigh, North Carolina. After contacting Steve Claggett, the State Archaeologist, and Sam Franklin, the GIS Data Manager, I received permission to obtain and use existing GIS data from their office. In receiving this data, I was able to establish the foundation for the database. Using the NCOSA's detailed GIS shapefile and descriptive data, I was able to visualize the preliminary format of the project. This bulk of information provided a solid foundation for the composition of the project, and set a high standard for the organization of this project.

The NCOSA provided me with shapefiles for 216 sites. Out of the total number of sites, 72 of sites were point files while 144 were polygon files. Using overlaid maps from survey reports and hand-edited quadrangle maps, I created an additional 18 polygon files for sites previously represented by points. Creating more polygons for sites is a crucial component to this project, as it allows the EBCI THPO to see the dimensions of a site in relation to its natural surroundings, as opposed to only viewing a single point. Cultural affiliation data in the NCOSA shapefiles were limited to "Prehistoric", "Historic" or "Both". In order to create a more detailed database for the EBCI THPO, I refined these terms to specific periods, subperiods, and phases when available.

Original plans included compiling an extensive list of attributes given in site forms. Much of the site data I gathered early on reflects this. However, due to the amount of sites on the Qualla Boundary and other constraints, I focused my attention gathering data for time periods, subperiods, phases and site dimensions; these are attributes that could be easily visualized on the map and can help in examining the spatial and temporal aspects of sites. While conducting research and field work, pulling sites by time period can be helpful in understanding the relationships between neighboring sites, and understanding varying occupational histories of particular sites and areas.

Combining these select attributes with the ones provided by the NCOSA, data tables have 15 columns of attributes in addition to time period data specific to each site (Table 2). Due to the incomplete nature of some site forms, not all data could be recorded in the database for these sites. These discrepancies are in the form of dimension data and other locational information that were not immediately available during the course of the project. However, future goals include gathering the aforementioned data, information on material culture such as artifact assemblages and architectural components, and adding in oral histories, relevant folklore, and photos.

Table 2. Descriptions of attribute data for point and polygon tables.

Site Number	State-assigned site number
Shape	Point or polygon
Status	National Register of Historic Places status
ER	Environment Review number
Bib	Bibliography number
Accuracy	OSA confidence in location accuracy
Accession	Accession number corresponding to artifacts
Quad	USGS Quadrangle map
Northing	Only applicable to point shapefiles
Easting	Only applicable to point shapefiles
Latitude	Only applicable to point shapefiles
Longitude	Only applicable to point shapefiles
Area	Area in square meters (sq. m.); only applicable to polygon shapefiles
Notes	Alternative names, artifact descriptions from site forms, etc.
Type	Type or function of site
Cultural periods	Time periods from Early Archaic to 20th century; listed individually

After compiling a handful of site numbers, I began sifting through site forms and site reports to retrieve data. Relevant data for each site included state-assigned site number or project-assigned site number, site location, surveyor names, project names, cultural components, test methods, description of archaeological remains, past and present site conditions, site dimensions, elevations, density of artifacts, site function, and distance to nearest water source. Using MS Excel, I created a table using the above data categories for each site on the list.

Along the way, Beau Carroll of the EBCI THPO and Ben Steere of Western Carolina University provided me with many site reports for the area. Additionally, Paul Webb and Tasha Benyshek of TRC, a CRM firm, and Michael Angst of University of Tennessee Knoxville provided me with their original reports for site surveys on the Qualla Boundary. These reports, when applicable, were saved to be inputted into the database later for reference.

5.1.1 Limitations during Data Collection

Due to the nature of record keeping throughout the years, reports were not standardized, and as such each site's recorded data varied. In many cases, earlier reports leave out details about artifact types and names, site location, and other useful attributes like density of artifacts and test methods. Additionally, it appears that some sites were not entirely investigated, causing the report to mention only the location and assigned site number. Together these variations in record keeping led to gaps in the data available to me. Due to these gaps in data, many sites do not have information for every heading, or attribute field, and this should be addressed in the future. Ideally, every cell in the spreadsheet sheet would contain information. In order to complete this task, I went through official state site forms and detailed reports. To the best of my ability, I have filled in as many cells as possible with the information available during the duration of this project period.

5.2 Data Processing

GIS software uses two main types of data: vector and raster. Vector data is represented by points, lines, and polygons, while raster data is shown in pixels to represent continuous data (Longley et al. 2011; Wheatley and Gillings 2003). In mapping sites within the Qualla Boundary, both data types were utilized in the spatial database. Vector data represents individual sites and locations, while raster data is included in a topographic layer of the area.

The shapefile data received from the NCOSA came in the aforementioned forms: points and polygons. Polygon data contains not only coordinate data, but also the measurements of the site which define the polygon's shape. Point data contains coordinate data, but from a resource management perspective, point files are not ideal. They do not represent the extent of a site that could be impacted by development. When presented on a map, polygon and point data may

cause deception, as the former are represented by larger areas than the latter. As such, I sought out the dimensional data to turn all points into polygons in order to create a more visually accurate map. In performing this additional data collection, I was only able to acquire dimensional data for 18 sites. The remaining sites had no associated dimensional data due to incomplete records or being isolated finds. Thus, it should be noted that sites represented by points do not have any size descriptors that could accurately be portrayed on the map. For future research, if site dimensions can be determined, transforming the point files to polygon files is necessary in creating a more complete representation of settlement distribution and size patterns.

5.2.1 Layers in the Map

The base layer of the data set contains aerial imagery from ESRI Online which shows vegetation, major roadways, and major waterways. The layer above the aerial imagery is a polygon shapefile of North Carolina county boundaries which was also available through ArcGIS Online. The next layer contains hydrographic data for the area, and above that the multiple scanned hard copy quad maps with marked sites, which have been georeferenced. Above that is a polygon shapefile of the Qualla Boundary, which was received from TRC. The next and final layer consists of site shapefiles from the NCOSA, and personally created shapefiles. In this final layer sites were separated by chronological period and phase, where available, and based on the cultural sequence used by most Cherokee archaeologists. As needed, these groups can be easily reorganized. Aside from this core data for the map, I also created groups of shapefiles for the sites included in the Oconaluftee River Valley settlement pattern study.

Due to the fluid nature of cultural components in the Appalachian Summit, I reached out to Brian Burgess of the EBCI THPO to inquire about how the office would prefer temporal

groupings done. From here, I selected sites based on their unique chronological attribute data, and layers were created which represent all sites in the database that share the same chronological signifiers. For instance, all sites under the umbrella term, Woodland, which include Early Woodland, Swannanoa (a phase of the Early Woodland), Middle Woodland, Pigeon and/or Connestee (both phases of the Middle Woodland), and Late Woodland, were selected and their shapefiles were incorporated into an individual layer. This layer was created for ease of visualization, and also to account for those sites that were recorded by only their general period, i.e. Woodland, as opposed to Middle Woodland. Additionally, in order to see a more detailed representation of each of the subperiods, stand-alone layers were also created for the Early, Middle, and Late Woodland sites.

In managing the data, users are able to turn certain layers on and off depending upon the time period in question, or they can simply run a querry on the site data to return all of the sites from a particular time period. For instance, if one wishes to see sites occupied during the Woodland period, only the box labelled "Woodland" would need to be selected. Further, if the user only needs to see sites from the Middle Woodland, only the "Middle Woodland" box under the mother "Woodland" section should be checked. The nature of this map in its entirety allows for certain data to be visible or not visible depending on what is necessary.

The fluid nature of chronological divisions is a foundational limitation to a project of this magnitude. Cultural components may span time periods and phases, and the period and phase cut-offs vary depending on the researcher's theoretical background, the locational perspectives of any given cultural group, and when the work was done. A discussion with Brian Burgess, an archaeologist with the EBCI THPO, brought about explanation of the difficulties and inherent limitations of grouping sites by strict chronological periods. For the purpose of this project,

however, it is almost essential to create these chronological groupings in order to analyze the data in a manageable way. Sites were assigned chronological components using accepted cultural boundaries, but it should be noted that these boundaries are often permeable and should be recognized as such when looking at the data set.

The geospatial data was received in varying coordinate systems. The NCOSA shapefiles were sent in the coordinate system WGS 1984 Web Mercator, Qualla Boundary shapefile from TRC was in NAD 1983 State Plane North Carolina FIPS 3200 Feet, the NCDOT hydrographic layer from ArcGIS Online was also in NAD 183 State Plane North Carolina FIPS 3200 Feet. The basemap aerial imagery follows the NAD 27 UTM Zone 17N coordinate system, and for easier loading due to the size of the imagery, all data in the data frame were projected to match this. A duplicate dataset was created using WGS 1984 coordinate system. This will be more useful while using various remote sensing datasets and will save members of the THPO from having to transform the NAD 27 data.

6 RESULTS AND CONCLUSIONS

This project is the first stage in the establishment of a long-term, sustainable project that can be used in numerous ways for the EBCI THPO. With this foundation set, the EBCI THPO can add site data from surveys, reference reports for preexisting sites in the database, locate specific cultural components, and analyze spatial and temporal patterning of archaeological sites.

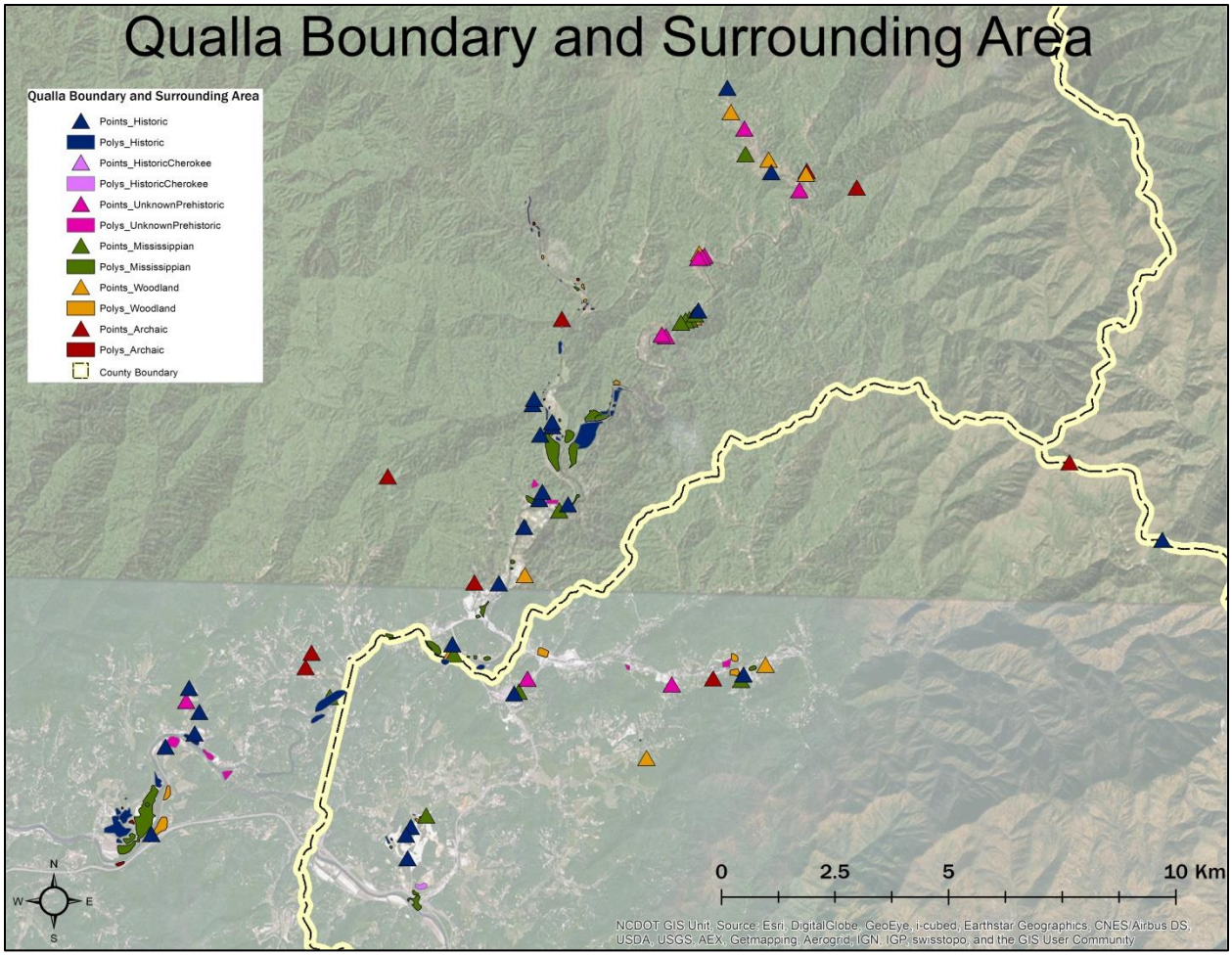

Figure 6.1 All sites included in the database shown in point or polygon form.

All recorded archaeological sites within the Qualla Boundary exist in the map and database (Figure 6.1). These sites, originally received from the NCOSA, were further refined from their original cultural affiliations of "Prehistoric", "Historic" and "Both", to more detailed time periods. Additionally, all recorded sites along the Oconaluftee River from the Smokemont Campground in the Great Smoky Mountains National Park, down to the Qualla Boundary line are also included in the database (Figure 6.4). Out of 216 sites, 18 do not have assigned cultural components (Figure 6.1 and 6.2). As mentioned, another limitation was the absence of site dimensional data, which hindered the ability to draw out the size of a site onto the map.

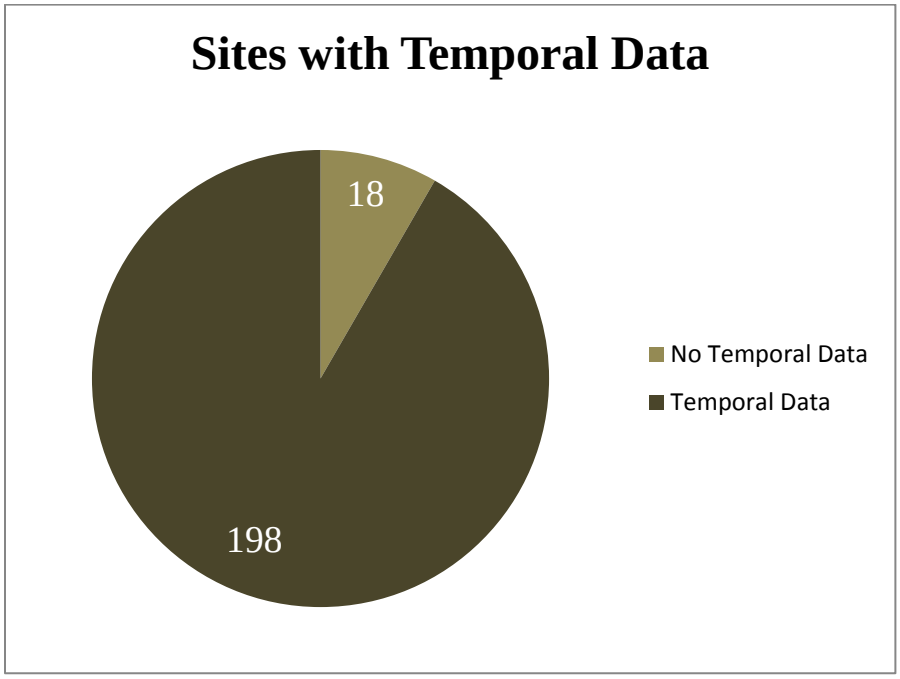

Figure 6.2 Quantity of sites with recorded temporal occupation data versus quantity of sites without temporal occupation recorded.

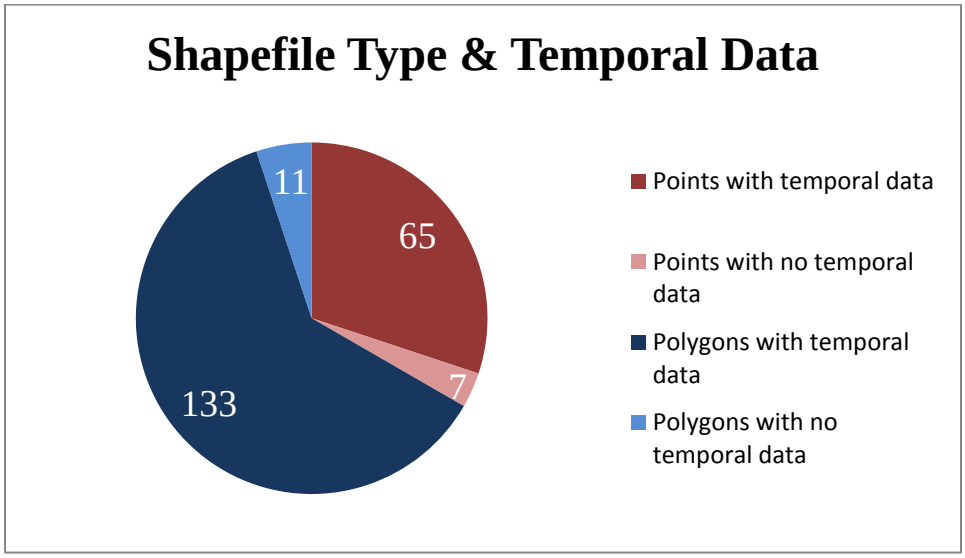

Figure 6.3 Quantity of points and polygons with and without temporal data.

Once all data collection was completed using the best available resources, and the data sets were exported into ArcGIS, and shapefiles for all sites on the Qualla Boundary and along the Oconaluftee River to the Smokemont Campground were shown on the map, sites were separated by chronological components into different layers in ArcGIS. Additionally, each site was also assigned to its lowest common denominator. For instance, if a site was catalogued as Pigeon, I assigned it to the Middle Woodland and Woodland categories. For the sake of this map, and recognizing the fluidity of such chronological cultural period, Pisgah and Qualla sites are recognized as Mississippian. Each layer was assigned a primary color, and subperiods were assigned variations of the primary color. For instance, the Woodland Period was assigned the darkest blue, while Early Woodland was given the lightest blue, Middle Woodland was given a medium blue, and Late Woodland was given a darker blue. When all layers are shown on the map, the user is able to differentiate between site occupation times (Figure 6.1). When only one main layer is shown, only that layer and its associated colors are shown. This leads to an easy visualization of occupation periods in order to assess changes in settlement over time.

While the database is missing some dimensional and artifact data, it shows the necessary steps to convert hard-copy data (i.e. reports, site forms, notes) into digitized GIS data that can be viewed both spatially and temporally. Completing the dataset should be a priority in order for the platform to be used to its full potential. Additionally, as new sites are discovered, the information recorded in reports and site forms can be entered into the database for the most current version of known archaeological sites on the Qualla Boundary.

6.1 Settlement Pattern Study of Qualla Boundary and Surrounding Area

Incorporating the aforementioned settlement pattern theories of the Southeast, I now examine broad regional trends in site distribution and temporality for the area, including a micro-

regional analysis of the Oconaluftee River Valley (Figure 6.4). Due to the nature of this project's data, it is not be feasible at this time to incorporate a significant amount of artifact data into the study. Instead, I hope to point out some general patterns for the area as a starting point for future investigations. Due to the breadth of the data, I analyzed sites from only the Archaic, Woodland, and Mississippian periods, and analyzed sites according to their general time period only.

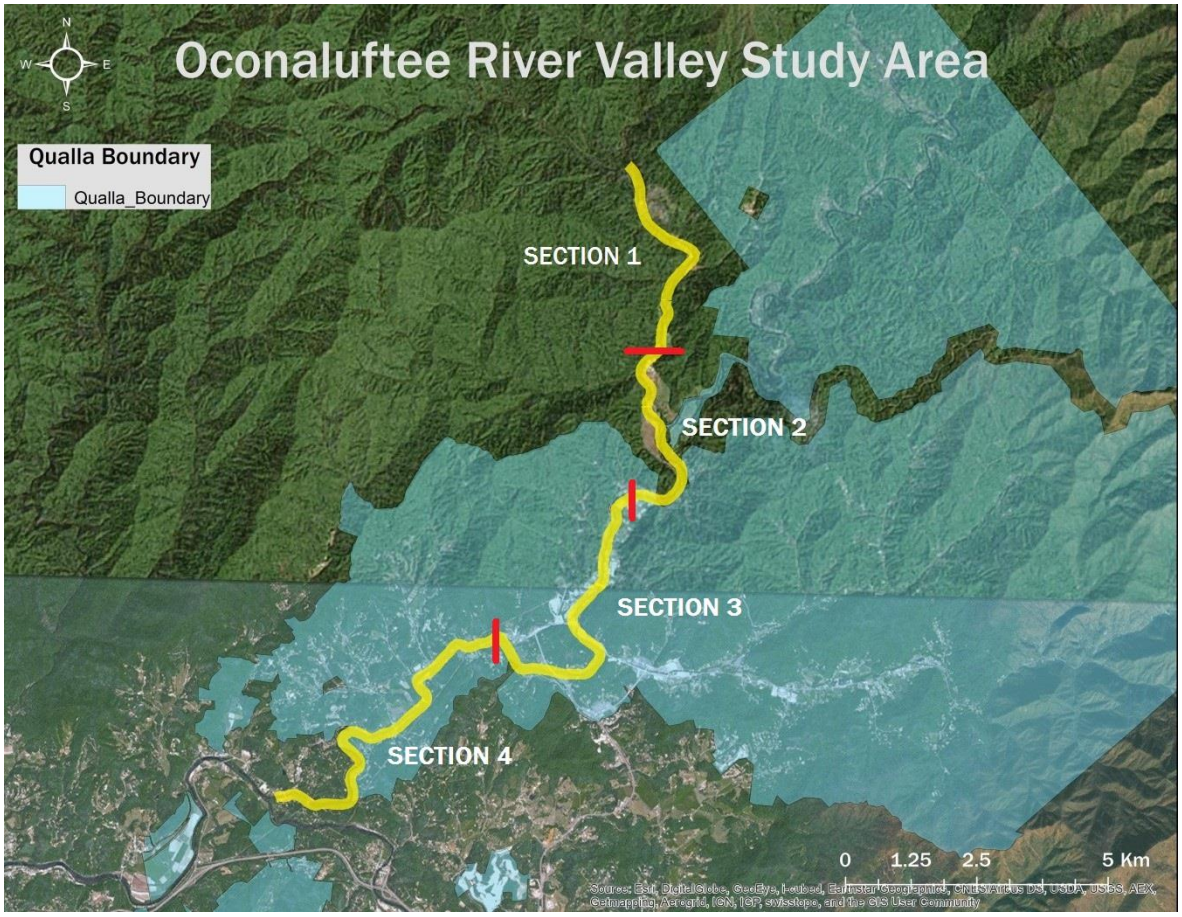

Figure 6.4 The extent of the Oconaluftee River Valley settlement pattern study (in yellow) from the northern extent in the Great Smoky Mountains to the southern extent at the junction of the Tuckasegee River.

Secure water sources are necessary for human life and activity. In the Appalachian Summit, where rivers and streams are abundant, nearly all sites are located near water, and many times are

found within a few meters of the Oconaluftee or Tuckasegee Rivers. It is important to know how many sites exist, what time periods they span, and the types of sites found in these areas. The following micro-regional study examines the Oconaluftee River Valley where many of Cherokee's most important sites are found. For the sake of easy visualization, I divided the study area into four equal-length sections from the northernmost portion, Section 1, to the southernmost portion, Section 4 (Tables 5.5-5.8). The division of these sections is not culturally significant, and is simply used for the sake of visualization and easy reference for the reader.

It is known that sites along the Oconaluftee River have been inhabited continuously, but it is also important to know what sites experienced transitions from the Archaic to the Woodland, and from the Woodland to the Mississippian, and so forth. It is also beneficial to quantify which sites had occupations in only one period, and which sites spanned multiple periods. Additionally, studies such as this are important in elaborating on concepts of sacred landscape, geography, and Cherokee folklore. The results of the preliminary study follow.

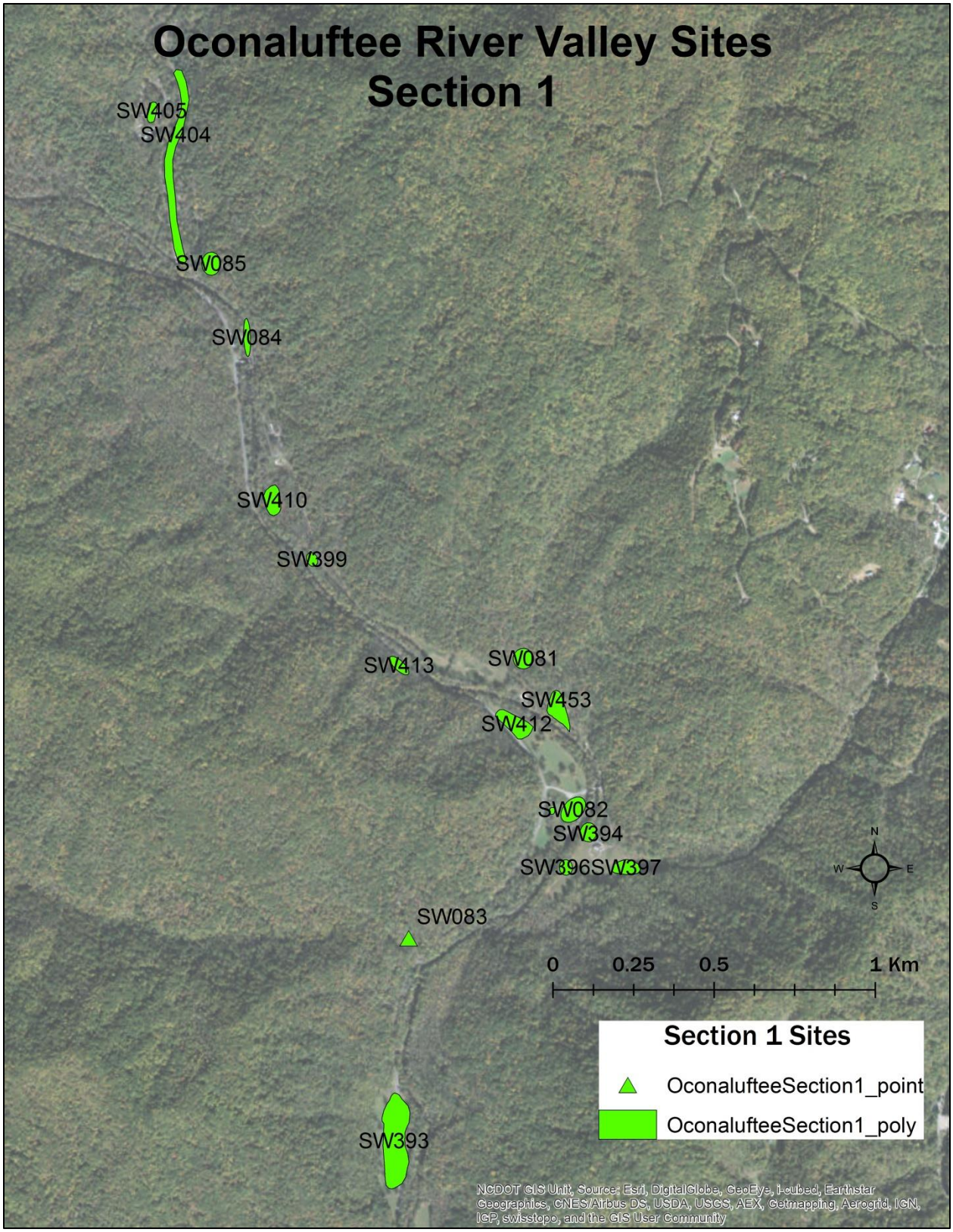

Figure 6.5 All sites in Section 1 of the Oconaluftee River Valley settlement pattern study.

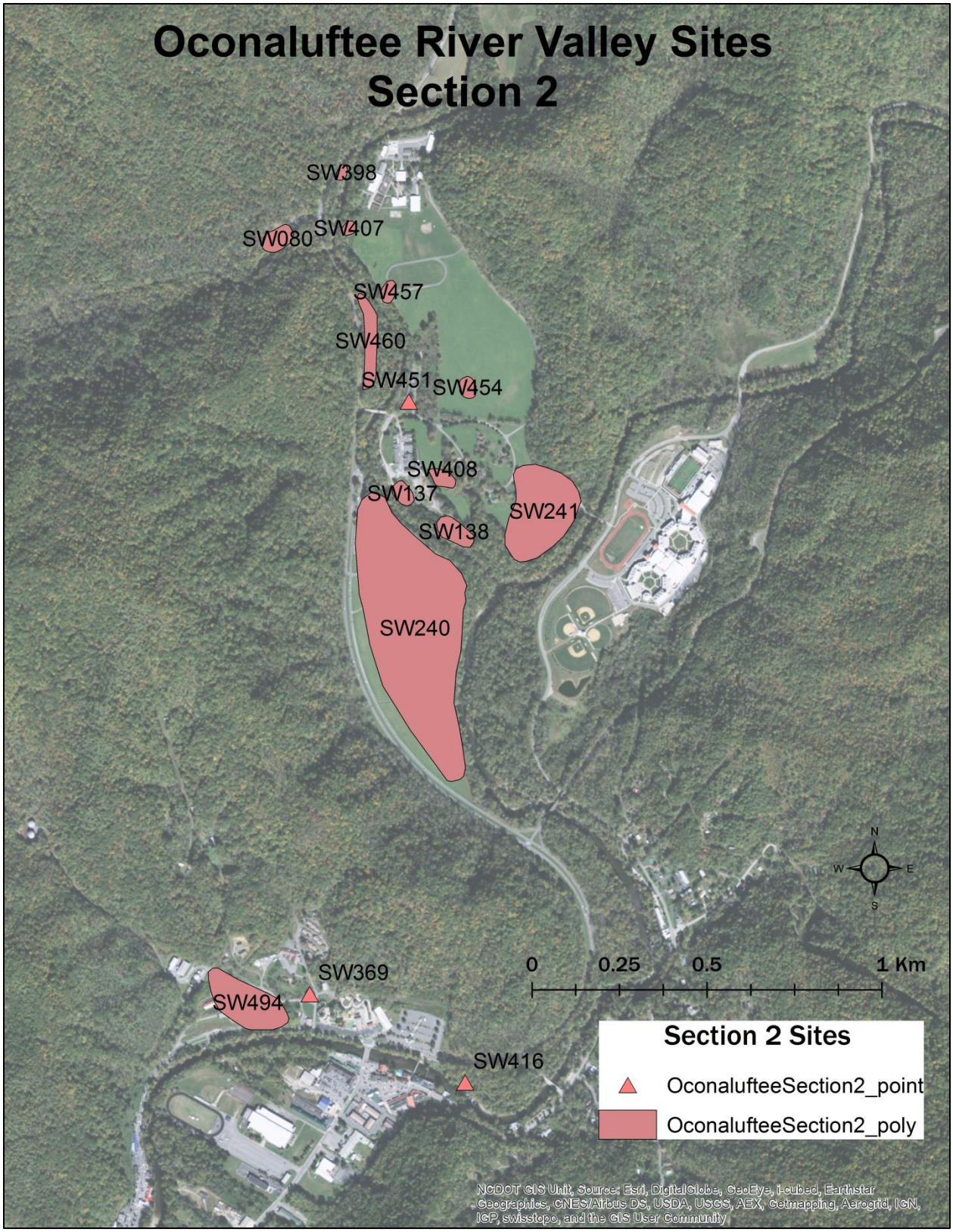

Figure 6.6 All sites in Section 2 of the Oconaluftee River Valley settlement pattern study.

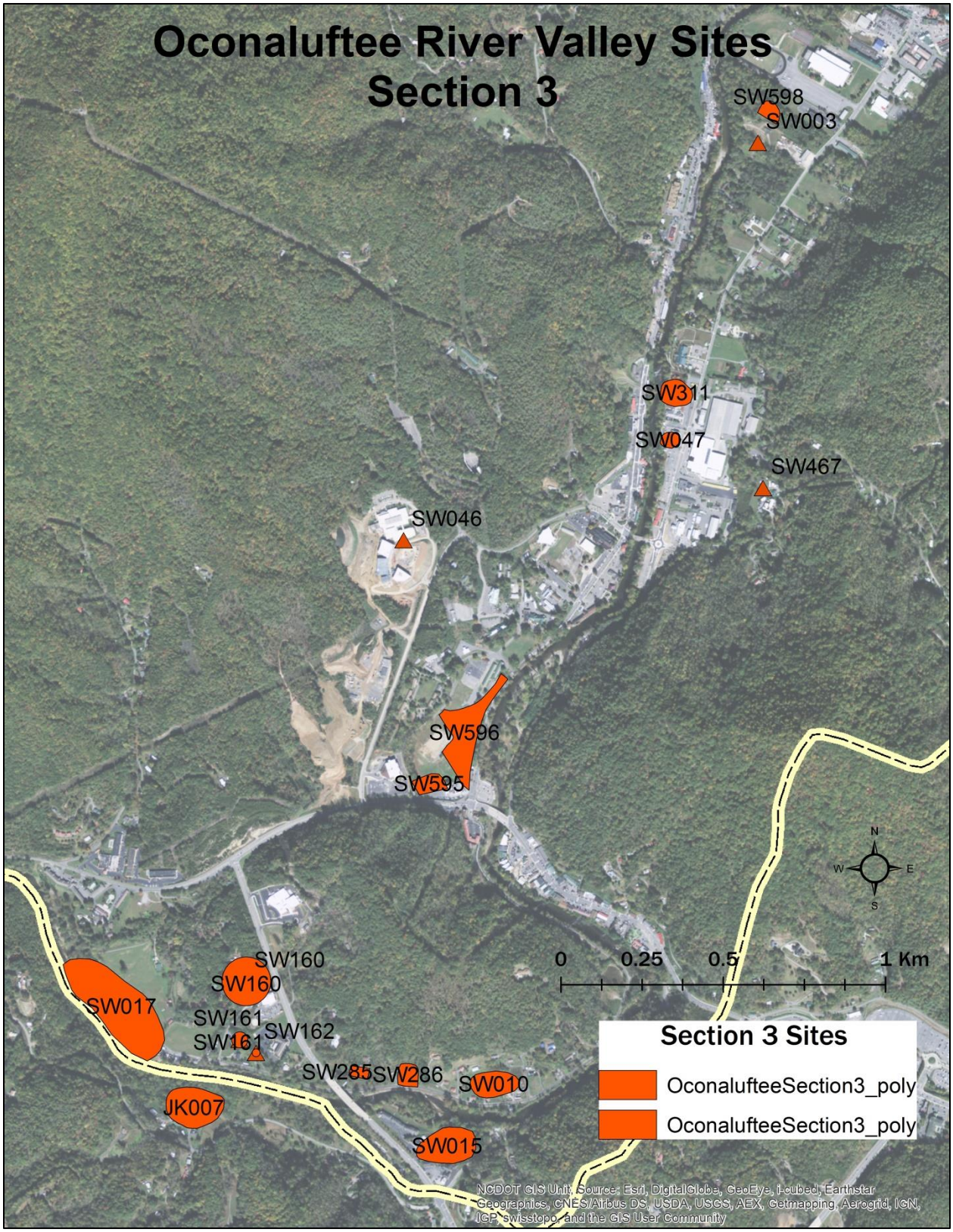

Figure 6.7 All sites in Section 3 of the Oconaluftee River Valley settlement pattern study.

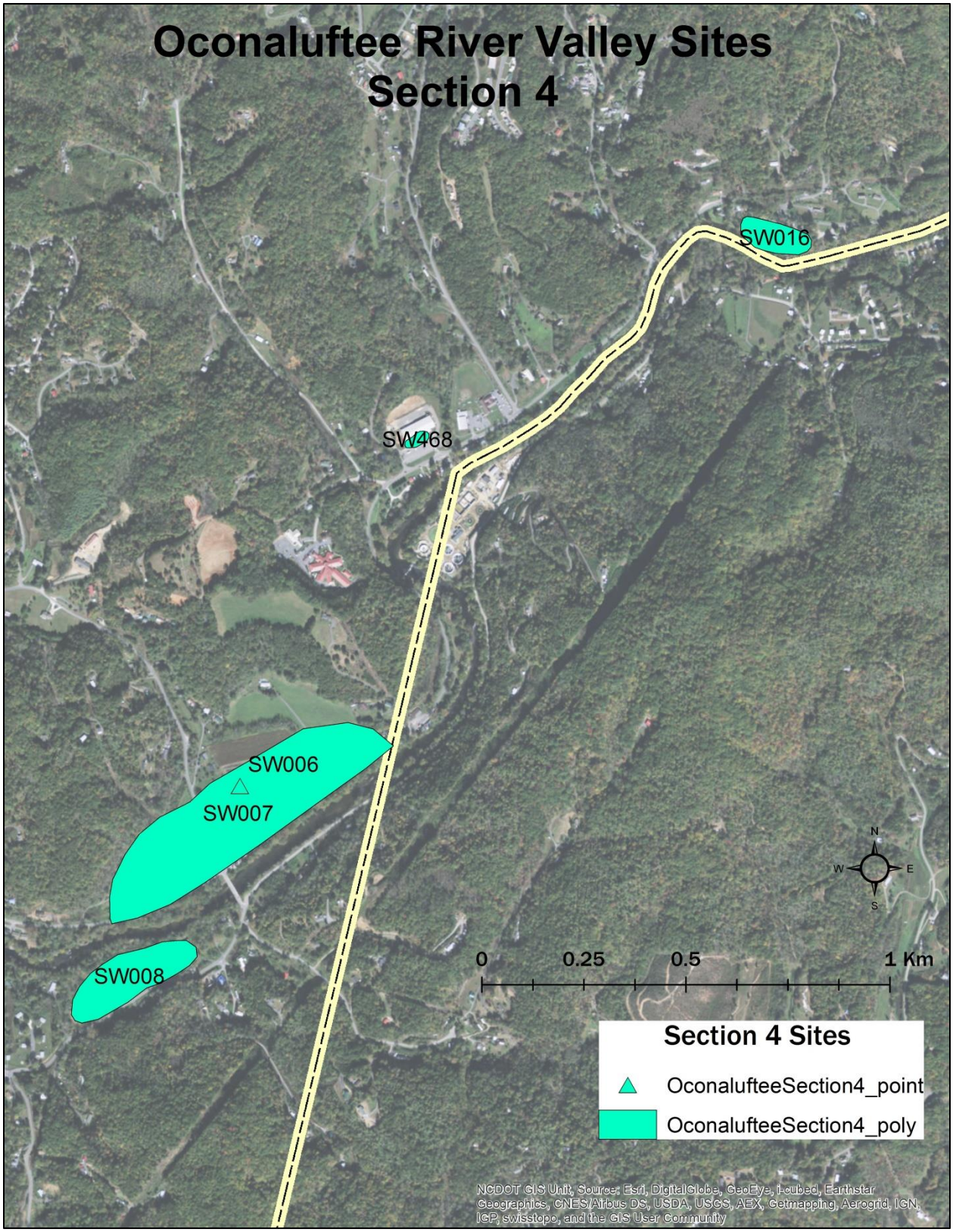

Figure 6.8 All sites in Section 4 of the Oconaluftee River Valley settlement pattern study.

Following data analysis, it is apparent that most sites occupied during the Archaic period were also occupied during Woodland period, and most Woodland period sites were also occupied during the Mississippian period. However, some sites were only ever occupied during one period:

In Section 1, two Archaic sites (SW81 and SW 85) were occupied only in the Archaic period, three sites (SW 84, SW404, and SW410) were only occupied in the Woodland period, and five sites (SW 394, SW 396, SW397, SW399, and SW 459) were occupied only in the Mississippian period. In Section 2, only one site (SW407) was occupied during the Archaic period, and one site (SW137) was occupied only in the Woodland period. There were six sites (SW 217, SW 369, SW 398, SW 451, SW 454, and SW 457) only occupied during the Mississippian period. In Section 3, one site (SW 46) was only occupied in the Archaic period, one site (SW467) during the Woodland period, and six sites (SW 47, SW 161, SW 285, SW 286, SW 595, and JK 7) during the Mississippian period.

Finally, in Section 4, only one site (SW 16) was occupied during the Mississippian period. In observing the amount of sites only assigned to one particular period, it can be extrapolated that in most cases, when an Archaic or Woodland site was occupied, the occupation generally carried into the subsequent period. Furthermore, the following sites spanned all three time periods: Section 1) SW393, SW412, SW413; Section 2) SW416, SW460, SW494; Section 3) SW 15, SW17, SW 495; Section 4) SW 6, SW 7, SW 8. Out of 55 sites analyzed along the Oconaluftee from the Smokemont area to the junction of the Tuckasegee, 12 spanned all three time periods.

In observing the functions of the 55 sites in the study area, 16 were classified as "long-term habitation" – including the Wild Turkey site, Boundary Tree, and Nununyi, seven were classified

as “short-term habitation”, one classified as “rock shelter/cave” and the remaining classified as “limited activity” or having no classification (Tables 3-6).

Table 3. Function of sites in Section 1 of the Oconaluftee River Valley settlement pattern study area.

Site Function - Section 1					
Site	Long-term habitation	Short-term habitation	Rockshelter	Limited activity	No function data
SW81				x	
SW82		x			
SW83				x	
SW84				x	
SW85				x	
SW393	x				
SW394	x				x
SW396					x
SW397					x
SW399			x		
SW404	x				
SW405					x
SW410	x				
SW412	x				
SW413					x
SW453					x
SW459				x	

Table 4. Function of sites in Section 2 of the Oconaluftee River Valley settlement pattern study area.

Site Function - Section 2				
Site	Long-term habitation	Short-term habitation	Limited activity	No function data
SW80			x	
SW137		x		
SW138			x	
SW217		x		
SW240	x			
SW241		x		
SW369				x
SW398				x
SW407				x
SW408	x			
SW416				x
SW451			x	
SW454				x
SW457			x	
SW460			x	
SW494	x			

Table 5. Function of sites in Section 3 of the Oconaluftee River Valley settlement pattern study area.

Site Function - Section 3				
Site	Long-term habitation	Short-term habitation	Limited activity	No function data
SW3	x			
SW10				x
SW15		x		
SW17				x
SW46				x
SW47			x	
SW160				x
SW161		x		
SW162		x		
SW285				x
SW286	x			
SW311	x			
SW467				x
SW495	x			
SW595				x
SW596				x
SW598	x			
JK7				x

Table 6. Function of sites in Section 4 of the Oconaluftee River Valley settlement pattern study area.

Site Function - Section 4				
Site	Long-term habitation	Short-term habitation	Limited activity	No function data
SW6	x			
SW7	x			
SW8				x
SW16				x
SW468	x			

In the next section of my settlement pattern analysis, I pulled all sites from the database that spanned through the Archaic, Woodland, and Mississippian periods. Of 216 sites in the database, 23 had continuous occupations through all three of these periods (Figure 6.9). Furthermore, six of these 23 sites continued into Contact period, and eight had Historic occupations. Of these eight Historic sites, one was a Historic Cherokee occupation, and seven

were from the 19th and 20th centuries. It should be noted that the Kituwha mound and village, the Birdtown village, the Nununyi mound and village, Boundary Tree and Ravensford sites all show have an occupational history that spans the Archaic, Woodland and Mississippian periods. Kituwha and Nununyi are both believed to have had historic Cherokee townhouses built atop previously existing mounds. These townhouses were centers of political and social life in the area, and are considered very sacred places on the landscape. The significance of these sites is exhibited through their proximity to their respective rivers, their continuous use of the site over time, the relatively large amount of space they utilized during their occupations, and also through numerous oral histories and written accounts.

In determining if a correlation exists between length of occupation and site size, I pulled the polygon shapefiles for all sites in the database spanning from the Archaic through the Mississippian periods. Nineteen (of the 23 sites mentioned above) are in polygon form and contain dimensional data (Table 7). One may suggest that sites that were occupied continuously from the Archaic through the Mississippian periods would be more substantial in size compared to other sites only occupied during one or two periods, so I examined the sizes of these 19 sites to determine if a correlation exists.

The results of the inquiry do not suggest a direct correlation between continuous occupation and size, as the site with the largest area is the Kituwha mound and village, a long-term habitation area, and the smallest site is SW459 that has been defined as having “limited activity”. It should also be noted that Nununyi is represented as a point in the database, and is not included in this study. There are numerous possibilities as to why the data has such a large gap: it is possible that the extent of these sites have not been surveyed and delineated to their fullest; and it is also possible that certain areas were places of daily activity, but not somewhere where people

wanted to live. In the future, it will be best to have these sites fully delineated in order to assess this relationship further.

In comparison to the sites in polygon form that did span from the Archaic through Mississippian periods, I examined the remainder of polygon sites that did not span from the Archaic through the Mississippian. Of these sites, the largest is approximately 136,000 m². The second largest in the remainder group is 113,000 m ² and the third largest 78,000 m². Additionally, the smallest site within the remainder group is 340 m². Thus, the largest two sites in the remainder group are smaller than the two largest sites that span the Archaic through Mississippian periods. While there is no definitive correlation between site size and a continuous occupational history, it is recognized that the two largest sites on the Qualla Boundary are sites that spanned multiple time periods.

Table 7. Size of Sites Spanning Archaic, Woodland, and Mississippian Periods

Site	Size (m²)	Size (ha)	Name
SW1	284,485	29	Governor's Island (Kituwha)
SW78	213,577	21	Ravensford Town
SW287	134,816	14	
SW7	128,388	13	Birdtown Village
SW317	61,636	6	
SW320	53,841	5	
JK22	51,395	5	
SW17	48,453	5	
SW8	30,559	3	
SW318	29,286	3	
SW494	23,805	2	Boundary Tree
SW596	22,903	2	
SW393	19,394	2	
SW15	15,977	2	
SW460	9,079	<1	
SW2	6,018	<1	Governor Village
SW412	5,368	<1	
SW413	1,817	<1	
SW459	284	<1	

By looking at the break-down of this analysis, it can be noted that only 10 percent of sites in the database had continuous occupations from the Archaic period through the Mississippian period, while 22 percent of sites along the Oconaluftee River had continuous occupation. Given that the Oconaluftee River Valley sites make up a little more than one-quarter of all sites in the database and the land coverage of the river valley is significantly less than one-quarter of the Qualla Boundary, it is recognized that Oconaluftee River Valley sites were more densely occupied and had greater longevity than the rest of the area.

While there were a handful of sites in the database that were not located on major waterways, none of those sites seem to have spanned all three discussed periods. From this we can deduce that the long-term occupations of sites in this segment of the Cherokee heartland were all found directly near a major waterway – in this case, the Oconaluftee and Tuckasegee Rivers. The significance of place, geography, and sacred landscape are quantified through settlement studies such as this.

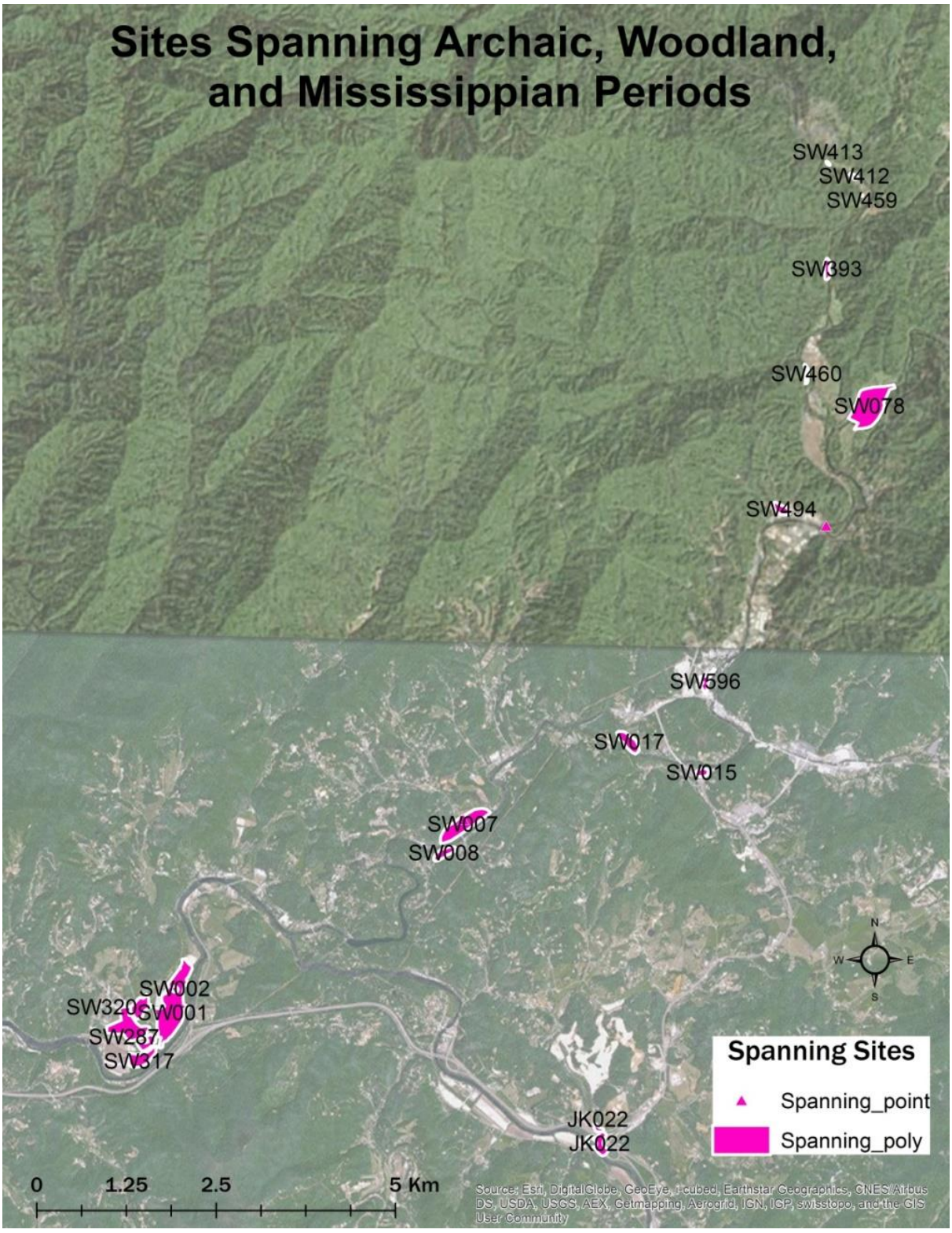

Figure 6.9 All sites in the database that have a continuous occupation from the Archaic period to the Mississippian period.

7 FUTURE DIRECTIONS

With current uses of GIS technology, and potential future advancements, the possibilities for managing and analyzing data are nearly endless. While this project serves as only a preliminary database for the EBCI THPO, it is possible to expand its scope as necessary. Because the EBCI THPO manages lands outside of the Qualla Boundary, it may be necessary at some point in the future to expand the database to those places to create a more thorough dataset for all resources monitored by the office. Once this database and map are used and any minor shortcomings are resolved, it is also possible that this could act as a model for other THPOs in need of a single repository of data.

As future surveys are completed by the EBCI THPO, locational data, artifact and feature data, site dimensional data, field notes, and so much more can be incorporated into the map. Additionally, existing site reports contain extensive information, such as geophysical data and photos that can also be incorporated into the map as hyperlinks later on.

While the foundation of the map and a multitude of characteristic site data exist within the project at this point, there are numerous tools within GIS software that can lead to much more work. In simple terms, it has not yet reached its full potential. In order for the database to reach this point, as much attribute data (site dimensions, specific dates, artifact and feature data, hyperlinks to site reports and forms) within the master spreadsheet will need to be completed. Finding a proper method to standardize information on artifacts and features will also be necessary for efficiency and simplicity. Additionally, it would be very beneficial to find site dimension data for all sites represented currently as point shapefiles. In the long-term, having all sites in polygon shapefile format would allow the EBCI THPO to quickly reference the size of a site, whether it be a small campsite or a larger cluster of structure. Besides the (many) cases of

isolated finds, a reasonable long-term goal of this project is to have every site drawn out to show its size in relation to neighboring sites. This would lead to more easily conveyable settlement pattern analysis and site comparison before archaeological work is done.

As the original creator of the map, I plan on working with the EBCI THPO indefinitely to add in any desired data or perform certain analyses using the data. The logistics of GIS software, whether through ESRI's ArcMap system or other sources, is not something that can be learned overnight. In maintaining a sustainable project, I will also make myself available to pass on knowledge to any employee within the EBCI THPO if they wish to understand how the software functions.

In following McGuire's four facets of proper indigenous archaeological praxis, I believe this map and database serve the interest of the EBCI THPO and greater Cherokee community, while also providing a useful tool for cultural resource management. The foundation of this project was set by the EBCI THPO giving their trust and wishes to work on a project such as this. It is my hope that over time, by continuing to work with them, that a truly solid relationship between the EBCI THPO and myself will be formed.

Regarding the transfer of the data to the EBCI THPO, I will fill a flash drive with all data that was received, gathered, and created during the course of the project. This will include folders of reports, sites forms, spreadsheets, and other documents necessary in the production of the database. Secondly, I will also include all GIS data that is included in the map, along with the map itself. This aspect of the data will come in two forms: ArcGIS data and Google Earth files (.kml) which were exported from ArcGIS. This latter form of data will allow EBCI THPO to access the site data in the Google Earth platform without needing to use ArcGIS software. The

EBCI THPO currently utilizes ArcGIS software at the EBCI Emergency Services Department, where data can be accessed if so desired.

ESRI, the company that makes ArcGIS, offers a way for people to access ArcGIS data through a free GIS viewer called ArcGIS Explorer. While data in ArcGIS Explorer cannot be created or edited – this must be done using standard ArcGIS software – the user is able to view features, search for and identify data, view multiple layers of data, and measure distances on the map. This application can be very helpful for people simply needing to reference material in the database, and its only shortcoming is not being able to create the data in the application (ArcGIS.com)

Additionally, there are various resources available to indigenous communities who wish to use mapping software for community needs. One of these resources, a grassroots project named Mukurtu, directly aligns with the plans of this project. Mukurtu is geared specifically towards indigenous communities "to empower communities to manage, share, preserve, and exchange their digital heritage in culturally relevant and ethically-minded ways. [They] are committed to maintaining an open, community-driven approach to Mukurtu's continued development (Mukurtu.org)." While the EBCI THPO needs a secure, confidential database for managing resources, Mukurtu offers varying levels of security and access to stored data based on the needs of the group. They also offer a way to organize collections of data based on the needs of the group. It will be beneficial to consider looking to Mukurtu or other such resources for further resources in data management.

During the course of this project, I learned not only about the ins-and-outs of cultural resource management, but also about the necessity of having a standardized site data repository such as this. Accessibility to technological resources like GIS platforms is something that

everyone in resource management should be granted. This project is the first step in creating a more thorough, useable database for the EBCI THPO in hopes that it will make the protection of sites and preservation of the sacred landscape more efficient. I have been told that a good archaeological project is never complete – and this project is no exception. While more data needs to be incorporated, including new sites and additional data for existing sites in the database, I believe it will help get the EBCI THPO far in building up their very own sustainable digital database.

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