THE INDIAN TRADING PATH AND COLONIAL SETTLEMENT DEVELOPMENT IN THE NORTH CAROLINA PIEDMONT

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ABSTRACT

GLADYS REBECCA DOBBS: The Indian Trading Path and colonial settlement development in the North Carolina Piedmont
(Under the direction of John Florin)

This is a work of historical geography examining the role of an Indian-origin transportation route in the development of the colonial settlement system that emerged in the North Carolina Piedmont during the mid 18th century. This system has evolved in modern times into an important polycentric urban region, and the area's current inhabitants attribute this pattern to the Indian route, the Indian Trading Path. The relationship between the route and settlement development has not previously been tested, however. Previous work in settlement development geography has in fact treated the North American colonial landscape as a blank slate and failed to take account of landscape features left by an area's earlier occupants.

This work comprised a process of transforming archival data—several thousand records from the earliest documented European settlement of the area—to geographic information in a GIS (geographic information system) and then to geographic knowledge through analysis of spatial and temporal pattern in the GIS. A two-scale model was used to explain the process by which the Indian Trading Path could affect emerging settlement patterns at the level of both town and regional system. While the model and results are geographically specific and not meant to apply to backcountry settlement in a general sense, the overall approach used can profitably be applied to other locations, both in terms of

technical methodology and in terms of realistically assessing the role of indigenous landscape features in colonial outcomes.

To strong women and strong-willed cats everywhere

but most especially

BJT Dobbs, 1930-1994
and Greta, 1988(?)-2006

And to

THE PEOPLE OF NORTH CAROLINA

ACKNOWLEDGEMENTS

The effort it takes to do doctoral research and write about it cannot be sustained without considerable support on several fronts. I have been fortunate to have an adviser (John Florin) and a Director of Graduate Studies (Tom Whitmore) who believed in me; I am honored to call both of these people friends. I am grateful to my family for the various kinds of support they have given me over the years, especially my father, Dan Dobbs (self-designated "one-man cheering squad"), and my sisters, Jean Dobbs and Kate Dobbs Ariail, and to the example of my mother, Jo (BJT) Dobbs, who received her PhD when I was in high school. It is my greatest sorrow that she is not here to see me receive mine. I also appreciate the quiet support of my brother, George Dobbs, over the years.

The friends who have stuck by me, cheered me and cheered me on, comforted me, nudged me to keep working, given me relief when I couldn't work any more, fed me, got my car to the shop when *it* couldn't work any more, helped me move…these are many but I especially want to mention Alice Dawson, Cheryl Warren, Roxie Oakes, Jinny Reid, Barbara Taylor, Ffionnan Brooke-Watson, and Annette Watlington. In my new location in Emporia, Kansas, I've had strong support from Joyce Thierer, Ann Birney, and Ellen Hansen, chair of the Department of Social Sciences at Emporia State University.

Over and above these kinds of support, however, there are certain people without whom this dissertation literally could not have been written. Mary Ruvane, information scientist, built the database with which I captured the archival data and transformed them into

geographic information; without her dedication to this task, in the service of a greater vision of public data "shareability," I would have been quickly swamped by a completely inadequate information storage and retrieval system. David Southern, an independent scholar of early Triangle-area roads and land grants, has been equally indispensable and selfless, providing clues, data, sources, perspectives, and ideas that I would otherwise have missed, and which have helped make this dissertation something beyond a mechanical examination of pattern. David is, in my book, an honorary geographer of high standing. Last but not least, Tom Magnuson of the Trading Path Association has provided inspiration, thoughts, and information since I first conceived of this project. I am proud to consider each of these people friends as well.

I also wish to acknowledge funding from the Association of American Geographers; the Historical Geography Specialty Group of that organization; the Smith Research Grant at UNC-Chapel Hill; and the Royster Society of Fellows and the Center for the Study of the American South, both at UNC-Chapel Hill.

PREFACE

As an undergraduate geography major at UNC-Chapel Hill, I learned the name for a settlement pattern that every North Carolinian knows about, that string of cities and towns along I-85: the Piedmont Urban Crescent. Later, as a graduate student in the same department (same room and same professor, even), I had a moment that changed the direction of my studies and my life. The professor (John Florin, eventually to become my dissertation adviser) handed out a map of 19th century railroads in a class on the historical geography of the US and Canada. A glance showed me that the shape of the Piedmont Urban Crescent was already defined. I was transfixed. Did the railroad define the settlement pattern, then, or did it merely serve settlements already in existence? Yes and no, the professor replied. But he couldn't give me much more than that.

It happened that this electrifying moment occurred in what I like to call my "history semester." In addition to the historical geography class, I was taking Ethnohistory with Dr. Carole Crumley and a readings course on American Indian history in North Carolina with Dr. Theda Perdue. It was this synergistic combination which set me on my path (no pun intended), for I realized from my readings that the Indian Trading Path had been of tremendous importance during the Contact Era and early colonial times, and the similarity of route between the Indian Trading Path as shown on old maps and the modern I-85 is impossible to miss. I was astonished to find that no scholar had ever seriously investigated this connection. Frustrated as I was with (and unsuited to) both humanistic qualitative

research methods and quantitative ones, historical geography opened before me as a revelation, complete with dissertation topic.

My original idea was to trace the development of the Piedmont Urban Crescent from the Contact Era, up through the railroad era, to I-85 and the present. Someday, I may do that project. In the short term, I found the depth of the colonial archive work required precluded that kind of temporal span for the dissertation, and even that the spatial scope I envisioned for the project was too ambitious. I had gotten the idea of using land grant records to tease out the role of the Trading Path from some sample documents on the Trading Path Association website (www.tradingpath.org). In these examples, the Path was shown and labeled, the drawings clear and the text readable. I imagined, naively, that there would be a whole string of similarly legible and explicit records which would define the Path all the way across the Piedmont, and that I need examine only that string and the grants immediately around it to accomplish my goals. Nothing could be further from the truth, on all counts, as the reader will shortly see.

This work has been tremendously exciting and satisfying to me, tying together as it does my interests in human settlement patterns, indigenous peoples, the past, and my beloved North Carolina. To see neighborhoods emerge from the raw data, to glean some understanding of social processes in colonial North Carolina from working intimately with these thousands of documents, to read mentions of abandoned Indian fields, and finally to see centuries-old patterns brought out and made visible through the power of modern technology in the guise of Geographic Information Systems—these are the benefits of work that is often tedious and always lengthy. I am committed to the public sharing of data as an ideal, yet I

feel almost sorry for those future researchers who, because they start from these data that I have now assembled, will not experience this process as I have.

Now, on to the exciting story these records have to tell.

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CHAPTER 1

INTRODUCTION

In North Carolina there is an urbanized corridor that is unlike the urban pattern elsewhere in the state, or indeed in the South generally. This corridor, which goes by the name of the Piedmont Urban Crescent, is associated in the public mind with a road of indigenous origin, the Indian Trading Path. The research reported in this dissertation aimed to test this association by examining patterns of the earliest documented European settlement in the North Carolina Piedmont. In this introductory chapter, I look first at the Piedmont Urban Crescent and why it is important, then at the Indian Trading Path, and lastly at the putative relationship between them and the process of testing that relationship.

The Piedmont Urban Crescent

The Piedmont Urban Crescent is readily identifiable on a map of North Carolina as the string of urbanized places, connected by Interstate 85, lying in a curve across the central part of the state from Raleigh to Charlotte. On a graduated-circle population map the Crescent is even more visually striking (Fig. 1.1). But the Piedmont Urban Crescent is more than population or urbanization, although it is certainly those things. Descriptions of the area tend to include superlatives of all sorts: not only the fact that a disproportionate percentage of the state's population is found here, or most of the state's major cities, but also that a disproportionate percentage of the state's income is here, most of the industry, most of the

high-tech and research activities, most of the financial operations, most of the educational institutions and most of the highly educated people. The list could go on.

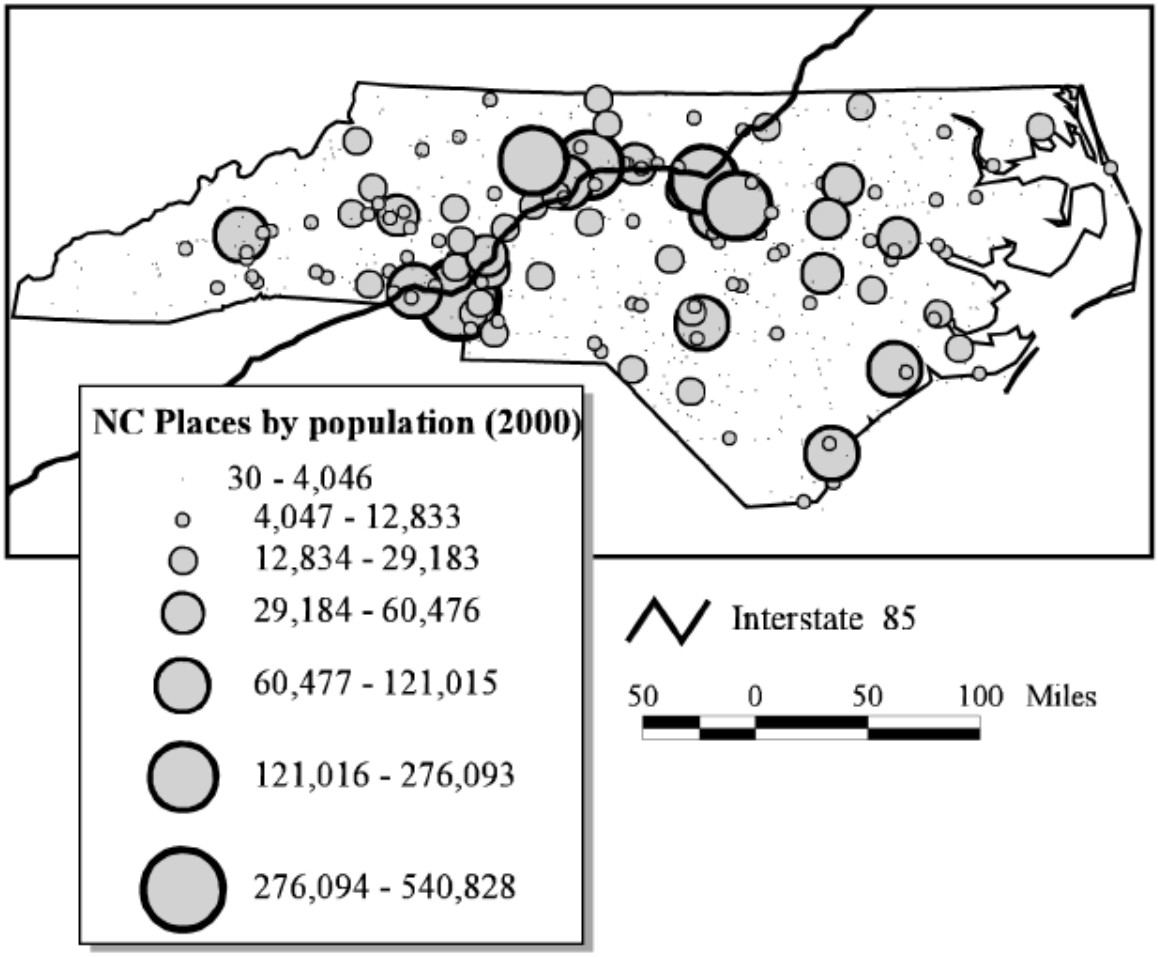


Figure 1.1. Graduated circle map of North Carolina population based on 2000 census data.

The Crescent is anchored at one end by the capital city of Raleigh and the concentrated educational, research, and high-tech institutions of the Research Triangle (Raleigh, Durham, and Chapel Hill), and at the other end by the financial and commercial hub of Charlotte, home of Wachovia and Bank of America. In between lie the Triad (Greensboro, Winston-Salem, and High Point) and Hillsborough, Burlington, Lexington, Salisbury, Concord, and Kannapolis as well as a host of smaller cities and towns. All of these are contained in a strip roughly 150 miles long. Most of the counties in this Crescent

region are classified by the Census Bureau as belonging in one or another Metropolitan Statistical Area (MSA), and the majority of the state's MSAs are associated with the Crescent (Fig. 1.2).

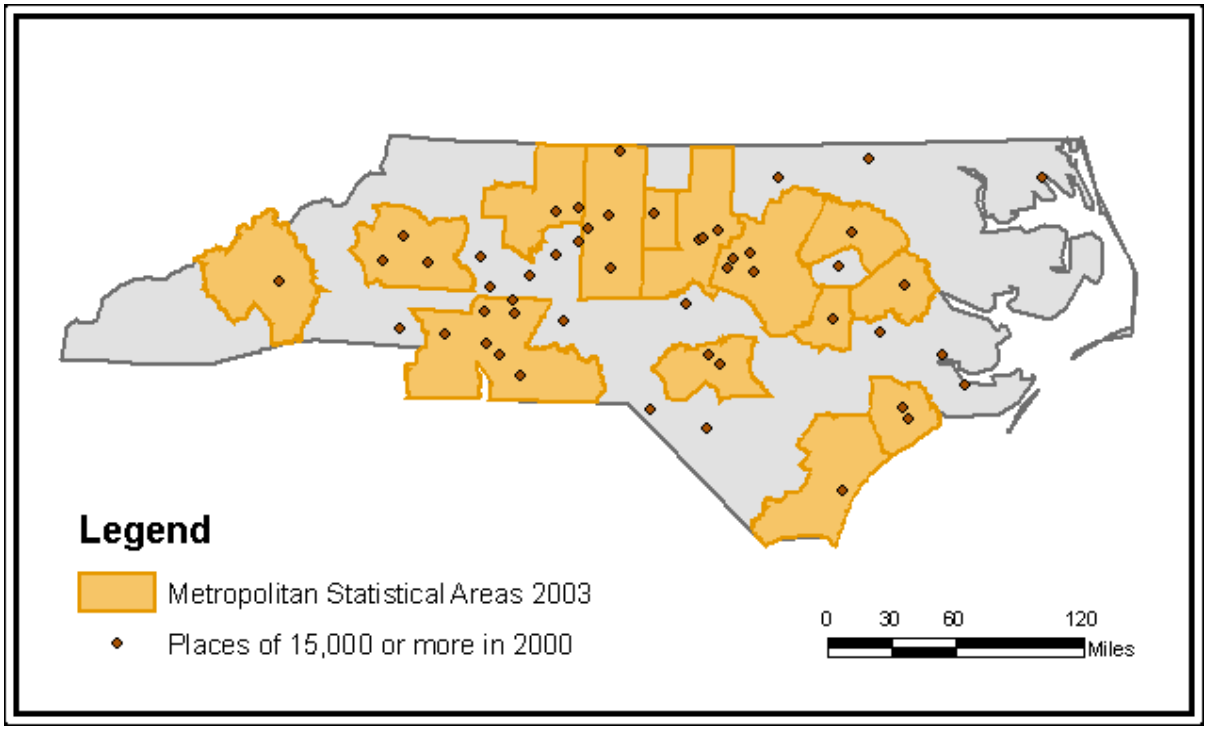


Figure 1.2. North Carolina Metropolitan Statistical Areas, highlighting the Crescent counties.

North Carolina's traditional "big three" industries—extiles, tobacco, and furniture—have been centered in this region since their beginnings. In fact, long before the Crescent was called *urban*, it was known as the Piedmont *Industrial* Crescent (Chapin *et al* 1960; Harden 1966, for example), or, as a geographer put it in 1955, the "Rich Crescent" (Phillips 1955). Even in the mid 1970s the term "Piedmont Crescent" was in use, without a qualifier (Hayes 1976, for example). The textile industry, in particular, was not traditionally an urban enterprise; textile mills were most often sited in rural places within the Piedmont where water power could be harnessed (at least in the early years) and the labor force kept focused (Goldfield 2000, 64; Phillips 1955, 186; Trelease 1991, 328-329), yet a majority of North

Carolina's textile mills were located within a wide swath centered on the Crescent. Tobacco processing has centered on Durham and Winston-Salem, and furniture on High Point and Greensboro (Stuart 2000, 177).

Perhaps more than anything else, the Piedmont Urban Crescent is characterized by growth. This growth has been both rapid and sustained. By 1810 the Piedmont was the most populous of North Carolina's three broad physiographic regions. It has had the highest percentage of urban population since 1880 (Steahr 1973, 31, 38). Ives and Stuart (2000, 86) state that "Since about 1960 both the absolute and the relative population size of the Piedmont has increased, going from 51 percent of the state total in that year to 56 percent in 1998. Perhaps more telling, the region accounted for nearly 64 percent of North Carolina's net growth between 1960 and 1998." Within the Piedmont, most of the growth has been in the urban crescent, most dramatically so in the Triangle area (often cited as one of the fastest-growing areas in the nation), Charlotte, and Greensboro but in other parts of the Crescent as well. This level of growth in the urban centers of the Crescent is expected to continue and even accelerate (Ives and Stuart 2000, 101). And, indeed, the 2000 census data confirm high rates of growth in the Crescent counties between 1990 and 2000, and 2005 population estimates show growth continuing, especially in the most urban counties of the Crescent (Fig. 1.3a and b).

The phenomenon described in the paragraphs above is best understood as an example of the settlement system type known as a *polycentric (polynucleated, multinucleated) urban region*. This form was first described by Gottman (1961) in his germinal work on what he termed Megalopolis, the intensely urbanized corridor between Boston and Washington, DC. The following year, Chapin made this interesting observation about the Crescent:

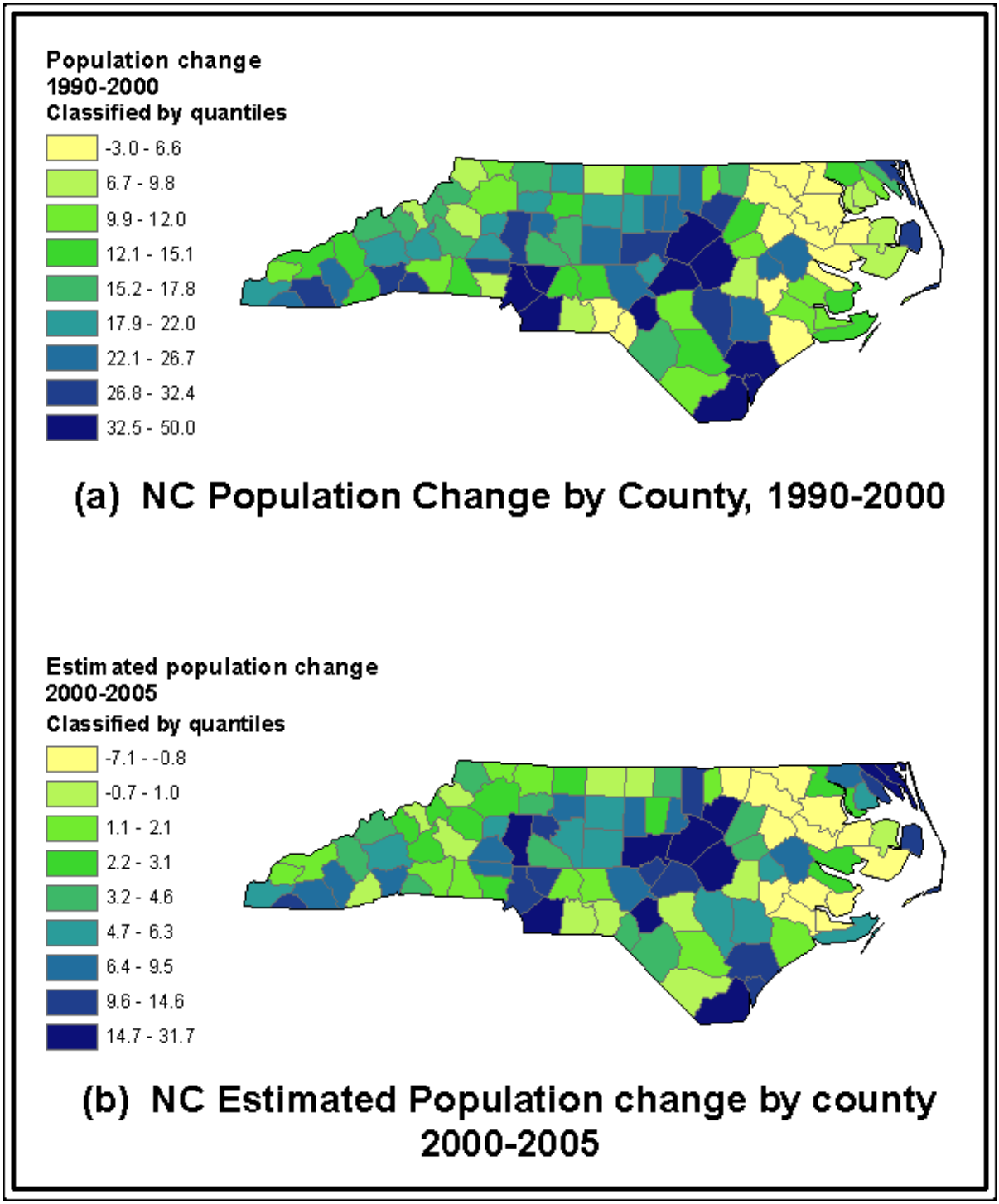


Figure 1.3. Population change in NC by county **(a)** 1990-2000; **(b)** 2000-2005 (estimated).

For those who associate "urban" with traditional massive, sprawling metropolitan centers, this area would pass unnoticed. Yet if the basis for classifying a people and its environmental setting as "urban" derives from its economic, political, and social orientation, then the Crescent is distinctly urban....To go a step further, one of the early hypotheses…posed the proposition that the Crescent could be viewed as a

> "polynucleated metropolitan region." It was reasoned that since the city-to-city patterns of interaction (living in one city and working in another, the regional organizations of wholesaling and retailing activities, the intercity family visiting patterns, and so forth) appeared to have similarities to those found within the traditional single-centered metropolitan area, this region possessed distinct qualities of metropolitan-ness. (1962, 8-9)

Geographers Gade and Young (1996, 251) echoed these ideas in a field trip guide to the Piedmont, calling the Crescent "a multi-nucleated urban system" and a "megalopolis in the making."

Since that time an extensive literature has arisen addressing polycentric urban regions, and something of a consensus has emerged regarding the characteristics of this form. It is seen as something new in the urban world: a system of politically independent units which are functionally interdependent, but which have become something more than the sum of their individual parts; not merely a conurbation but a locus of heightened creative energy. Gottman calls this energy the "Promethean" spirit, while Soja calls it "synekism", or "the creative—as well as occasionally destructive—synergisms that arise from the purposeful clustering and collective cohabitation of people in space" (Soja 2000, 12). By any name, it is clear that the Piedmont Urban Crescent shares in this spark and ferment of ideas stemming from proximity and face to face contact.

Following from this characteristic is the tendency of polycentric urban regions to lead the way in economic sector shifts. At the national scale, Megalopolis has been the clear leader in the shift from primary to secondary activities, then from secondary to tertiary (Gottman 1961). At the state and regional scales, the Piedmont Urban Crescent has likewise led the way, from its early industrial development compared to the rest of North Carolina to its strong leadership in quaternary activities in the state and beyond.

It is astonishing, given the importance of this urban region in the life of North Carolina, that more scholarly work has not been done on it. The bulk of existing work was carried out in the early 1960s by social scientists affiliated with what is now the Howard W. Odum Institute for Research in Social Science at the University of North Carolina at Chapel Hill (Chapin *et al* 1960; Chapin and Weiss 1962; Simpson 1960). Only a handful of geographers (Cates 1980; Gade *et al* 2002; Gade and Young 1996; Phillips 1955) have addressed the Crescent directly, and none has produced major or comprehensive work on the topic. In particular, there exists no scholarly work examining the Piedmont Urban Crescent as a polycentric urban region or seriously investigating the roots of this pattern. Yet an understanding of the region and its origins should be tremendously important for the state's residents.

The Indian Trading Path

The Indian Trading Path appeared very early in the European record (textual and cartographic) of the Southeast (John Lederer's travel account of 1670 and the Ogilby map of 1672, for instance). In a landscape crisscrossed with trails made and used by the area's Indian inhabitants, the Trading Path stood out—an enduring, named, through trail traveled consistently by Indians and Europeans alike during the contact era and by growing numbers of Europeans during the Piedmont's settlement period in the mid-18th century. It ran from what is now Petersburg in southeastern Virginia, southerly into North Carolina and then west and south through the North Carolina Piedmont. North of what is now Charlotte, it split, with one path going south to the home of the Catawbas and one continuing southwest to the home of the Cherokees in the Appalachian mountains.

The route of the Path through the North Carolina Piedmont is of particular interest because this is a difficult area to cross. The region consists of a dissected plateau, drained by a large number of creeks and several rivers. These many rivers are not navigable within the Piedmont, so travel was necessarily overland, but because of the northwest to southeast elevation differential of the Piedmont plateau, streams are generally swift-flowing, and they swell quickly in the frequent rains of the Piedmont. For a transportation route without bridge technology to be practicable in this region, it must avoid the worst of the stream crossings, and utilize good ford sites where crossings are unavoidable. And this is exactly what the Trading Path did, and why it did not go in a straight line diagonally across the Piedmont (Fig. 1.4). It was, in fact, a considerable feat of engineering.

Then as now, the route that successfully traverses the Piedmont forges a link connecting routes to and from a number of directions (Fig. 1.5). In other words, such a link is positioned to be a hub of human activity. In functional terms, the connecting-link role today is filled by Interstate 85. In the railroad era, it was filled by the North Carolina Railroad, which was completed in 1856. The close correspondence of these two routes is evident in Figure 1.6. That they both correspond with the Indian Trading Path, barring some deviation (discussed in Chapter 3) in the central part of the Crescent, is also evident. Given the close association of the Piedmont Urban Crescent with I-85, this leads to a consideration of the relationship between the Piedmont Urban Crescent and the Indian Trading Path.

Investigating the relationship between the Crescent and the Path

Among the lay public of the Piedmont, there is an understanding that the Indian Trading Path lies at the root of local settlement patterns. Scholars, on the other hand, have tended to either ignore, deny, or oversimplify this relationship. For example, Ashby (though

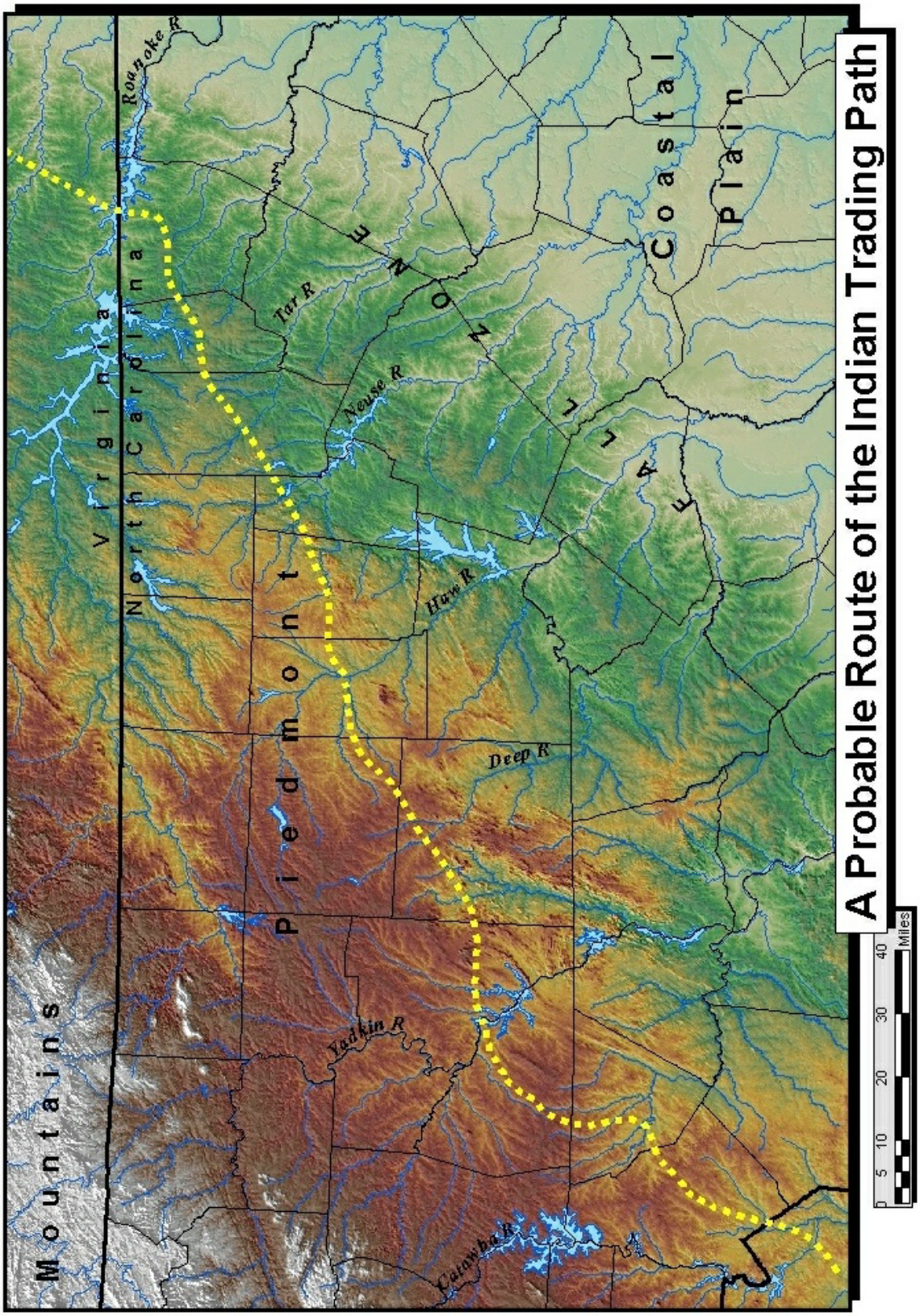


Figure 1.4. The Indian Trading Path in relation to terrain and hydrography of the North Carolina Piedmont. North is to the left side of the page.

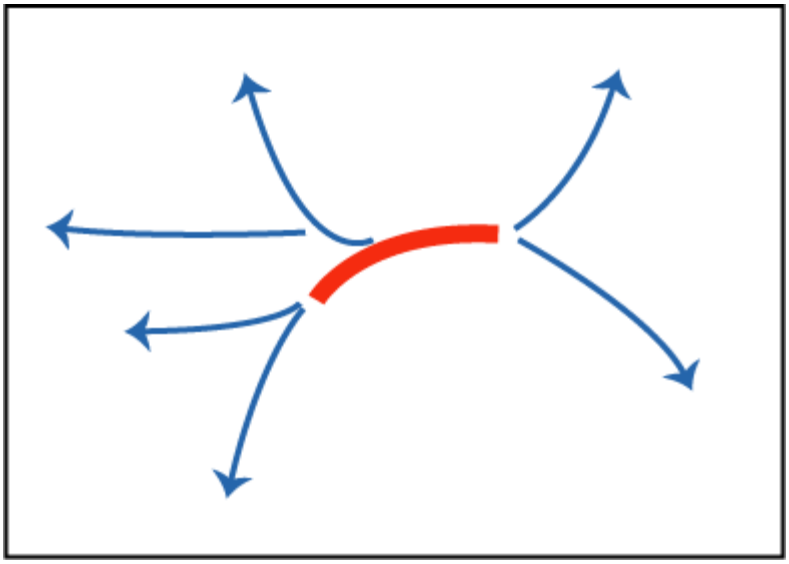


Figure 1.5. Schematic depiction of the Piedmont connecting link. North is to the top of the page.

he credits Charles F. Floyd with having prepared this historical material) states that

> Aboriginal trading paths appear to have channeled the first North-South migrations to the west of the geological fall line which separates the Piedmont from the Coastal Plain. These movements of the European immigrants led to *chance settlements*. It was not, however, until political considerations in the middle of the nineteenth century dictated the location of the first major East-West railroad that the nucleus of the present urban corridor was firmly laid. (1962, 82-83; emphasis added)

At the other extreme, Rogers (1999, 36) states that the Trading Path is equivalent to I-85, which is clearly not true. Those who have given careful attention to the role of the Path, at least at the regional scale, appear to be scholars whose primary interest is in North Carolina's Indians (Rights 1931, for example) rather than in North Carolina's settlement systems. Those historians and historical geographers who have addressed the regional settlement system have not questioned how the Path might have made a difference to that system; Merrens (1964), for instance, merely mentions that some of the Piedmont towns he describes are "situated along" the Trading Path, and while Hendricks (1991) puts more emphasis on the Trading Path and the Great Wagon Road (another important indigenous-

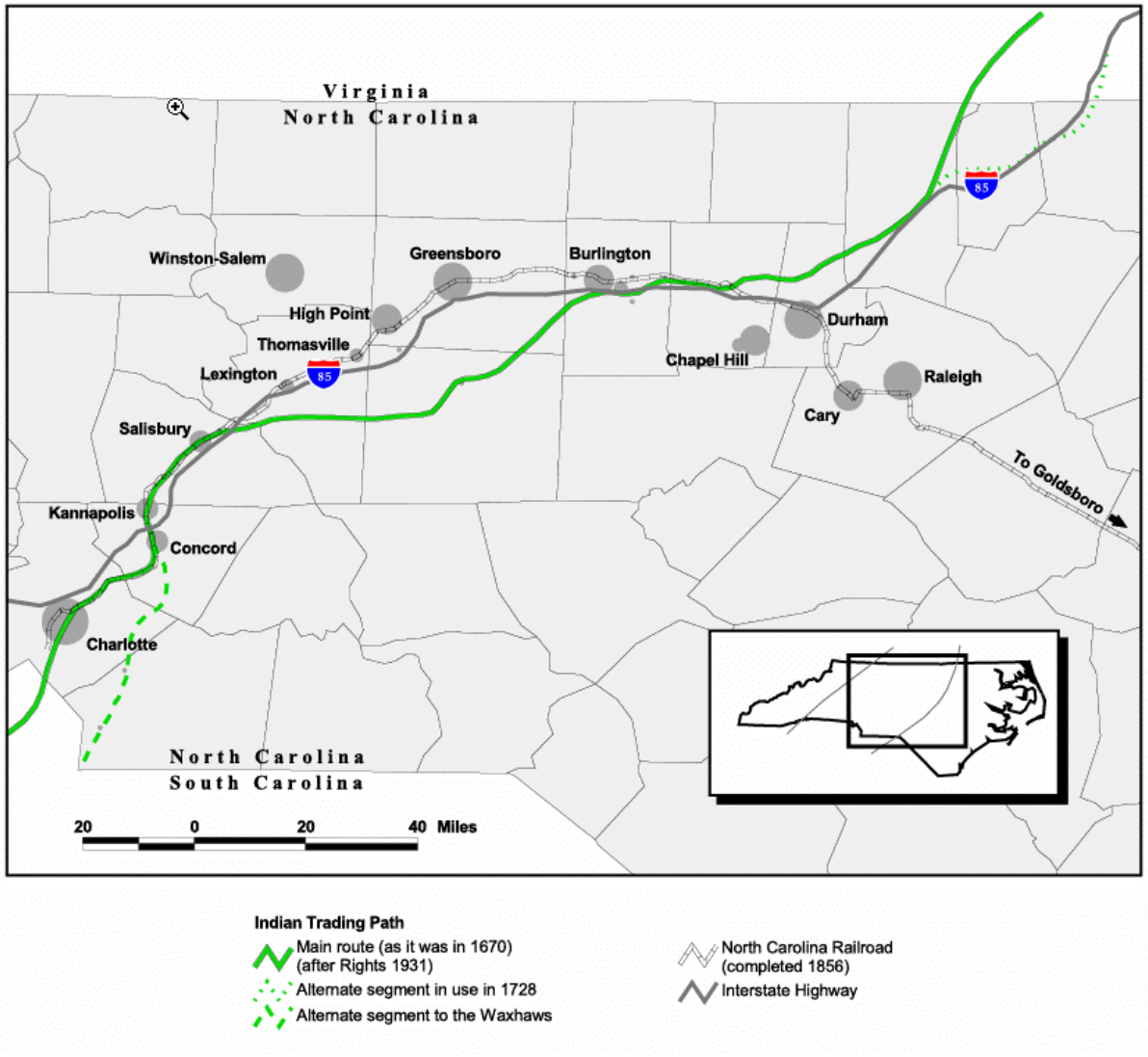


Figure 1.6. Interstate 85, the NC Railroad, and the Indian Trading Path.

origin trail), he makes implicit and untested assumptions about them. Similarly, archaeologists in North Carolina have used Rights' 1931 route reconstruction to aid in finding likely excavation sites, without ever subjecting the route itself to archaeological scrutiny (see Ward and Davis 1999). Local historians, on the other hand, often do investigate the relationship between the Trading Path and town development explicitly; for example Troxler's description of the emergence of the Haw River settlement (Troxler 1999).

From the preceding discussion two points should be clear. First, the formal establishment of a correlation between the Piedmont Urban Crescent and the Indian Trading Path through scholarly testing has never been made. Second, any such testing will need to be at the regional scale in order to answer questions about the settlement *system* as opposed to individual settlements.

The research question which this work asks is twofold. First, there is the question of whether the Trading Path influenced the pattern of land claim choices across the landscape generally. Second, there is the question of whether, and how, any such influence resulted in the development of towns and of a system of towns. That is, did the Trading Path influence the *process* of town and system development, as well as the *pattern* of settlement? Implied in these questions is the idea that the early settlement system would form the basis of future patterns through a process of cumulative causation which reinforced early patterns until they became entrenched, and that therefore the early settlement situation is relevant to understanding the future development of the settlement system. If the Indian Trading Path is found to influence the earliest documented patterns, and if the early patterns are discovered to have some correspondence with modern-day patterns, then it can be inferred that the Path did indeed form the basis for the present polycentric urban region.

The method used to investigate this possible influence is a multi-stage process that begins with the archival records of the earliest documented land claims by European settlers. These were not, in fact, the earliest European settlers, as there is considerable evidence that European backwoodsmen and then squatting farmers occupied the Piedmont backcountry for some years before the recordset begins in 1748. However, not only are the recorded claims the only ones we have, but these are the transactions that first effectively inscribed a

European order on the Piedmont landscape, including the establishment of towns and formal boundaries. Furthermore, this dataset is the only potential source that has both the breadth of coverage and the detailed local information needed to carry out the task. These records, the type of information they contain, and the problems they pose from a research standpoint are discussed in detail in Chapters 3 and 4.

The first stage in this multi-stage research process (Fig. 1.7), then, was to transcribe and parse the information contained in the 18th century handwritten land records. If the document included survey information, this was entered in the database in such a way that it could be exported and transformed into a digital shape for each tract, to be used in a Geographic Information System (GIS). The second stage was to produce these shapes and determine as far as possible from available clues where they should be placed in space. The third stage was to apply the power of GIS to analyze and display the pattern of tract locations across space and time. The fourth stage was to interpret the analysis outcomes in light of information about local historical and geographic conditions and of geographic thinking on settlement development. This transformation of data to information and then to knowledge is described more fully in Chapter 4, and the final transformation to understanding is approached in Chapter 5.

In order to fully answer the research question, involving as it does the regional settlement system, this process should be applied over the full extent of the Piedmont; that is, along the full length of the Piedmont Urban Crescent plus the width of its hinterlands. The regional hinterlands are necessary for contrast and context; otherwise we would not know whether tracts clustered around the Trading Path represented something different from the process occurring elsewhere. The corollary of this, however, is that a tremendous amount of

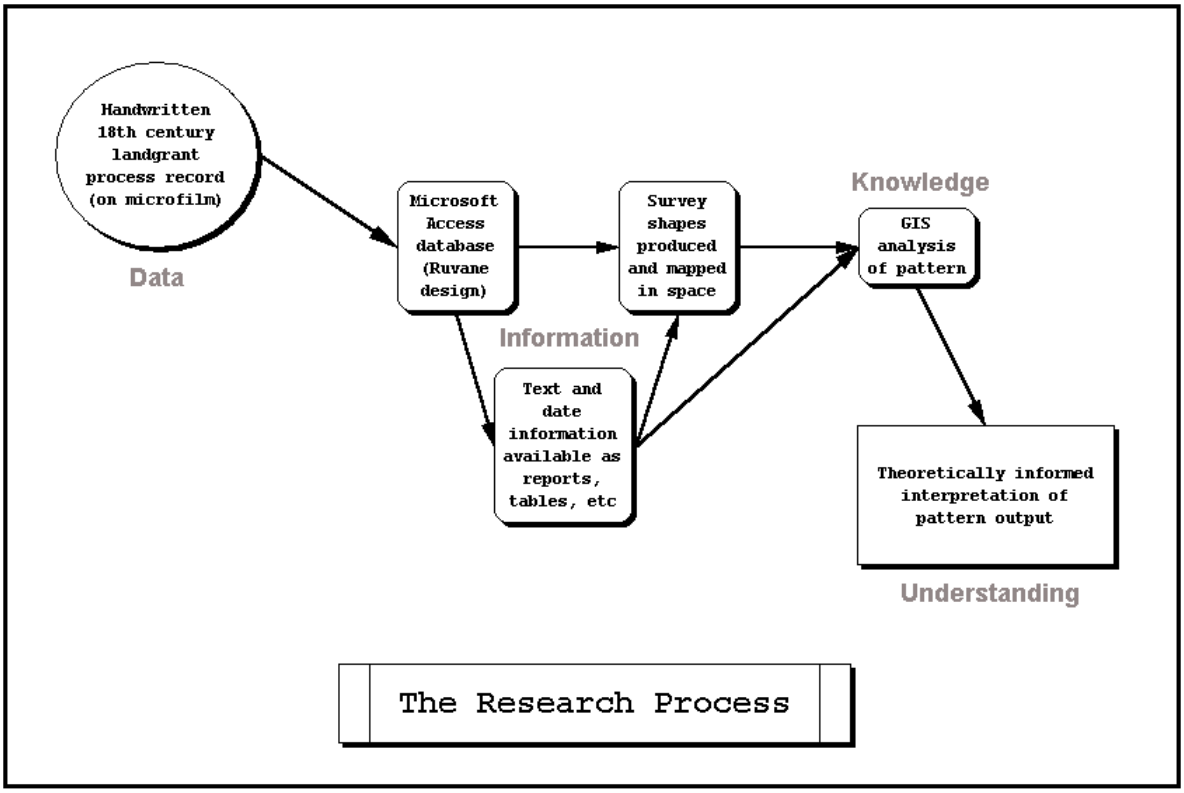


Figure 1.7. Schematic diagram of the research process.

work is needed to process microscale data—many thousands of individual records—in order to assemble a mesoscale pattern. This, as it turns out, is a life's work, not one that can be shoehorned into a dissertation time-frame. This dissertation, then, represents only Phase I of the larger project (Fig. 1.8). That is to say, Phase I as shown in Figure 1.8 is the area for which the raw archival data have been taken all the way through the entire transformation described above (for the Phase II area, the first stage and the first part of the second stage have been completed, representing years of work in itself). Obviously, then, the results achieved and described here cannot prove, but they can (and strongly do) *suggest,* an answer to the research question. Further work incorporating Phase II and Phase III will need to be performed before a definitive answer can be returned.

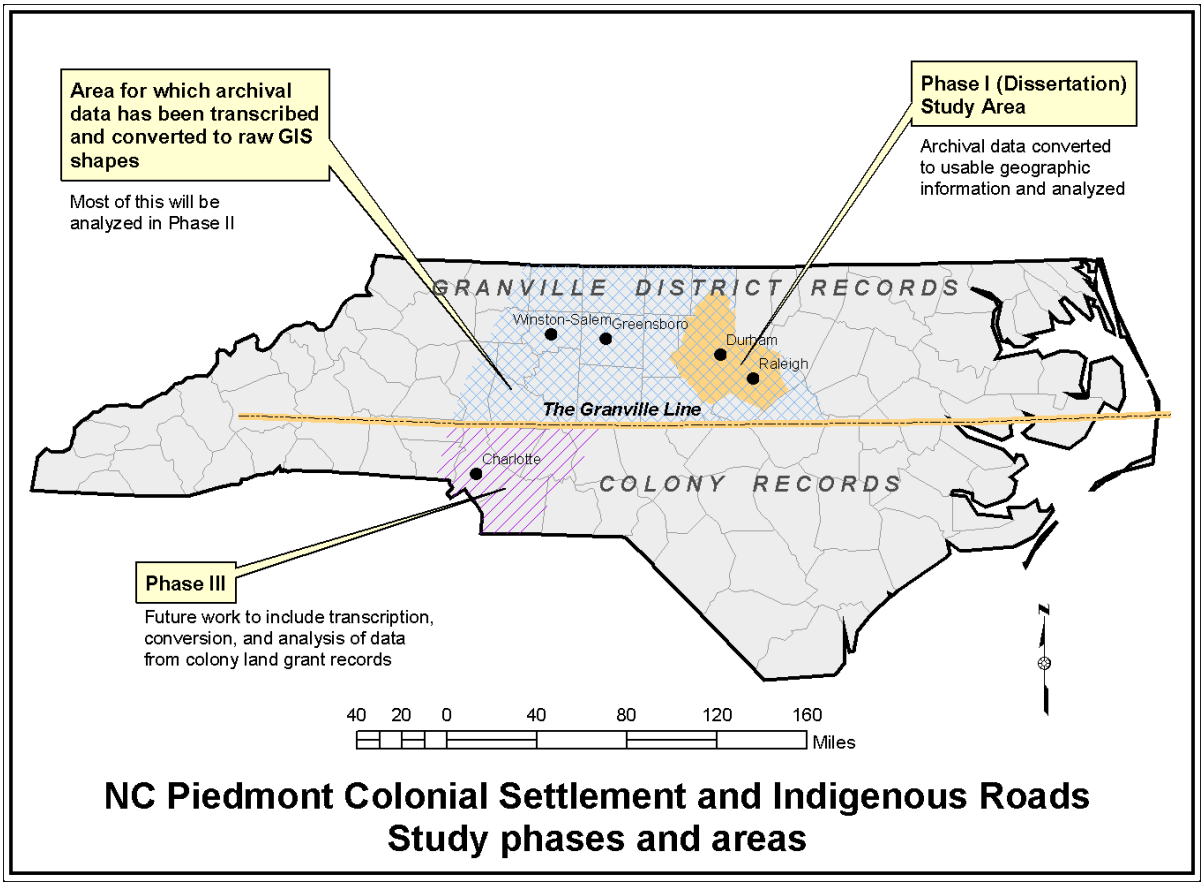


Figure 1.8. Overall study area and phases.

The following chapter, Chapter 2, positions the research in the context of geographic work on settlement development and of the particular character of the North Carolina Piedmont. Chapter 3 explores the historical context of the Indian Trading Path and of the study period, including the process by which settlers claimed land and the data that process produced. Chapter 4 discusses in detail the process (and problems) of transforming the archival data into geographic information and then geographic knowledge. Chapter 5 concludes the dissertation with a discussion of the results and implications for settlement development geography, as well as directions for future work.

CHAPTER 2

SETTLEMENT DEVELOPMENT GEOGRAPHY AND THE NORTH CAROLINA PIEDMONT

In this chapter I examine the theoretical underpinnings of settlement development geography and how the various theories have been applied by other historical geographers in a range of environments, including what I see as the basic flaw of all such studies to date. I then look at the North Carolina Piedmont and ask how it is similar to and different from the regions portrayed in previous work, and, lastly, propose a two-scale model for the North Carolina Piedmont settlement system that accounts for both town development and system development in reference to the Indian Trading Path.

Settlement and system

Before commencing this look at settlement development theory, it is necessary to define some terms. *Settlement* in particular is used in a variety of ways and contexts, and needs to be clarified. As Dziewonski (1983) points out, it is not hard to tell what constitutes a settlement in the middle ranges of population size; it is only in upper and lower ranges that definition is problematic—in the upper because by then it is part of an agglomeration without clear edges, and in the lower because we must consider whether each individual isolated dwelling or farmstead comprises a settlement. In this work, I am considering such isolated establishments as part of the settlement fabric or overall pattern, without their being actual settlements. Thus it is possible to discuss European settlement in an overall sense, meaning

the pattern formed by individual settlers taking up land across the region, and also to discuss specific settlements, meaning places of higher density where urban functions are carried out. Lemon (2002, 120-121, 144) offers a typology of such settlements according to population size, ranging from hamlets (a cluster of at least two urban functions, such as at a crossroads) to the metropolis. As Farmer (1993, 21) points out, however, such distinctions and designations have little meaning in reference to the colonial South, where, as will be discussed later in this chapter, "The character of backcountry settlement does not warrant such a fine-tuning technique. Any place with 100 or 200 people was a town, probably an important town in the region."

Dziewonski (1983, 7) further offers a clarification on the term *system* in this geographical context. As he points out, this is a word with many meanings and applications, but here it refers to a "phenomena [sic] in which elements forming a certain whole are not related solely in a simple additive or mechanical way but are mutually interdependent. The interdependence is one of their basic and objective characteristics." A settlement system, then, is "a specific form of settlement phenomena [sic]" in which these mutually interdependent elements are settlements. This echoes Pred's (1973, 11) earlier definition of a city-system as

> a set of cities which are interdependent in such a way that any significant change in the economic activities, employment structure, total income, and/or population of one member city will directly or indirectly bring about some alteration in the economic activities, occupational structure, total income, and/or population of one or more other set members.

As I showed in Chapter 1, a polycentric urban region is largely characterized by this interdependence, and is a special type of city-system or settlement system. In the historical context of this work, however, the system in the North Carolina Piedmont should be considered a settlement system, and not a polycentric urban region. In the historical

geographic context, Mitchell and Hofstra (Hofstra and Mitchell 1993, 619; Mitchell and Hofstra 1995, 124) define a settlement system more broadly, as a holistic system of human activity across a territory, encompassing places, forms or structures, and routes.

Settlements and frontier development

The nature and development of European settlement systems in colonial settings have been of considerable interest to geographers. Early work on this topic focused mainly on the process through which coastal entrepôts are established and a network of frontier outposts are tied to the coastal cities over time. Vance's well-known contribution, known as the mercantile model, emphasizes trade between the American coast and Europe, and suggests that the initial entrepôts would be sited according to trade advantages (Godfrey 1999; Earle 1977). Earle (1977), however, points out that Vance's model really only fits in the areas where initial colonization was by the Dutch, and that the English had not only different motives but different ideas about where and how many towns there should be. In both cases, though, the frontier is at the coast, and any network growing outward from the coastal settlements extends only into their own hinterlands. That is, these models focus on a period when the only existing European settlement on the American seaboard was coastal settlement.

Lewis (1984), in an ambitious project aimed at articulating and testing a general model of colonization, extends the frontier into the interior by combining the coastal entrepôt idea with work on inland frontiers and the expansion of settlement, ending with an evenly spaced settlement pattern derived from Hudson's (1969) ecological-invasion-based model of rural settlement. Though it offers some interesting perspectives (certain of which will be discussed later in this chapter), Lewis' work is geographically unsophisticated in that he fails

to effectively consider scale and the specificity of place. His case study is the entire state of South Carolina, with the result that he goes from coastal entrepôt to dispersed settlement as a temporal saga without ever considering the backcountry as a distinctive region which needs separate attention, or that South Carolina as a whole has a distinctive historical geography which makes it questionable for testing such a generalized model.

The backcountry and other interior frontier settings have been the subject of a number of geographical works which are more relevant to the North Carolina Piedmont than any of the above. The term *backcountry* is one that has been in use for a limited time but which expresses well the character of the zone beyond the earlier-settled areas in the eastern colonies. Mitchell (1998, 6) finds it a useful term despite its Euro- and ethno- centricity, because it "suggests an area…with a reasonably distinct regional expression and set of boundaries." The zone in question had a distinctive character based on the combination of its history within the context of changes in Europe and the American colonies and the specific geographic nature of the various backcountry regions. These regions had their own roles to play in the development of the Southern colonies in particular; Mitchell (1998, 21) calls the "emergence of the southern backcountry…one of the most significant geographical developments of the late colonial era." In North Carolina the backcountry was the scene of the Regulator Rebellion that many see as the first stirring of the sweeping social change that was to play out as the American Revolution. The Southern backcountry was also the scene of what could be called an "urban revolution" in the middle decades of the 18th century, which transformed the South from a region largely without towns to one with numerous towns and a number of important settlement systems.

Lemon's (2002) classic 1972 work, republished in 2002 with a new preface, does not address the Southern backcountry, but rather the source area for much of the migration that was to transform the South during the 18th century—southeastern Pennsylvania. Lemon's interests are very broad, covering everything from initial settlement location to the organization of both agriculture and the settlement pattern, and he goes much more deeply into people's motivations and the construction of the new society than settlement geographers per se usually do. He observes the development of open-country rural neighborhoods, in contravention to repeated efforts by the Penns to create agricultural villages instead, but also the development of a network of urban places. Interestingly, this network was suppressed within a 30-mile radius, or a day's travel, of Philadelphia. The implication of this for backcountry areas where there was no large city nearby is that there would be no such stifling influence on the development of such a network.

Mitchell (Hofstra and Mitchell 1993; Mitchell 1972; Mitchell 1977; Mitchell 1992; Mitchell 1998; Mitchell and Hofstra 1995) is the pre-eminent historical geographer of the backcountry. His body of work encompasses both theoretical observations and extensive historical geography of settlement development in the Shenandoah Valley. Because the Shenandoah Valley (and *not* the Virginia Piedmont, which was basically a westward extension of Virginia's coastal plain tobacco region) is the closest analog to the North Carolina Piedmont backcountry, there are important comparisons to be made, and several of Mitchell's comments to be considered in detail. Specific issues on both these fronts will be addressed later in the chapter as well as here.

He suggests, first (1972), that three concepts are key to understanding frontier development:

1) Movement through space (i.e. into and through frontier areas; requires understanding the migration process and routes)
2) Development in place (i.e. analyzing the economic and social changes in the area since it was first occupied by Europeans; these changes involve both temporal and spatial change, and are strongly associated with the process of land acquisition)
3) Changes in relative location (due to further development of settlement, transportation changes, or both).

In applying this agenda to the Shenandoah Valley, Mitchell portrays a backcountry settlement system focused on the dominant town of Winchester, which in turn connected the area to the larger Atlantic and eastern colonial systems through trade and banking connections with Philadelphia and to some extent other cities in Virginia and Maryland. Both credit and commercial exchange figure prominently in the development of Winchester and the development of the settlement system of which it was a part. Interestingly, the commercial exchange that played this important role was the importation of secondary goods to the valley, while the export of primary products out of the valley mostly bypassed the town. Local trade, including the servicing of travelers on the Great Wagon Road through the valley, also played a part.

Both aspects of trade—local and long-distance—reflect Winchester's role as a regional entrepôt. Muller (1977) stresses the importance of the regional entrepôt in the development of interior frontier settlement systems. This regional entrepôt is the node where interregional transportation routes connect with intraregional routes. In other words, this is the point of connection between the frontier region and the more developed region beyond, the point through which goods, people, and ideas pass in both directions. In Muller's model,

this node is where the greatest growth will occur, which is in fact what occurred at Winchester in the Shenandoah Valley. The assumption is clearly that there will be one and only one such regional entrepôt in any frontier region; one point at which the frontier region is connected to the earlier-established areas. This assumption is problematic for the North Carolina Piedmont, as will become apparent later in this chapter. Nevertheless the concept is important. Muller also stresses the importance of real connection between places—that is, not just theoretical connectivity, but actual patterns of movement between them.

Mitchell and Hofstra (1995) consider the Shenandoah Valley settlement system in terms of three explanatory theories developed by others: central-place theory (discussed later in the chapter), long-distance trade theory (Vance's mercantile model), and staple theory (as developed by Earle and Hoffman). They don't find any of these fully satisfactory, though they find the concept of centrality[1] useful for Winchester and long-distance trade theory helpful in relation to the extension of credit which tied the system into the Atlantic economy. Staple theory, they find, is relevant to the importation mentioned above, but fails to allow for the system whereby exportation bypassed Winchester. The theory represents an important contribution to the study of urbanization in the South, however, and as such will be discussed in the next section.

The South as a special problem

Mitchell and Hofstra (1995, 127) call the Shenandoah Valley settlement system the most integrated in Virginia by the end of the 18th century. What made it stand out so was the longstanding perception of the South as a region that lacked any significant urbanization.

[1] Centrality is a concept associated with Christaller's central place theory. According to Barton (1978, 34), centrality is "the surplus importance of a place, or the ability of a place to provide goods and services in excess of the needs of its own residents."

Ernst and Merrens (1973) challenge this perception by arguing that the observations of European visitors, untrained and steeped in European ideas about towns, overlooked urban function in favor of urban form and population. In their view, the South did have urban places, in the sense of places fulfilling urban functions. There is much to be said for looking beyond rigid ideas about what size of place "counts" and focusing instead on how a place is integrated with its hinterland through its urban functions; in fact this idea is very helpful in understanding early urbanization in the North Carolina Piedmont. O'Mara (1983), however, took this "functional approach" to a nonsensical extreme in a work that was resoundingly rejected by more experienced scholars of Southern urbanization (Earle 1984; Mitchell 1992). Nevertheless, study after study (Beeman 1984; Earle, 1975; Earle 1992; Farmer 1993; Mitchell 1992) has confirmed that in the Chesapeake area and in southside Virginia, town formation did not occur until very late, despite considerable legislative and cultural forces mandating towns as the focus of civilized life, because the tobacco economy actively worked against towns. Instead, urban functions were carried out on plantations and at country stores. This pattern, combined with those observations of European visitors discussed by Ernst and Merrens, has led to an entrenched idea that the South, with a few exceptions, had no towns.

In fact the South underwent an "urban experience of considerable magnitude" (Earle 1992, 88) during the 18th century. Or more specifically, *parts* of the South did. As Earle and Hoffman explain (Earle 1992; this is a revised version of the original co-authored paper), the townless tobacco regions did not undergo significant townbuilding unless or until their economies became less tobacco-oriented. It was essentially the backcountry regions that experienced this 18th century urban revolution. Earle attributes this to the growing of wheat for export. While neither tobacco nor rice (in South Carolina) has characteristics that

encourage or require the growth of towns, wheat does. It stimulates regional economies through both transport and processing needs. In Earle's view, the combination of a food shortage in parts of the Atlantic world during the 1750s and 1760s, the high-volume migration into the Southern backcountry during the same time period, and the nature of wheat production and export explain the rapid establishment and growth of towns, and indeed whole systems of towns, in the backcountry. This then is staple theory: the idea that an area's trajectory of urbanization (and ultimately industrialization) depended on which staple was predominant in the area.

While Earle's argument is persuasive at a broad regional scale, it does not necessarily hold up in individual backcountry regions. Mitchell (1992) and Hofstra and Mitchell (1995) show that Winchester was firmly established *before* wheat became a significant export from the Shenandoah Valley, and that in any case the milling and export was done outside the town and made no direct contributions to the town's growth. In the North Carolina Piedmont the evidence is inconclusive. Merrens (1964, 112-115) reports that there is indirect evidence that large amounts of wheat (relative to population) were being grown in the backcountry as early as 1745. At the same time, considerable wheat was already being grown in eastern North Carolina, without, apparently, stimulating the kind of urbanization Earle associates with this activity. Although Merrens maps the Piedmont as the main wheat area of the colony from 1765-1775, he concludes from the available evidence that North Carolina was not one of the major wheat producing colonies. Yet its backcountry settlement system developed much more rapidly than that in the Shenandoah Valley, and developed into a more robust system as well. There is also question about how individual towns came into being, and whether at that level there are ties to the wheat export system. In fact it should be clear

by now that there are really two questions here: that of what made towns happen, and that of what made a group of towns into a system. I turn to this two-scale problem next.

Town development and system development

In terms of causality, the question of whether towns or systems came first may be a chicken-and-egg scenario, for even an isolated town is embedded in a system of human activity. Yet in terms of scale, there are clearly two different processes to be sorted out. At the scale of the individual town, the two biggest questions are "how?" and "why here?", while at the scale of the system, the biggest question is "how did the system's elements come to be interdependent?" In practice, many authors find it easier to tackle different questions, such as "what caused these towns (or this system), once they existed, to grow?", or to set out to answer a question about towns but end up talking about the system instead.

The author who has done the most to address the critical town-scale question of "how?" is Mitchell (1992). In discussing town formation in the Chesapeake colonies, he presents a series of diagrams illustrating the process as it played out in different places, along with an idealized or expected sequence. Figure 2.1 presents (a) Mitchell's conception of the idealized, linear town formation process; (b) his conception of what actually happened in tobacco regions; (c) the sequence when legislation attempted to intervene in this process (from which a viable town did not necessarily result); and (d) a strategy seen in certain places after 1730, in which a town resulted from private initiative and was reinforced by legislation after the fact. But Mitchell does not address the "why here" question at all, either theoretically or in his work on the Shenandoah Valley. His models are floating in space, with no indication that there is any differentiation in initial conditions that might influence location (or success). Of Winchester, he mentions in passing that the town site was laid out

"parallel to the valley's main trail" (1992, 114), without betraying the slightest suspicion that this reflected anything but the surveyor's personal whim.

In those of Mitchell's sequences where a town did or might have formed, there exist some or all of the characteristics of clustering, centrality, and urbanism; these are the factors he considers essential to the creation and sustenance of a town. Clustering would refer to the emergence of an area of higher density within the rural settlement fabric. Several authors discuss, briefly, the role of rural settlement density in town formation. Earle (1992, 130) gives density as one explanatory factor in the rapid urbanization of the North Carolina Piedmont. Ernst and Merrens (1973, 565) point out the ongoing development of Camden "reflected the increasing population density and commercialization of the interior." Farmer (1993, 4), on the other hand, asks why Southside Virginia had not developed towns by 1800 even though it had the population density and economic development to support them. In the Shenandoah Valley, Mitchell (1972, 469) says that by around 1750 the areas where Winchester and Staunton were founded were the most densely settled parts of the Shenandoah Valley. When Winchester was laid out by the surveyor James Wood, however, he placed it between the two main clusters in the lower valley (Mitchell and Hofstra 1995, 130). In this instance one clearly cannot suppose that an area of higher rural density evolved into a town; instead, the point Mitchell and Hofstra are making is that there was rural population of sufficient density to sustain the town once it was built. They even make a stab at estimating what density would have been required for this role in the backcountry, and come up with a density of 20 to 25 people per square mile in a 7 or 8 mile radius around the town (143).

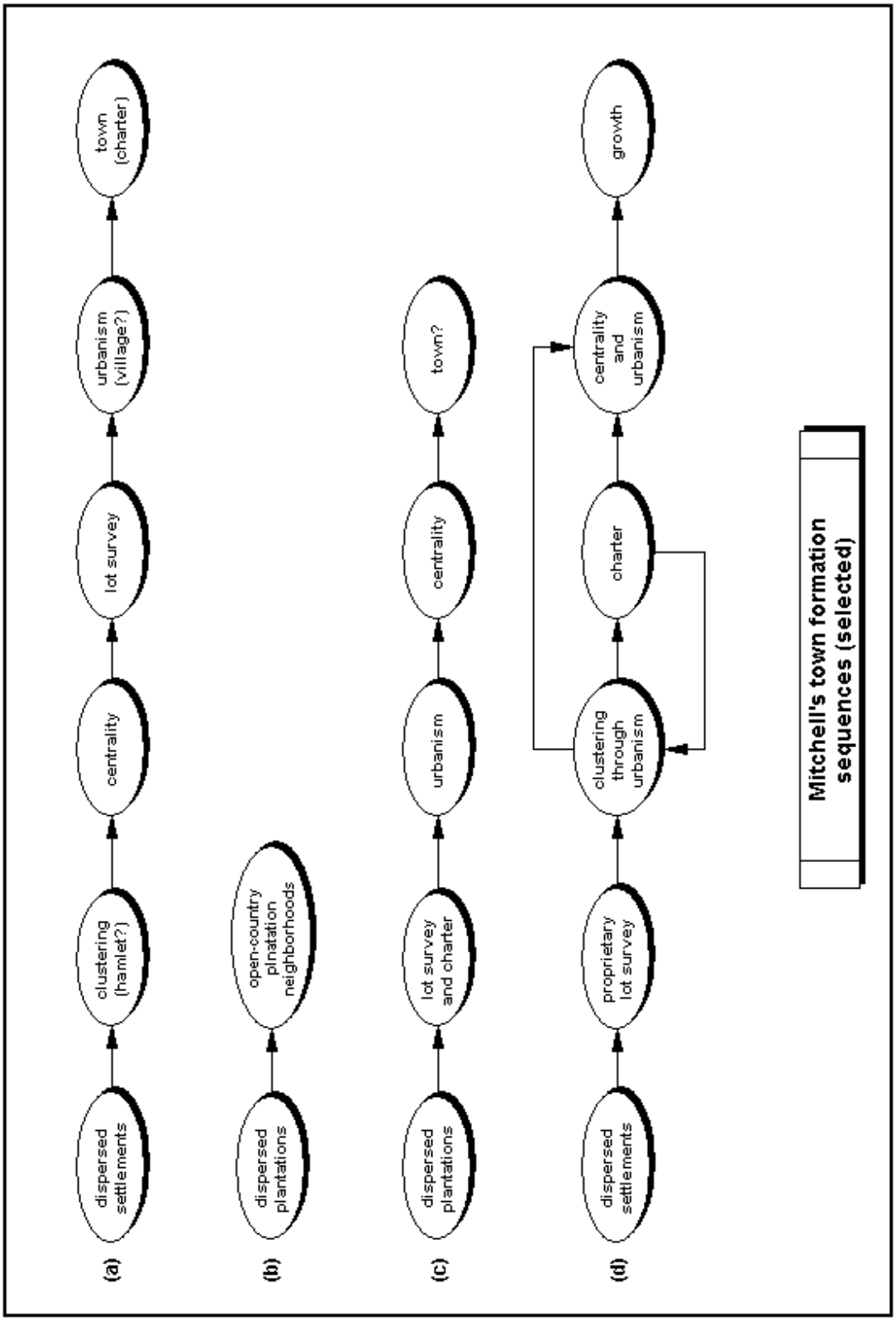


Figure 2.1. Mitchell's conceptualizations of the town formation process in Virginia. **(a)** Idealized linear process; **(b)** What happened in tobacco regions if left alone; **(c)** Legislative intervention, which might or might not result in a viable town; **(d)** A strategy sometimes seen after 1730, based on private initiative. Adapted from Mitchell 1992, 116.

Mitchell (1992) and Mitchell and Hofstra (1995) consider a commitment to urbanism as important as density. By this they mean that there must be a critical mass of people who are willing to live an urban life; if people buy town lots but don't build on them and live there, the condition has not been met. And without it, the town will fail; as happened repeatedly in the tobacco regions, people and urban functions will drift back to their dispersed rural locations. On the other hand, if there is sufficient mass in this regard to sustain the town for a short time, a second generation of buyers, perhaps from outside the area and with urban skills such as trade and craft, may come in and reinforce the commitment to urbanism, thus making the town viable. In Earle's (1992, 129-131) description of the forming of Salisbury in the North Carolina Piedmont, drawn from the work of Ramsey (1964), it appears that outsiders brought their commitment to urbanism, pre-formed, into a location that already had the requisite density, and thus were able to very rapidly establish a viable town.

The third critical factor in Mitchell's process diagrams is centrality. According to Barton (1978, 34), "The concept of centrality is thoroughly geographic, meant to capture the magnetism of location and the focal character of human activities." From Christaller's central place theory, she defines centrality as "the surplus of importance of a place, or the ability of a place to provide goods and services in excess of the needs of its own residents" (34). Mitchell and Hofstra (Hofstra and Mitchell 1993; Mitchell and Hofstra 1995) stress the concept of town and country as part of one integrated whole; from this perspective, such an excess of goods and services is a requirement to sustain not only the town but the whole system. A circular dynamic is in place: rural density supports the centrality of the town, and the centrality of the town supports the rural density as well as its own. Note that this

conceptualization of centrality is essentially aspatial, focusing instead on a reciprocal economic relationship. In contrast, most geographers conceive of central place theory at least partially in spatial terms, because of the theory's implications for spatial distribution of higher and lower order central places. So while Mitchell and Hofstra are most concerned with centrality as an economic characteristic at the town scale, central place as a spatial system provides a link between the town scale and the system scale of settlement development.

Central place theory originated, of course, in a European setting, and Whebell (1969), for one, finds it unsatisfactory for explaining the development of settlement systems in North America. His work, focusing on Southern Ontario, embraces the spatiality that Mitchell and Hofstra eschew. At the scale of the system, he sees linearity as more critical than centrality, and at the scale of the town, he recognizes that some places on the earth's surface will be more attractive for settlement than others, and will thus be selected early for that purpose (3). The key to the linear form of systems such as Southern Ontario lies in transportation routes. Settlements established early and connected by the most efficient routes along a linear corridor become the senior towns and maintain their dominance in the system because they receive the diffusion of new ideas before newer towns that grow up beyond the main routeway. This concept of a "culture gradient" is echoed later in Lewis's (1984) "colonization gradient", which likewise has implications for the settlement system. Whebell's further dissatisfaction with central place theory lies in the spatial arrangement of the highest order place. Central place theory predicts that that place will lie at the center of the system, while Whebell points out that in North America it is much more common for the largest city in a system to begin as a regional entrepôt lying at the edge of the system. This is

of course echoed by Muller (1977) and Lewis (1984), and is demonstrated by Mitchell and Hofstra in the case of Winchester despite their aspatial approach.

Whebell's basic idea about how the "senior towns" retain and increase their dominance is essentially about cumulative causation. Pred (1973) and Smith (1982) attribute the concept to Gunnar Myrdal, who "argued that once certain regions, through initial advantage, began to pull ahead of other regions, economically, then subsequent growth would continue there" (Smith 1982, 22). If we substitute "towns" for "regions" in this statement, we have a very good picture of why initial conditions matter so much in the long run, and why early choices about siting tend to become entrenched in the long-term settlement landscape. For this reason it is all the more remarkable that Mitchell and Hofstra have neglected the role of such initial advantages in all their work on Winchester and town formation in general. At the settlement system scale, their only concession to the role of features such as transportation routes is to acknowledge that servicing travelers on the Great Wagon Road contributed to the growth of towns in the system.

The role of transportation routes in the development of settlement systems is undeniable. The interplay between settlement and transportation is captured well by Vance, who says "transportation and settlement are symbiotically intertwined" in that settlement depends on mobility, yet “transportation [is] a process brought into demand and transformed by the needs of....settlement, particularly in its most advanced form—in cities" (Vance 1986, 3). The relationship was identified much earlier, however, by Cooley (1894). In more modern times, Vance (1964) attributes much of the rise of San Francisco as an urban system to the way the bay provided a built-in transportation network connecting the various cities situated around it. Earle (1992, 112-113) describes the role of transportation routes in

building the settlement systems of the wheat regions and along the routes that carried the harvest to ports, due to the volume of traffic and the attendant needs for food for people and draft animals, lodging, parts, repairs, and so on. On the more theoretical side, Lewis (1984, 25-26) incorporates into his model of colonization the idea that

> The form of a colonial area is determined by the spatial pattern of its transportation network linking the agricultural settlements to the entrepôt and the parent state. The transportation network normally forms a dendritic network which will supercede all those existing previous to colonization. Because accessibility is crucial to successful commercial agricultural production, settlement will follow the transportation system. The geographical size and shape of a particular frontier will depend on the physical and cultural landscape of the frontier and the technology available to the intrusive society.

The odd thing about this passage is not the power Lewis attributes to transportation in shaping settlement systems, but that he assumes any precolonial transportation network will be different from what emerges under colonization. That is, he seems not to consider the possibility of the settlement pattern being shaped by the precolonial network. His argument in this regard has no beginning point. The network shapes the settlement system, but the settlement system shapes the network through its need to get the goods to market; how can both be true if you do not allow for initial conditions on the landscape? In his South Carolina case study he gets around this by noting that the routes used in the Indian trade out of Charleston worked well for getting the wheat to port as well. This is disingenuous both because many of those routes were of Indian origin, not European, and because South Carolina is atypical in its spatial arrangement of routes and port.

The "blank slate" problem

The point about Lewis and the precolonial transportation network highlights what I feel is the major flaw in virtually all historical geographic work on settlement development.

This flaw is the assumption that what Europeans found in North America was a blank slate on which they could inscribe their own cultural features without the presence of any other influences. In other subfields of geography, the "pristine wilderness" idea has been largely debunked (see, for example, Denevan 1992), but this new perspective seems not to have touched settlement development geographers at all. While incorporating physical geographic features into their explanations (at least some of the time), they assume that the existing human/cultural landscape is a "featureless plain." In reading certain works in this field, one might get the idea that there is a ritualistic formula that must be included in the introductory material, which then frees the author from having to consider indigenous landscape features in any real way. For example, consider these quotes from Lemon and Mitchell respectively:

> Settlers sought 'old fields' of the Indians, probably to save the labor of clearing large trees. Some Indian paths, modified for wagon traffic, became roads… (Lemon 2002, 32)

> Alterations made by the Indians were part of the perceived landscapes upon which the pioneer settlers based their decisions about their own settlements. (Mitchell 1972, 462)

These statements might lead the reader to expect something further in the form of scholarly investigation, some follow-through later in the work to tie these claims to the evidence and conclusions these authors present. If so, the reader would be disappointed.

Yet geographers readily understand the importance and persistence of prior features on the cultural landscape. The following quote from Wood, for instance, is something most of us understand both intuitively and intellectually:

> Human geographic patterns reflect cultural habits of interaction and organization. Such geographic patterns, however, tend to persist long after the cultural habits that produced them have faded away. Because they persist, geographical patterns condition subsequent human activity. (Wood 1984, 331)

Wood is referring to earlier settler patterns, not indigenous ones. But even where indigenous populations were decimated by European diseases and other forces prior to serious settlement by colonists, as was the case in the North Carolina Piedmont, cultural features remained on the landscape. Accustomed as we are to the overwhelming imprint of our own cultural landscape, indigenous cultural features would seem very subtle, and to Europeans of the time perhaps only somewhat less subtle. Briceland (1987, 196), indeed, has argued that the Indian Trading Path was not a thoroughfare capable of enticing Virginians down it, until the Virginia traders transformed it into one. Yet this does not negate the truism that cultural landscape features, such as the Indian Trading Path in its earlier, subtler form, are persistent and influence subsequent human activity in a location, thus reinforcing trends and resisting major shifts.

In the backcountry, even such subtle differences across space would have had a tremendous impact on locational decisions by settlers. In the North Carolina Piedmont, where the vegetation is fecund and flooded streams are common, a field already cleared or a path to a good river crossing would have been of major importance. And where small central places carrying out urban functions had a significance far in excess of what their population numbers would suggest, transportation to and among such places would have been vitally important, adding to the weight to the importance of pre-existing pathways.

The nature of indigenous transportation routes is contested. Hulbert (1902a; 1902b), perhaps America's original odologist, wrote in 1902 that buffalo were smart enough to find the best routes from point to point, while the Indians evidently were not, as Europeans found the buffalo roads superior. Buffalo, of course, were moving in large herds, and cut distinctive wide swaths, well compacted and thus more attractive to Europeans than the

narrow footpaths made by Indians. Hulbert notes also that buffalo roads tended to take advantage of the easiest grade—again making them attractive to wagon-using Europeans—while Indian roads generally went in the straightest possible line to the destination point. In the east, however, buffalo roads were probably limited in occurrence. Certainly Europeans found buffalo in the east, as evidenced indirectly by feature names and directly by the eyewitness accounts of people like surveyor John Powell in 1737 (Southern 1998), but it is unlikely they had been in that range for long, having spread out and multiplied as part of the ecological changes following Columbus (Mann 2005; Morris 2005).

The study of indigenous roads has come a long way since Hulbert. Hassig (1991), for instance, makes several points that are relevant here. He puts Hulbert's observation that the Indian paths would have valued directness over terrain considerations in a more objective framework, noting that "human foot traffic…often passes through rugged terrain relatively directly. Pack animals require greater concern for terrain; and wheeled vehicles require the most, favoring longer but gentler routes" (18). He also considers the social ramifications of roads, saying that they affect the social world by bringing some places and people closer together, while leaving others relatively unconnected (so that one could add the idea of a social inclusion gradient to Whebell's culture gradient and Lewis' colonization gradient). Further, "Roads signify a certain stability—if not of towns, then at least of regions. A society without settled communities has little to connect in a permanent fashion" (19). As I will show in the next chapter, the Indian Trading Path and similar thoroughfare roads were stable over long distances and time periods, implying a level of regional stability as well. Questions of stability and change are of some importance here, particularly during the European settlement phase, and in light of the above discussion about the persistence of

cultural landscape features. Hassig notes that the more a society has invested in a road system, the less responsive they are to change; at the same time,

> Roads that pre-date their present use pose a potential difficulty because transportation systems do not necessarily remain stable once they have been created. Many factors alter them, including their links to other transportation systems, changes in the existing transportation system itself, and the shifting political, economic, and social situation. (25)

In Chapter 3 it will become apparent that such factors have played a part in the transportation landscape of the North Carolina Piedmont.

The North Carolina Piedmont and its settlement system

The Piedmont of North Carolina is one of three broad physiographic bands across the state. To the west of the Piedmont lies the Mountain region (sometimes subdivided into the Blue Ridge and the Valley and Ridge provinces), and to the east lies the Coastal Plain (often subdivided into a Tidewater region and an Inner Coastal Plain); a smaller fourth region, the Sandhills, is sometimes differentiated from the three main divisions. With some variation in width, these physiographic regions extend up the Eastern seaboard from Georgia to New England.

The Piedmont is broadly characterized as a region of rolling hills. The region consists of a highly dissected plateau rising gradually in elevation from about 300 feet at its eastern edge to some 1500 feet at the west where it meets the mountains (Bobyarchick 2000, 10). However, the Piedmont has a number of distinctive characteristics which have been important in terms of human usage, and should be discussed. First, following the shape of the coastline south of Cape Hatteras, the Piedmont band in North Carolina lies, not north-south, but northeast-southwest. This means that rivers in North Carolina tend to flow from northwest to southeast across the elevation gradient of the region—which in turn means that

east-west travel has always been a matter of some difficulty. Second, these same rivers are generally navigable only as far west as the eastern edge of the Piedmont, where falls often occur at the drop to the Coastal Plain. Furthermore, across the Piedmont rivers and streams tend to be fast-flowing and to have numerous small falls and rapids. This increases transportation constraints but provides the potential for water power for industrial uses, a key factor since the earliest European habitation of the area. Third, terrain in the Piedmont is far from uniform. A number of small monadnocks known locally as "mountains," as well as other rough terrain, occur throughout the region. Triassic rift basins are also found here, including the Durham-Wadesboro Triassic Basin, which creates a line of much steeper terrain locally along its western edge and alters the directionality of streams within the basin.

Without stepping over the line into environmental determinism, it is clear that the physical geography of the North Carolina Piedmont has influenced human activity in the region, if for no other reason than that it affects transportation and therefore connectivity between places. I have already established that transportation and settlement are closely intertwined, and that connectivity is essential in the formation of settlement systems; by extrapolation, the physical geography of the Piedmont influences settlement development in this region. This is one aspect of "initial conditions" that will be critical in the model below.

Connectivity is an interesting concept in the case of the North Carolina Piedmont. While the Shenandoah Valley settlement system also lies along an important (Indian origin) long-distance route connecting several states, the system developed as if it were on a cul-de-sac, petering out at the southern end, and has the single regional entrepôt (Winchester) predicted by Muller. As Mitchell and Hofstra have made clear, the Shenandoah Valley was connected to Philadelphia and the Atlantic world through Winchester. At the other end of the

valley, we might have seen an additional regional entrepôt develop if there had been, at the time of the system's formation, another node of the Atlantic system within a reasonable distance to the south. If the system had developed a few decades later it is even possible that the Moravian settlements that became Winston-Salem would have provided enough of an outside connection to stimulate a two-entrepôt system in the valley. Obviously, however, this did not occur, and the connections over the Blue Ridge to the Virginia fall line towns did not stimulate enough town growth along the valley to challenge Winchester's hegemony.

The North Carolina Piedmont is markedly different. It is, paradoxically, both better and worse connected to the wider world than the Shenandoah Valley is. The particular qualities of its connectivity, external and internal, are key elements for understanding the development of its settlement system and also its individual towns. The North Carolina Piedmont had no easy connection to the Atlantic world; North Carolina had no port city in Philadelphia's class, and even if it had, the backcountry had no easy connectivity to the colony's eastern reaches. For North Carolina Piedmont farmers to export their agricultural or artisanal produce, there were four choices, none particularly good: travel overland to Cross Creek (Fayetteville), North Carolina's only fall line town; travel up the Indian Trading Path to a Virginia port; travel down the Indian Trading Path and connect with another route going to the port of Charleston; or travel up the Great Wagon Road to Winchester and then Philadelphia. Piedmont farmers did all of these things, if not easily. It is this extra layer of difficulty that made the North Carolina Piedmont worse connected than the Shenandoah Valley.

Yet the North Carolina Piedmont was also better connected than the Shenandoah Valley, in two ways. First, the long-distance route through North Carolina was a more useful

one in the changing circumstances of colonial America than the Great Wagon Road, regardless of what their relative usefulness might have been in pre-Columbian times. It was more useful because it provided the flexible link to allow people to travel in many directions and to many destinations, as discussed in Chapter 1, while the Great Wagon Road essentially just connected Point A and Point B. And the Indian Trading Path was more useful because this linking role meant it was traveled for a great many reasons beyond migration, unlike the Great Wagon Road. Second, because of the lack of a single dominant, well-connected node, the region developed not one but three, arguably four, regional entrepôts serving the North Carolina Piedmont as an integrated system. The three clear entrepôts, sentinels at the points where the system connected to the outside world, were Hillsborough, Charlotte, and the Moravian settlements. The fourth, Salisbury, can be viewed as an entrepôt because of its direct connection to Cross Creek (connected in turn to the port at Wilmington), although it can also profitably be viewed as an internal node of the system, situated as it was at the junction of the two main routes and near the most important ford of the Yadkin. Whether Salisbury is considered a node or an entrepôt, it is clear that the North Carolina Piedmont was a very different proposition from Muller's interior frontier model with its one regional entrepôt.

Internal connectivity is equally important in the development of the North Carolina Piedmont settlement system. The difficulty inherent in getting either produce to or goods from the outside world encouraged a high degree of internal regional self-sufficiency and interdependence. Lewis (1995), in her landmark study of artisans in historical Rowan County debunks the myth that the Southern backcountry had no artisans but the most basic required for subsistence. She shows that artisans were included in the very earliest rural

neighborhoods to emerge in the North Carolina backcountry, and that over the next several years as the number of artisans increased dramatically, so did the sophistication of their trades, such that they were able to offer higher level goods as well as lower level ones, and even to begin exporting their products by the mid 1750s. Similarly, they were able to import tools and raw materials from the Atlantic world just as merchants imported a wide range of goods for the general public. Yet there was clearly a dual economy in place, as Lemon found in southeastern Pennsylvania, one connected with the Atlantic and one local and internal. It is this second one which is of more interest at the moment. Lewis shows that

> far from being abandoned to their own survival skills in the great colonial wilderness, the inhabitants of the North Carolina backwoods patronized a small, but growing, population of artisan-farmers who supplied their clientele with basic necessities and even luxury goods that local merchants and their ties to the trans-Atlantic economy could not satisfactorily produce. (1995, 1)

She adds that "the busiest and most numerous artisans in Rowan County were those who made items that could not be purchased at a store" (68).

Artisans are one expression, then, of a high level of interaction within the North Carolina Piedmont during the years of intense in-migration and settlement. Traders, in the form of merchants and tavern-keepers, were another. Thorp (1991), also focusing on historical Rowan County, shows that while some of the traders represented external establishments, most were "part of a resident trading community operating taverns and stores scattered throughout the county" (389). In rural areas especially, these functions were likely to be combined, and in both rural and urban settings merchants were the points of contact between local people and the Atlantic economy. Yet Thorp shows that they were also hubs of local economic activity, buying local surpluses and selling back to those who had a shortfall, buying local artisan's products, and serving as banks by way of both credit and deposits.

For both of these expressions of interaction, it could be argued that the scale of interaction was strictly local, not regional. On the other hand, Kars (2002) paints a picture of a society teeming with activity across the Piedmont backcountry, interacting for social, religious, and political purposes well beyond their local neighborhoods. While one's local church or meetinghouse might have been the focus of many such activities, clearly there were broader events and longer-range contacts occurring. This picture is supported by the number of connecting roads shown on the Collet map (Fig. 3.2c), which argues for a high level of contact among the towns and neighborhoods of the region. Most of these roads are not thoroughfares, but smaller roads constituting part of an internal network—the backbone of which was the Indian Trading Path.

I have gone into some detail on the subject of connectivity because it is perhaps the key difference between the North Carolina Piedmont and other Southern backcountry regions, ones which did not develop settlement systems of the same kind or robustness. Conceptually, the connectivity characteristics of this region set it apart from previous models that attempt to explain either town formation or settlement system development in the backcountry. I offer now a model for town and system development in the backcountry of North Carolina, specifically, that incorporates this connectivity and requires attention to initial conditions both locally and regionally. In other words, this model is dependent on geographical specificity at both the regional scale and the local scale; it is not intended to be a general model in any sense.

The physical geography of the Piedmont, to the extent that it affects transportation, constitutes one part of the initial conditions of settlement, one that operates at the regional scale. The other key aspect of initial conditions operates at both local and regional scales,

and that is the presence of landscape features of Indian origin. I see the Indian Trading Path as the essential landscape feature in the model, but the Great Wagon Road of course also played a part in the development of both towns and the overall system.

The town-scale process (Fig. 2.2)

1) Initial conditions exist, in the form of a site a) on the Indian Trading Path (or other important indigenous route) and b) possessing nodality. While nodality strictly speaking refers to the presence of intersecting routes, I am stretching it here to include the intersection of the main route with a river or major creek, even though these are not navigable. Whebell (1969, 4) suggests that where the "desire line", or the direction people want to go, "lies athwart" rivers or valleys, "transport alignments then aim at desirable 'least effort' crossing points, which may thus become the sites of significant towns." Any place where the Trading Path crosses a river or large stream is assumed to be such a "least effort" location, and therefore likely to attract local paths to cross there along with the thoroughfare; therefore such a crossing point is likely to be an intersection, and thus nodal, even if we don't know about the smaller paths.
2) The presence of the Path as a migration route introduces early land claimants to the area, and a higher density of such claims arises near the path than farther away from it. These early claims are likely to be rural/agricultural in nature, though some of the claimants may possess urban skills. A rural, open-country neighborhood emerges near or straddling the Path, with higher density than surrounding countryside.
3) The continued use of the Path for migration gives rise to demand for travelers' services, and urban functions develop at the site to meet this demand.

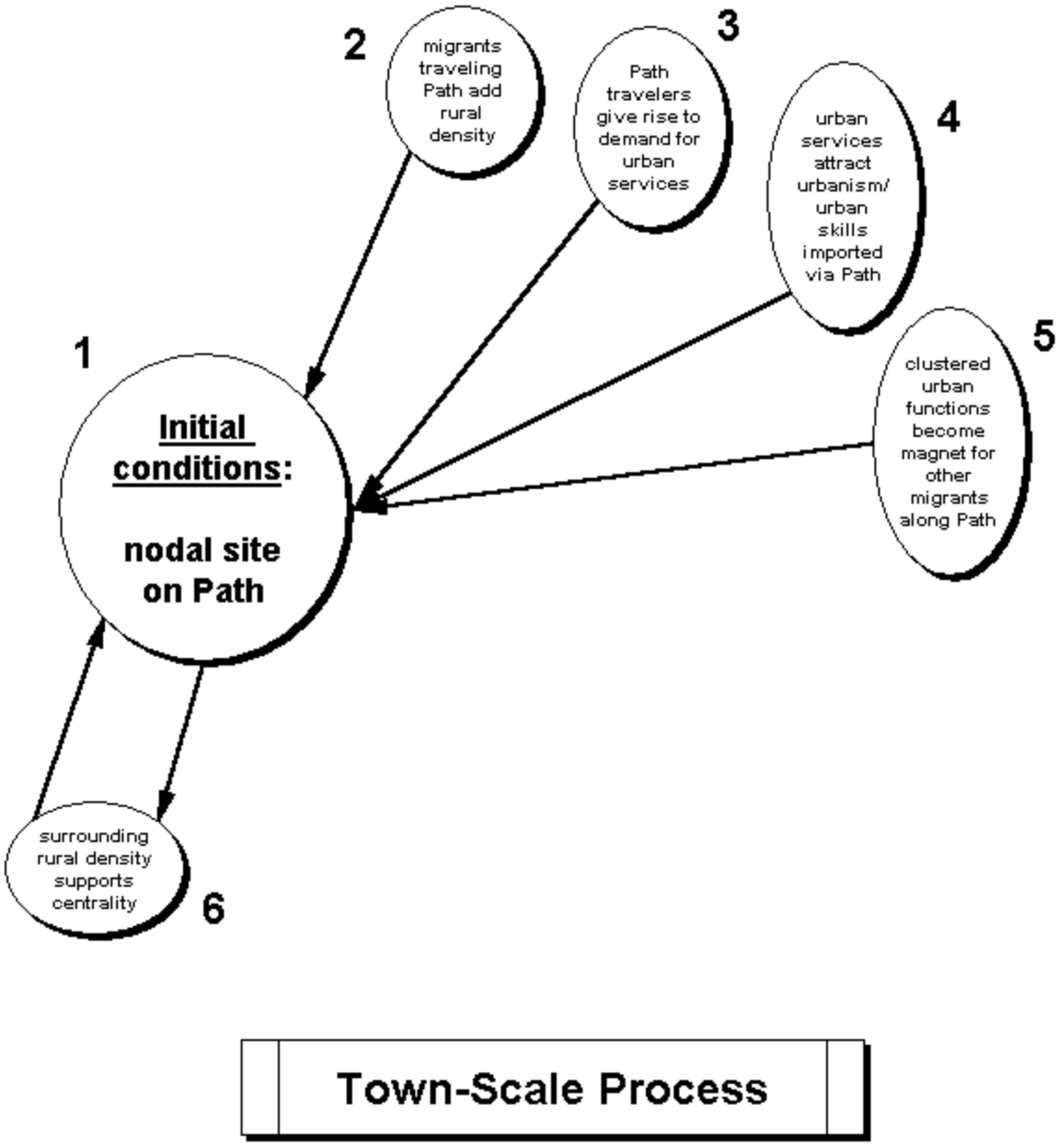


Figure 2.2. The town-scale process of settlement development in the North Carolina Piedmont, based on initial conditions.

4) The presence of these urban functions attracts new migrants with urban skills and a "commitment to urbanism." This escalation helps create centrality in the settlement.

5) As the number of urban-oriented inhabitants and urban services and institutions increases, the site becomes a growth magnet for new migrants traveling the Path, and

may function as an intervening opportunity that attracts migrants whose original intention was to travel farther away.

6) Some migrants will be attracted to the urbanizing area but prefer to farm rather than live in the emerging town, and so the rural density in the area surrounding the site will increase. This provides the needed density to support centrality in the settlement.

The system-scale process (Fig. 2.3)

1) Initial conditions exist, in the form of two prior thoroughfares (the Indian Trading Path and the Great Wagon Road) through the region and connecting it to significant locations outside the region.
2) The town formation process creates settlements at significant nodal locations on these thoroughfares. Open-country neighborhoods and small settlements develop in other locations as well.
3) Where these towns at significant nodal sites are positioned on the edge of the region and on one of the thoroughfares, they develop as regional entrepôts linking the region to the Atlantic world. Because of the nature of the choices available and the lack of an easy option, residents of the entire region may have interaction with the world beyond through any of the entrepôts, helping to form the regional settlement fabric into an interdependent system.
4) Interaction among settlements within the region, for economic, social, religious, and political reasons, strengthens both individual settlements and the integration of the whole.

5) Though individual towns develop centrality, the system does not develop into a classic central place system, because no one of the regional entrepôts gains enough dominance to become the highest order place in the system.

Although these processes operate at different scales, they are not independent of each other. Just as Mitchell and Hofstra see town and country developing together in the Shenandoah Valley, neither town nor system in the North Carolina Piedmont could fully develop independent of the other.

Now that I have established a conceptual picture of how the Indian Trading Path may have influenced settlement in the Piedmont, I turn to a closer look at the Path itself and at the historical process of settlement in the region.

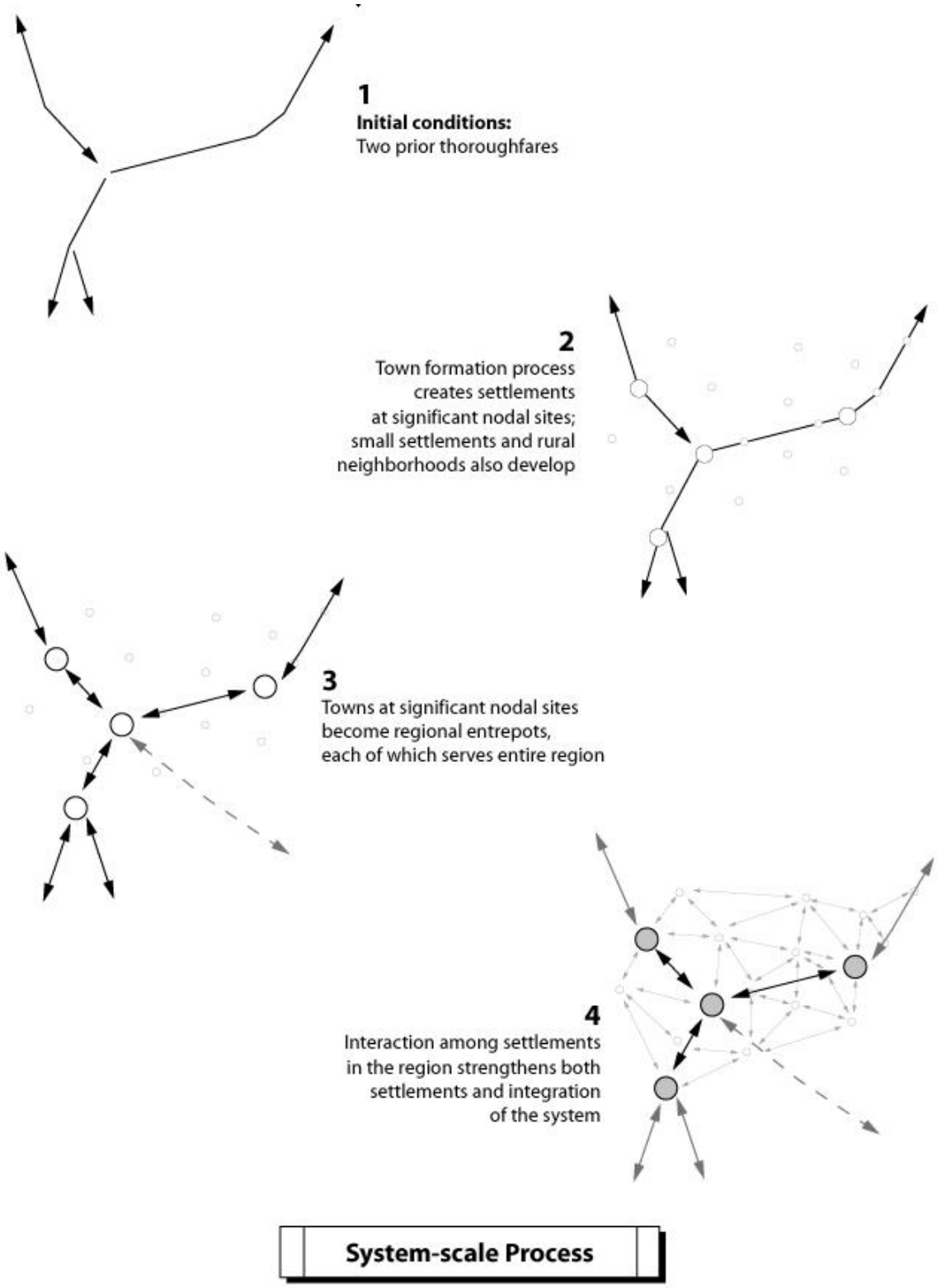


Figure 2.3. The system-scale process of settlement development in the North Carolina Piedmont, based on initial conditions.

CHAPTER 3

HISTORICAL CONTEXT AND THE SOURCES OF DATA

Eastern North Carolina was colonized early on in the Euro-American story, but due in part to the difficulty of traveling east to west across the coastal plain as well as across the Piedmont (Crittenden 1931), movement of settlers from the eastern towns into the Piedmont was limited. Instead, the Piedmont's big European settlement push came later, in the 1740s, '50s, and '60s, and came mostly from the north. By that time the region was largely depopulated of Indians (Davis 2002, 153) so frontier warfare was not a significant factor in the unfolding Piedmont settlement story, at least until the Cherokee War which affected the western Piedmont in the late 1750s and early 1760s. As discussed in Chapter 2, however, this does not mean that European migrants entered a "blank slate" landscape. Evidence of relatively recent Indian use of the land is common in the research dataset as well as in numerous other sources. I turn now to an examination of these Indian uses, followed by a look at Europeans in the backcountry and the early towns they established, and lastly the land granting process and the data it produced.

Indian uses of the North Carolina Piedmont

During the period preceding European settlement of the area, the North Carolina Piedmont was occupied by a number of groups belonging to the Eastern Siouan culture and language group (Fig. 3.1). A linguistic division between the northern and the southern Piedmont is recognized by some researchers; the former is associated with the Tutelo and

several related groups, while the latter is associated with the Catawbas (Davis 2002, 136). In addition to this linguistic basis for division, the southern area was influenced by the Mississippian cultural complex for a time while the northern was not. Furthermore, depopulation from European diseases affected the two areas at different times in a pattern that appears related to the depth of trade engagement with the English, along, ironically, the Indian Trading Path. Both areas appear to have avoided depopulation from the incursions of Hernando de Soto and Juan Pardo in the 16th century; there is no archaeological evidence of sudden or severe population change in the parts of North Carolina traversed by these Spanish explorers. The ecology of the diseases introduced is dependent on factors such as population density and connectivity and the intensity of interaction with the carriers, and evidence suggests the needed conditions were not met at that time and place (Ward and Davis 1999, 231), nor was it likely that the Spanish parties of adult men carried smallpox in active form (Kelton 2002, 25). In contrast, the evidence of later depopulation is clear in both the archaeological and the ethnohistorical record (Ward and Davis 1999, 258-260). In the northern Piedmont, two stages are apparent, the first occurring in the last years of the 17th century through what has been named the Great Southeastern Smallpox Epidemic of 1696-1700 (Kelton 2002), and the second following soon after, but possibly attributable more to migration than to disease, such that the upper Piedmont was virtually uninhabited when the great waves of European settlers arrived (Merrell 1987, 20). In the southern Piedmont, John Lawson's observations in 1701 indicate that the populations had not yet been affected by epidemic disease when he passed through, but the smallpox was apparently diffusing down the Trading Path as Lawson was traveling up it, so the effects would have been felt in the

southern area shortly after his passage through. Certainly the Catawbas were observed to be suffering by 1718 (Merrell 1989a, 97).

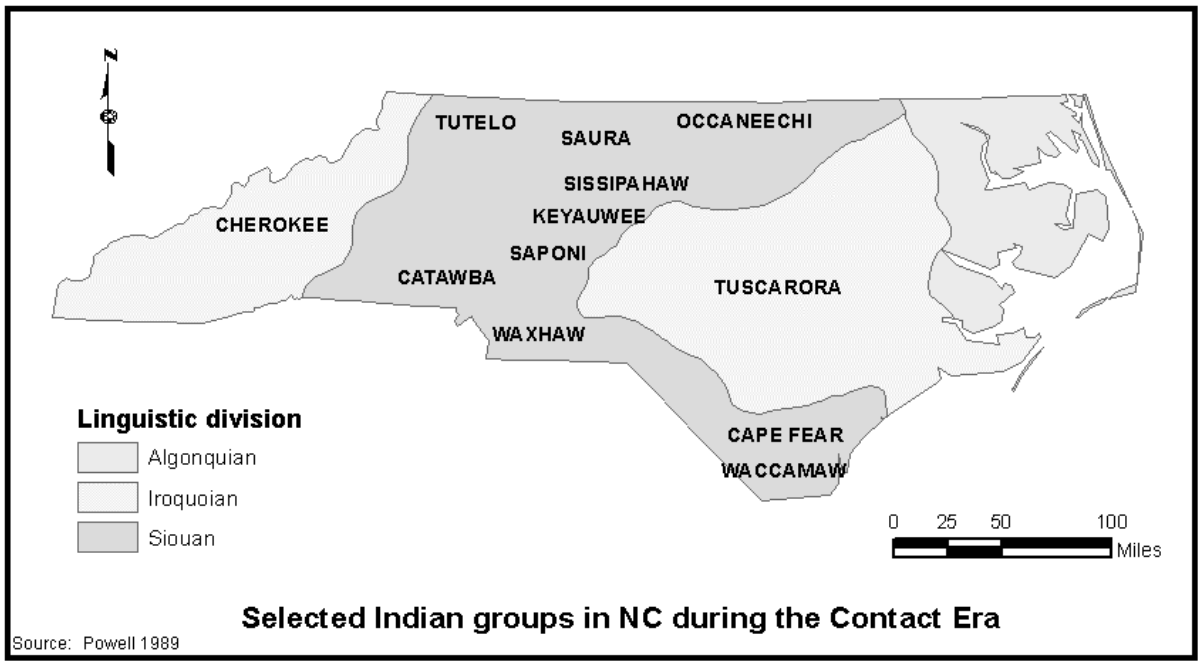


Figure 3.1. Selected Indian groups in North Carolina during the Contact Era. Adapted from Powell 1989, 23.

Indian settlement patterns and other uses of the land in the Piedmont before depopulation have been reconstructed through archaeological and ethnohistorical work. These uses and patterns were not static, but changed over time both before and after European arrival. The Siouan people are believed to have crossed the mountains into the Piedmont "several centuries before Columbus" (Merrell 1987, 19) and slowly spread out to occupy their historic extent in the Piedmont of North Carolina and Virginia. During the Late Woodland period (800-1600 CE) Indians in North Carolina generally became more agriculturally oriented, with corn becoming a staple and beans being cultivated for the first time; populations became larger and villages larger and more complex, and more likely to locate in broad fertile bottoms suited to agriculture (Ward and Davis 1999, 4). Hunting and gathering remained important in the Piedmont during this period, however (78). In the

northern Piedmont, the individual cultures that would later be recognized by European explorers began to emerge from the overall Siouan matrix; from the evidence of burials excavated, these were egalitarian societies. In contrast, the southern Piedmont in this period developed highly stratified societies under the influence of broader Mississippian culture. This Pee Dee culture, as it is called, declined before the contact era, however (99), and the inhabitants of the southern Piedmont then "returned to the mainstream of the Piedmont Village Tradition" (137).

Perdue speculates that before the development of the deerskin trade with Europeans, hunting had been reduced from a major subsistence activity to one that served mainly ritual purposes (Perdue 1999). Increased reliance on corn caused two types of settlement pattern change in the northern Piedmont (Ward and Davis 1999, 111). In one type, population growth resulting from corn production increased pressure on food resources and caused farmers to have to go farther to find suitable locations, which in turn led them to establish smaller and more autonomous breakaway villages. In the other type, population growth led to coalescence of smaller groups into larger settlements. These kinds of settlement pattern changes can only be known from archaeological investigation, but the widespread use of the land for farming was evident to European visitors and settlers in the relict landscape features it left. Not only did the journals of explorers and travelers describe these "oldfields" frequently, they are often mentioned in the landgrant documents, and in some places they remain on the landscape as placenames, such as at Hawfields.

Davis indicates that most of the Siouan groups in the northern Piedmont were "aligned with the Trading Path (either directly on the path or close to it)," and that while this may reflect the fact that village sites have just not yet been found elsewhere, "no areas of

significant occupation have been identified away from this trail" except along the upper Dan (the Sara villages of the 17th and early 18th centuries) (Davis 2002, 142-143). Further, his series of maps indicates that by 1650, around the time English traders began to use the Path (139), northern Piedmont groups had diverged into recognizable subgroups which were located where the Trading Path crossed the Piedmont's rivers (map series p. 146-152). This would have been for agricultural purposes, taking advantage of the fertile bottoms, rather than navigational ones, since these rivers are not navigable. Locations such as this—on both river and Path, with cleared land remaining from both village sites and fields—proved extremely attractive to Europeans in the northern Piedmont as well (Southern 2005). In the southern Piedmont, a similar pattern obtained, with the Keyauwees and the Catawbas and related groups occupying general areas along rivers and near the path, but consolidating in historic times to locations where the two crossed, until by 1720 the Catawba Nation (an amalgam of Catawbas and the remnants of several other groups) was the only remaining Indian group along the Path (Davis 2002, map series p. 146-153).

The extensive social and economic interaction, and associated mobility, among Indian peoples before the disruption of societies and networks has been documented at different scales. Merrell points out, for instance, that when European traders engaged Piedmont Indians in trade, they were stepping into a "deeply rooted system of aboriginal commerce," through which "peoples occupying different environments had access to certain highly prized commodities" (1989b, 198). Rountree reports that while conventional scholarship has viewed the period from 1570 to 1670 as "a time of limited native movements and scant overland exploration by Europeans," documentary evidence indicates this was not in fact the case. Instead, the people of the Eastern Woodlands, when first observed by Europeans,

already had an established tradition of long-distance travel, journeying sometimes hundreds of miles, for purposes of diplomacy, trade, and warfare (Rountree 2002, 65). Along similar lines, Cobb and Nassaney (1995) challenge the traditional view in archaeology that the level of interaction in the Late Woodland period Southeast had declined since the Middle Woodland, documenting both diffusion of cultural traits across the Southeast and the exchange of particular items "along more clearly established routes, suggesting some form of bidirectional and regularly maintained exchange networks" (212). Within North Carolina, the relocation of groups with some frequency, as well as seasonal movement to and among hunting camps, is known through both archaeological and ethnohistorical evidence (Davis 2002; Ward and Davis 1999). Furthermore, the cultural tradition of hospitality to visitors universally encountered by peaceful travelers in the Piedmont (Merrell 1989b) argues for a long-standing system of interaction between groups. Such local interaction, for social events such as ball games and festivals as well as for trade and political meetings, supported the "vitality of Indian community life" across the Southeast (Tanner 1989, 6).

From the above discussion it is clear that all this movement would have necessitated a network of transportation routes, "well established and probably ancient" (Rountree 2002, 65). Then, as now, there would have been major thoroughfares that connected far places, and smaller trails for travel between local places (Tanner 1989, 7). Where early maps of the Southeast and of North Carolina by European cartographers show trails, they are trails that extend long distances, which can be read as major, enduring routes. The Indian Trading Path was one of these, appearing on the Ogilby map of c. 1672 and the Moseley map of 1733 (Fig. 3.2a-b). The Ogilby map was based on the travel diary of John Lederer (Cumming 1966a; Cumming 1966b) and thus reproduced Lederer's major misconceptions about some of the

areas he traversed when not on the Trading Path (although Briceland (1987) has worked out a very interesting interpretation which makes Lederer look more reasonable). The Moseley map, in contrast, was based on Edward Moseley's own experience in North Carolina, where he was not only a surveyor but also a lawyer and important public figure (Cumming 1966b). This map represents a major leap in European geographical knowledge or geosophy, but this increase in knowledge clearly did not extend into the Piedmont, where the Trading Path is virtually the only feature shown. Somewhat later maps such as the famed Collet map of 1770 (Fig. 3.2c), which depict a landscape radically transformed by the activity of Europeans, include many smaller roads in addition to the Trading Path. It is to be expected that many such roads also derived from Indian paths that predated European settlement, and that they appear only on these later maps not because they were new, but because they were newly brought into the realm of Europeans' geosophy. Collet, or more accurately the surveyor William Churton, who produced most of this map based on his years of experience in the backcountry (Cumming 1966b; Merrens and Paschal 1982), showed a variant or branch of the Indian Trading Path known as the Westward (or Western) Trading Path in addition to these other roads. Other variants are known to have existed, either as long-standing alternate routes through an area or as innovations to adapt to changing political landscapes or the changing needs associated with evolving transportation technologies (Hassig 1991).

The journals of several European travelers also give evidence of the prominence of the Indian Trading Path. Lawson (1709) is perhaps the most important of these, and certainly the most often quoted. His journey in 1701 took him from Charleston, northwestward into the interior, then northward and eastward to the coast of North Carolina; of this he traveled on

the Trading Path from the Catawba homeland south of present-day Charlotte to the vicinity of Hillsborough. Lawson's account has been a key resource for generations of North Carolina scholars, since it describes everything from the Trading Path's route to physical geography to cultural landscape features to the Indian societies and traders he encountered. Rights (1931) drew heavily on Lawson in his classic work on the Trading Path, and many other historians, anthropologists, and archaeologists have done the same since, including Davis (2002), Ward and Davis (1999), and Merrell (1987; 1989a; 1989b). Rights and others have also made considerable use of the two other main accounts of the Trading Path from this period, that of John Lederer's 1670 journey and that of James Needham and Gabriel

Figure 3.2a. A portion of the Ogilby map of c. 1672, showing Lederer's route south along the Trading Path and returning northward cross-country. The image has been rotated to orient the viewer northward. Reprinted from *North Carolina in Maps*, Plate V (Cumming 1966b; available for sale at http://nc-historical-publications.stores.yahoo.net/maps1.html) by permission of the Historical Publications Section, NC Office of Archives and History, Department of Cultural Resources.

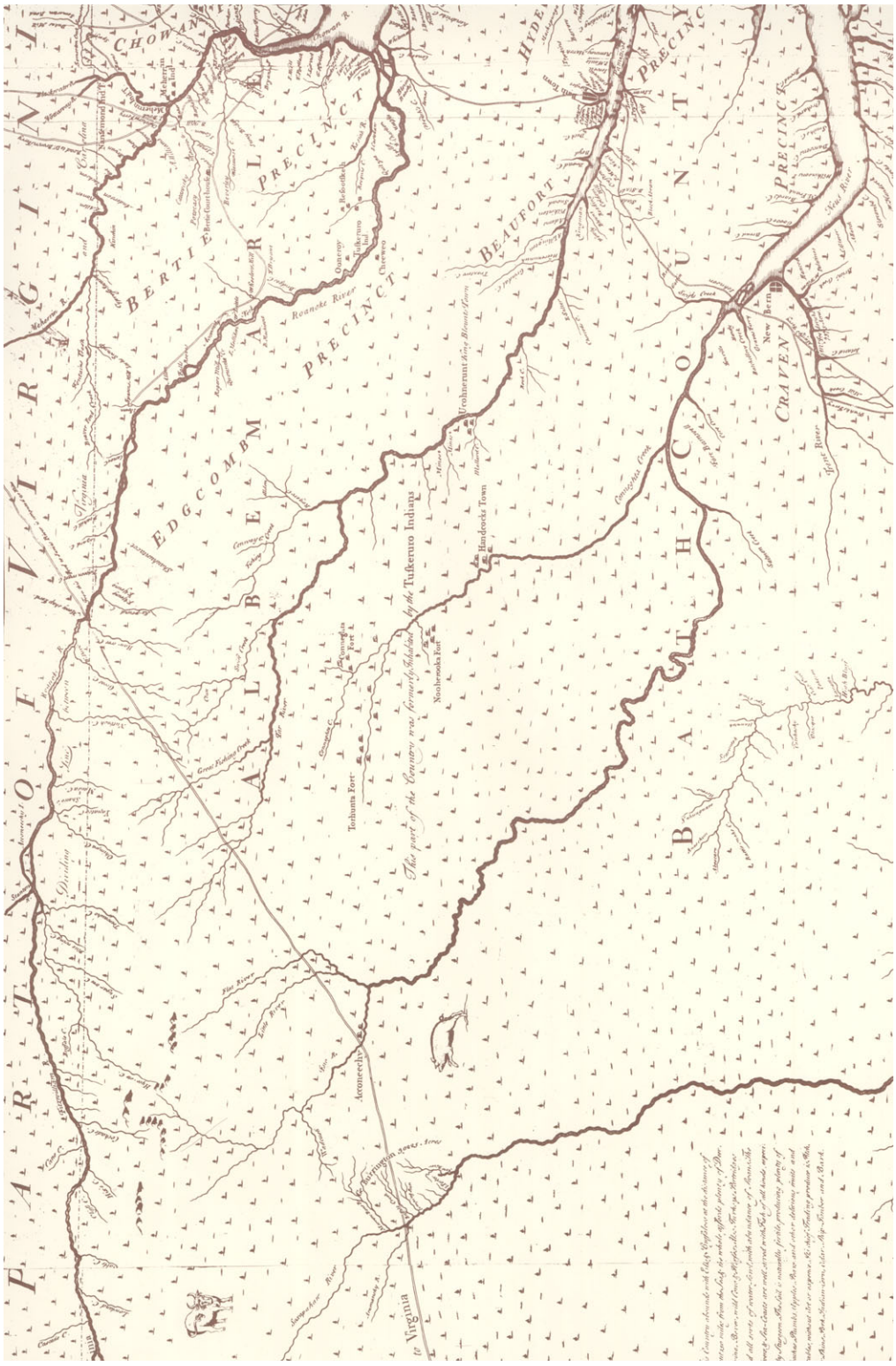


Figure 3.2b. A portion of the Moseley map of 1733. Though the map displays considerable European geosophy of the eastern part of the colony, the Indian Trading Path is virtually the only feature shown in the backcountry. Image has been rotated to fit more east-west extent on the page; North is to the left side of the page. Reprinted from *North Carolina in Maps*, Plate VI (Cumming 1966b; available for sale at http://nc-historical-publications.stores.yahoo.net/maps1.html) by permission of the Historical Publications Section, NC Office of Archives and History, Department of Cultural Resources.

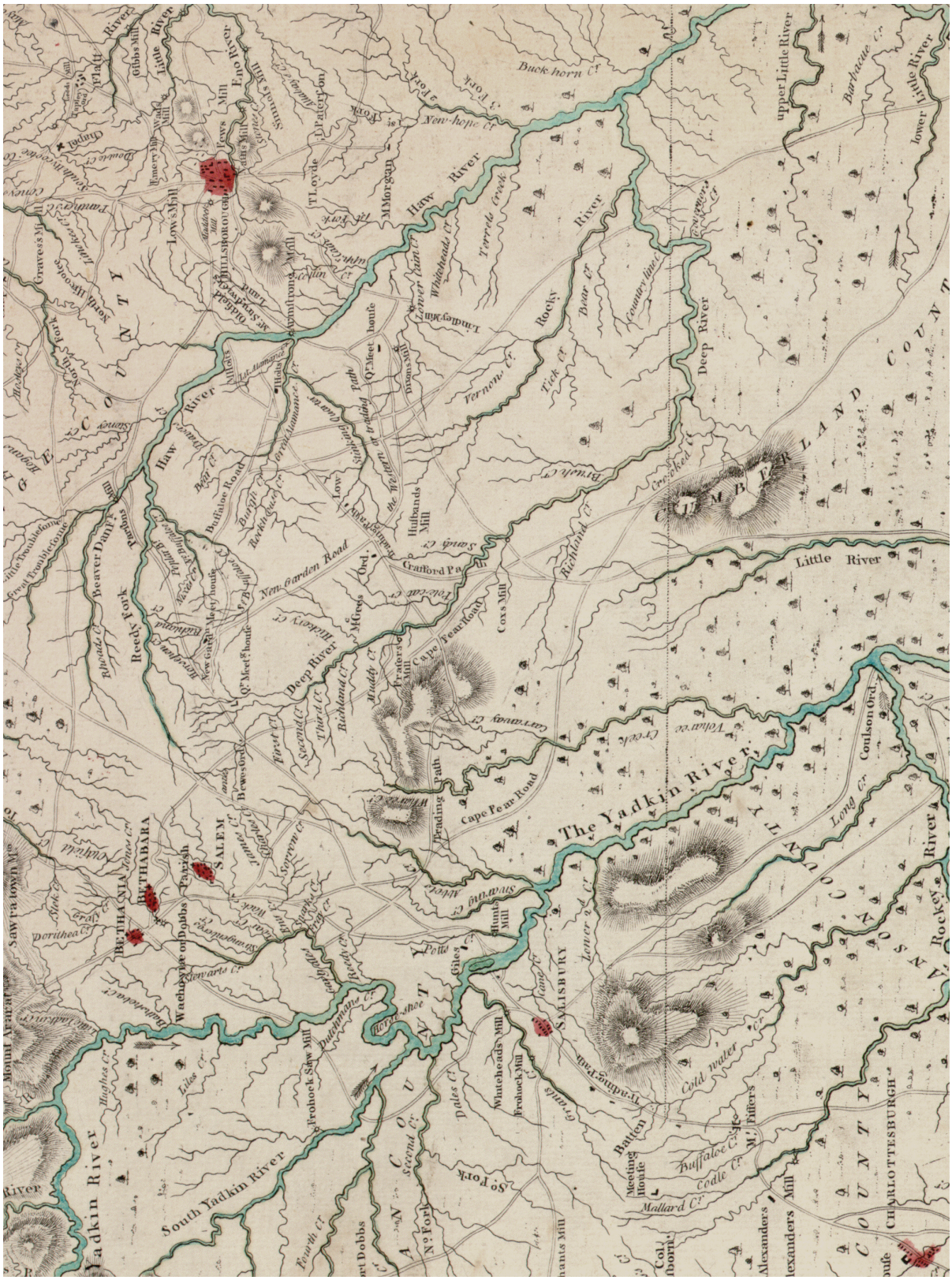


Figure 3.2c. A portion of the Collet map of 1770. Based on the accumulated knowledge of the surveyor William Churton, this map displays not only a leap in European geosophy, but also a leap in European settlement. Image has been rotated to fit more east-west extent on the page; North is to the left side of the page. The Granville Line is visible running east and west, stopping southwest of Salisbury. Library of Congress, Geography and Maps Division, LC Control No. 83693769.

Arthur in 1673. All of these accounts are well summarized in numerous published works; rather than repeat those efforts I will only draw on these sources for specific observations as needed.

Somewhat later, in 1737 and 1738, the Path was used by two surveyors, John Powell and Matthew Rowan respectively, who each also left a record. Powell kept a diary of his journey from New Bern to the upper Eno River, where he surveyed a 60,000 acre tract for Gabriel Johnston, royal governor of North Carolina from 1734 to 1752, out of lands held by Henry McCulloh (discussed later in this chapter). Though this land transfer was voided by later developments, the surveyor's journal survived[2] and is revealing about the geography of the Path and the area he traveled through to reach the Path, some of which falls inside the Phase I study area and forms an interesting contrast to travel on the Path. On his way to the Catawba Road (another name for the Trading Path), for instance, he must cross the Neuse River and several large creeks, some of which he has to fell trees in order to cross, and others of which he is forced to travel miles out of his way upstream to find a place where crossing is possible. He also traverses some badlands before he reaches the Path, and in one instance must turn back and find another way because the land is just not passable. Yet once he reaches the "Long Looked for Cuttabuh Road," he sees miles of land so attractive and fertile he says they have "Ent^{d} the Land of Canaan." Amidst a sea of Indian oldfields and fine trees, he crosses the Eno River three times without difficulty (Southern 1998), reinforcing the conception of the Trading Path as engineered for the best stream crossings in this wet Piedmont region.

[2] This journal languished in an "author unknown" folder in the Hayes Collection of the Southern Historical Collection at the University of North Carolina at Chapel Hill until 1997 and would remain there yet but for the perseverance of David Southern, whose detective work revealed the author and context (Morris 2005). The information cited in this discussion comes from Southern's (1998) transcription and is used with his generous permission.

Rowan left not a textual record but a cartographic record. He traveled through most of the Piedmont, surveying twelve great tracts for the speculator Henry McCulloh. His 1738 map shows the surveyed tracts, major rivers and streams, and the Trading Path. Unfortunately the original of this map is inaccessible[3]; fortunately a tracing was made of it by Charles Holloman and published in the North Carolina Genealogical Society Journal (Holloman 1978).

Traders used the Path regularly (hence its name), though they generally did not write diaries about it. Lawson did not encounter many because it was winter, and the trading pattern was seasonal (Briceland 1987, 187). But William Byrd II, leader of and diarist for the group that surveyed the North Carolina-Virginia line in 1728, described the use of the Path by traders; it is unlikely he ever traversed the path, but he had sources of information in both traders and Indian guides in his employ.

> The Common Method of carrying on this Indian Commerce is as follows: Gentlemen send for Goods proper for such a Trade from England, and then either Venture them out at their own Risk to the Indian Towns, or else credit some Traders with them of Substance and Reputation, to be paid in Skins at a certain Price agreed betwixt them.
>
> The Goods for the Indian Trade consist chiefly in Guns, Powder, Shot, Hatchets, (which the Indians call Tomahawks,) Kettles, red & blue Planes, Duffields, Stroudwater blankets, and some Cutlary Wares, Brass Rings and other Trinkets.
>
> These Wares are made up into Packs and Carry'd upon Horses, each Load being from 150 to 200 Pounds, with which they are able to travel about 20 Miles a day, if Forage happen to be plentiful. (Boyd 1967, 298)

John Powell described an encounter with a group of traders on the Path; these men were hauling hides on packhorses back to Virginia and were very knowledgeable about where the good land was thereabouts, "haveing Used the Road ten years." In addition to such accounts, numerous scholarly works (e.g. Merrell 1989; Reid 1976) describe the importance

[3] According to James Sorrell of the NC State Archives, Rowan's original map is held by Longleat Library in the United Kingdom. Much of that library's collection is uncataloged, including this map, and the staff there will not respond to inquiries about uncataloged items (http://www.longleat.co.uk/library-archives.html).

of the Indian trade carried out by both Virginians and South Carolinians, in which the Trading Path played a major role.

As the deer hide trade consolidated in the Southeast, both European traders and Indians used the Path more intensively; contact-era pressures on Indian groups in both the north and the south caused increased Indian use of the path for raiding, trading, and refuge. Lawson gives an example; the reason he left the Path in the Hillsborough area was to avoid a Seneca ("Sinnager") raiding party on its way south along the Path (Lawson 1709, 55-56). There is also evidence of deliberate migrations to different points on the Path as a strategy designed to maximize benefit from the trade situation. The Occaneechi appear to have done this more than once; Davis speculates that while the Hillsborough area was their traditional homeland, they positioned themselves on Occaneechi Island (where Lederer and Needham and Arthur found them) because they could control access to the trade there; after Bacon's Rebellion when they lost the power to do so, they again used the path to return to the Eno, where Lawson found them in 1701. Similarly, the Saponi appear to have positioned themselves at Trading Ford, where Lawson found them, to try to reap some advantage from the new system (Davis 1999). However, use of the Path for trading and for other Indian activities necessarily declined once depopulation (and competition from South Carolina traders) had made the Virginia trade unprofitable and the upper Piedmont almost empty. Byrd, writing in 1728, observed that "Formerly a Hundred Horses have been employed in one of these Indian Caravans, under the Conduct of 15 or 16 Persons only, but now that the Trade is much impair'd, insomuch that they seldom go with half that Number" (Boyd 1967, 298). As use of the Path declined, there was less reason for Indian groups to be located there, stimulating a gradual relocation of the surviving Indians toward existing European

settlements in Virginia and South Carolina (Davis 2002, 144). The Path's peak period before it began channeling European settlers into the Piedmont, then, was probably the last quarter of the 17th century.

The actual route of the Trading Path through the North Carolina Piedmont has never been worked out to everyone's satisfaction. Despite the descriptions left by Lawson, Byrd, and others as to the route, questions remain. This is probably in part due to long-term alternate routes and to new variations introduced over time, but also perhaps to a tendency among reconstructers to align the route with modern features when such is not warranted, or alternatively to resist aligning with modern features when it is warranted. The classic work of Myer (1928) on Indian trails of the Southeast, for instance, which features the Indian Trading Path as the Occaneechi Path, makes several statements that are considered erroneous today. He locates the Path as going through Greensboro and High Point (776, 777), while the consensus today is that it ran south of those cities, through Randolph County. Furthermore, Myer quotes Rumple's (1881) history of Rowan County to the effect that the Path ran about a mile southeast of Salisbury (778), while as the reader will see below this could not have been so unless there was a variant route here (of which I have encountered no mention). Writing a few years after Myer, Rights (1931) published his classic examining the Trading Path in North Carolina. By focusing on this much more limited project, and using his own knowledge of North Carolina, Rights was able to make correspondingly more accurate judgments about the route. But his reconstruction is not without problems either. Myer's rendering of High Point was based on the work of James Mooney, early scholar of the Southeastern Indians, who assigned High Point as the location of the Keyauwee town visited by Lawson. Rights places this town on Caraway Mountain instead (415-416), and traces the

Path's route from there northeast through the present town of Randleman and so across Deep River and Polecat Creek near their confluence. A cadre of modern Trading Path "warriors"[4], who study the Path via old documents, aerial photos, and on-the-ground searches for physical remains, disagrees with this placement in Randolph County. Pugh, based on this combination of historical records and ground-truthing, places the route north of Rights' route (Morris 2003, 108). The kind of local-scale work being done by these researchers, once it can be synthesized into a regional whole, will be what resolves the route questions in the end.

Of the various features created by Indians and left on the North Carolina Piedmont landscape, transportation routes—especially the major thoroughfare routes—were undoubtedly the most public, and the most enduring. Abandoned Indian fields were soon absorbed into the private agricultural landscapes of the new occupiers, but the routes, though changed in some places over time, remained and were reinforced through intensified use. I now look at the new users of the roads, the Europeans.

Europeans in the North Carolina backcountry

Though no large influx of Europeans into the North Carolina Piedmont occurred before the 1740s, there were certainly Europeans—along with some Africans and small numbers of remaining Indians—living in the region before that time. Kars (2002, 16) gives an estimate for total population in the Piedmont of "a few hundred" in the 1740s. Some of these would have been people who preferred a frontier environment; many of that group would have moved on as large-scale in-migration began and encroached on their backwoods

[4] These local "roads scholars" include David Southern in Durham County, Tom Magnuson in Orange County, Hal Pugh and Eleanor Minnock-Pugh in Randolph County, and Ann Brownlee in Rowan County. There are no doubt others doing this work who have not yet come to my attention. Certainly, without information so generously shared by some of these investigators, my own work would have been difficult if not impossible.

territory. These backcountry folk had no formal ownership of the land they occupied, and so there is no record of land transactions for the researcher to study.

The big migration into the North Carolina Piedmont began in the 1740s, with streams of Europeans traveling south from Virginia and points north. A variety of both push and pull factors stimulated this phenomenon (Kars 2002; Lefler 1973; Lemon 2002; Ramsey 1964). The migrants traveled overland with wagons, using two main routes: the Great Wagon Road, an old Indian road through the Shenandoah Valley; and the Indian Trading Path (Fig. 3.3). The transformation of the backcountry was dramatic. From the estimated "few hundred" the population rose to some 39,000 Europeans and 3,000 Africans in 1767 (Kars 2002, 16). Individuals chose land and applied for formal ownership of it; farms were improved and houses built; artisans set up shop and began making the things that settlers needed (Lewis 1995); stores, taverns, and mills were opened, and churches, schools, and courthouses built; ferries were established at major river crossings in lieu of fords due to the volume of traffic. In short, the physical and social infrastructure of a European society was inscribed onto the landscape during these two or three decades. Travelers during the early 1750s described a society well along in this development, with businesses dedicated to servicing travelers, juridical structure, road-building, and other urban functions evident (see, for example, McBride 1979).

As part of this process, towns were formally established in addition to informal clusters of such urban functions arising on the landscape. The Collet map shows Hillsborough, Salisbury, Charlotte (Charlottesburg), and the three Moravian towns that eventually coalesced into Wintson-Salem (Bethania, Bethabara, and Salem). Of these, the Winston-Salem towns are on the Great Wagon Road; the rest are on the Indian Trading Path.

The approximate location of Greensboro appears on this map as a meetinghouse and a tangle of intersecting roads—not the Trading Path, but the Buffalo Road and some others. Table 3.1 indicates the founding dates for these and other early Piedmont towns.

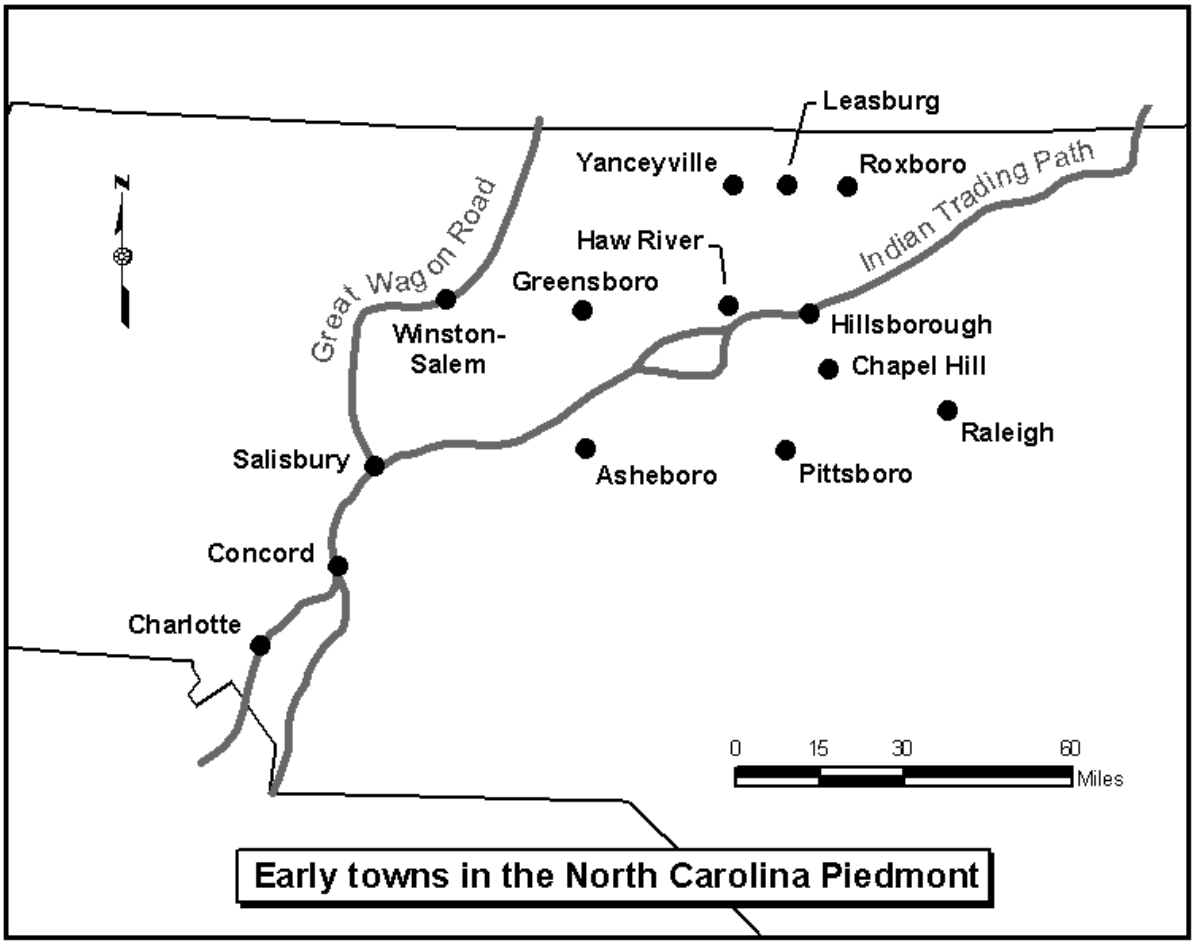


Figure 3.3. The two main routes into the Piedmont, and early Piedmont towns. See Table 3.1 for town dates.

Salisbury, at the junction of the Great Wagon Road and the Indian Trading Path and near the major Trading Ford on the Yadkin River, where Lawson and Byrd reported that traders traditionally stayed over for a matter of days, was an inevitable place for a town to be established. The deed for one part of the town land, made out to William Churton and Richard Vigers in trust and surveyed in 1754, shows the town grid already laid out, and the Trading Path running right through the center of the grid (Fig. 3.4).

Town	Founding date and type	Shown on Collet?	Associated road
Charlotte	1750 settlement; 1768 incorporated	Yes	Trading Path
Haw River	1752 (?) (Orange Court House) (Troxler 1999)	No	Trading Path
Winston-Salem	1753 (Bethabara) 1759 (Bethania) 1766 (Salem)	Yes	Great Wagon Road
Hillsborough	1754 grant/occupied; 1759 incorporated	Yes	Trading Path
Salisbury	1755 established	Yes	Trading Path & Great Wagon Road
Raleigh	1771 (Wake Court House)	No	
Leasburg	1777 (Caswell Court House); 1788 incorporated	Incipient	Ancestral Hwy 158
Pittsboro	1787 land acquired	No	New Hope Rd
Yanceyville	1791 established	Incipient	Ancestral Hwy 158
Roxboro	1793 established	Incipient	Ancestral Hwys 501 & 158
Chapel Hill	1795 university opened	No	New Hope Road
Asheboro	1796 incorporated	No	Trading Path
Concord	1798 incorporated	No	Trading Path
Greensboro	1808 established	Incipient	Buffalo Road

Table 3.1. Early Piedmont towns. Source for dates is Powell (1968) unless otherwise noted. Date for Chapel Hill represents establishment of the university and associated settlement, not the official founding of the town proper, which was later.

In contrast, several towns in the Piedmont Urban Crescent came into existence only with the NC Railroad a century later, including Durham, Burlington, Thomasville, and High Point (Trelease 1991). Because of this, many have assumed that the railroad is what made the Crescent, but Cates' (1980) work, using a potential interaction model, established that there was what he called an "incipient Crescent" prior to the building of the railroad.

The building of the railroad did firmly establish the central part of the Piedmont's main transportation corridor to the north of the original Trading Path route. Very likely this had already occurred before the building of the railroad, however, and for two reasons. First, the rough terrain in Randolph County, though well enough for foot travel and perhaps even packhorse travel, is unsuited to wagon travel, much less railroads. (Trelease reports that

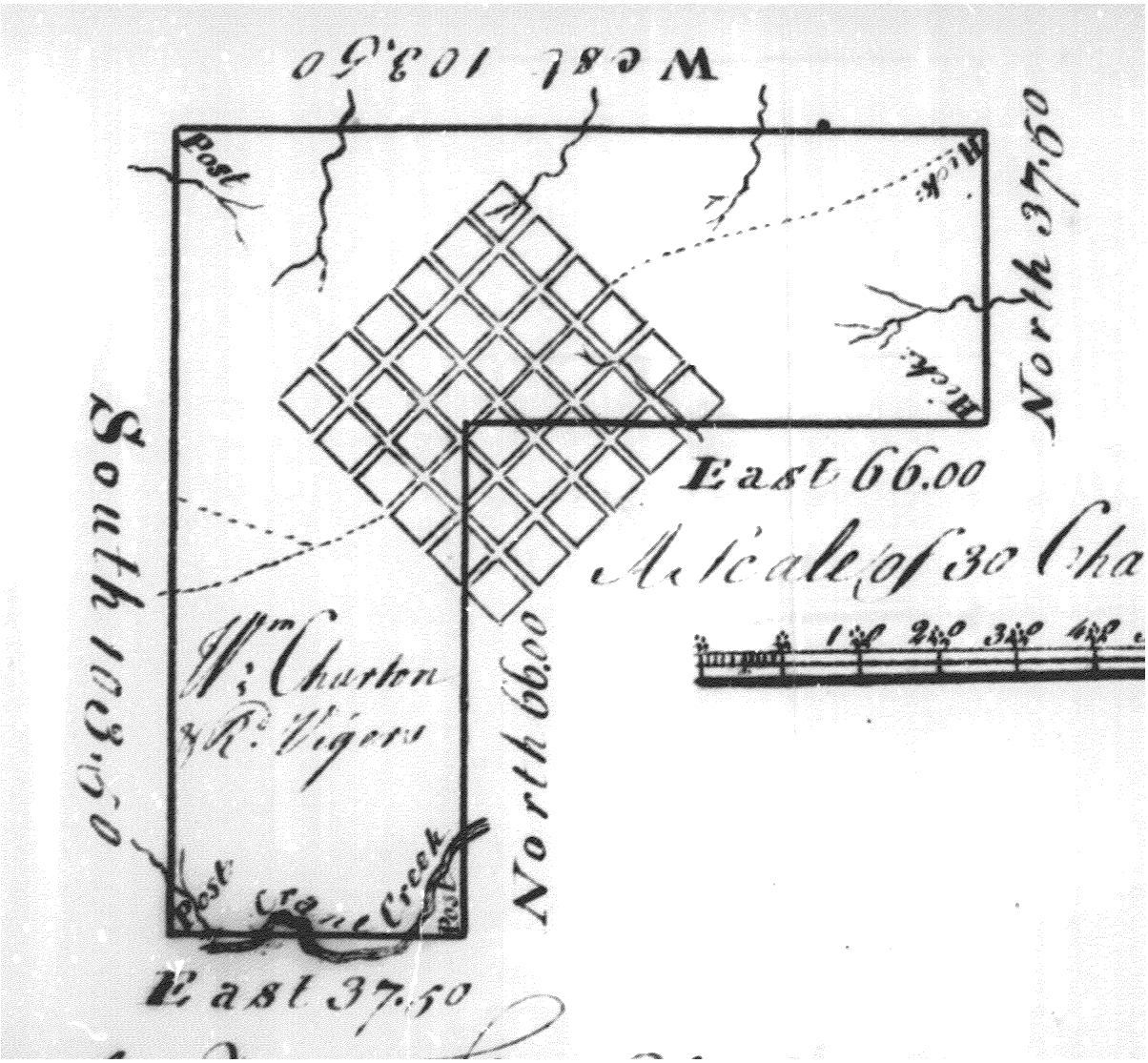
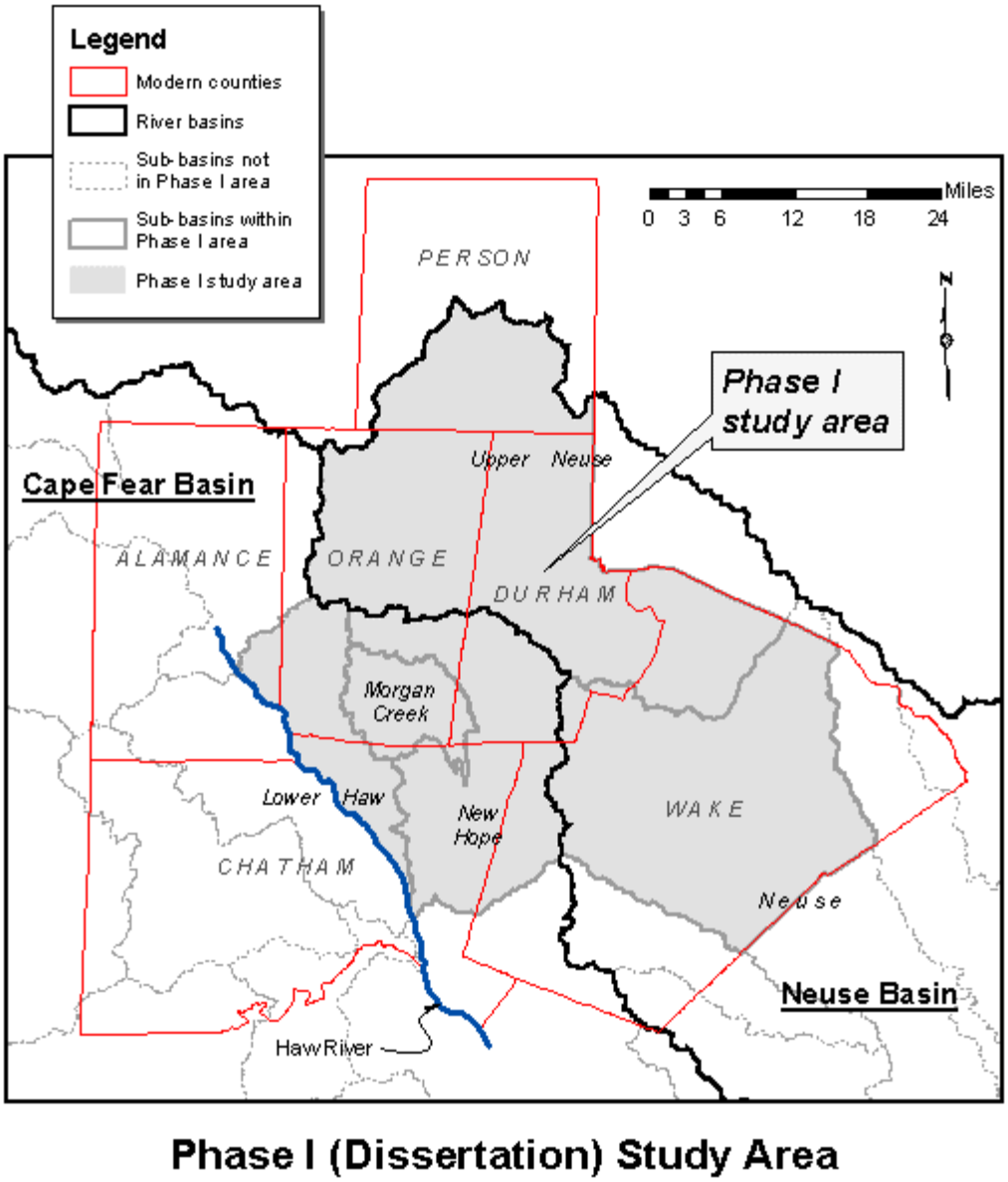


Figure 3.4. Survey for Salisbury town land, 1754. Note the Indian Trading Path running right through the middle of the town grid (Granville Proprietary Land Office 1748-1763c).

residents in Chatham and Randolph Counties, unlike those in many communities, made no particular effort to get the railroad route to go through those areas, recognizing the terrain problem (1991, 28)). Second, the gravitational attraction of Winston-Salem and of Greensboro itself would have pulled the traffic northward along the Buffalo Road in lieu of the more southerly Trading Path through this section. With this shift, Randolph County towns along the Trading Path withered, and those on the Buffalo Road grew.



Phase I (Dissertation) Study Area

Figure 3.5. The Phase I (dissertation) study area. See also Figure 1.8.

In the Phase I study area (Fig. 3.5), Hillsborough is the only town that had been established by the end of the study period in 1763. Hillsborough's location had significant advantages for Indian inhabitants, in terms of both site and situation, including rich river bottomland, ford sites, and a converging of roads from several directions (Fig. 3.6); it was the site of several different Indian villages over time (Davis *et al* 1998). The location was

equally advantageous to Europeans, and with the multiple roads converging on the town it could hardly fail to be a hub of human activity.

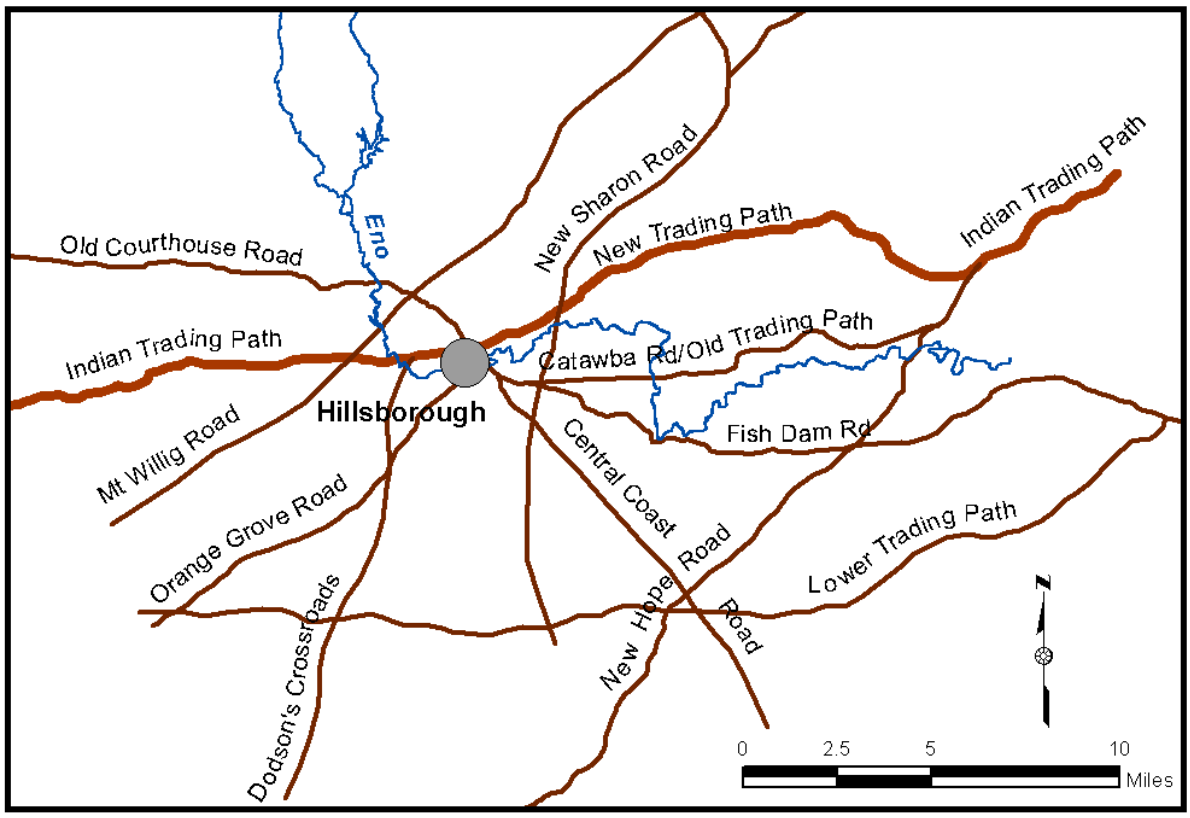
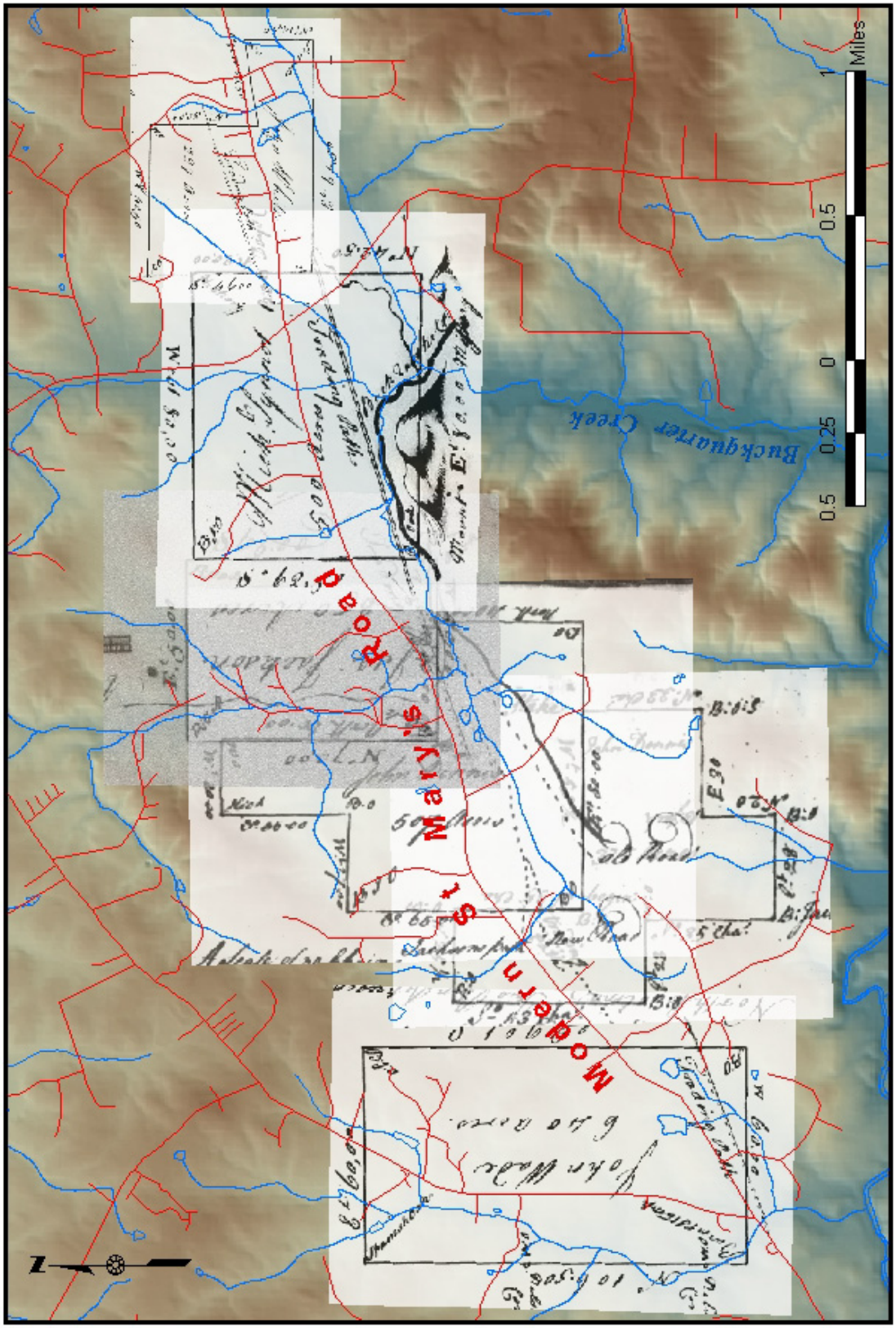


Figure 3.6. Hillsborough as transportation hub in historic times. The roads as shown here are based on information from Tom Magnuson and David Southern, except Fish Dam Road for which the source is the work of Joe Liles and his students at NC School of Science and Math, documented at **http://www.enoriver.org/fishdam/**.

The Hillsborough area is also the site of a shift in the Trading Path route between 1738 and 1748. Both Powell in his 1737 journal and Rowan on his 1738 map indicate three distinct crossings of the Eno River in this area, and the earliest known grants in the area are consistent with a route that provides the requisite three crossings, including one grant at the junction of this older Trading Path and New Hope Road. By 1751, however, a variant to the north was firmly established as the main road, documented in half a dozen firmly located tracts (Fig. 3.7) and remnants of the wagon roadbed which remain on the landscape today



The "New Trading Path" variant along St Mary's Road

Figure 3.7. Georeferenced survey images overlaid on topography and showing modern St. Mary's Road northeast of Hillsborough.

(Fig. 3.8). This route only fords the Eno once, *and* avoids the rougher terrain of the original route. This shift explains the odd dip to the south at Snow Hill Road, which is where the new route reconnects with the old route.

Figure 3.8. The old roadbed a few feet away from St. Mary's Road. Photo by Mary Ruvane.

Getting land in North Carolina

In order for the reader to understand to the land granting process and its records, it is necessary to put this process in colony-scale context. When the colony of Carolina was first created, it was granted by Charles II to eight of his noble friends, who were then known as the Lords Proprietors. The colony did not turn out to be the moneymaker these Lords expected, however, and it was troublesome to govern. So in 1728 seven of the eight, or rather the heirs of those seven, decided to sell their grant back to the crown; this arrangement

was completed in 1729. The eighth heir, John Carteret, wanted to keep his, so an agreement was reached whereby he would get one eighth of the original territory, but would stay out of the business of running the colony (Mitchell 1993).

It was not settled until 1742 that the one/eighth share, based on the original extents of the colony which reached south nearly to Florida, would result in a line running east-west at 35º34', some 60 miles south of the Virginia border, or in other words cutting modern North Carolina approximately in half (Fig. 1.8). Surveyors began the work of laying out this line in 1743, but did not carry it any significant distance from the coast until they resumed work in 1746, when they reached the west side of Haw River. Further work was done the next year, carrying it to Coldwater Creek of Rocky River, crossing the Trading Path. Work resumed in 1753, but the line as surveyed to that point engendered considerable complaints about accuracy; these complaints probably had merit as a comparison of county boundaries (relicts of the line as surveyed) with a line at 35º34' shows a real discrepancy. Meanwhile, during this protracted process, Carteret had inherited a new title and so the area to the north of this line became known as Lord Granville's District, or just the Granville District (Mitchell 1993). (In the research dataset, the line is represented variously as Lord Granville's line or boundary, as the King's line, or as the country line.)

Though he had given up any right to a governmental role, Granville retained the right to grant land within his district and to collect quitrents[5] on granted land. Being desirous of this income, he set up a land office with agents empowered to grant land and collect fees on his behalf. The office opened in 1748 and closed at the death of John Carteret in 1763, at

[5] Quitrents were a holdover from feudal times. Even though a grantee owned the land, he or she was supposed to pay the grantor this fee annually in lieu of feudal service or produce (Price 1995, 3, 367). The system was clearly dying out during this period, as officials in North Carolina and other colonies had much trouble collecting these fees.

which point a family squabble over inheritance prevented a speedy reopening of the office and thus introduced a period of several years during which people in the Granville District could not acquire new grants (Mitchell 1993).

Because there were two separate land-granting entities, based on whether a tract was in Granville's District or not, there are two separate sets of records. The process of acquiring land was essentially the same in both districts. Settlers could register a claim on a tract of land by making an *entry* with the appropriate land officer, who then issued a *warrant* authorizing the surveyor to survey it (although in the first few years of the Granville office, the warrant and entry were generally one). The surveyor then laid out the tract and drew up a *survey*. Eventually the claimant paid the final fees and received a *deed* (Mitchell 1993). Theoretically, then, four distinct records exist for every tract of land granted by either administrative entity (Fig. 3.9). In fact, as will become apparent below, a number of factors affected the survival of Granville records particularly, and it is far more common for a Granville tract *not* to have all four records than otherwise. All of the Phase I and Phase II areas of the overall research project are within the Granville District and thus affected by these losses.

Certain events and conditions affected both the distribution of tracts across the Piedmont and the survival of the records. While the Piedmont is reputed to be the land of yeoman farmers as opposed to that of elite planters and enslaved workers, it was in fact a landscape of inequality from the beginning of formal European land tenure, with both large speculator holdings and multiple tracts in the hands of the backcountry's squires. Of the speculators, the largest by far was Henry McCulloh, who convinced the Crown to grant him 1.2 million acres in the Piedmont in addition to other large tracts he held farther east. It was

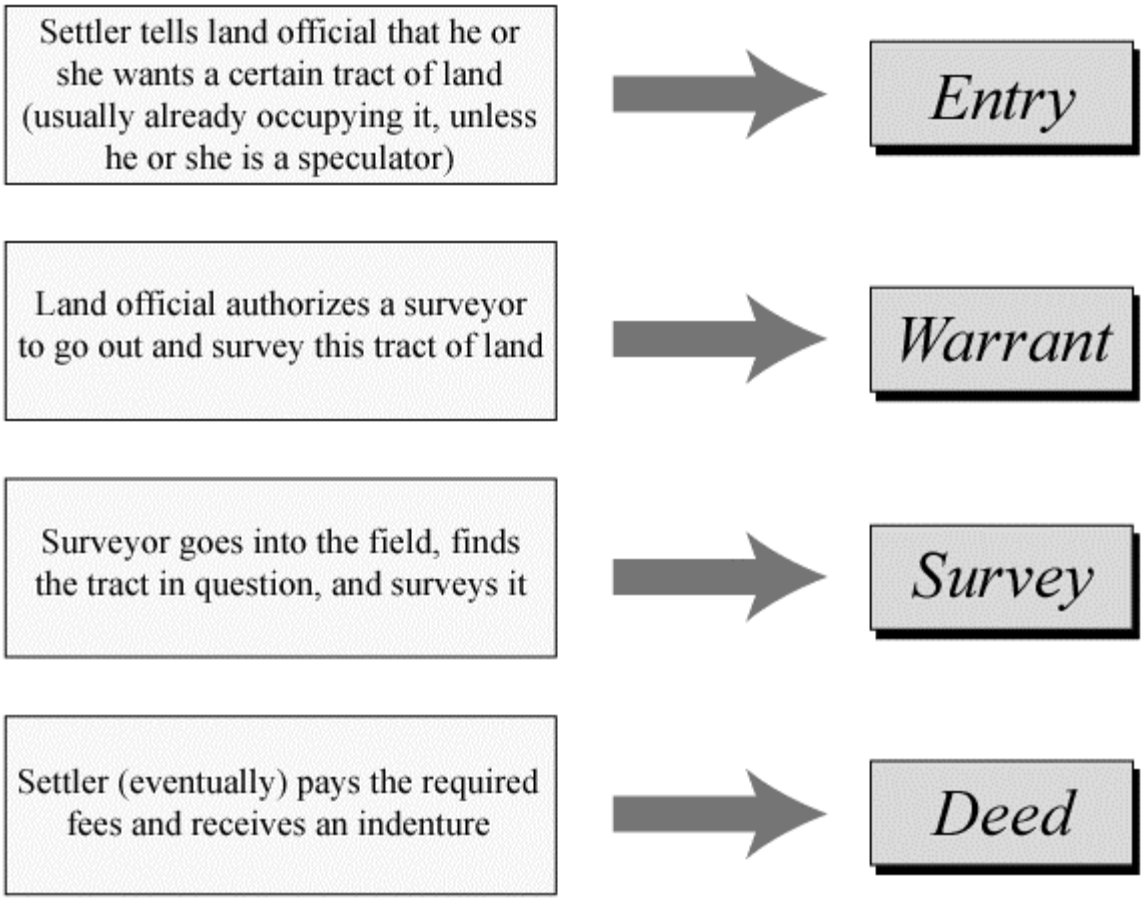


Figure 3.9. The land granting process and its records.

these 1,200,000 acres that Matthew Rowan surveyed in twelve great tracts in 1738. All twelve of these tracts lie within the overall study area; seven of the twelve lie directly on the Trading Path. One tract lies partly within the Phase I area. Five of the tracts lie within the Granville District. When the tracts were surveyed, the Granville District had not yet been demarcated, but as soon as the survey of the tracts was completed McCulloh sued the surveyor for putting them where he did, and by the time this matter was settled, the agreement between Granville and the Crown was completed, so that a further agreement between McCulloh and Granville became necessary. Under the terms of this agreement, Granville remained the grantor of any tracts that McCulloh sold (though buyers often did not

know this), and theoretically the record of these sales ended up in the Granville records. In practice, they seldom did (Sellers 1951; Davenport 1978). The result for the researcher is that there are large holes in the Granville records, corresponding to these tracts. This is especially problematic since so many of the great tracts were on the Trading Path; however, some of these records are available in other forms, even though not included in the Phase I dataset.

The McCulloh tracts also influenced the choices of at least some buyers, who were leery of purchasing land from McCulloh even though the twelve tracts represent some of the best locations in the Piedmont. Settler John Harry was apparently horrified to discover he had built his improvements on land owned by McCulloh, because when the surveyor appeared to do the survey and informed him of this fact, he chose, according to the surveyor's notes on the back of the document, to abandon his improvements and move to a location "where there was no despute" (Granville Proprietary 1748-1763i) (Fig. 3.10).

Other large tracts also potentially affected settler choices. The 60,000 acre tract on the Eno surveyed by John Powell for Gabriel Johnston in 1737 (well before the opening of the Granville land office) would probably have done so, had it not been voided by the agreement between McCulloh and Granville. What Johnston ended up with instead was a tract of approximately 9,000 acres (Southern 2006) (Fig. 3.11), which, unlike the original larger tract, was obviously surveyed after individuals had begun to put in claims in the area (the original survey is lost, but is presumed to have occurred around 1750, based on the 1751 deed date for the tract). This later, smaller tract would have prevented additional claims by private individuals within its bounds; the governor began to subdivide and sell parts of the

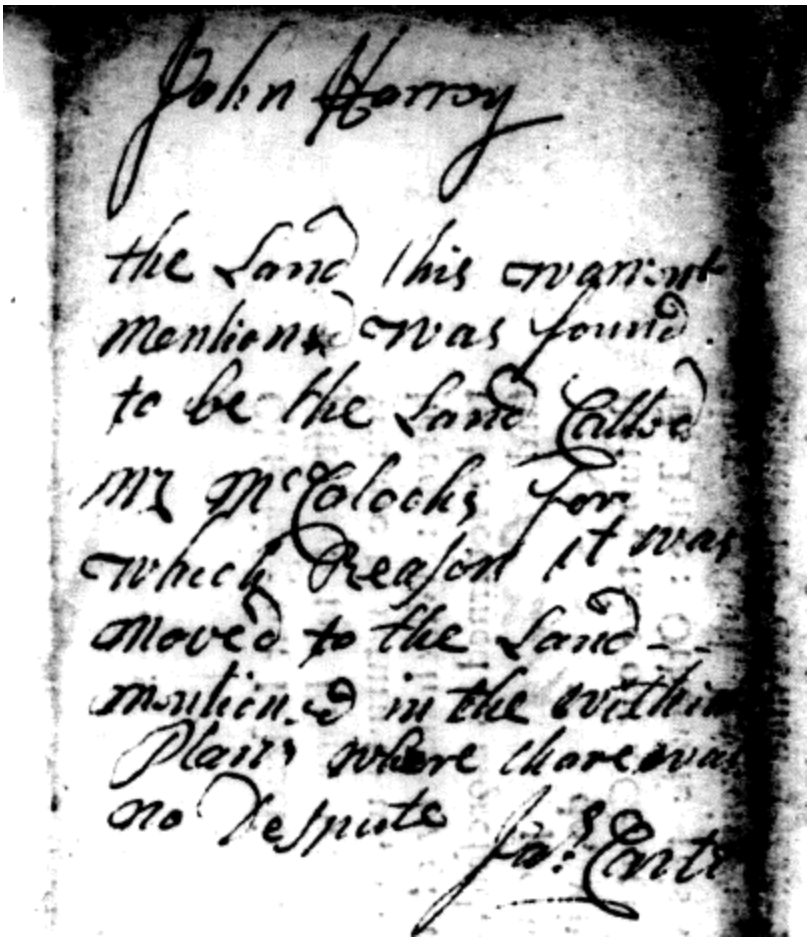


Figure 3.10. Surveyor's notation on the back of John Harry's survey. "The land this warrant mentions was found to be the land called Mr McColochs for which reason it was moved to the land mentioned in the within plans where there was no despute [signed]Jas Carter" (Granville Proprietary 1748-1763i).

tract before he died in 1752, and this process was continued after his death, but such transactions would not appear in the Granville records and thus are not included in the research dataset.

Another group of large tracts existed well before 1748, at the area known as Hawfields on the Haw River. This is the location Lawson dubbed the "flower of Carolina" (1709, 56), a very large expanse of oldfields near a group of good river crossings, and on the Trading Path. The large tracts here were granted by the Crown to several of the commissioners in the party that surveyed the North Carolina-Virginia line in the late 1720s,

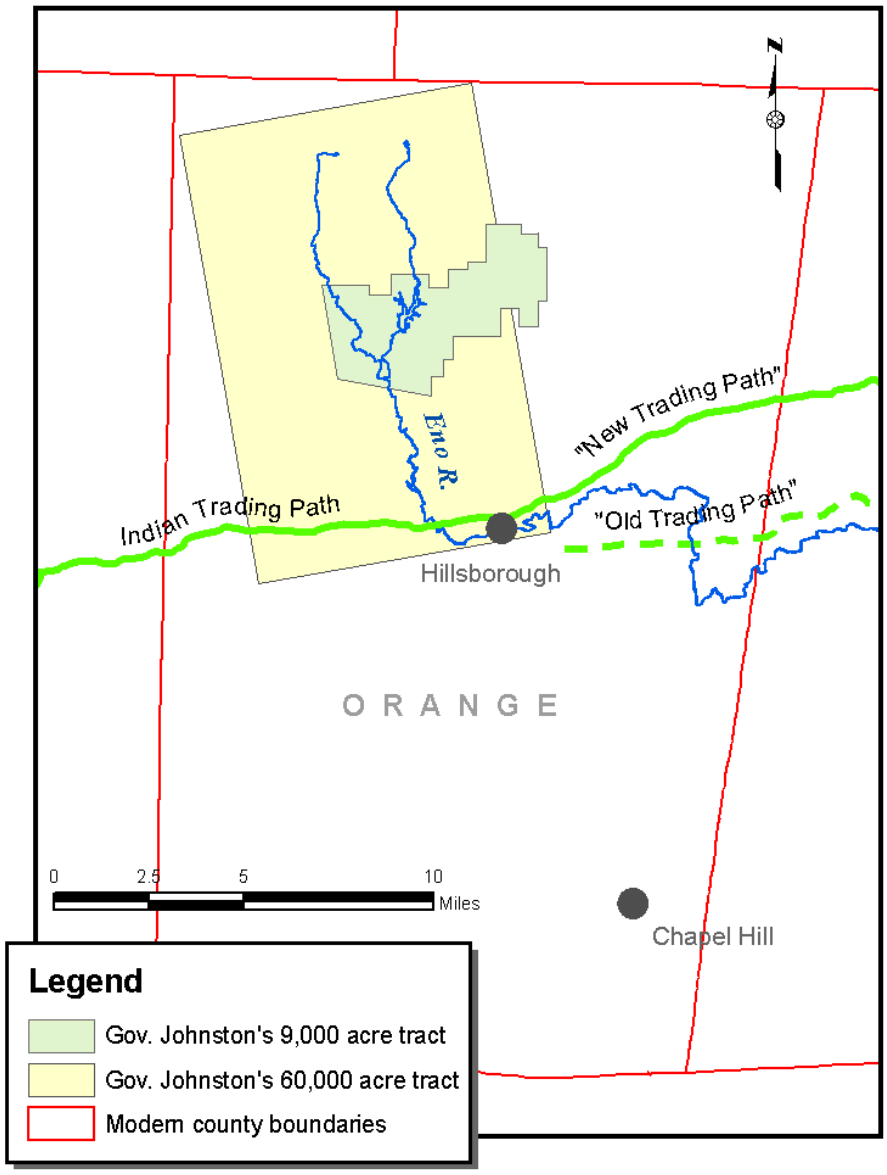


Figure 3.11. The 60,000 and approximately 9,000 acre tracts of Governor Gabriel Johnston. The larger tract is the one surveyed in 1737 by John Powell and which was later voided. The smaller tract was surveyed around 1750, obviously after several neighboring tracts had been surveyed.

and to certain other individuals who had served the Crown in some way. Within a short time all these Hawfields tracts were in the hands of then-governor George Burrington, and subsequently transferred to Samuel Strudwick, reportedly in settlement of gaming debts. The

lands are identified on the Collet map as "Oldfield Mr Strudwick's Land," (Fig. 3.12, left) and the location stands out on the earlier Moseley map as the only backcountry area about which the mapmaker had much knowledge (Fig. 3.12, right). This is not surprising as Moseley himself was the recipient of two of these Hawfields grants. However, these grants apparently did not interfere much with settler choices; Troxler indicates that just as Granville's agents continued to grant land within McCulloh's tracts even after McCulloh and Granville reached their agreement in 1755, McCulloh and his agents did not seem concerned about the earlier Hawfields grants (Troxler and Vincent 1999, 35-36). Indeed, it appears doubtful that anyone saw much reason to be concerned about the Hawfields grants; John Powell wrote in 1737 that he could not find the surveys on the ground, even when looking hard for them. The trader he spoke to reported that he knew of a tree he thought was the corner of one of the tracts, but had never seen any lines extending from that corner (Southern 1998). Certainly many people came to occupy these tracts long before there is documentary evidence of that occupation (Troxler and Vincent 1999, 35), as was true all over the Piedmont and especially in the McCulloh tracts.

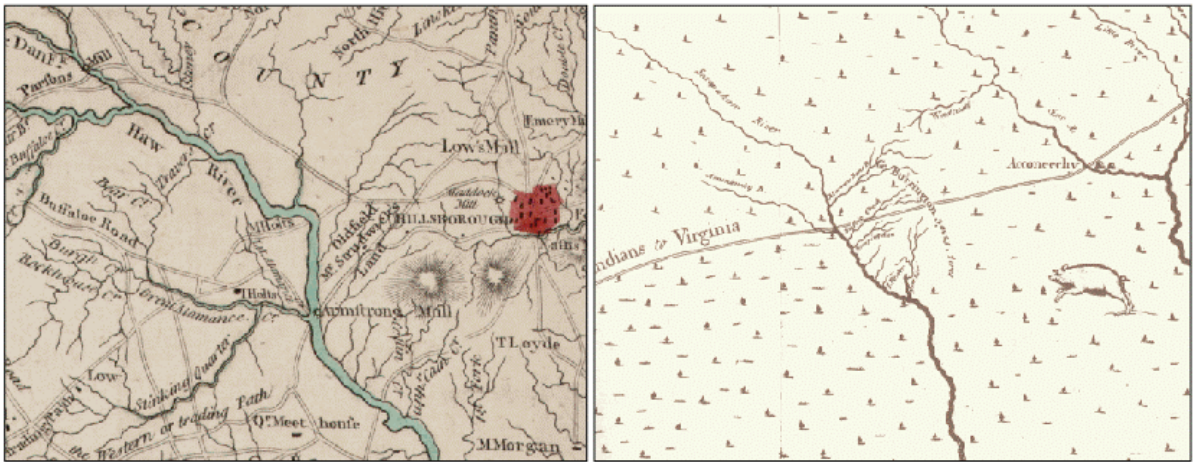


Figure 3.12. The Hawfields area on the Collet (left) and Moseley (right) maps.

Several other royal grants in the backcountry, particularly in the eastern section that coincides with the Phase I area, predated the Granville land office. Southern characterizes these grants as "plum properties, often Native American village sites that included cleared fields and location on well-travelled footpaths, [which] were the first to be claimed, and the claims occurred between 1729 and 1744" (Southern 2005). These seem to have ranged in size from about 640 acres to about 2,000 acres. There is no good systematic way to find all such grants; it is probable that some of the tracts for which there is no Granville documentation, but which can be inferred from the mentions of neighbors, were pre-Granville grants. In terms of migration streams, the early royal grants—especially the larger ones, which went to people well placed in the colonial and/or English power systems—most likely represent relatively isolated incursions into the backcountry from the east, while the majority of the Granville grants represent the high-volume migration making use of the Trading Path. This idea is echoed in Troxler's work on the earliest Alamance County settlers (Troxler and Vincent 1999, 34).

In addition to these early royal grants, Granville himself made a large grant of great importance. This was the grant of almost 100,000 acres to the Moravians, or Unitas Fratrum. The religious group negotiated directly with Granville in England rather than going through his agents in North Carolina. The journey taken by Bishop Spangenberg to find a suitable location was recorded in his diary and forms part of the voluminous records of the Moravians; it has been second only to Lawson in its utility to historians of the Piedmont. Spangenberg's progress and process are very telling. Rights, for example, quotes the bishop's statement that "Hitherto we have been on the Trading Path where we could find at least one house a day where food could be bought; but from here we were to turn into the pathless

forest" (1931, 405). Fries ponders why Spangenberg was able to find his 100,000 acres where he did, when this was "an otherwise settled area" (Fries *et al* 1976, 9); yet it is significant that he was able to do so on the Great Wagon Road but *not* on the Indian Trading Path. Many historians have made statements and reprinted maps to the effect that the primary migration stream was down the Great Wagon Road (see, for example, Goldfield 2000, 50; Mitchell 1998, 17), yet this and other evidence suggests otherwise.

The Moravian tracts were surveyed in late 1752 and early 1753, and the town of Bethabara was begun late in 1753, at the site of an abandoned cabin and field (Federal Writers' Project of the Federal Works Agency 1988, 259). By 1756 it was "a formidable complex" (Fries *et al* 1976, 17) and became an important refuge for backcountry settlers during the Cherokee War. In part resulting from this role, a second Moravian town of Bethania was established in 1759, and occupied by both people from Bethabara who wanted out, and other settlers who wanted in (Fries *et al* 1976, 18). These towns that were later incorporated into Winston-Salem, then, functioned as a growth pole in the backcountry from the beginning, and continued to do so, in contrast to large speculator grants which sometimes (and sometimes did not, as in the Hawfields) inhibited settlement or at least caused the documentary evidence of settlement to end up in different archival locations. In this role these settlements would have exerted an influence on the pattern of landgrants, likely pulling some away from the Indian Trading Path.

Represented within the Granville records are several individual grantees who secured a large number of tracts each. During most of the period the land office operated, individual tracts could not exceed 700 acres (sometimes 640) without express permission from Lord Granville himself, as with the Moravians (Mitchell 1993). This provision did not stop the

local squires from amassing large acreage; they simply acquired several of these 640 or 700 acre tracts. Sometimes these were adjoining, producing in effect a single large estate; other of these men acquired tracts throughout a wide area, getting their hands into many different neighborhoods. (There are a handful of women who were granted land by the Granville land office, but rarely are women associated with more than one modest tract, and in no case did a woman amass really large acreage.) It is probable that many of these large landholders became landlords to people who already lived on the land or who moved onto it later; in other cases the lands were bought as speculation, and sold to individuals buyers in pieces. The almost 60 grants made to Robert Jones, Jr., in the northern part of the overall study area, for example, probably fall into the latter category, as do the extensive holdings of several of the Granville District surveyors, while the holdings of people like Osborn Jeffries, George Davison, John Hinton, Mark Morgan, and Marmaduke Kimbrough may have included lands in both categories. In either case, the grants of these men as mapped obscure the number of people on the ground. To a lesser extent, this is probably true of more modest acquisitions as well.

In addition to the distortion of pattern caused by large land holdings, the way in which the land office, Granville's agents and surveyors, and the colonial power structure more broadly operated also affected both land outcomes and data survival. Kars (2002) and Mitchell (1993) document a wide range of abuses against the people of the backcountry by men in power, many directly in relation to land transactions. The surveyor James Carter, for instance, many times pocketed the fees paid to him for entries or surveys and then never made the entry or performed the survey, sometimes leading to disputes (Fig. 3.13). Once a person made an entry on a piece of land, that entry was supposed to protect it from any later

claims by others, but in practice agents frequently ignored entries by ordinary folk in order to give choice bits of land to their elite cronies. Officials also charged exorbitant fees—and were accountable to no one, because the same individuals were often playing dual roles as Granville agents and county officials. According to Kars, it was just such conditions that led to the Regulator Rebellion in the backcountry.

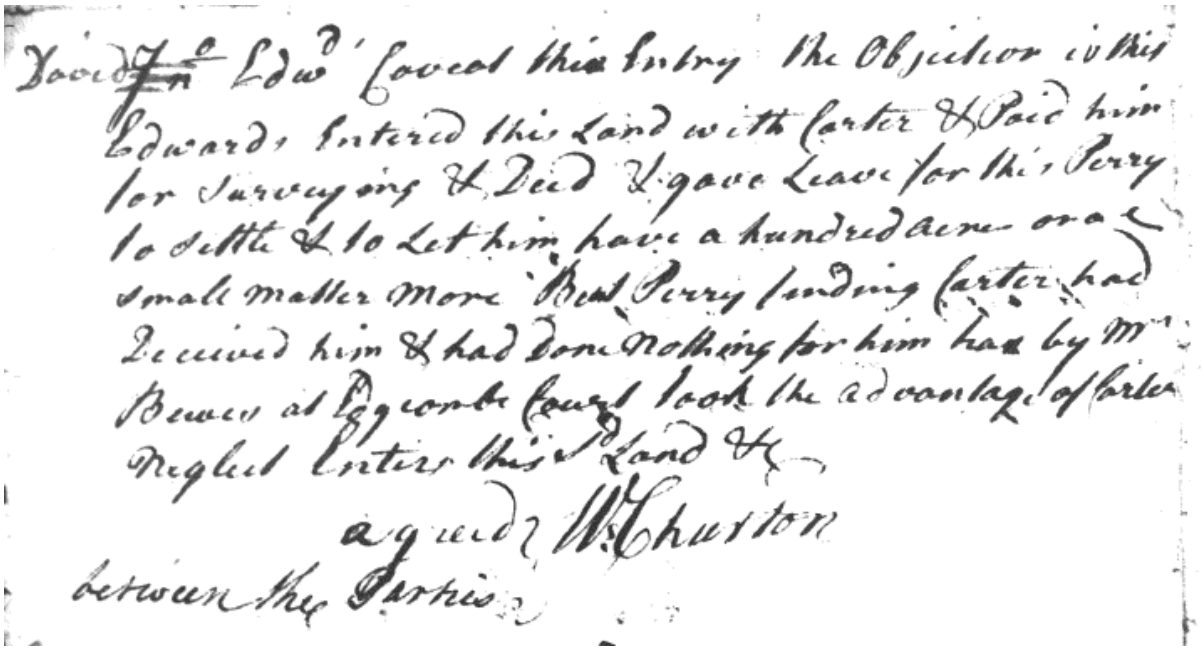


Figure 3.13. An example of a disputed tract resulting from James Carter's underhanded practices, from the back of a warrant made out to William Perry in 1756. "David Edward caveat this entry the objection is this Edwards entered this land with Carter & paid him for surveying & deed & gave leave for this Perry to settle & to let him have a hundred acres on a small matter more but Perry leading Carter had deceived him & had done nothing for him has by Mr Bewes at Edgcombe Court took the advantage of Carter neglect enters this sd land [signed] W Churton agreed between the parties" (Granville Proprietary Land Office 1748-1763k).

Some of the problems were related to the nature of the land office itself. In truth, there was no "land office" in the sense of an actual office in one stable location, even though Lord Granville repeatedly exhorted his agents to set one up (Mitchell, 1993). Because they didn't, however, records frequently had to be moved, and as the saying goes, "two moves equals one fire." Furthermore, the agents often let long periods—many years in some cases—elapse between the making of an entry and the issuance of a warrant or the carrying

out of a survey. Mitchell (1993, 114) describes an incident in 1759 when the people, fed up with this situation, rioted in Edgecombe County and took direct action against one of the agents in order to rectify the situation—kidnapping and imprisoning him until he agreed to dismiss the offending agents and surveyors. A number of documents in the research dataset refer to this event in the margins as "the late disturbances." The action was successful in getting the attention of the agents and producing some reform, yet may have caused the destruction of additional existing records, as they were at that time stored in the house that the mob stormed. In the social disruption preceding the Revolution, and during and after the war, the records were under threat and moved several times, and then "became scattered" (Mitchell 1993, 123).

Debt and subsequent assignment of grants to a third party were also part of the land picture. Kars (2002) documents the economic difficulties of the colony as a whole, particularly the shortage of specie, and the way this especially affected many poorer grantees. Many of the less well off land claimants lost everything—land, improvements, tools, livestock, stored food—because there was no cash to pay a fee, a tax, or a debt. Then, as now, the rich took advantage of this situation and often acquired what the poor lost at a fraction of its value. There are instances in the Granville records of assignment papers reflecting land used as collateral for a debt, and subsequently lost. Many more assignments from one person to another carry no explanation in the records, and there are in fact many reasons for such an action. Some claimants wished to move on to less crowded pastures; a number of Piedmont residents, especially Quakers, left after the Regulator Rebellion. For example, a survey done for Gideon Lincecum (Granville Proprietary Land Office 1748-1763g) was assigned to his brother-in-law James Bowie (Granville Proprietary Land Office

1748-1763b) when Lincecum removed to Georgia along with several other area residents (Lincecum 1994).

The set of records resulting from the sum of the above processes in the Granville District resides at the NC State Archives, though it is now available to the public in microfilm form (Granville Proprietary Land Office 1748-1763a; 1748-1763d) only, in order to preserve the originals. For the area west of present-day Granville County but including Wake County (that is, the Phase I and Phase II areas of the project), there are almost 6,000 records: entries, warrants, surveys, deeds, and a smattering of "other" such as assignments. Some of these can clearly be identified as belonging together; others can be tentatively so; still others stand alone, so that these nearly 6,000 records represent approximately 3,600 tracts of land. There are also obvious gaps where no records at all have survived. The records are organized according to the county they were in at the time, a designation which often bears no particular relation to the county they are in today (Fig. 3.14). Within the county designation, they are organized more or less alphabetically. This arrangement is not helpful to researchers who are interested in location and landscape; instead it is aimed to meet the needs of genealogists and historians, who are more likely to be interested in names than places or features. The lack of geographic orientation to the archival data adds to the problems of missing data and uncertainty, which are extensive, as will be seen in Chapter 4.

Of the records extant in the Phase I and Phase II study areas, the vast majority of the tracts represented were in the 400 to 700 acre range in size. Surveys were typically recorded as a plat accompanied by text which gave the grantee's name, the county, the acreage, the survey measurements along with some description of the corner markers (usually trees), the names of the chain carriers, and the surveyor's signature. Measurements were sometimes in

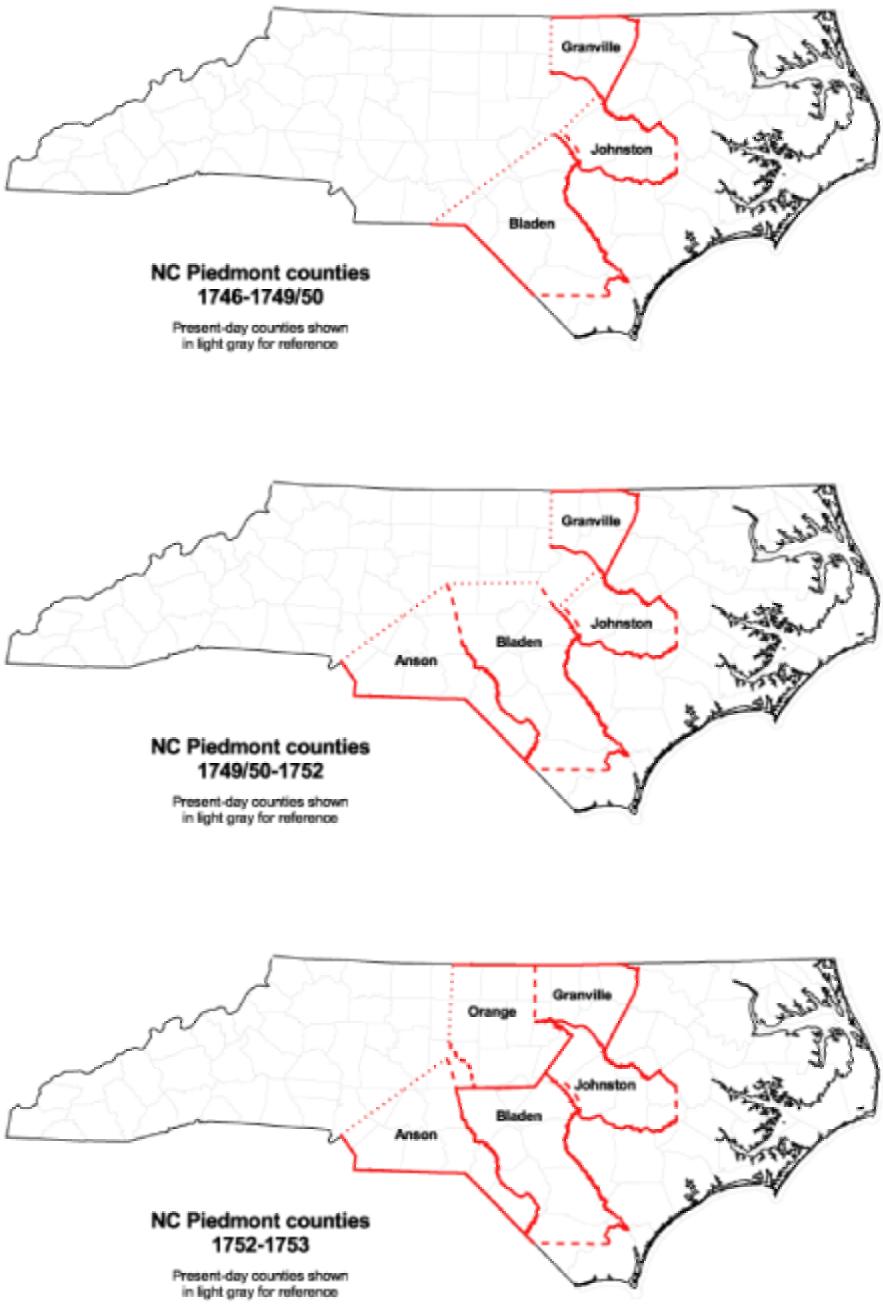


Figure 3.14a. Counties of the Piedmont, 1746-1753. (County boundaries by author based on DenBoer (1998); available for download as GIS files or images at http://www.unc.edu/~grdobbs/histcounties/ or http://www.emporia.edu/~dobbsreb/nchistcounties/.) See Fig. 3.14c for legend.

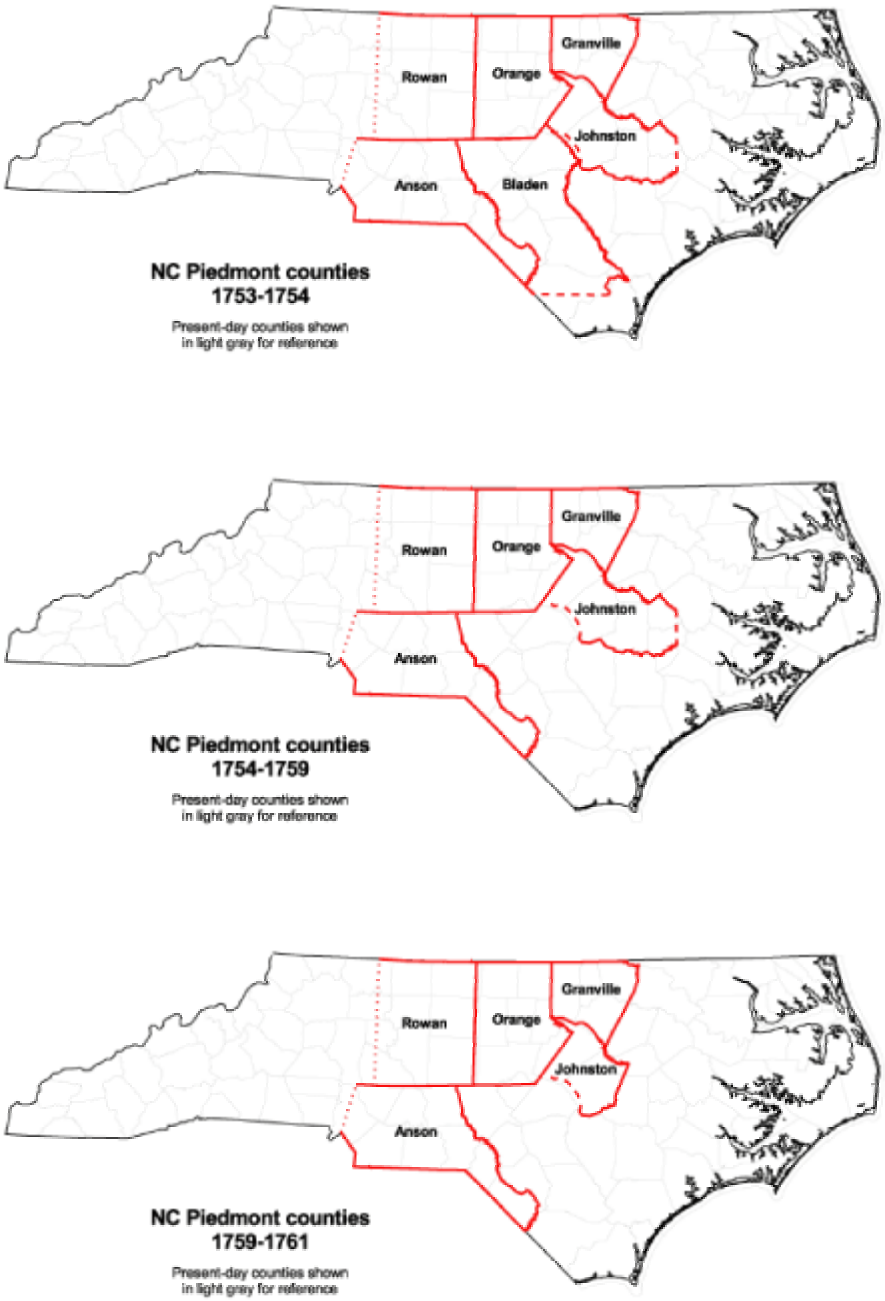


Figure 3.14b. Counties of the Piedmont, 1753-1761. (County boundaries by author based on DenBoer (1998); available for download as GIS files or images at http://www.unc.edu/~grdobbs/histcounties/ or http://www.emporia.edu/~dobbsreb/nchistcounties/.) See Fig. 3.14c for legend.

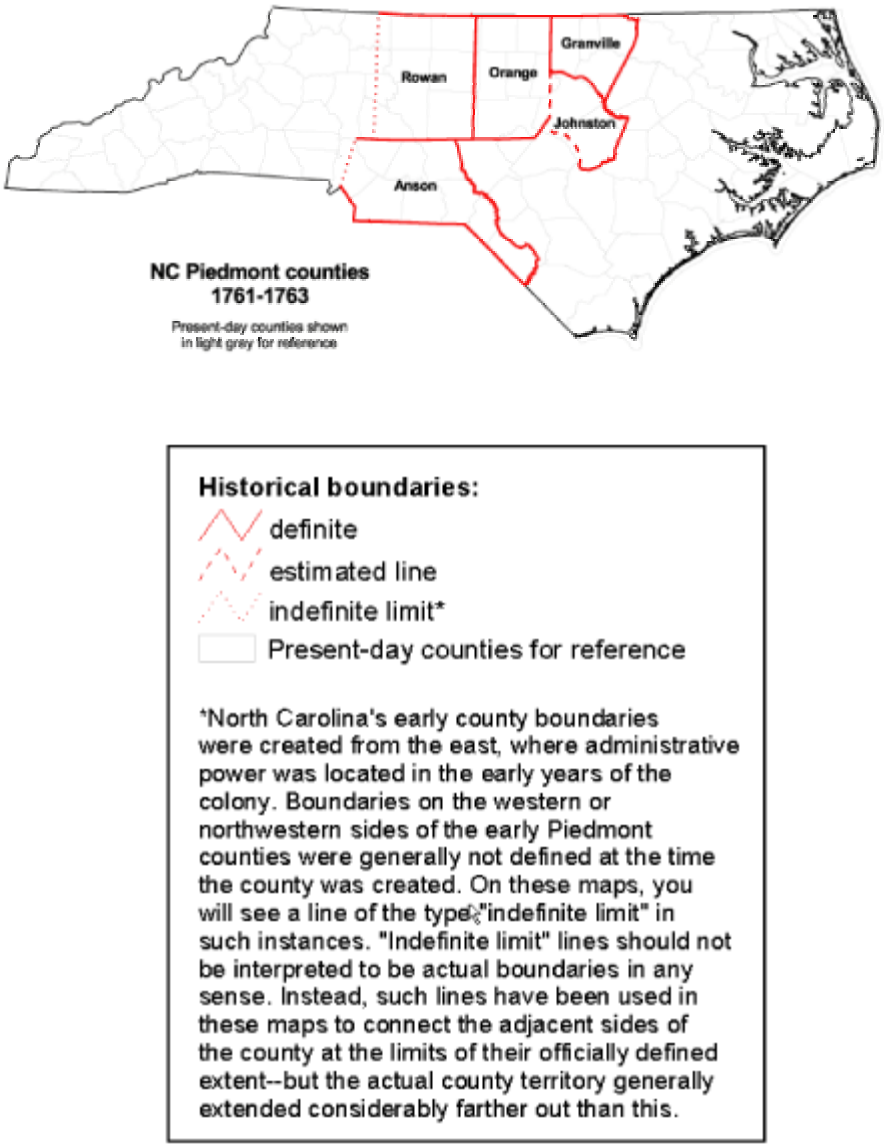


Figure 3.14c. Counties of the Piedmont, 1761-1763. (County boundaries by author based on DenBoer (1998); available for download as GIS files or images at http://www.unc.edu/~grdobbs/histcounties/ or http://www.emporia.edu/~dobbsreb/nchistcounties/.). Legend applies to all parts of Fig. 3.14.

poles (rods), other times in chains (66 feet; or four poles), and angles were in whole degrees. Granville had issued instructions about laying out lines by the cardinal directions whenever possible, and this was done generally but not universally. In addition, numerous tracts used a stream or river as one or more sides of the polygon, and most of the time this was not surveyed; instead the text would say something like "up the several courses of the river".

There was no attempt to produce an orderly landscape by aligning tracts in any particular way to each other (although this may have been done by some of the speculators), even though many (though far from all) were square or rectangular in shape. In short, the Piedmont settlement landscape was an irregular one of metes and bounds, with perhaps more lines aligning with the compass directions than in some other irregular landscapes (see Price 1995, 7-10), but irregular nonetheless.

Deed documents as they have survived usually, but not always, include a copy of the original survey, and then a printed "indenture" form that spelled out contractual requirements regarding quitrents. Blank spaces left in the printed form were filled by hand with the grantee's name, the number of acres, and the annual quitrent expected. In a larger blank area, the metes and bounds from the survey were copied in. Most often this meant omitting any locational specifics which might have been stated at the beginning of the survey itself, and just including the survey pairs and corner marker descriptions. Thus deeds no longer accompanied by surveys have reduced information value, though they do supply evidence that the transaction was completed, if this wasn't already indicated on one of the other document types.

The other two types of documents, entries and warrants, also used printed forms, at least after the first few years of the land office operation. On the entry form, the desired acreage and the grantee's name were filled in, along with a sentence or two describing the desired land. This description might be as general as "on both sides of Mill Creek including his own improvements for complement" (Granville Proprietary Land Office 1748-1763f), or more specific, though still of limited helpfulness to the modern researcher, as in "lying on both sides of Ellebees Creek beginning below the lick about 3/4 miles including his improv't

& down the creek for the comple't" (Granville Proprietary Land Office 1748-1763j). Much more useful, though unfortunately not in the majority, are entries which located the land in specific geographic contexts, such as

> lying on Mount Pleasant Run, a branch of Sandy Creek, running into Deep River, the east side, beginning on the north end of a division line agreed on between him & Luke Smith, running south along said division line then down for complement (Granville Proprietary Land Office 1748-1763l)

When the entry did include such a detailed description, the surveyor might or might not include it in the survey text; for this reason entries add significantly to the overall level of information available.

Warrants generally just repeated the wording written on the entry, and so having both entry and warrant extant does not add measurably to the information available, except perhaps in terms of dates. In some cases, however, wording differed slightly for various reasons, and the differences were sometimes significant. In one instance, the entry specified Poppaw Creek; on the warrant, evidently written by a different clerk who was perhaps newly over from England and not familiar with the native pawpaw trees, the name "Poplar" was substituted for this creek (Granville Proprietary Land Office 1748-1763e; 1748-1763h).

Although theoretically each tract is represented by a set of four documents, in the recordset as currently entered in the database, that occurs in only 116 instances, out of 3573 tracts represented. Of the 3573 tracts, 1875 are represented by only a single document. In some cases there will not be a complete set of documents because the grantee did not continue the process, but these numbers should give the reader a sense of how much is missing here, and what is lost to the researcher.

CHAPTER 4

THE DATA TRANSFORMED

The process of research such as that represented in this dissertation is largely one of transforming data to information and from thence to knowledge. In this instance, the data are archival, while the desired final product—the knowledge—is geographic, making the process a complex one. In Chapter 1, an overview of the process through which this transformation was effected was presented (Fig. 1.7); in this chapter I break the process down into detailed steps and also discuss the uncertainty inherent in both data and process. Lastly, I show the results of the transformation from data to knowledge and discuss the patterns thus revealed.

The data collection process

As was made clear in Chapter 3, the archival survey documents contain certain types of data, including spatial parameters and some locational and feature data, along with temporal data and identification of the grantee and other people involved. At the beginning of the project, I believed the surveys were the only documents I needed to work with, because they did contain these particular types of data. As the holes in the Granville District dataset became more and more evident, however, I realized that I needed to take advantage of every possible piece of data extant, especially as it turned out that entries and warrants often contain broad locational clues that are not included in the survey itself. This meant a multiplication of the number of documents to be dealt with, and a corresponding increase in

complexity because the documents were now of different types, and to some extent contained different types of data.

The key difficulty then was one of how to best organize and store the data from thousands of documents in an accessible, searchable, sortable electronic format. When working at first with the surveys alone, I used a third-party GIS extension called Data Editing Extension, designed to create shapes in a GIS from historical survey pairs (the length and angle of a survey side) (Norcross Wildlife Foundation 2001). This software allows up to four lines of notes to be stored with the survey pairs, in an ASCII text file, and I used these four lines to store information about the grantee, the county, the date, and any geographic features mentioned (Fig. 4.1).

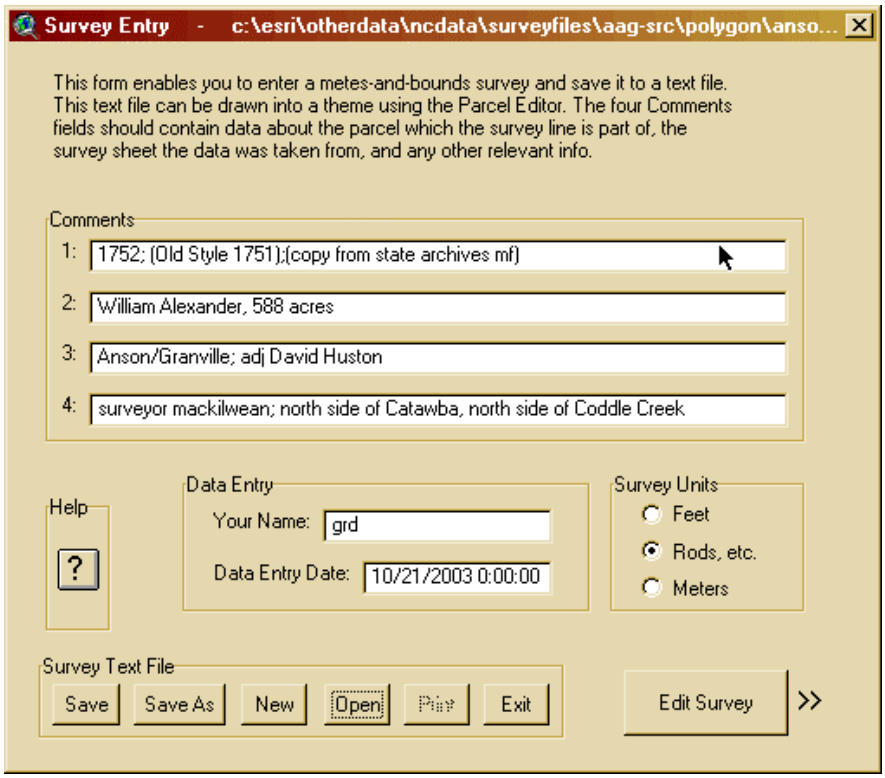


Figure 4.1. The DE interface, with its four lines for text notes.

Once I realized that all this information, including the survey pairs, was stored in a .txt file, however, it seemed likely there was a faster way to create those files than in the DE

package. I thus created a simple database using Microsoft Access (Fig. 4.2), and set it up to export the text files to be read by the DE extension in order to produce the GIS shapes. Not being a database expert, my design was neither efficient nor flexible, and had no provision for handling the entries, warrants, and deeds once the scope of the data collection broadened. At this point I was extremely fortunate that an information scientist, Mary Ruvane,[6] identified the problems with my database design and took on the task of building an appropriate tool for me to use. This tool expanded in size and complexity throughout the years during which I was processing the archival data, and remains a work in progress, but is an important contribution to the realm of historical geographic land record research (Ruvane 2005). From the beginning it enabled the capture of the data more completely and more flexibly than with my original design. In fact, virtually every bit of data contained in each document has been extracted and stored in the database as either a transcription or as data parsed into defined fields.

Regardless of the type of document, I entered data from the archival dataset using a custom form in the database (Fig. 4.3). As the reader can see, there are fields for dates, source, administrative unit, and other parameters relating the document itself; a space to transcribe the body text of the document (and similar spaces for notes and for text written on the reverse of the document, though these are not visible in this view); spaces for an infinite number of survey pairs; spaces for an infinite number of geographic features and of people, along with relationships of those features and people to the tract. This approach sets up the document as the primary object of interest, which appeared to be the only reasonable way to structure the data collection, because one could not be certain of which documents might

[6] Ruvane is currently a doctoral student in information science at University of North Carolina at Chapel Hill, with a special interest in developing ways of making historical geographic data available to the public. The database design used in my research remains her intellectual property.

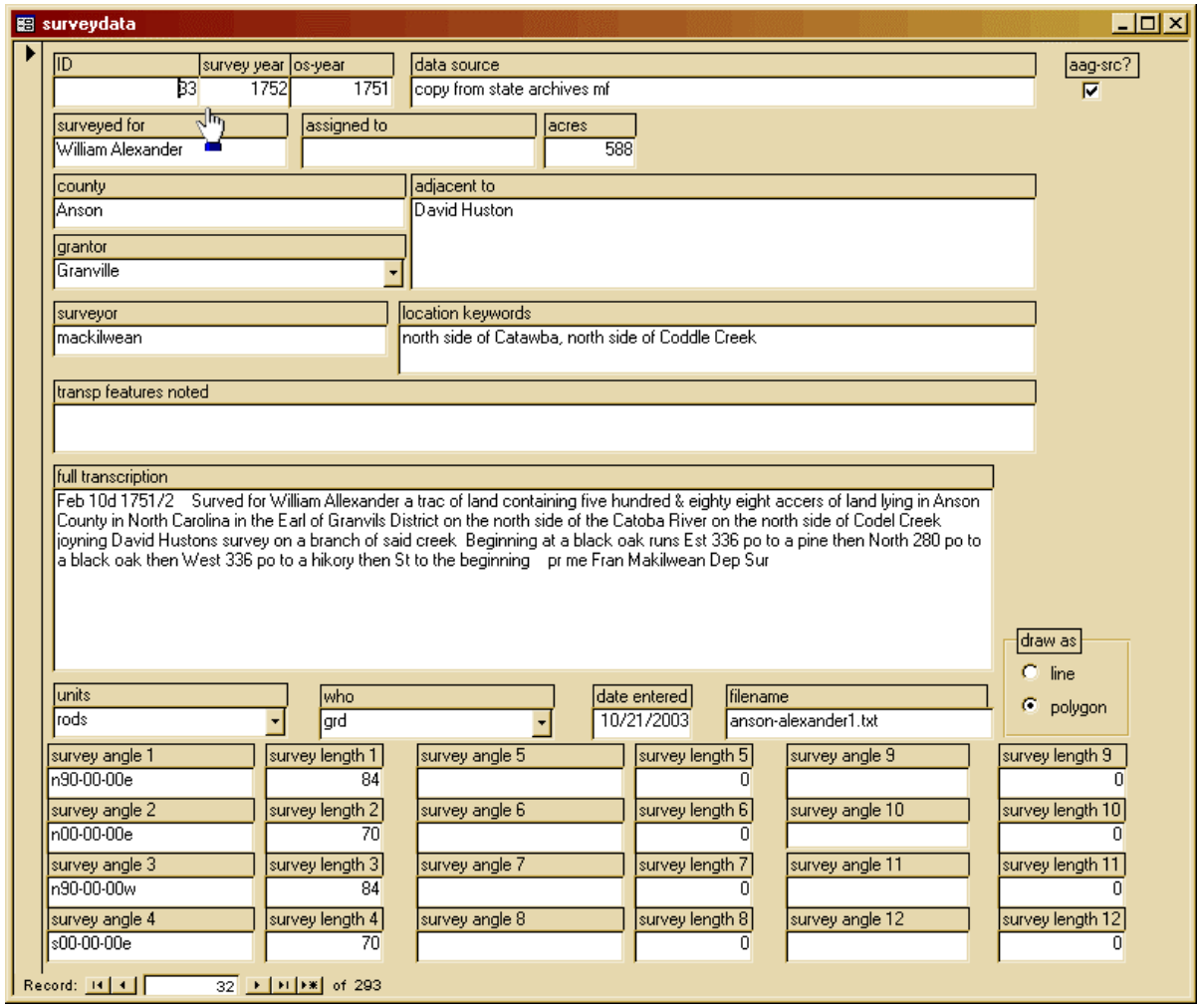


Figure 4.2. My original database design for capturing the archival data.

represent the same parcel. In the mapping phase of the work, however, this structure presented some problems, which will be discussed later in this chapter.

The reader might suppose that including both transcription and parsed data fields would be redundant, but having the data stored in both forms has proved invaluable. Data stored in fields in the database can be manipulated in various ways that body text cannot; while having that text available without having to resort to the microfilm or an image derived therefrom is helpful for rechecking context while working with the data. Due to the number of documents and thus length of time involved, the transcription I did was not strictly textual.

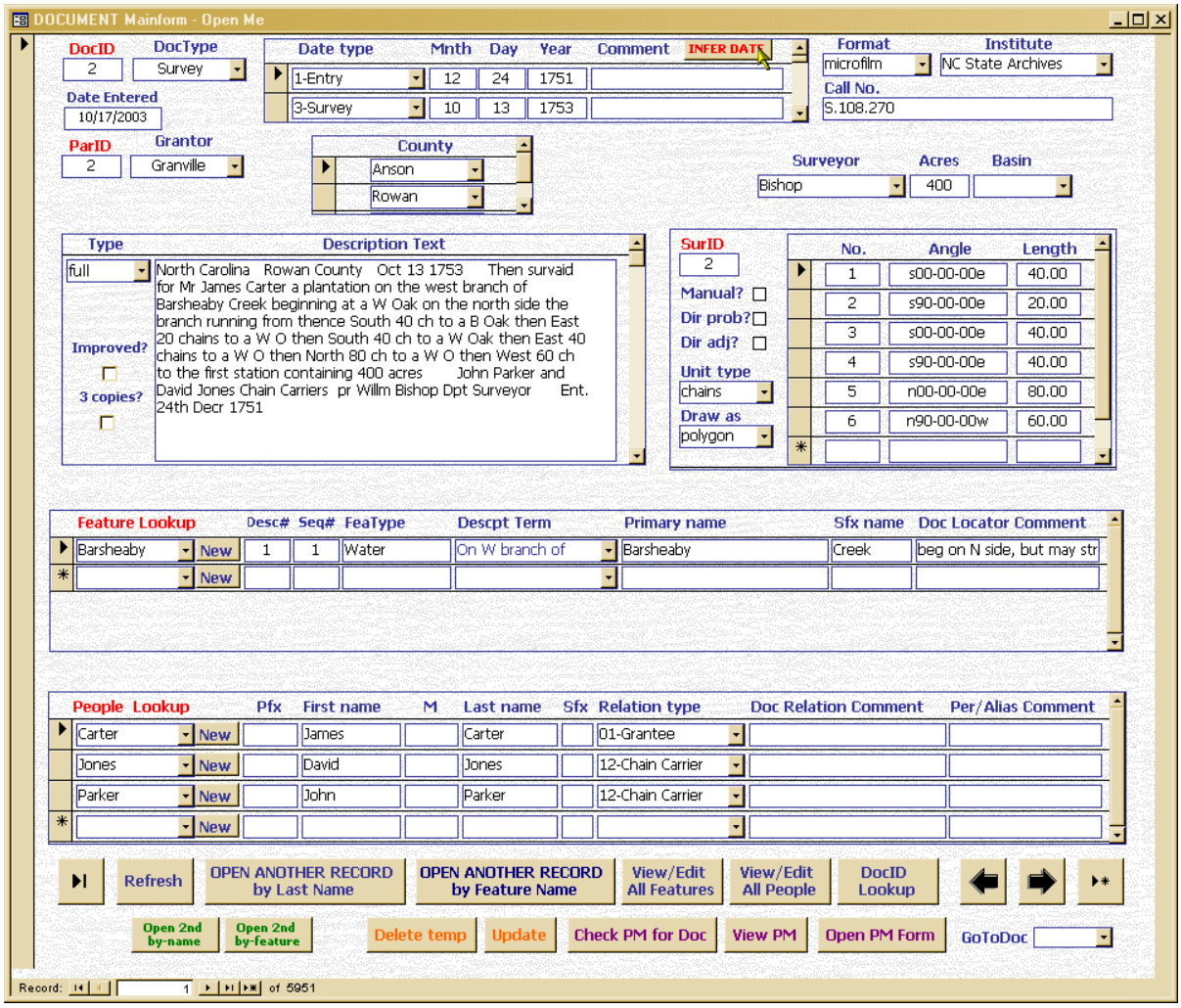


Figure 4.3. The main data entry form in the Ruvane database.

That is, I did not insert superscript text, nor always adhere to the exact spellings or capitalizations in the text as written. For the y^e commonly interpreted today as "ye," I used a simple "the" because the symbol now popularly interpreted as the letter *y* was in fact a shorthand symbol for the *th* sound, and thus the word represented by y^e was the word "the" in all but appearance. For the most part, words such as "hickory" which appeared with numerous various spellings were standardized to their modern spelling in order to speed the typing. The exception to this was feature names and people names, which I rendered as faithfully as possible despite the fact that this cost many hours of time in entering new

variants (often several in the same document) in the parsed fields and also greatly complicated data manipulation tasks later, again adding many hours of time to the work (Fig. 4. 4). (River names were the only feature type where I did not adhere to this rubric, using instead the modern standard spelling throughout.) Had I been doing this project with grant funding such that I could have paid for the services of a professional database designer, an alias table built into the database could have avoided the many lost hours due to this problem, and will be a high priority in future phases of the overall project.

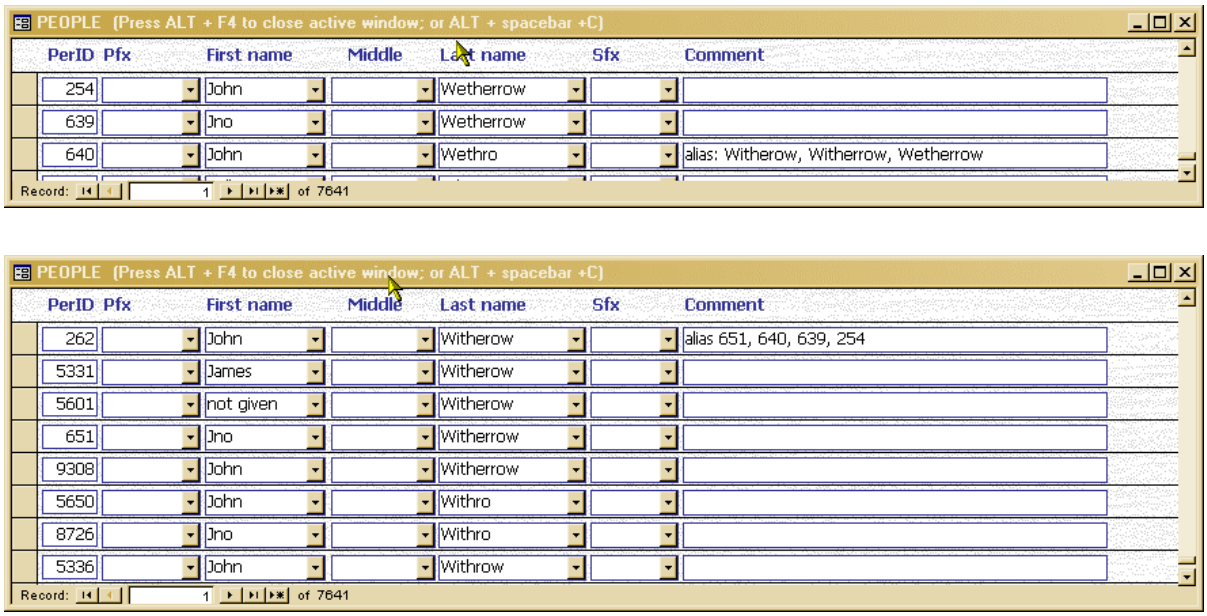


Figure 4.4. An example of a name with multiple variant spellings, from a table in the Ruvane database. Ten of the eleven names shown here represent a single person.

One feature of Ruvane's design that proved especially long-sighted was the provision for entering several kinds of dates for a single document. Though some documents bear only the date for action represented by the document itself, a great many also bear dates for related actions. Because many individuals had more than one tract, or at least put in entries for more than one, these cross-referenced dates are needed for sorting out which documents go together and thus represent the same tract. Attaching related documents to each other within

the database was both a major part of the data collection process in itself and a bridge between data collection and information creation, and as such will be discussed further in the next section.

The process of collecting the extant Granville District data from the Phase I and Phase II study areas spanned some three years, despite purchasing my own copies of the microfilm reels and my own reader so that I could work at all hours; employing a programmable keypad to automate entry of common phrases; and various other techniques designed to make the process quicker and more efficient. At the end of this time the documents from 27 full or partial reels of microfilm had been transformed into 5,944 records in an electronic database, representing perhaps a fifth of the state of North Carolina in area. For the historical counties of Anson, Bladen, Orange, and Rowan (see Fig. 3.16), this included every document on the reels of Granville records for those counties. For historical Granville County, I included any document which could have turned out to be in Orange County once the latter was created in 1752, which means that I unavoidably entered some that were not in fact in Orange County later. For historical Johnston County, part of which later became Wake County, I omitted any which I could immediately identify as being too far east or south to be in my area of interest, but this again meant that I unavoidably entered some that were not in the area that became Wake County.

During this collection process, even before mapping any of the tracts, neighborhoods emerged from the matrix of undifferentiated data in the form of names which tied adjoining tracts together. Glimmers of social patterns also became apparent during this process. For example, all the various motivations human beings have today in their relations with each other were in evidence in these land records—from greed, to neighborly helpfulness and

generosity, to provision for orphans and for one's own offspring. The process of data collection itself thus yielded a transformation from data to information, to some degree; were I an historian, the information that thus coalesced would have been of great value to me. As a geographer, however, I needed the data assembled in another form before they would be of use. I turn now to the process by which the data were transformed into geographic information.

Archival data to geographic information

In order for the archival data and historical information thus far amassed to become geographic information, a spatial aspect had to be added. This spatial aspect included two different attributes: shape, and location. In addition, for change over time to be mapped, temporal data had to be attachable to the spatial elements. But before spatiality could be added, the land parcel, and not the document, had to become the object of interest.

The database design allowed for this shift up to a point, by way of a process Ruvane terms "parcel matching." In this process, I matched documents according to clues of name (grantee and/or assignee), location/features, neighbors, dates, and sometimes surveyor; size was often unhelpful as the number of acres entered and warranted was often quite different from the number surveyed and deeded. The IDs of documents deemed to be related were then entered into another form (Fig. 4.5), where the database automatically assigned the group a parcel match ID number. This matched set then became an object in itself, not replacing the document-as-object but existing alongside it. This uneasy co-existence of the two object types caused problems several problems; it remains one of the fundamental areas that needs to be addressed in future work.

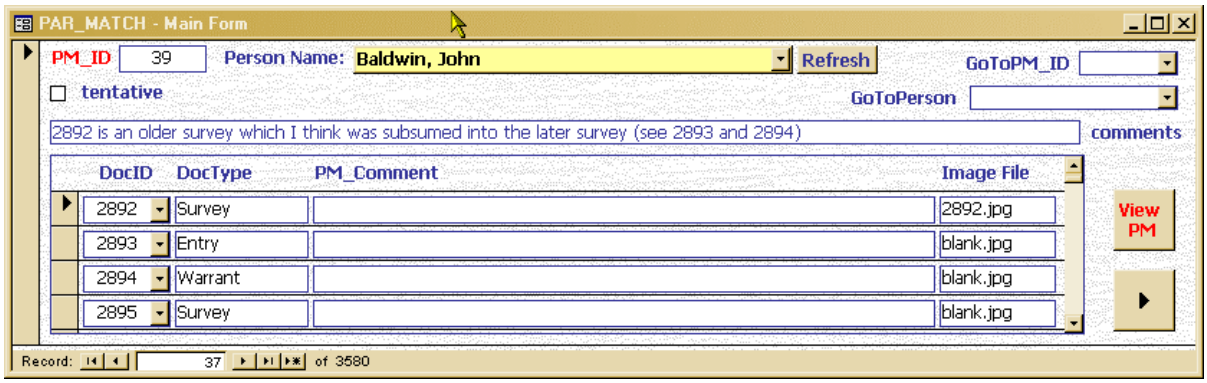


Figure 4.5. The parcel matching form from the Ruvane database.

One problem associated with this issue is the identification of shapes produced from the captured survey pairs. The attribute of shape was created by exporting the survey data to a text file, opening said file in the DE extension, and using DE to draw the shape into an existing GIS shapefile. This exporting was done from the document-as-object, rather than the parcel-as-object. Obviously only those documents which contained survey measurements—surveys and deeds—could produce shapes. Entries and warrants could not be assigned the attribute of shape, and as structured in the database the parcel-as-object does not contain survey measurements, but only references the document that does contain them. The export process, then, assigned a document ID to the shape, rather than a parcel match ID. I will return to this idea later.

The actual exporting and drawing of shapes is more complex than the above paragraphs make it appear. Although a special table was constructed in the database to arrange the various fields into the format required by the DE extension, Microsoft Access will not export records individually, so the entire group had to be exported as a single text file, edited to remove unwanted characters that were created during the export, and then converted to individual files for each tract. Furthermore, those surveys that should be drawn as polygon features had to be separated from those that should be drawn as line features

because of adjoining to rivers and creeks, because lines and polygons cannot exist in the same shapefile.

The survey shape is only one of the two required spatial attributes, however. The much more involved process is that of creating the location attribute. This cannot be automated at all but requires the full interactive engagement of the researcher, the data as stored in the database, and the shape as created by the export process, along with additional GIS layers (hydrography, terrain, DRGs[7], historical county boundaries, and so on) and additional modern and historical paper maps and other bits of historical information. It is at this stage that further problems with the unresolved document-as-object vs parcel-as-object structure became apparent. A document does not necessarily have any related documents in the dataset; that is it may be an "orphan" in the parcel matching process. Unfortunately some methods of retrieving data from the database work well with parcel matches but not documents, and some the other way around. This created an awkward situation in which some queries and searches had to be done twice, with some redundant results and inconsistent forms of output. To get around this, I put all orphan documents into their own parcel matches, so that every document now has a parcel match ID even if it is not matched with any other documents. This helped, but in turn there was now potential confusion about whether the document ID or the parcel match ID was being referenced. Reports from the database, designed to be printed out and containing information from all documents in a parcel match, are identified by parcel match ID; the shapes in the GIS are identified by document ID. To get around this, Ruvane created a special table in the database which combined the two ID types along with the grantee or assignee name. This table was then

[7] DRG stands for *digital raster graphic* and refers to USGS topo maps which have been scanned, georeferenced so that they have a location in space within the GIS, and reprojected.

joined to the survey shapefiles and used to label the shapes in the GIS (Fig. 4.6)—thus highlighting one of the very real advantages of using an external database with a GIS. This same technique was used to attach temporal data to the shapes within the GIS, although that is another area that needs further attention for future work.

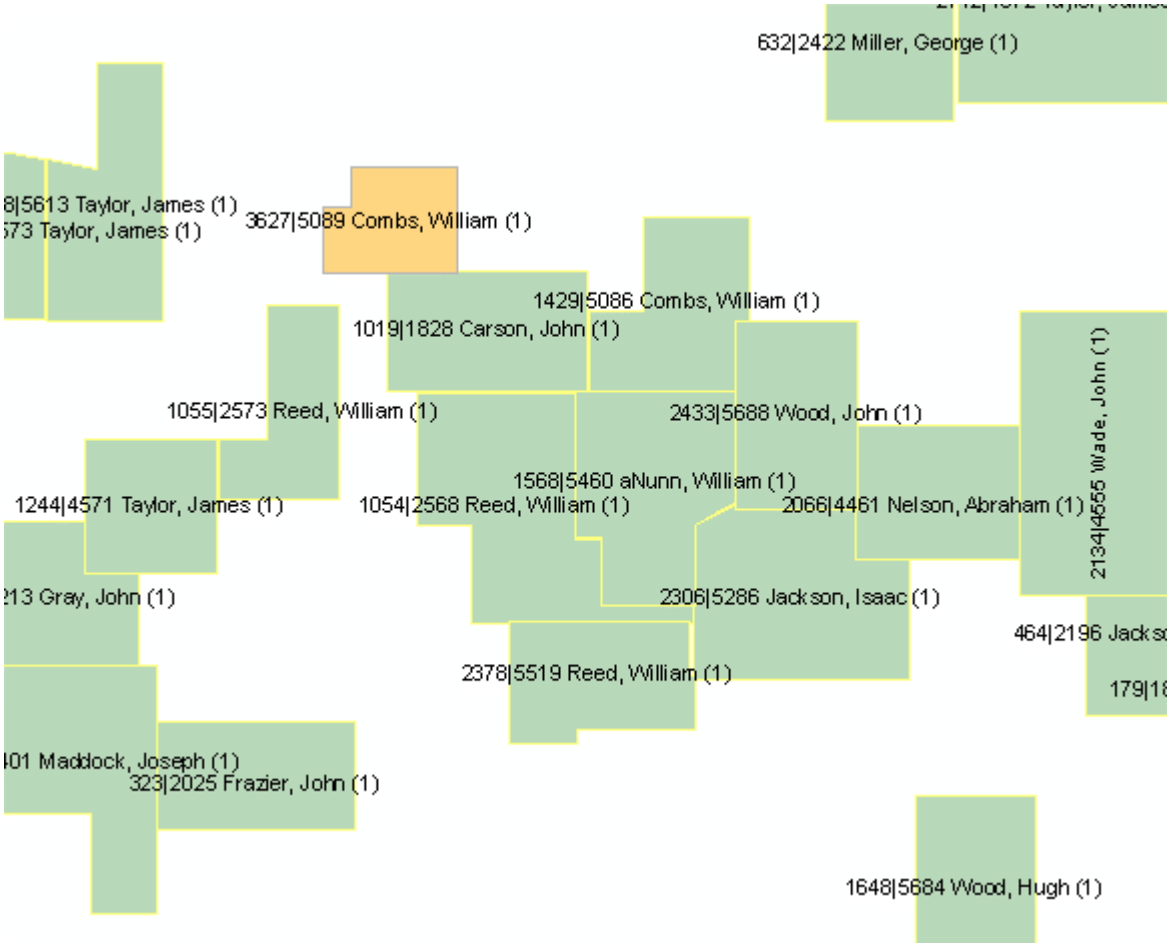


Figure 4.6. Tracts labeled with both document ID and parcel match ID, as well as name, in the GIS.

The reports were indispensable in the mapping process, or the creation of the location attribute for the tracts. Output on the reports includes the body text transcription, notes and comments, and selected parsed fields arranged in a logical order that is more easily comprehended in a glance than when the same information is left embedded in the body text. The report also includes, for surveys and deeds, a small digital image extracted from the

microfilm, showing in many cases relationships of the tract to particular features in ways that cannot be easily expressed in text notes (Fig. 4.7). Although all of the contents of a report can be accessed onscreen, I found it most effective to print them out, so that I could scribble thoughts and sketch relationships on them, put them in piles according to features or people, look at several of them at a time, and so on. I printed them out not all at once (which would take days in itself), but as my queries produced lists of parcels in particular watersheds. Once a watershed had been mapped, I filed the printouts by parcel match ID and marked the associated documents off on a master list.

Discussion thus far has been focused on the mapping of shapes produced through the export of survey measurements; that is, those tracts for which a survey and/or deed exist. For a number of tracts, however, the only documents that exist are entries and/or warrants, which contain no data from which to build a shape. While one has no way to know, usually, whether this status in the extant dataset is because a claim went no further than the warrant stage or because the later documents were lost, these tracts are of importance in this research because they represent the desire of settlers to own land in those particular locations, whether or not the land was ever deeded to them. Given the range of forces operating in North Carolina backcountry society to encourage mobility and/or discourage completion of the land grant process on the part of particular individuals, not to mention those affecting survival of records, the lack of evidence of grant completion should not be taken to imply that a piece of land was undesirable. Therefore I have mapped tracts in this category with a point to indicate the location attribute in the absence of the shape attribute.

Primary Name: Barbe, Joseph **PM_ID:** 40

Comment: *Barbe/Barby/Barbee. Tentative match with warrant 1682; warrant could also go with 2244 (survey)(PM1371), assigned to Nathaniel Kimborough*

DocID	Doc Type	Dates	County	People Involved	Features	Parcel Description Text	
164	Survey | churton | 393 | | Granville	3-Survey |9/20/1759|	Orange	Barbe, Joseph |01-Grantee| Barby on plat Joyel, Ratlif |12-Chain Carrier| Roberts, William |12-Chain Carrier|	Straddles Crabtree, the Sycomore Fork of the Creek {Water}	Joseph Barbe 393 acres N Carolina Orange County This plan represents a tract of land surveyd for Joseph Barbe lying on both sides Sycomore Fork of Crabbtree beginning at a forked white oak then running North cross the fork and bents of a branch 65 chains to a hickry then West 50 chas to a red oak then South cross the fork 19 1/2 chas to a wallnut tree then West 15 chas to a pine then South 45 1/2 chas to a pine then East 65 chas to the first station containing three hundred and ninety three acres of land surveyd the 20th day of September 1759 Sworn cha carrs Wm Roberts Ratlif Joyel W Churton	
1682	Warrant | Churton | 640 | | Granville	1-Entry |11/11/1758| 2-Warrant |2/6/1759|	Orange	Barbee, Joseph |01-Grantee|	On Sicomore Fork {Water} of Crabtree Creek {Water}	6 Feby 1759 Jos Barbee Orange County 1759 Warr`t lying on Sicomore Fork of Crabtree where the creek is about two yards over	
4922	Deed/Grant | Churton | 393 | | Granville	3-Survey |9/20/1759| 5-Deed/Grant |8/2/1760|	Orange	Barbe, Joseph |01-Grantee| Churton, William |19-Attestor| Patterson, John |19-Attestor|	Straddles Sycamore Fork {Water} of Crabbtree unclear {Water}	Aug`t 2nd 1760 Joseph Barbe 393 Orange	

Figure 4.7. A sample report from the database.

Another set of tracts is represented by no documents at all, or rather these tracts are represented only indirectly in the documents. These are tracts whose presence can be inferred from information associated with neighboring tracts, but for which no concrete evidence exists in the Granville District records. There are a number of possible explanations for this situation. First, the tracts could have been granted by the Crown before the establishment of the Granville District, such that they existed on the landscape before any of Granville's grantees put in their claims. Second, there might once have been Granville records for the tracts, which were later lost. Third, a grant for which records do exist may have later been sold by the original grantee, and the buyer's name shows up in the later records for nearby tracts as a neighbor. In the latter case, including the tract as a point creates a duplication which introduces error into the mapped data; these and other sources of uncertainty are discussed in the next section. However, since I do not currently know which "inferred" tracts might be in which category, with the exception of a small number of known early royal grants, I have included all inferred tracts as point locations, similar to the tracts which have entries and warrants but no shape information.

In the Phase I study area, I mapped all tracts for which location could be even roughly determined; there remained a small number in both river basins which I was not able to place even roughly. Figure 4.8 shows the results of this work, the final step in transforming archival data to geographic information. For polygon shapes, I color-coded them according to my confidence level in their placement. This was intended mainly as a working system so that I could keep track of what had and hadn't been placed, or what might need to be moved, but it is instructive in itself. For instance, I am much more confident about the area around Hillsborough and especially along the New Trading Path than I am about many other parts of

the map. This is partly because most of the tracts in that area were surveyed by Churton, who typically left much higher quality surveys—not only beautifully drawn but including much auxillary information—than his colleagues, and partly because some of the features in this area are very distinctive, making placement easier (Fig. 4.9). In contrast, an area of real concern is the southeast side of McCulloh Tract #12. The McCulloh tracts, as discussed in Chapter 3, were 100,000 acres or 12 miles on a side. This tract and #11 were at distinctive angles on the landscape, such that neighboring tracts are easy to identify. In the case of #12, there is firm placement of the tract boundary on its northwest side, but the boundary tracts on the opposite side are 15 miles away, not twelve. This raises questions about either the accuracy of Rowan's surveying work on #12, or the public's knowledge of where the lines were. It is difficult to imagine an error of three miles in either case.

To this point I have avoided discussing uncertainty, yet the sources of uncertainty in this project are legion, and need to be covered thoroughly before I can turn to the final transformation, that of information to knowledge.

Uncertainty in data and process

Uncertainty exists in the archival data, and is introduced as well at every stage of the research process. In order for the final results to have any validity in the face of all this uncertainty, it is essential to discuss candidly the sources of uncertainty and what adjustments, if any, should be made because of it.

The archival documents contain three main categories of inherent uncertainty: that which derives from their state of preservation, that which derives from their historic nature, and that which derives from basic human error and imprecision. The preservation issue

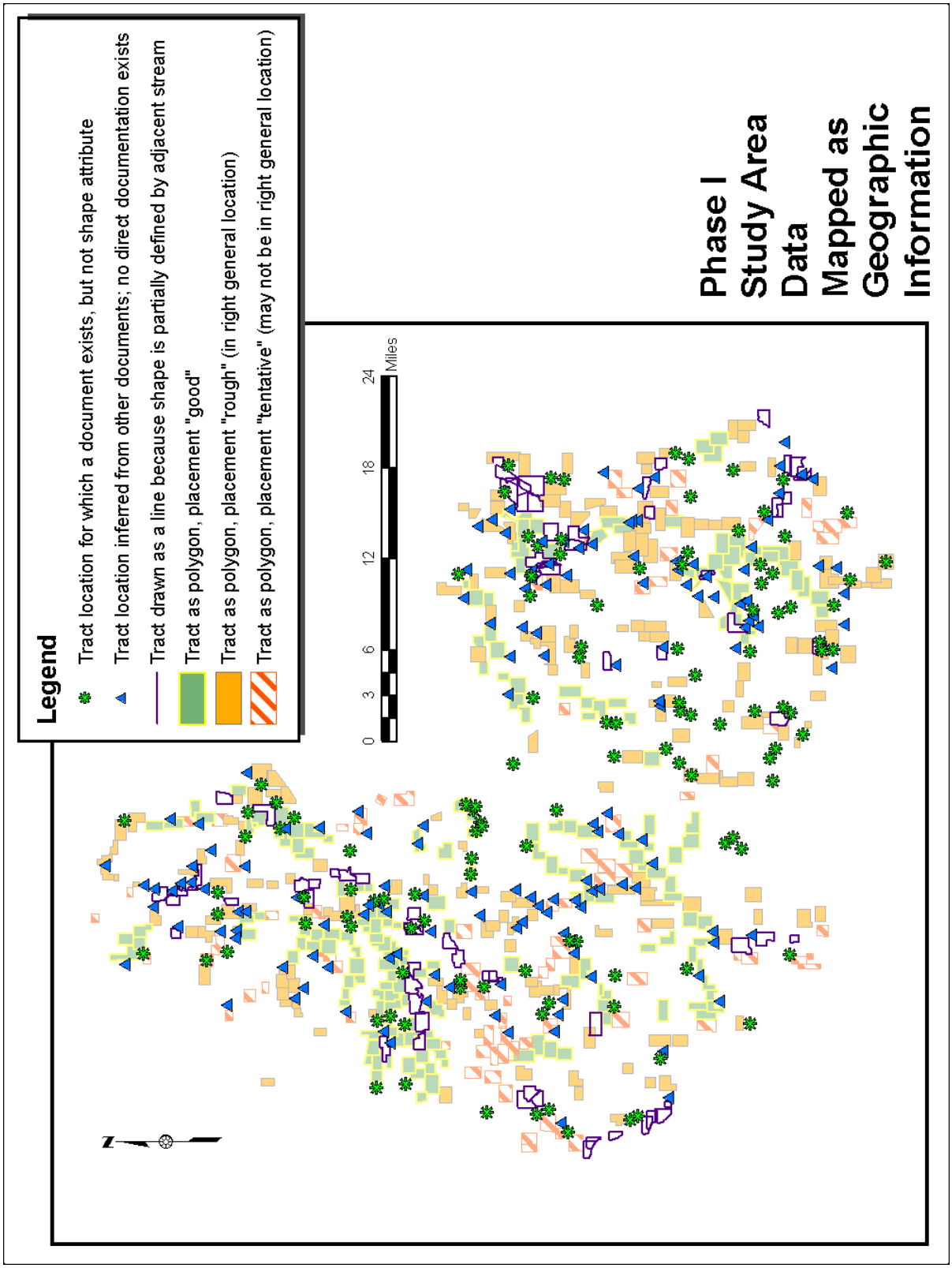


Figure 4.8. The Phase I study area tracts mapped as geographic information.

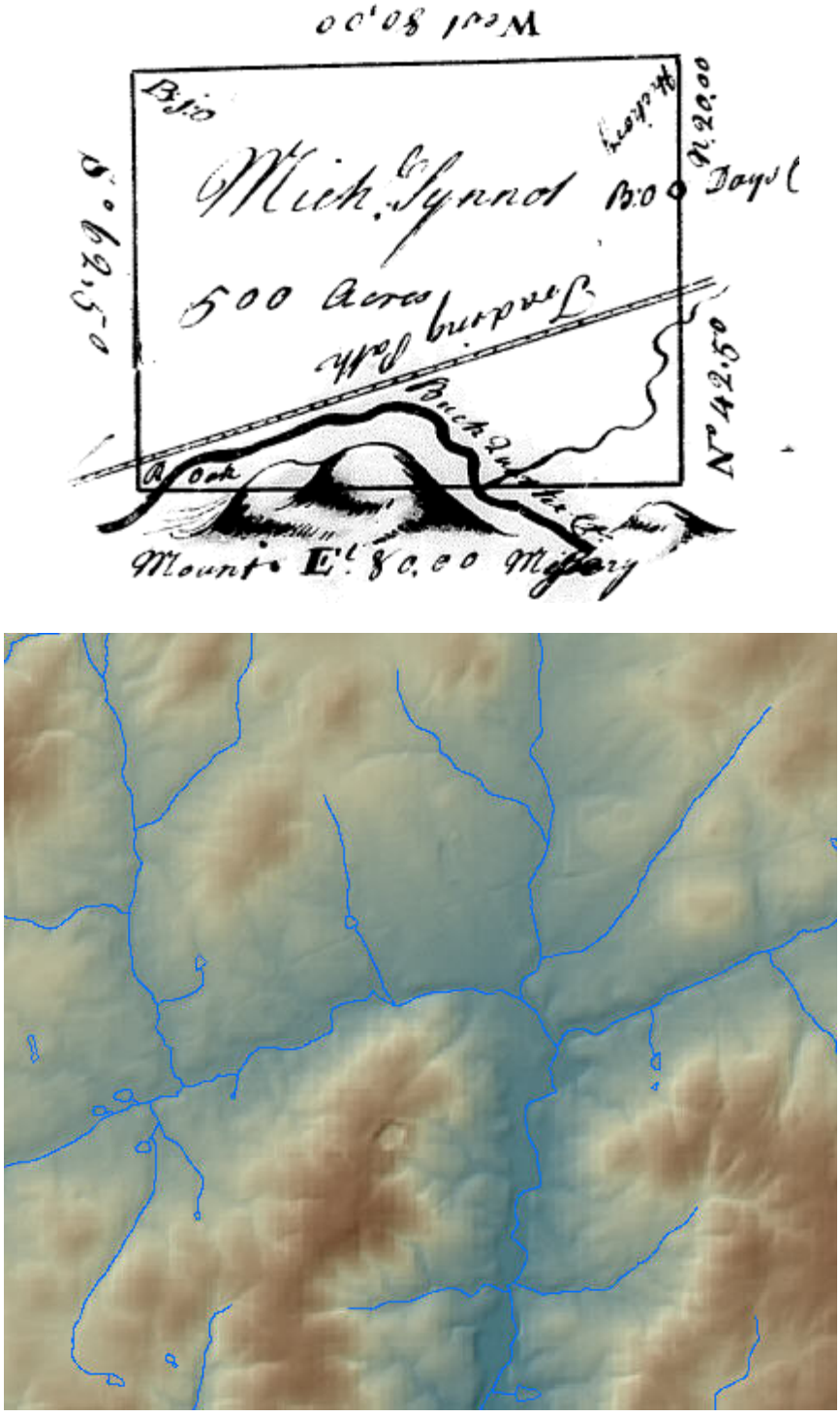


Figure 4.9. A distinctive feature which helped make mapping in the Hillsborough area more certain. Churton's plat, top, and modern geodata, bottom.

refers to both missing documents and those which are present but partially or wholly unreadable, or even just questionable. Missing documents introduce uncertainty at the level

of the dataset; while neighbor references can help reconstruct such holes in the dataset, uncertainty about the completeness of the set persists. Documents that are completely illegible (thankfully rare) are like missing documents in this regard. Those which are partially legible introduce holes at the datum level, but if these holes are numerous for a given document it becomes very difficult to place and use in the larger matrix.

The land records, as products of the mid 18th century, embody handwriting styles, abbreviations, turns of phrase, and spellings that are unfamiliar to the modern reader. To a considerable extent one can become familiar enough with these to render them unproblematic, but I was still required to make judgment calls at every turn while entering the data. For example, knowing that both a Grants Creek and a Gents Creek (with various spellings) existed, how should I interpret a creek name that appeared to be Geants? As it turned out, I was eventually able to conclude that what I had read as an *e* was really an *r*, because the neighbor data indicated this tract belonged on Grants Creek, but other instances remain unresolved. Similarly, how to interpret the term *against* in describing a relationship to another tract? At first encounter I interpreted this as "adjoining," but the context in a later instance led me to think it probably meant "opposite" (as in across a river); it is also possible I was right both times, if the word had ambiguous or multiple meanings at the time. In a great many cases, I was never able to work out any interpretation of a word, name, or date that seemed likely, thanks to handwriting or preservation or both.

Dates from the documents involve problems over and above the handwriting and preservation issues. First, it is very common for people to make mistakes when writing dates, either through absentminded error or through confusion about what day it is. Second, the transition from the Julian calendar to the Gregorian calendar fell within my study period.

Under the Julian calendar, the new year began on March 25 rather than January 1, and the calendar's inaccuracy had created a lag of eleven days by the 18th century. The required change was complex, then, requiring both a change in the year starting date and the dropping of the eleven days (Sperry 2000; Handlin 1967). This complex transition was carried out in stages, as illustrated in Table 4.1. It is very likely that record clerks and surveyors sometimes got confused about the year during this transition; in fact many documents show evidence of overwriting on the year, indicating some confusion. Also, surveyors sometimes specified *O.S.* (Old Style) or *N.S.* (New Style), in which case one can be fairly confident of the surveyor's level of knowledge and awareness; but more often they did not, leaving the individual surveyor's level of knowledge and awareness open to question. Historians prefer to leave dates as they find them, for understandable reasons (Handlin 1967); in my case, conversion was necessary so as not to have the date change skew temporal mapping, and was performed within the database. However, given the uncertainty in the original dates, the converted dates for this period are also uncertain.

This date	**Was followed by this date**	
Dec 31, 1750	Jan 1, 1750	Normal Julian behavior
Mar 24, 1750	Mar 25, 1751	Normal Julian behavior
Dec 31, 1751	Jan 1, 1752	Change of year starting date in 1752
Mar 24, 1752	Mar 25, 1752	Normal Gregorian behavior
Sept 2,1752	Sept 14, 1752	The dropping of eleven days in 1752
Dec 31, 1752	Jan 1, 1753	Normal Gregorian behavior

Table 4.1. The 1752 date change. Adapted from Sperry 2000.

Third, dates were sometimes left off the documents either by accident or on purpose, or they were obscured or lost because of preservation issues. Thus some tracts, though they have the required spatial attribute of location at least, do not appear in time-series maps because they lack the temporal attribute. And lastly, some dates were deliberately changed. This occurred because of the lag time between Granville's death on Jan 2, 1763, and the time

the news of it reached North Carolina (Mitchell 1993, 116). Quite a few deeds had been finalized on April 1, 1763, and on many of these the date was subsequently altered to Jan 1, 1763 just to be on the safe side. Sometimes this was done in one location on a deed document but not in another, or on one copy but not on the other. The researcher is left with the question of which date to use. As it turned out, I did temporal mapping in Phase I by year only, so the issue is moot at this point, but I anticipate that when the larger study area is fully mapped, temporal mapping by full date will be included, in which case this issue will need to be revisited.

Surveys also introduce uncertainty over and above handwriting and preservation issues. The basic survey method, then as now, was to proceed from a starting point measuring angle and distance, and identifying corners, until arriving back at the starting point. There appears to have been great variation in how accurately a surveyor did these things, *and* how clearly he communicated them on the survey. On some surveys, the distances do not add up correctly, or one distance is given on the plat and a different one given in the body text. At times the angles given in the survey could not possibly be correct, or could not be correct and still produce the shape as drawn on the plat. These problems occurred more frequently with some surveyors than with others, especially Daniel Weldon, James Carter, and John Frohock. Weldon also tended to identify corners with a letter, but the letters are not always distinguishable from one another, aggravating the problem of sorting out the direction of the survey. Carter's surveys are notoriously problematic, in that the handwriting is difficult to read, and only the most minimal information is given. Churton's surveys were the most accurate as well as the most beautiful, overall, although even Churton occasionally made mistakes (Fig. 4.10).

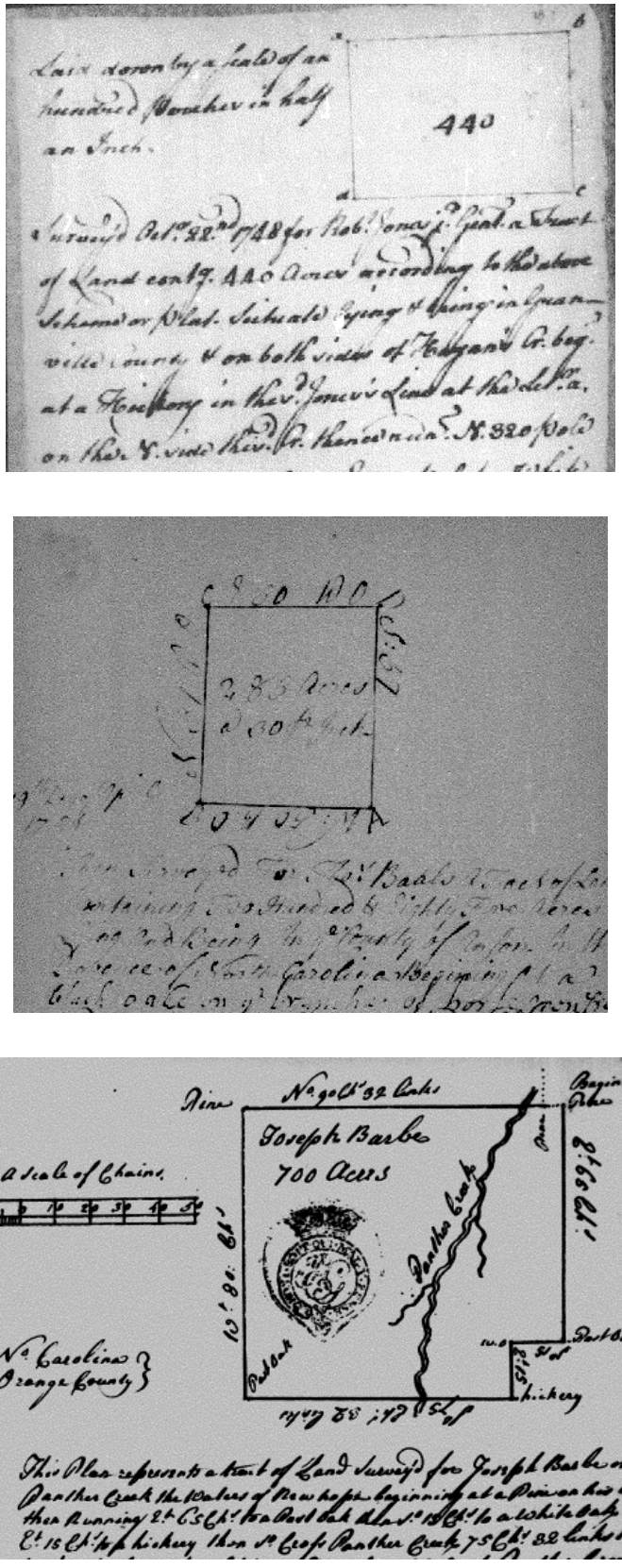


Figure 4.10. Typical survey plats by Weldon (top), Carter, and Churton (bottom).

The problem of accuracy was exacerbated by the fact that the survey documents were not produced in the field, but later, when the experience was not as fresh. Surveyors were supposed to keep a field book (Mitchell 1993, 107), though it appears that they occasionally jotted their field notes on the back of someone else's warrant or other document. Furthermore, they were required to produce three copies of each survey (one for the grantee once the deed was finalized; one for the Granville land office; and one for Granville himself), a practice which introduced copy errors as well. In some instances two or even all three of the copies are in the extant record set, and from these it is clear that copy errors were not particularly rare; thus to some extent the information available depends on which copy of a survey is present in the records. When a deed was issued, the main part of a survey's body text was copied into the deed document, adding another layer of potential error. For this reason, surveys took precedence over deeds in my data collection process, except when the surveys were not present or were illegible.

Precision is a related but different problem from accuracy. While accuracy refers to the correctness of a measurement, precision refers to the level of detail in a measurement. Survey measurements were not always accurate; they were almost universally imprecise as well. That is, most of the surveys gave length to the nearest unit used in the survey, whether that be poles or chains in a particular instance. Only a small percentage broke that unit into fractions or subunits. Similarly, degrees were given to the nearest whole degree. In contrast, the GIS draws the survey shapes with a level of precision that is wholly unwarranted given the input, and makes it appear as if this level of precision were part and parcel with the original measurement. This is part of the larger problem of using computers with historical data, as will be discussed later in this section.

An additional problem with surveys is the question of what surveyors knew. It is easy to assume that because the surveyor drew it, he knew what the reality on the ground was, and reproduced it accurately. While no doubt this was true much of the time, it was clearly untrue some of the time. For example, in the survey shown in Figure 4.11, a stream head at one end of the survey was taken to be part of the same stream that traversed the lower part of the survey, while in fact it was part of a different watershed altogether. Based on this example, I have at times taken liberties with what the surveyor portrayed in making my best estimate of where a tract belongs on the map.

This leads to the problem of uncertainty introduced as part of the transformation process. Any human operator entering data into a computer is subject to error: typing errors, picking the wrong item from a drop-down list, forgetting to fill in a blank, and so on. This is on top of possible errors of judgment or misunderstanding of the document's contents. Survey angles are easily entered incorrectly, causing a shape to be drawn wrong, although this error is usually easy to spot and correct during the mapping stage. But where survey measurements on the document don't make sense, as discussed above, a judgment call is required, with little hope of checking to find out if the judgment was the right one. Lastly, it is possible to omit a document altogether, if it appeared to be a duplicate of one already entered, but was in fact a different tract. This possibility was increased when working in Granville County, as I was omitting some documents on purpose. Thus at the data level, the collection process added uncertainty through possible human error at the interface with the document, with the computer, and with the microfilm reel.

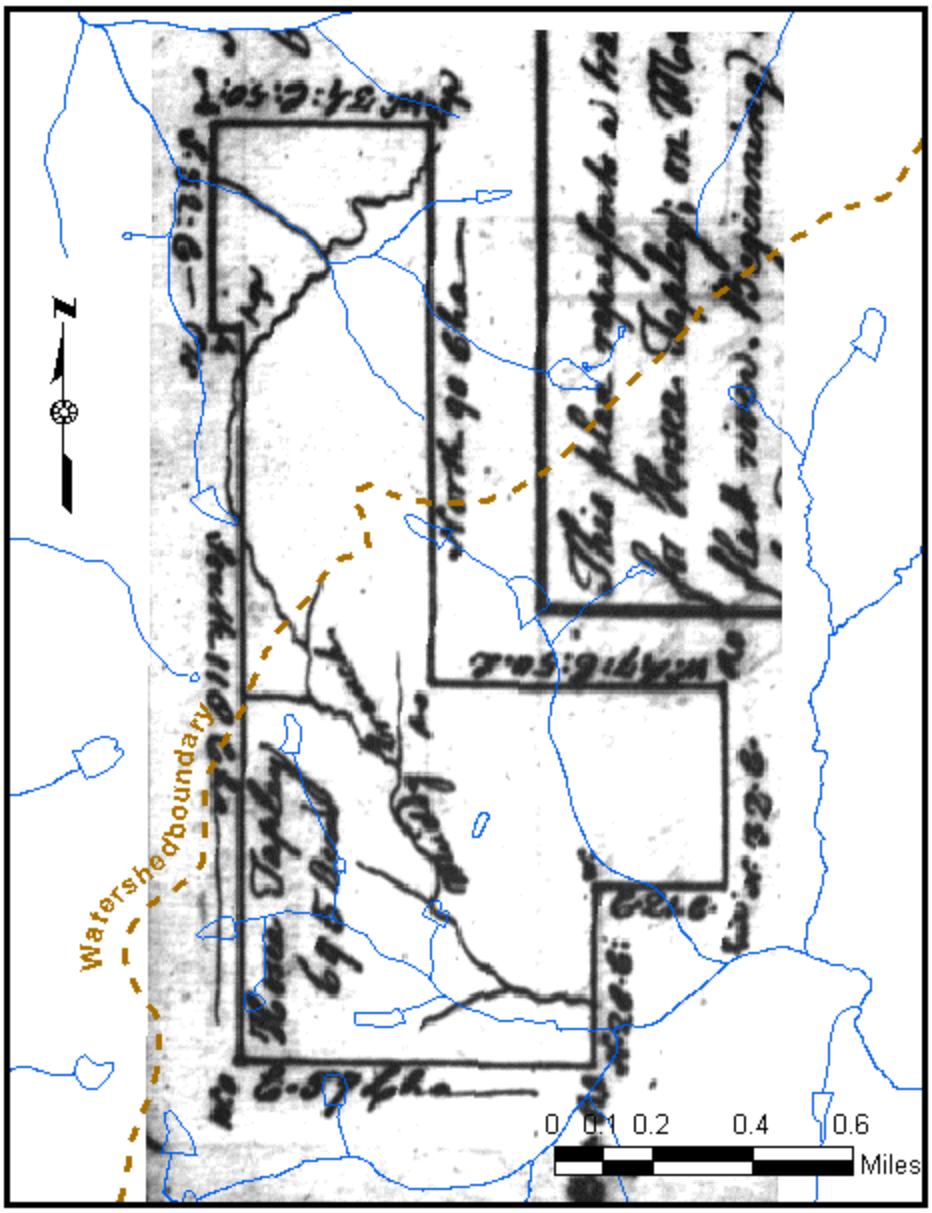


Figure 4.11. A survey by Churton illustrating a lapse in his geosophy.

The transformation from collected data to geographic information is also fraught with uncertainty. The biggest problem here is ambiguity, which is present at several levels. At one level is the naming of geographic features. There may be only one Eno River or Yadkin River, but there are two Rocky, two Mayo, and several Little Rivers, not to mention almost innumerable Beaverdam, Buffalo, and Poplar Creeks or Branches, among others. Further,

while some creek names are resilient, such as the Swift, Crabtree, and Walnut Creeks crossed by John Powell in 1737, others have changed and may or may not be reconcilable with modern features. Even when there is relative certainty about which creek or river is referenced, however, there is significant room for ambiguity at the next level. Many surveys say something like "on such-and-such creek;" does this mean that the tract lies right on the creek, or in its general vicinity? If right on the creek, does the creek form part of the tract boundary, or does the tract cross the creek and lie on both sides of it? The better surveyors were careful to specify such relationships, and usually to draw them as well, but the less careful surveyors were, well, less careful. And even where the creek is drawn in on the plat, there are often a number of locations on the creek where the arrangement as drawn could be found. The problem of fitting tracts to creeks and rivers is aggravated by the nature of GIS datasets. The shapes of streams vary according to which hydro dataset is used, and none can be taken as truly accurate, however precise they may be. And this problem is at its worst when the stream has been altered in modern times, such as by the construction of a reservoir.

We have seen how neighbor references can resolve uncertainty about features and location, but they can also create more uncertainty due to the fact that many grantees bought multiple tracts at different locations—and their neighbors at one location were quite likely to also be their neighbors at another location. Other uncertainty regarding neighbors occurs where tracts have been bought and sold, or claimed and then abandoned and thus opened to being claimed again. There are also cases where overlapping surveys were made because the surveyors did not really know what land had been claimed and what hadn't (a fact of backcountry life observed by Bishop Spangenberg (Fries and others 1922-1969)); disputes and court cases over such situations were common. In all of these cases the map is likely to

contain overlapping symbols, which probably, but may not, represent different claims to the Granville land office.

Perhaps the most important issue regarding uncertainty is not these myriad sources of it, but the way it is handled by computers. The use of computer technology to deal with what are inevitably fuzzy and ambiguous data forces a rigidity and implies a certainty that are not always justified. When entering data in the database, for instance, ambiguous handwriting must be entered as one group of letters or another, or else as a series of question marks, but in any case the other possibilities that one might intuit while viewing the handwriting itself are excluded. The database contains comment fields where uncertainty or alternate interpretations can be entered as text notes, but once a name or word is entered in a primary field, it takes on a validity from its presence there, regardless of what the comment field may say. A similar phenomenon takes place within the GIS. While symbolization can be changed to reflect levels of confidence in placement, as in Figure 4.8, the very presence of a shape on the map gives it a validity beyond that symbolization. Furthermore, such coding neglects the plethora of other uncertainties inherited by these tracts from the data and data collection process. Similarly, when it becomes desirable to symbolize the tracts according to some other variable, as in the transformation from geographic information to geographic knowledge, the visual display of uncertainty is lost and easily forgotten.

What value, then, this geographic information from which I am about to create geographic knowledge, if it is so beset by problems of uncertainty? First, the problems I have described in this section are not unique. Plewe (2002) has identified essentially the same sources of uncertainty in "geographic information gathered from historical records" and created a typology for these causes, which is presented in Table 4.2. Second, the question of

scale is important here. While I would caution people interested in the exact placement of specific tracts not to use most of my current map without corroborating evidence, my educated assessment is that at the scale of the Phase I study area, the pattern is essentially correct. The possible duplication of point-symbolized tracts, as discussed above, is, I believe, offset by those tracts I could not place, and by missing records. Even those tracts coded "tentative" in my typology of placement confidence (Fig. 4.8) are unlikely to be far enough off to affect the area-scale pattern significantly. In a sense, the messiness and uncertainty of the geographic information are an accurate reflection of the messiness and uncertainty of the data, which are in turn an accurate reflection of the messiness and uncertainty that existed on the ground in the historical situation of land granting in the North Carolina backcountry in the mid 18th century.

Cause	**Description**
Observational limitations	Imperfections in accuracy and precision deriving from the inherent limitations of any measuring device, including human mind and senses
Lack of evidence	Evidence that survives is always partial and is unevenly distributed in time, space, and subject matter
Lack of reference	Referents that were obvious to the record maker are not so to the researcher
Questionable evidence	All sources are artifacts of human activity, and therefore subjective
Conflicting evidence	Different sources may present conflicting but equally valid assertions
Ambiguous evidence	Different interpretations of a record may be possible, and equally valid in the absence of other sources
Misinterpretation	Error in judgment by the researcher
Transformation of phenomena	Changes made to the data or their meaning, in the process of transformations such as aggregation, classification, and so on
Encoding error	Error and uncertainty introduced in the technical processes of entering data into a computing framework

Table 4.2. Plewe's (2002, 441-442) causes of uncertainty in geographic information derived from historical documents.

That being so, I now return to the process of transformation, and examine the most exciting stage of that transformation, that of geographic information into geographic knowledge.

Geographic information to geographic knowledge

The geographic information as developed at this point in the process consists of shapes (polygons, lines, and points) located in space and attached to certain attributes such as date and name. The goal, however, is a knowledge of patterns; specifically, the pattern of tracts in relation to the Indian Trading Path and other period roads. This section describes the use of analysis and visualization in the GIS to transform the information to the knowledge, and presents the results of that transformation.

Most techniques to analyze spatial pattern in GIS require point data. The first step, then, was to convert the polygon and line shapes to points. For the polygons this was easily accomplished by using the Feature to Point tool in ArcGIS to create a centroid for each polygon. For the line shapes, two intermediate steps were required first: editing each shape to add one or more sides along the adjoining stream; then converting the edited line feature to a polygon, so that the centroid could then be created. All points were then combined in one shapefile regardless of origin, placement confidence, date, or any other attribute, thus representing by point all mapped tracts from 1748 to 1763, within the Phase I area. I chose not to weight the points by size of tract because, as noted previously, the acreage given on entries and warrants was often very different from the surveyed acreage, and with the mixed origin of the points such weighting would have resulted in a skewed picture of reality where surveys do not exist. The combined point-shapefile is shown in Fig. 4.12. From the point

map it can be seen that the distribution of points is not uniform, but little else can really be determined.

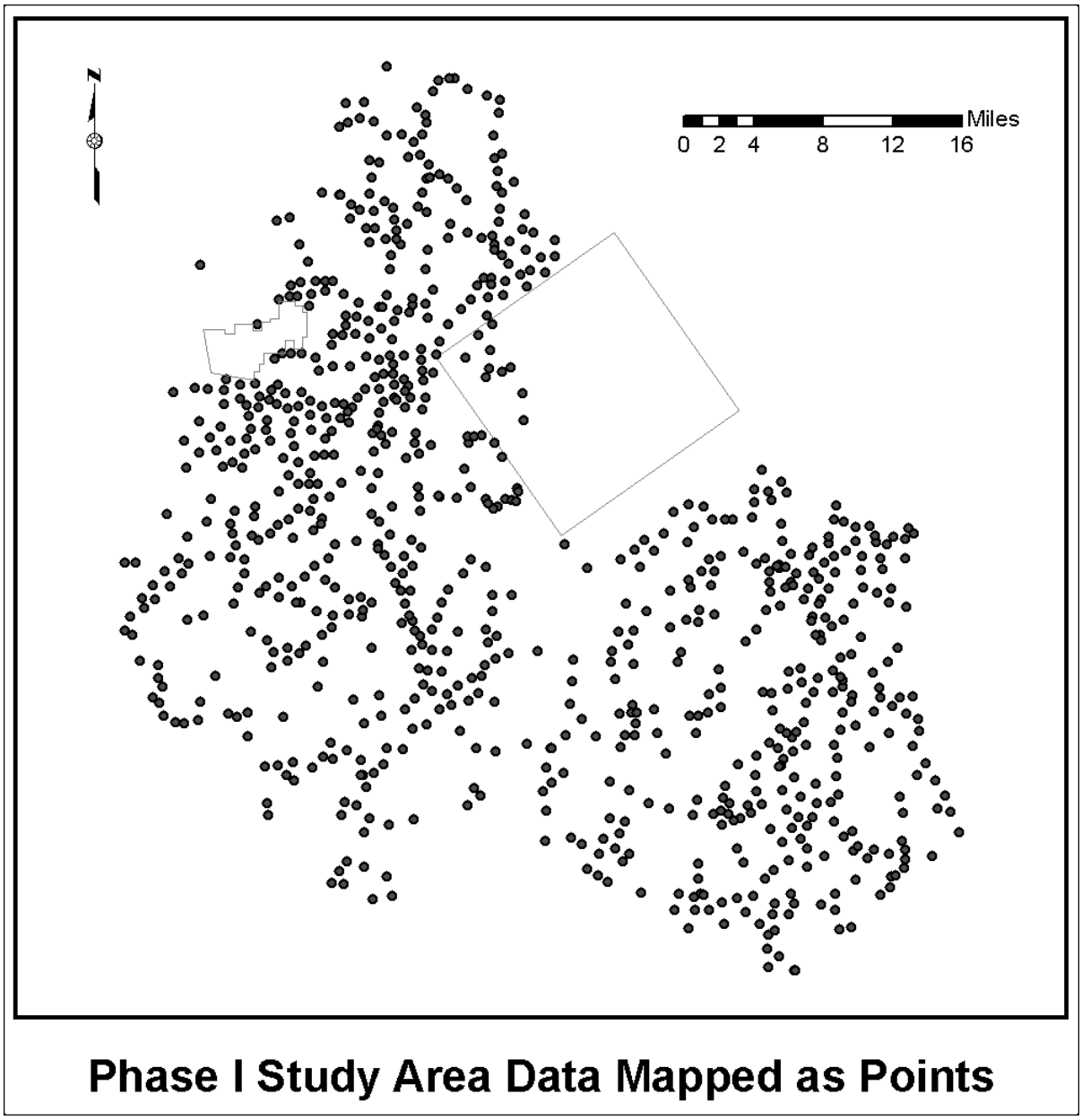


Figure 4.12. All tracts in the Phase I area, 1748-1763, represented as points. The McCulloh Tract 12 and Gabriel Johnston's 9,000 acre tract are shown for reference.

At this point I suspected that the few points within McCulloh Tract 12 would also skew any pattern analysis, since I do not have data for the tract overall. That portion of the Phase I study area was therefore excised from the area of analysis. The 9,000 acre tract of

Gabriel Johnston was not excised, as it contains no points, but it clearly does alter the pattern by virtue of blocking grants within its bounds.

To begin the point pattern analysis, I first created a simple density surface (a raster file in which the values of each cell represent the point density around that cell) (Fig. 4.13). Finding this image of limited usefulness, I then created a kernel density surface, with the search radius set at 20,000 in lieu of the default, which was about 8,500. Kernel density, unlike simple density, "us[es] a kernel function to fit a smoothly tapered surface to each point" (ESRI Inc., 1999-2005a). The use of a larger search radius does not significantly change the calculated density values; what it does do is create "a more generalized output raster" (ESRI Inc., 1999-2005b). In other words, it makes the general trend of the pattern more obvious. This output is shown in Fig. 4.14.

In order to further tease out the areas of high density, I reclassified the kernel density raster from its default nine equal interval classes to four classes with manual breaks chosen to accentuate the top values. The result of this reclass is shown in Fig. 4.15. This map presents a much clearer depiction of high density areas than the preceding maps, with a strong high density ridge in eastern Wake county and a few small areas of high density to the north and south of the Hillsborough area, but with by far the most significant area of high density at the historic and prehistoric hub of Hillsborough. The relationship of this area to modern towns and period roads is shown in Fig. 4.16 (see also Fig. 3.6 for names of period roads around Hillsborough).

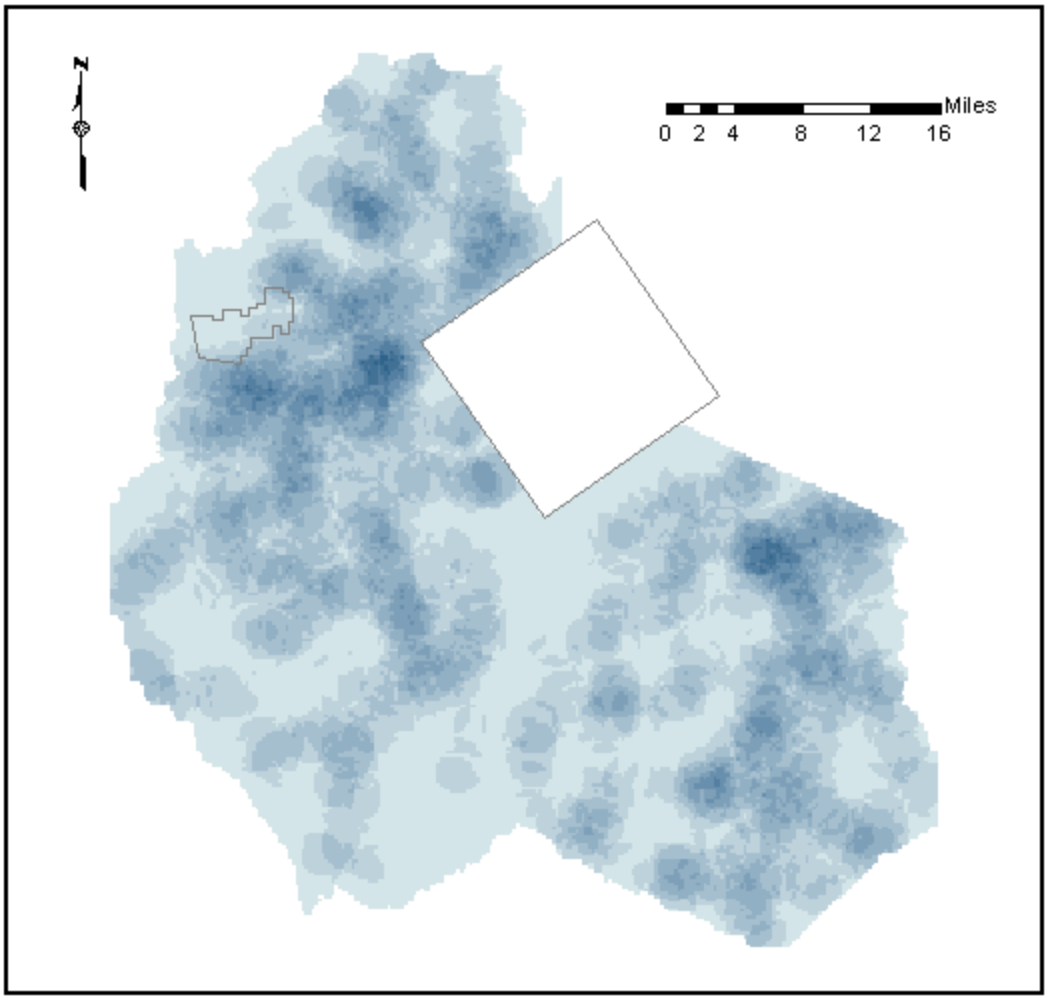


Figure 4.13. A simple density surface derived from the point data.

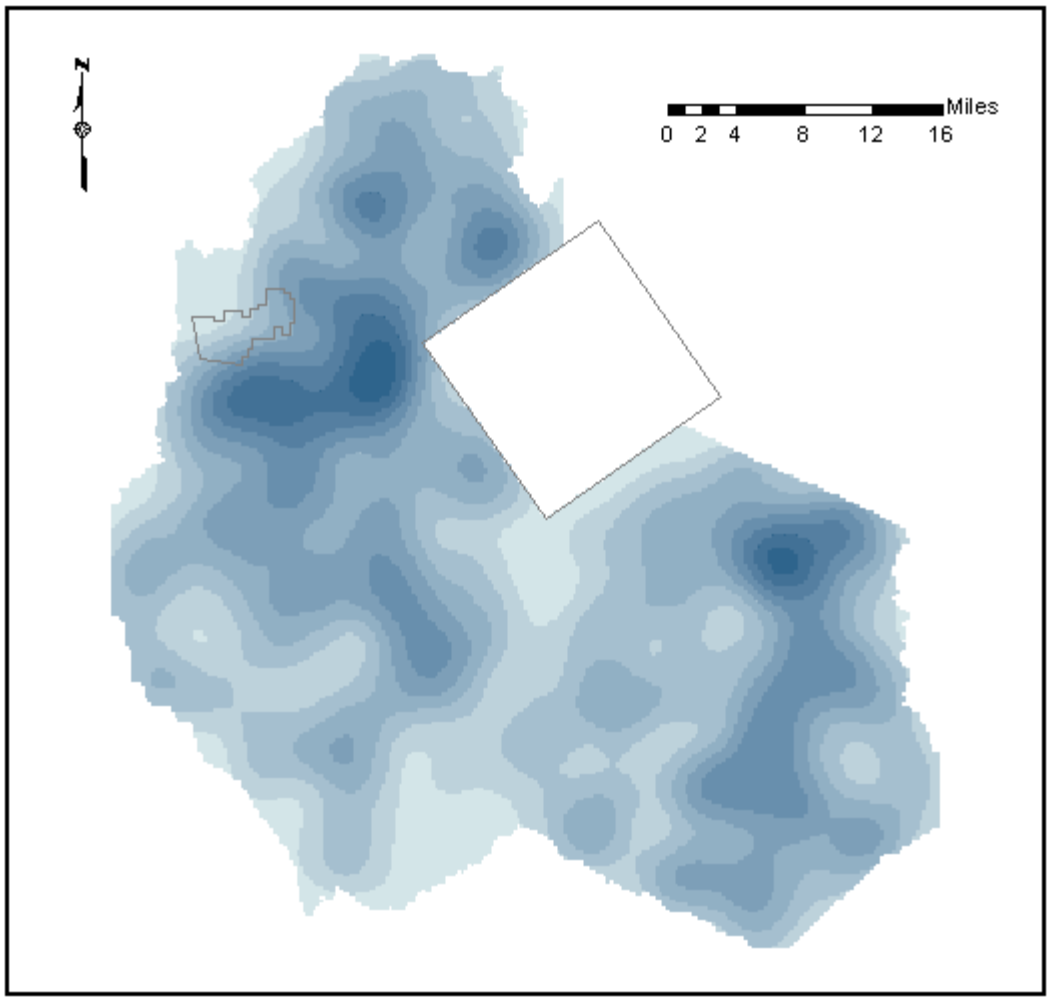


Figure 4.14. A kernel density surface, with search area set to 20,000.

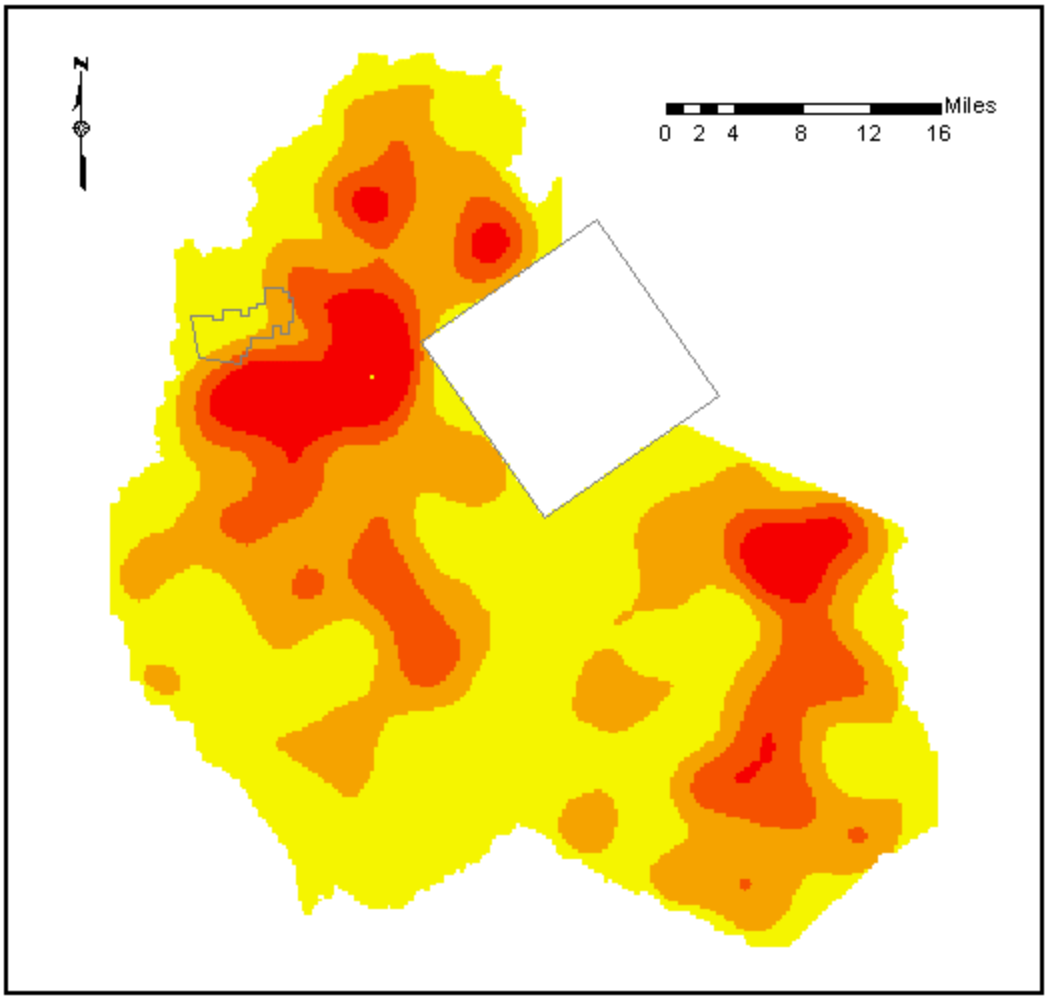


Figure 4.15. Reclassification of the kernel density surface.

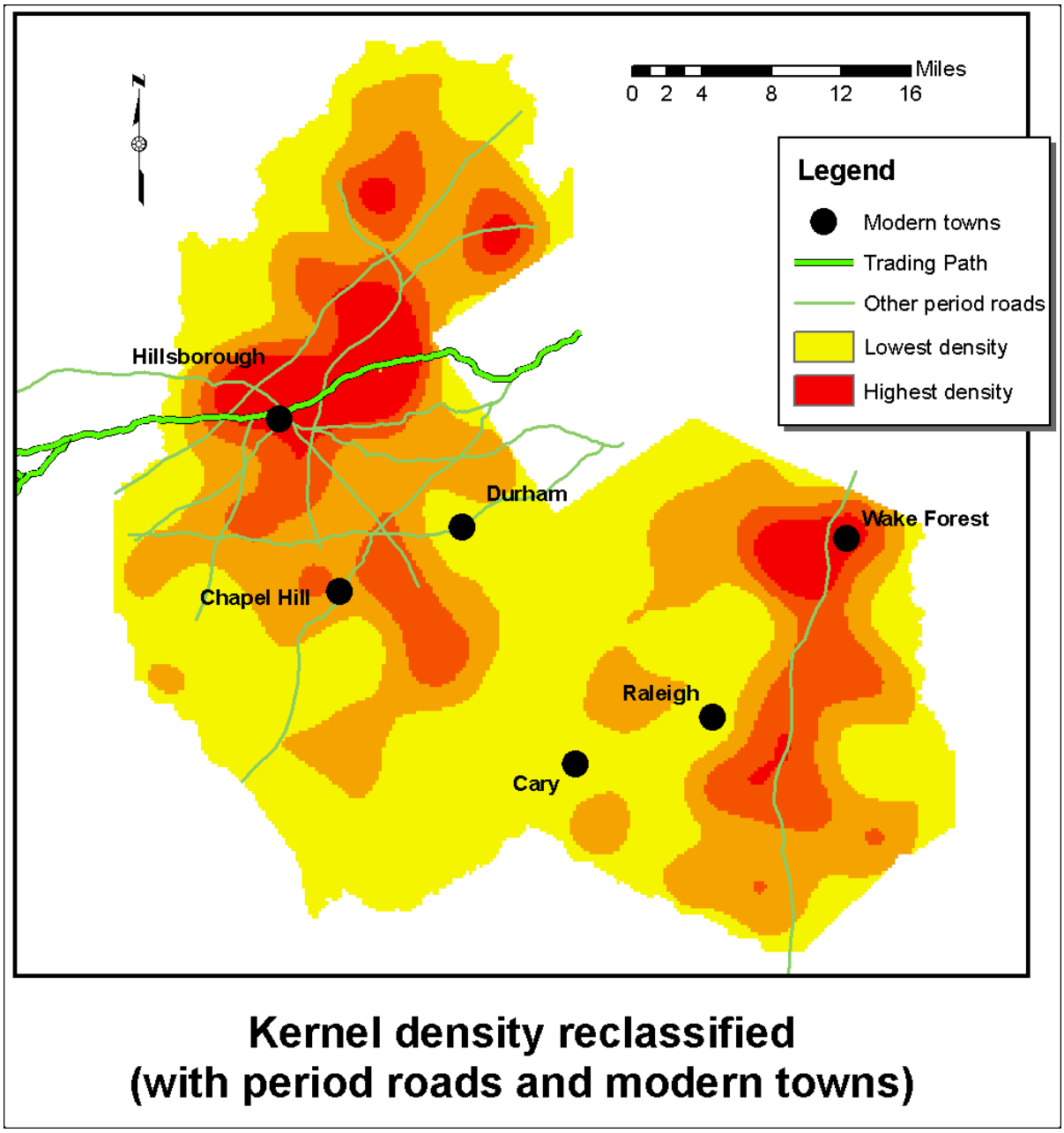


Figure 4.16. The kernel density reclass with period roads and modern towns.

The pattern of tracts in relation to these modern towns is most interesting. Durham was brought into existence by the train later, and at this stage its future location lies in a distinctly low-density pocket, as do those of Cary and Raleigh. Cary hails from about the same time as Durham, while Raleigh was a "forward capital" created shortly after the period of this study. The only incipient towns visible on this density map are Chapel Hill and Wake

Forest, even though the latter was not settled until 1823 according to Powell (1968). The high-density cluster at Wake Forest and the linear pattern south from there are most likely related to a road that was ancestral to US 1 and perhaps NC 50. This apparent route is too far west to be the well-known Green's Path which is considered by many to be anscestral to I-95 in the same way that the Indian Trading Path is considered ancestral to I-85. The high-density area southwest of Wake Forest corresponds with the Falls of the Neuse area, where a number of competing tracts overlapped.

Hillsborough, in contrast to the rest of the map, is a veritable metropolis, complete with the period equivalent of interstates and ring roads. While it is unfortunate that McCulloh Tract 12 prevents us from seeing how the pattern might continue along the Trading Path through modern Durham County, the vital importance of the multiple intersections at Hillsborough is starkly obvious to a geographer viewing this map. And while the roads north from Hillsborough are clearly important in forming the pattern, the dominant trend through the Hillsborough area is along the Trading Path.

The high density areas north and south of Hillsborough need some comment. To the south, the main area of higher density is along the rich New Hope bottoms in the Durham-Wadesboro Triassic basin. Even though a road likely continued through that valley, it is probable that in this instance the rich bottomland, not the road, was the attraction. In fact, the pattern of density in relation to roads in areas away from the immediate area of Hillsborough, strongly suggests a different emphasis. That is, I believe what is apparent here is an already visible distinction between urban and rural functions. For settlers performing urban

functions, land on the road is vital; for those engaged in rural functions, land might be better located near, but not on, the road[8]. I will return to this idea in Chapter 5.

One very interesting feature of the tract distribution as seen on these maps is the virtual absence of tracts on the ridge between New Hope Creek (a major subsystem of the Haw/Cape Fear) and the western tributaries of the Neuse. Ridges are typically considered good road locations and thence attractors of settlement, but in this case apparently not. I suspect, although this cannot be confirmed with the current data, that this ridge may mark the boundaries of the two distinct migratory regimes, with the lower Neuse attracting settlers from the east and the Cape Fear and upper Neuse attracting settlers from the north.

I had originally thought to use spatial statistical functions to determine where clustering was statistically significant across the study area. However, the kernel density patterns are so emphatic that I do not believe such an operation would add any knowledge to the project. Instead, the time-series in Figure 4.17 allows one to visualize the tract pattern as a developing process[9], rather than a static pattern sprung suddenly into being in 1763. This way of viewing the settlement of the Piedmont is important to the geographical understanding of how the Piedmont's settlement system developed, because once centers of urban functions began to coalesce, they would have exerted a gravitational attraction of their own, drawing more and more settlers over time. This appears to have been the case in the Hillsborough area during the study period.

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[8] I am indebted to Harry Watson for helping me see this idea.

[9] GIS, with its focus on spatial relationships, does not handle temporal analysis well. Visualization is often the best way to deal with temporal data, and is recognized as a legitimate and valuable use of GIS in regard to both temporal and spatial data. As in the present case, visualization of change over time can help the viewer grasp the phenomenon under study as a process and thus add considerably to the understanding of mechanism. Even with visualization, however, there is the problem of fragmentary or missing dates; a document with a missing or partial date drops out when dates are the variable of interest, even it if has the attributes of shape and location.

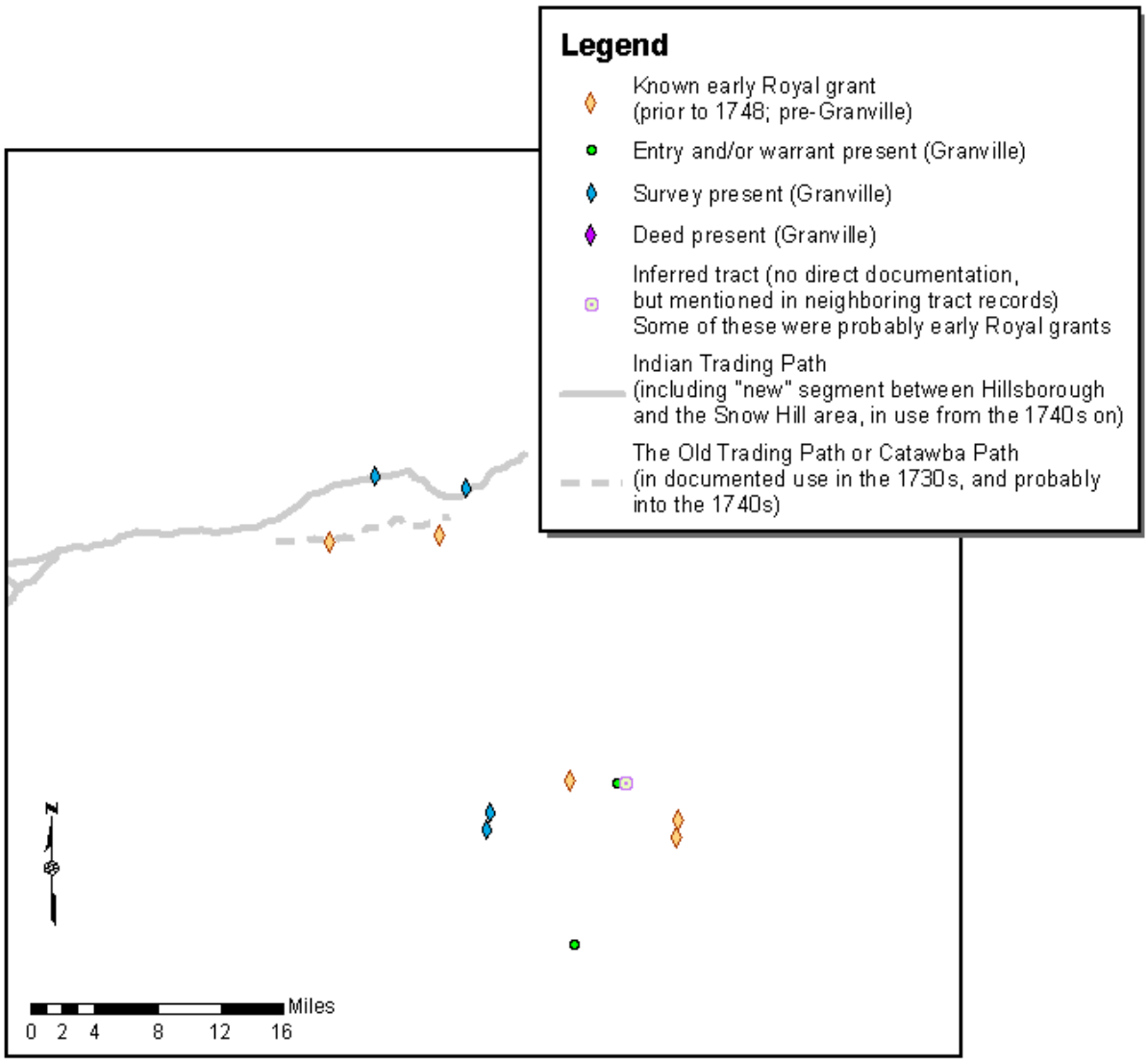

Figure 4.17a. Time series showing tracts by type: 1748. This group of maps may be viewed as a Powerpoint animation at http://www.emporia.edu/~dobbsreb/ncsettlement/.

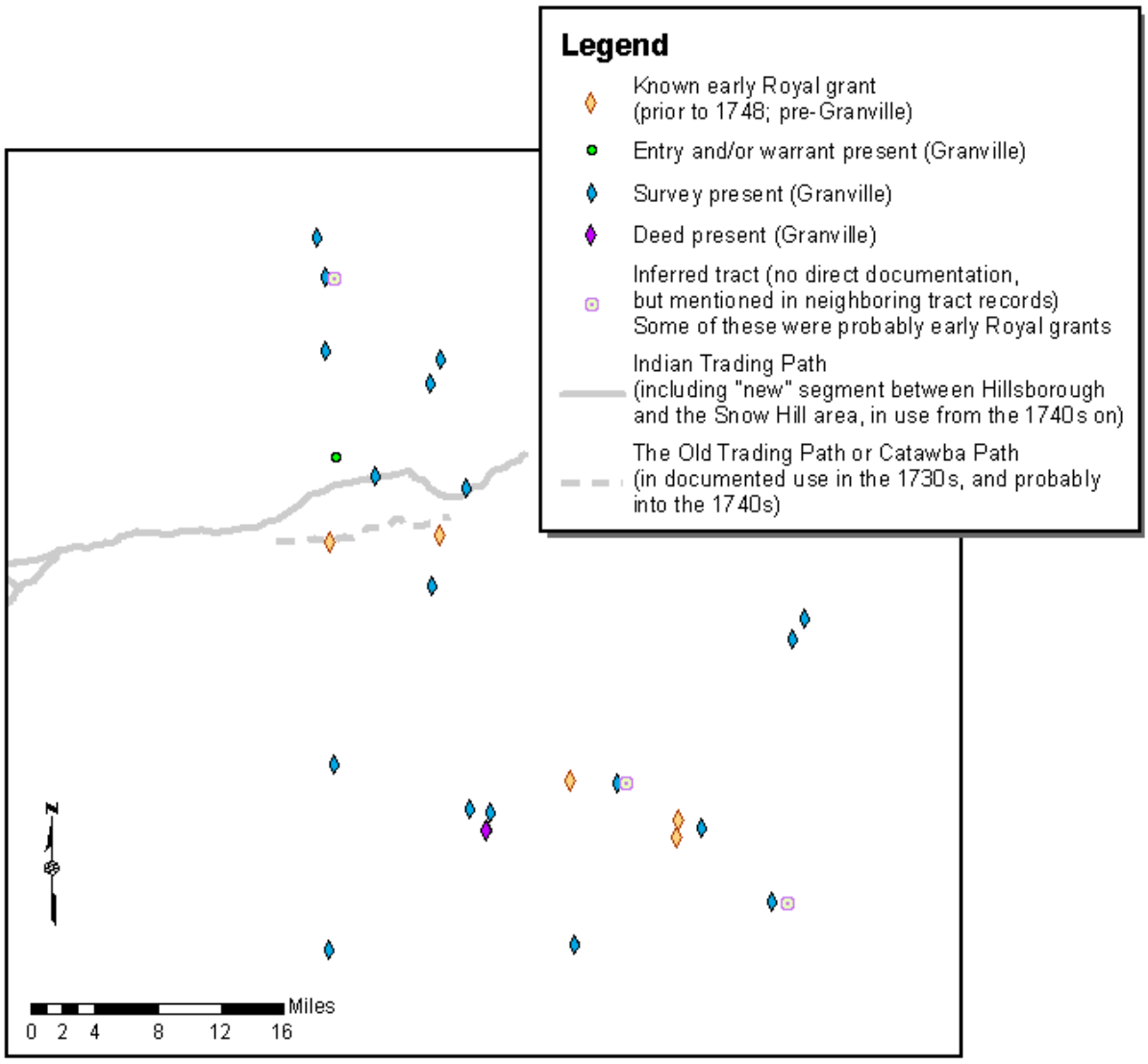

Figure 4.17b. Time series showing tracts by type: 1749. This group of maps may be viewed as a Powerpoint animation at http://www.emporia.edu/~dobbsreb/ncsettlement/.

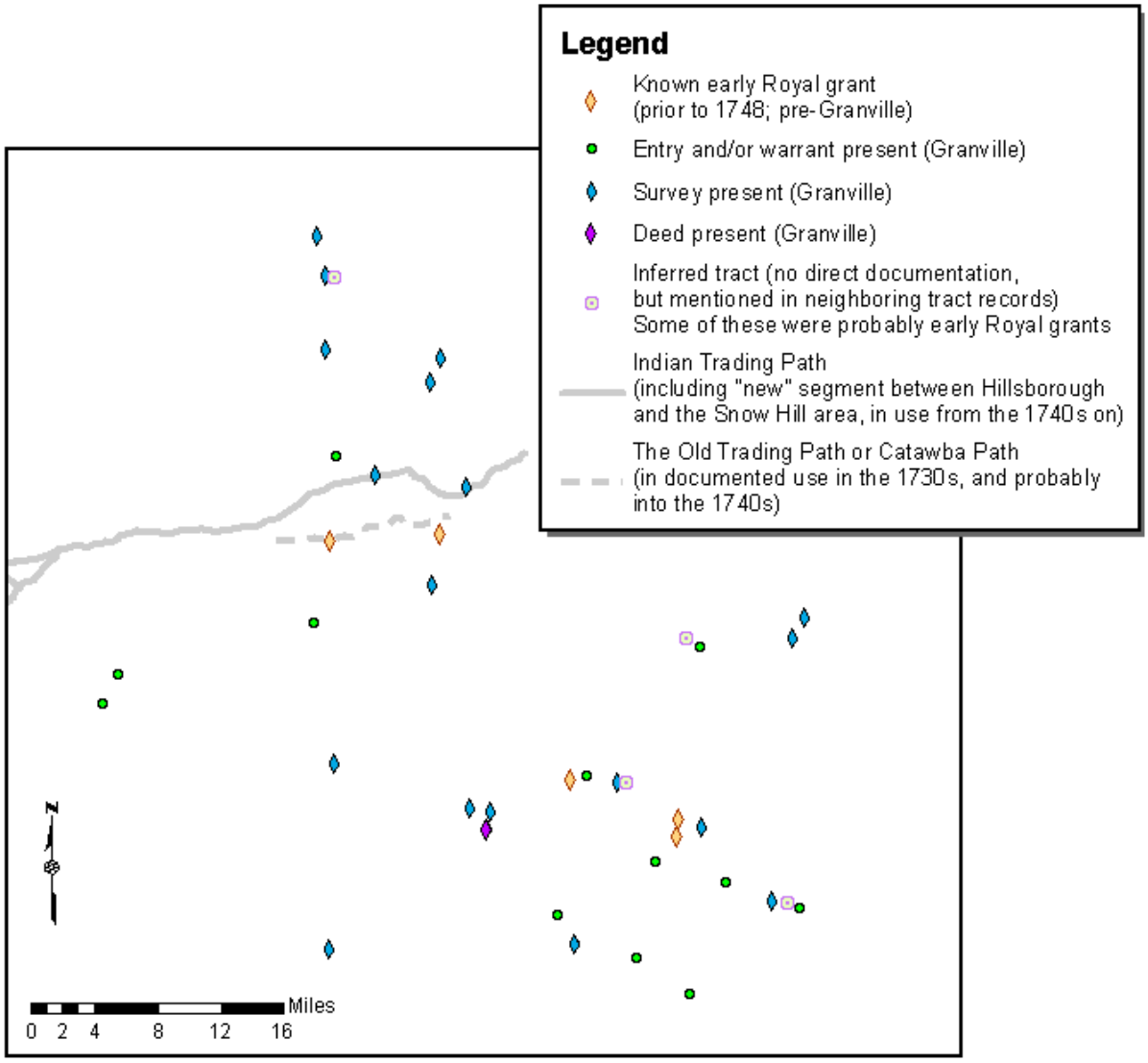

Figure 4.17c. Time series showing tracts by type: 1750. This group of maps may be viewed as a Powerpoint animation at http://www.emporia.edu/~dobbsreb/ncsettlement/.

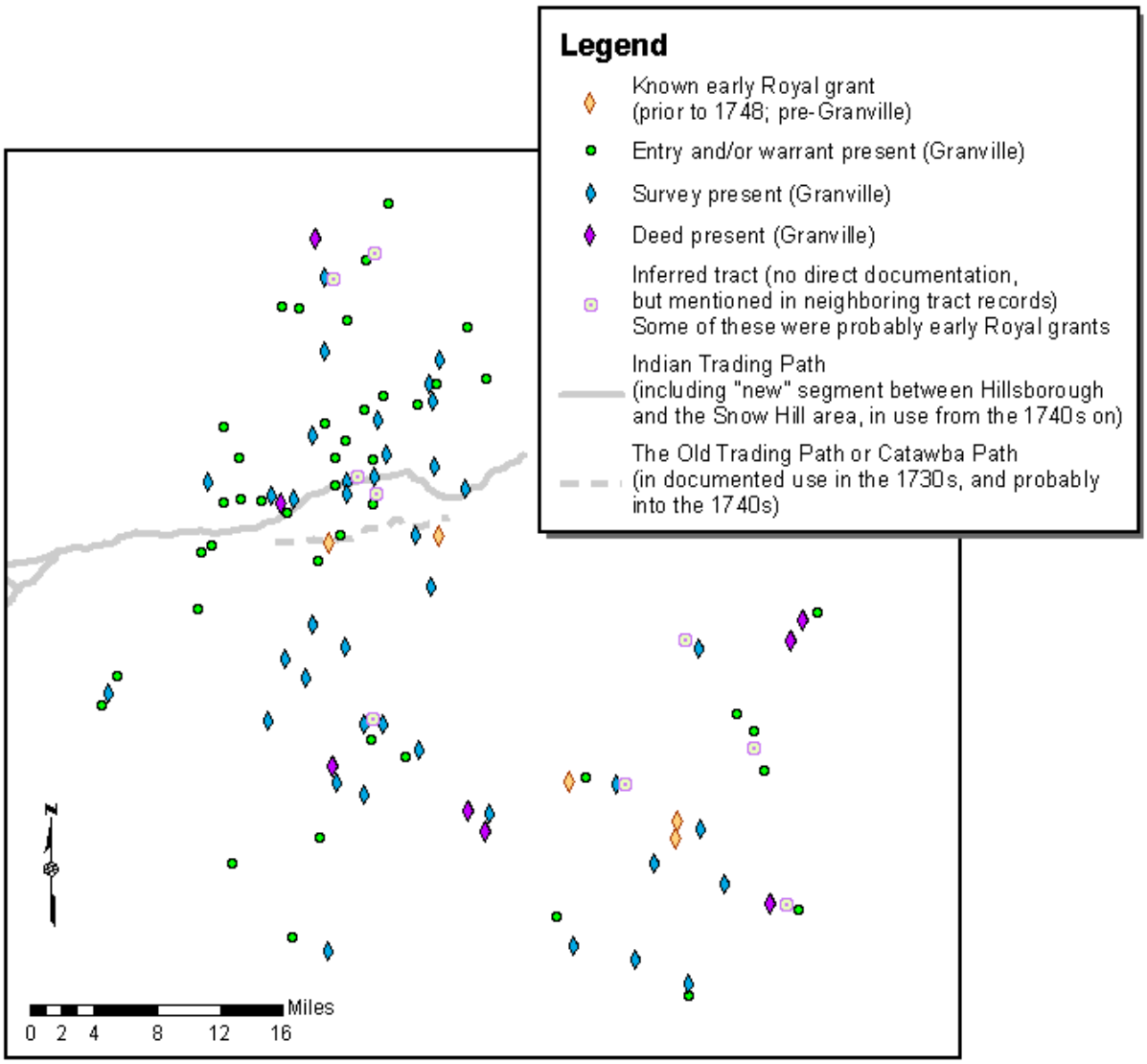

Figure 4.17d. Time series showing tracts by type: 1751. This group of maps may be viewed as a Powerpoint animation at http://www.emporia.edu/~dobbsreb/ncsettlement/.

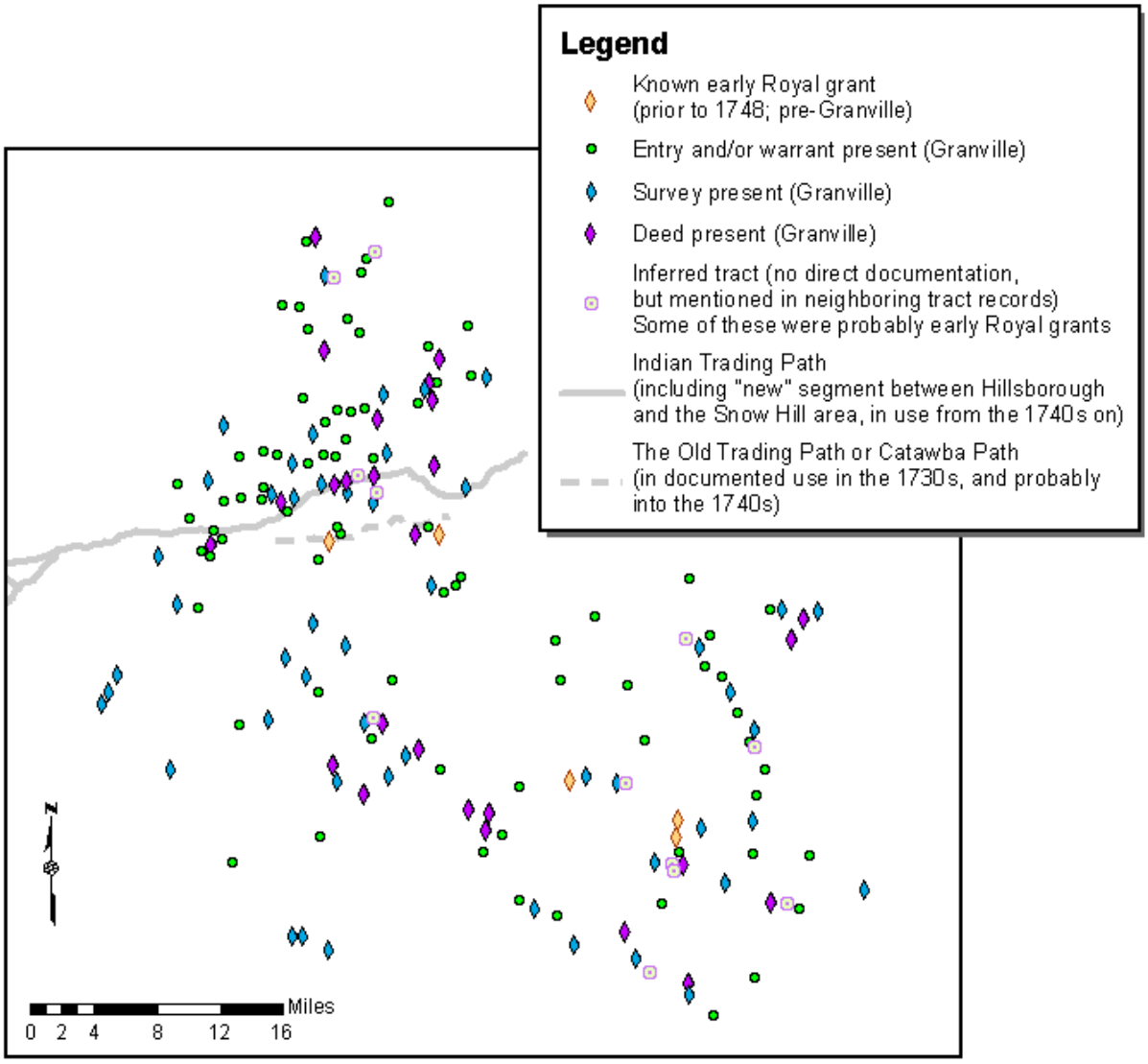

Figure 4.17e. Time series showing tracts by type: 1752. This group of maps may be viewed as a Powerpoint animation at http://www.emporia.edu/~dobbsreb/ncsettlement/.

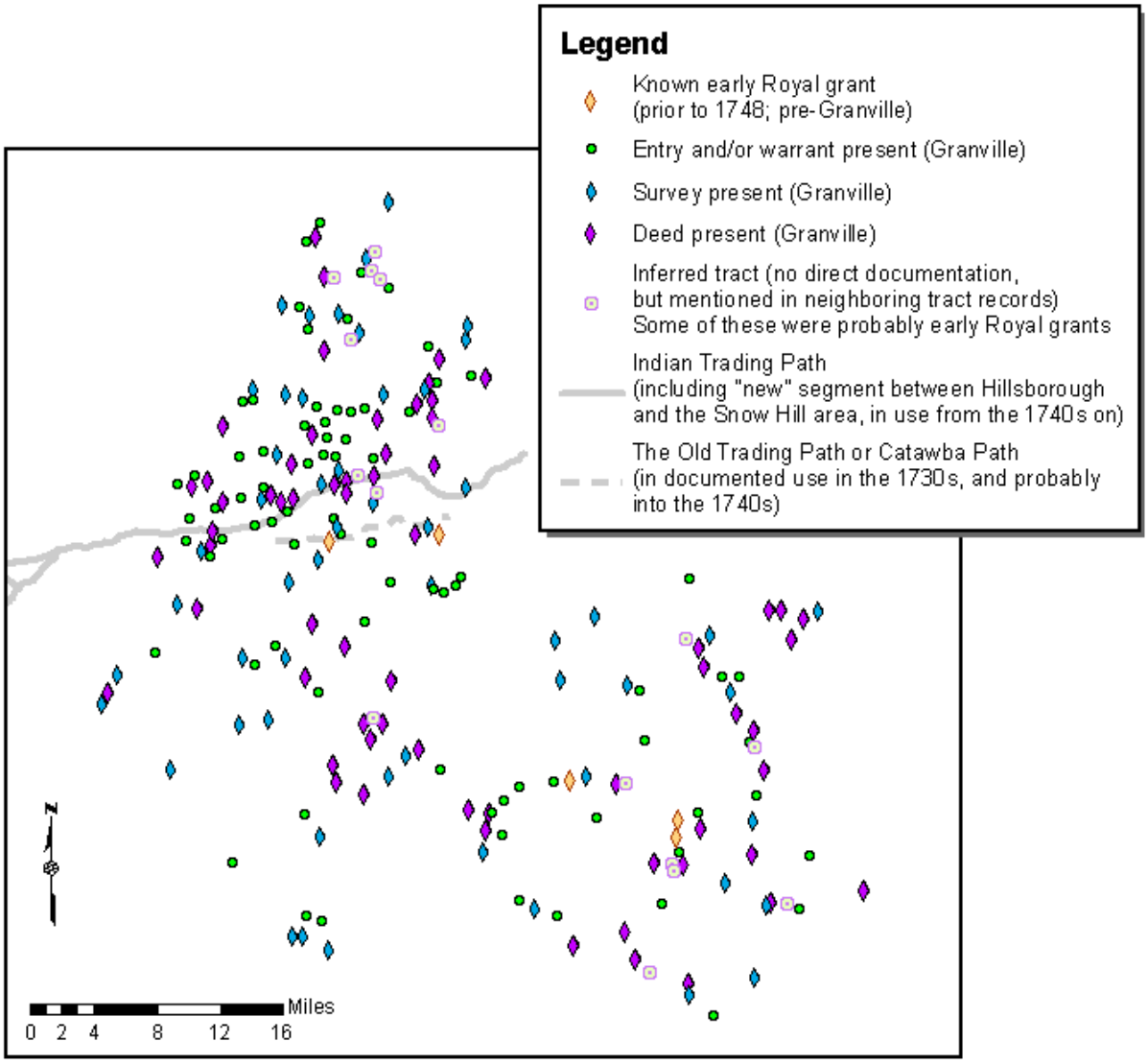

Figure 4.17f. Time series showing tracts by type: 1753. This group of maps may be viewed as a Powerpoint animation at http://www.emporia.edu/~dobbsreb/ncsettlement/.

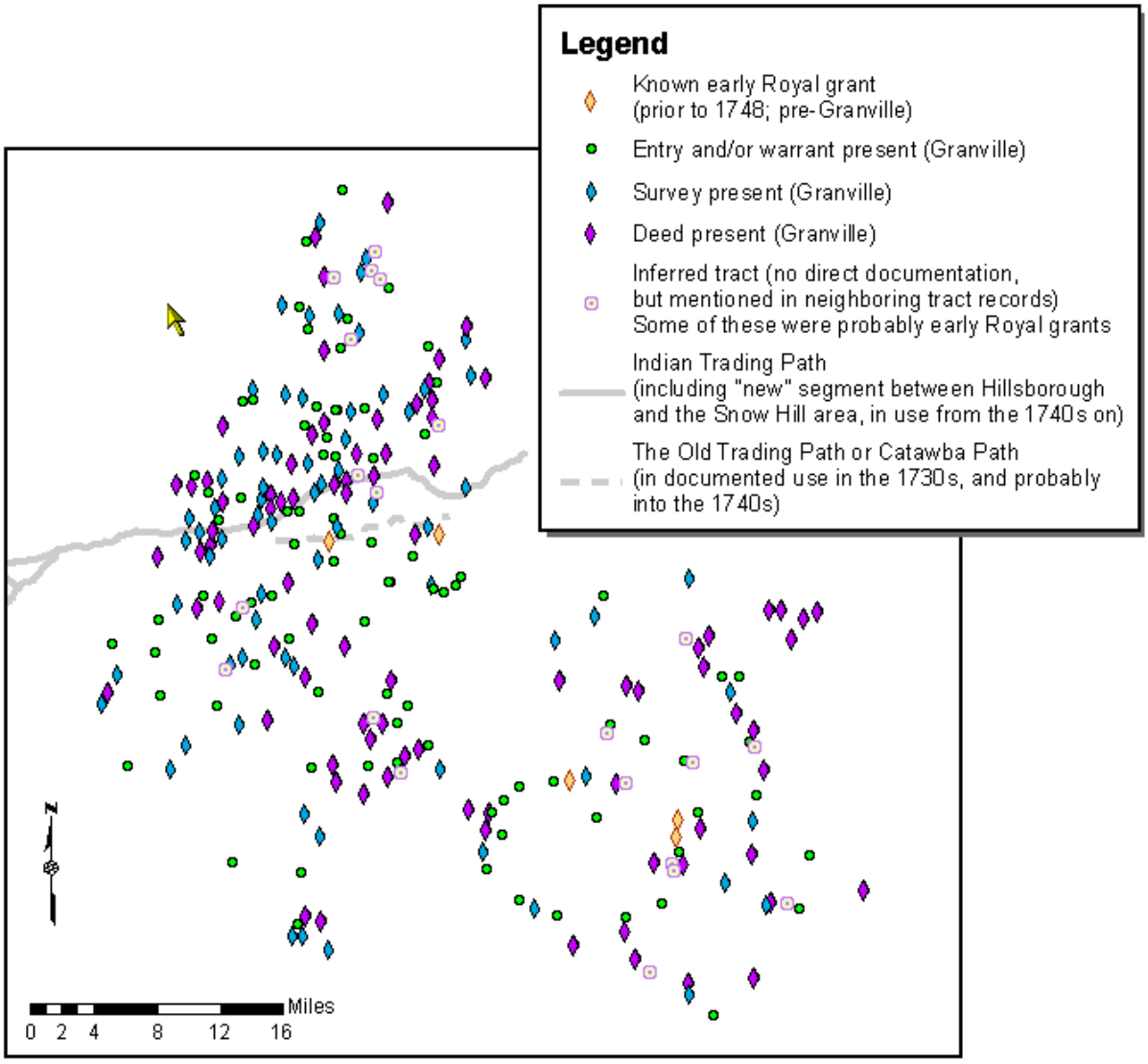

Figure 4.17g. Time series showing tracts by type: 1754. This group of maps may be viewed as a Powerpoint animation at http://www.emporia.edu/~dobbsreb/ncsettlement/.

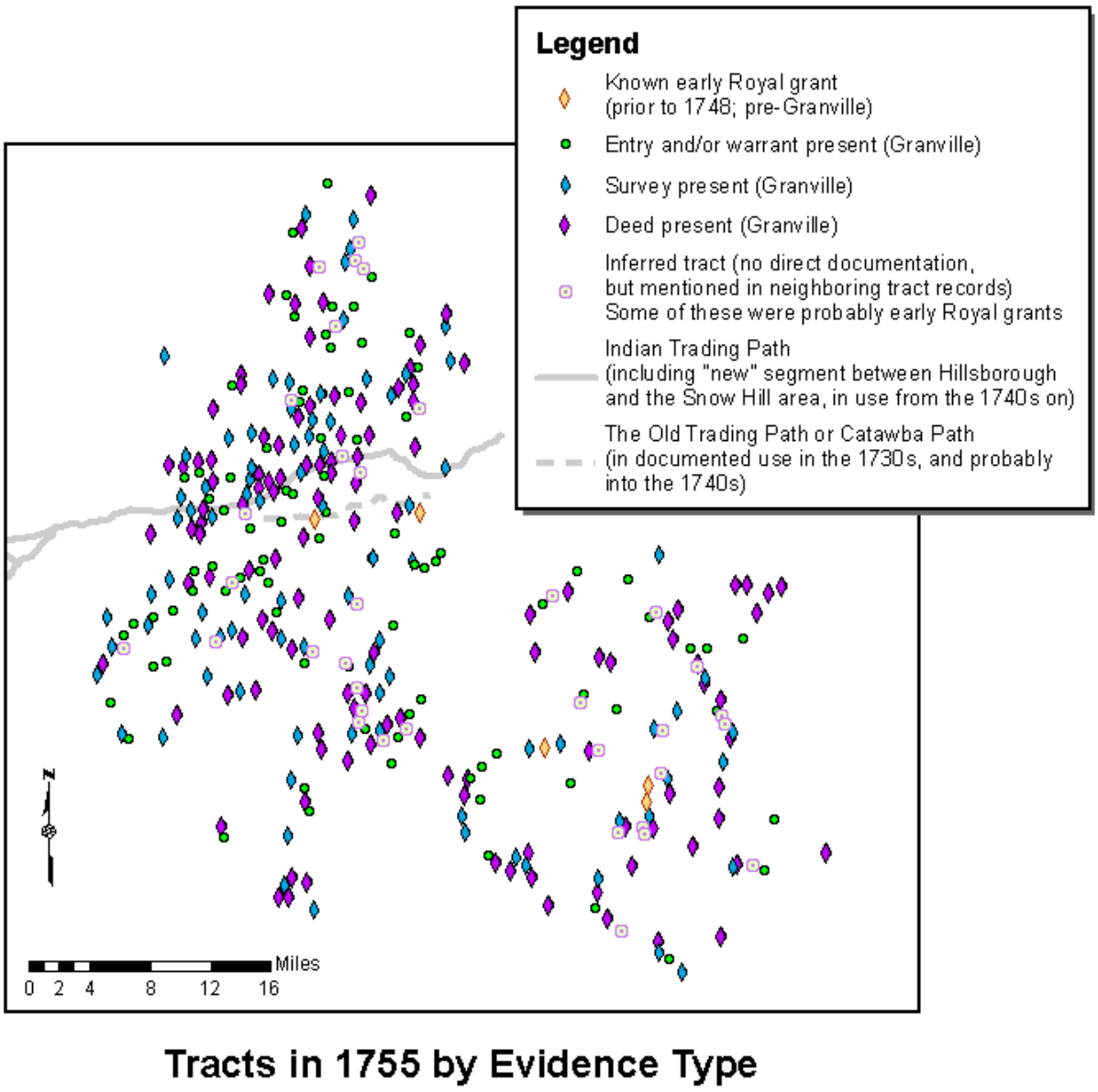

Figure 4.17h. Time series showing tracts by type: 1755. This group of maps may be viewed as a Powerpoint animation at http://www.emporia.edu/~dobbsreb/ncsettlement/.

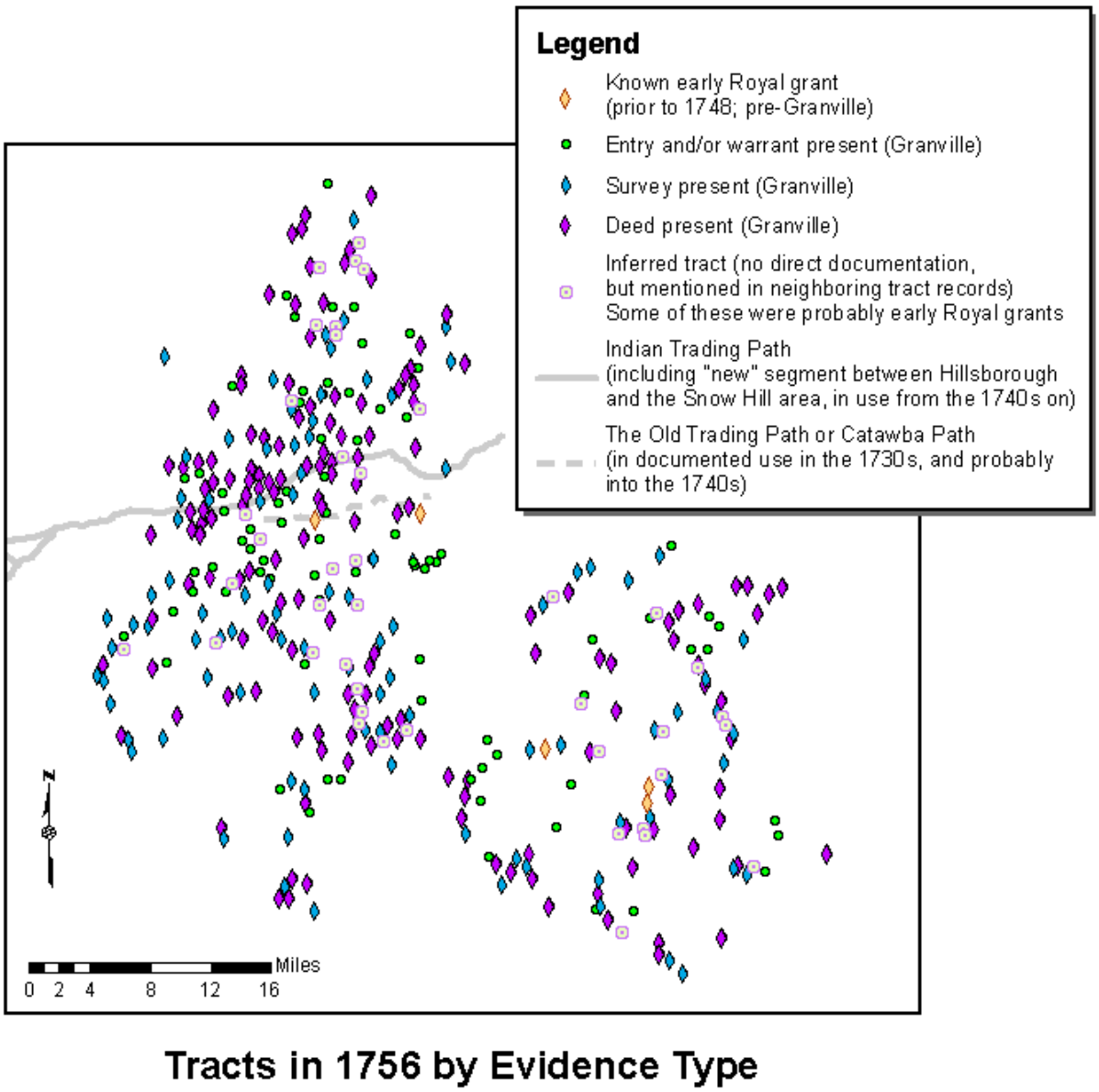

Figure 4.17i. Time series showing tracts by type: 1756. This group of maps may be viewed as a Powerpoint animation at http://www.emporia.edu/~dobbsreb/ncsettlement/.

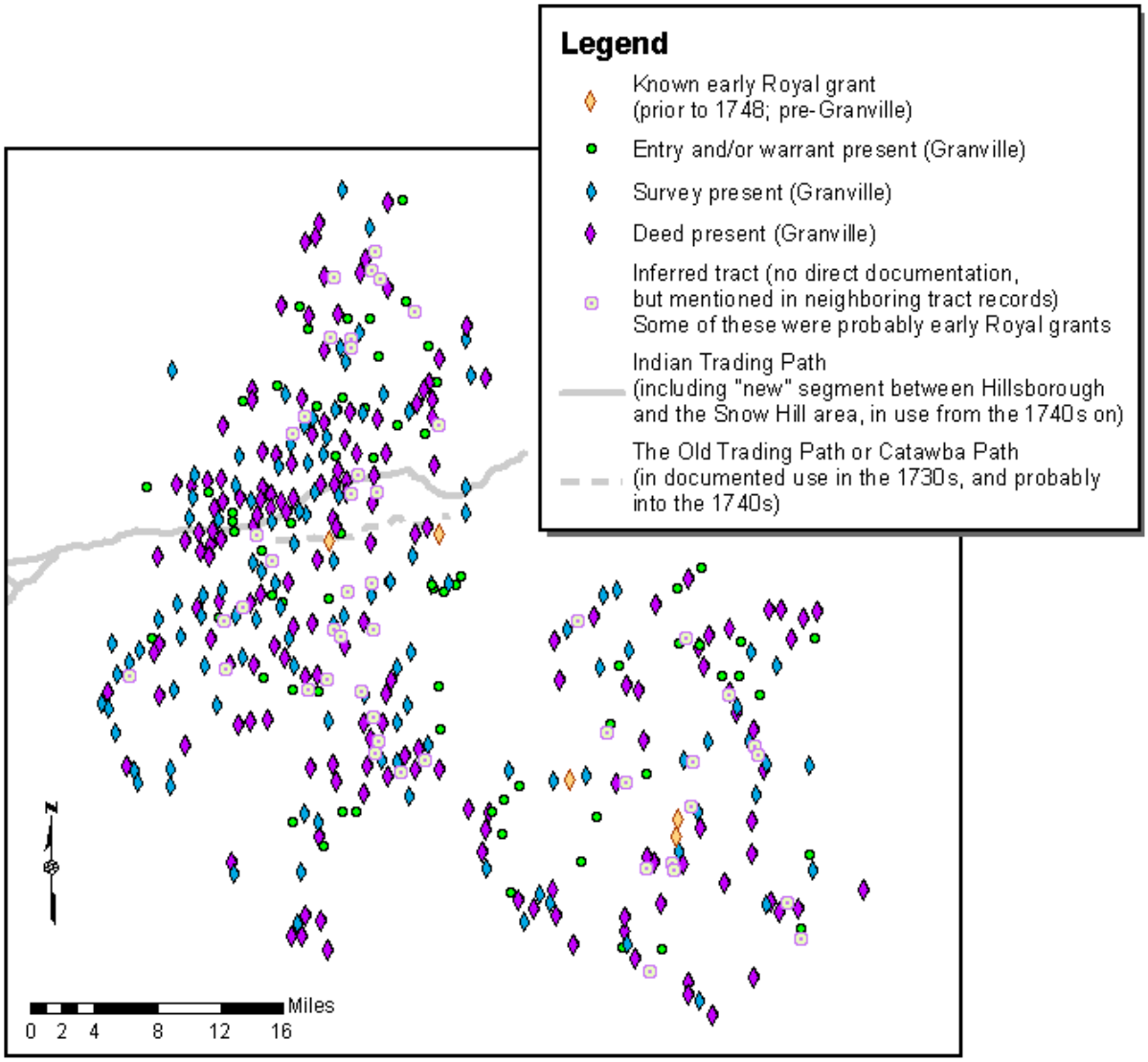

Figure 4.17j. Time series showing tracts by type: 1757. This group of maps may be viewed as a Powerpoint animation at http://www.emporia.edu/~dobbsreb/ncsettlement/.

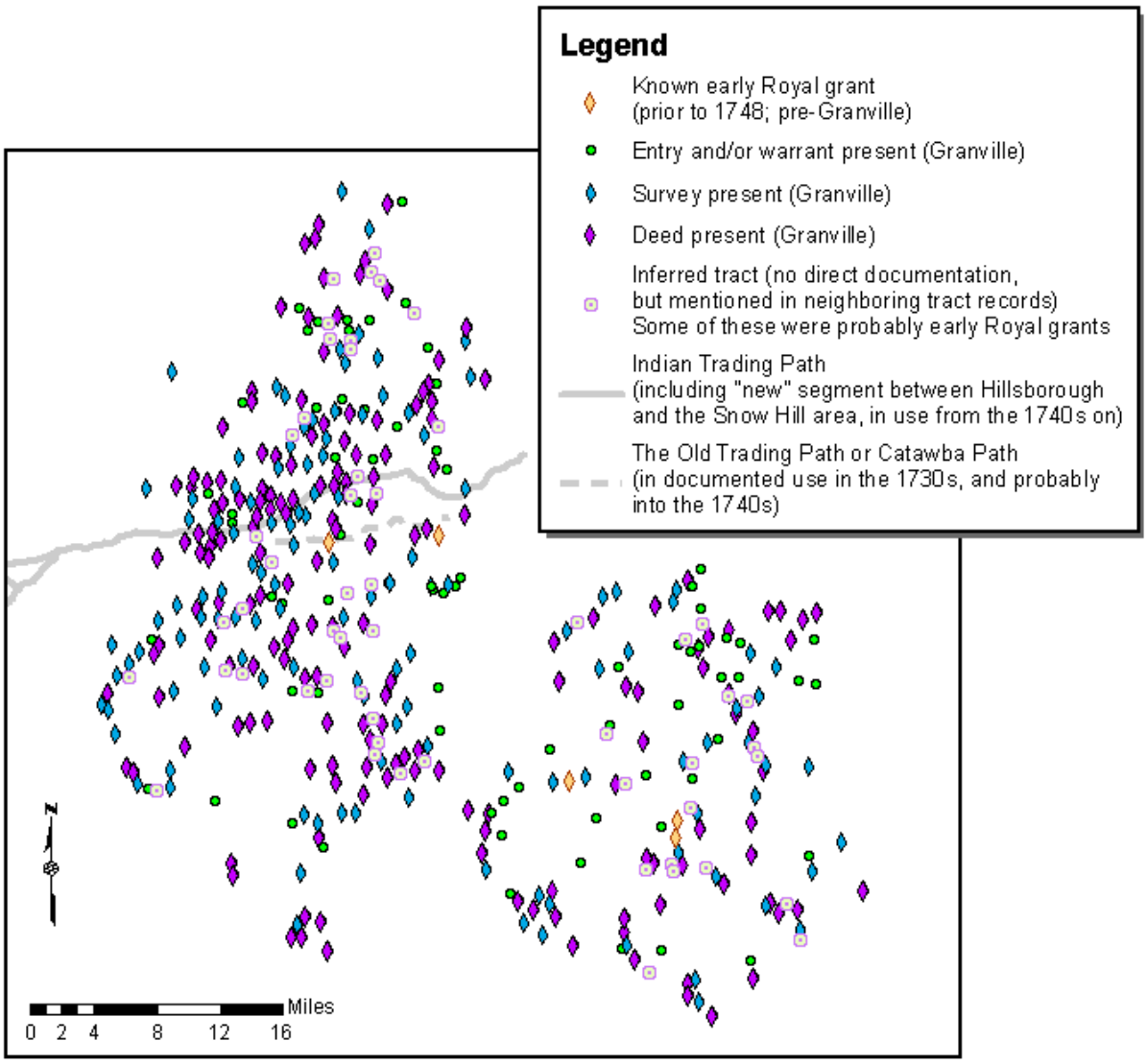

Figure 4.17k. Time series showing tracts by type: 1758. This group of maps may be viewed as a Powerpoint animation at http://www.emporia.edu/~dobbsreb/ncsettlement/.

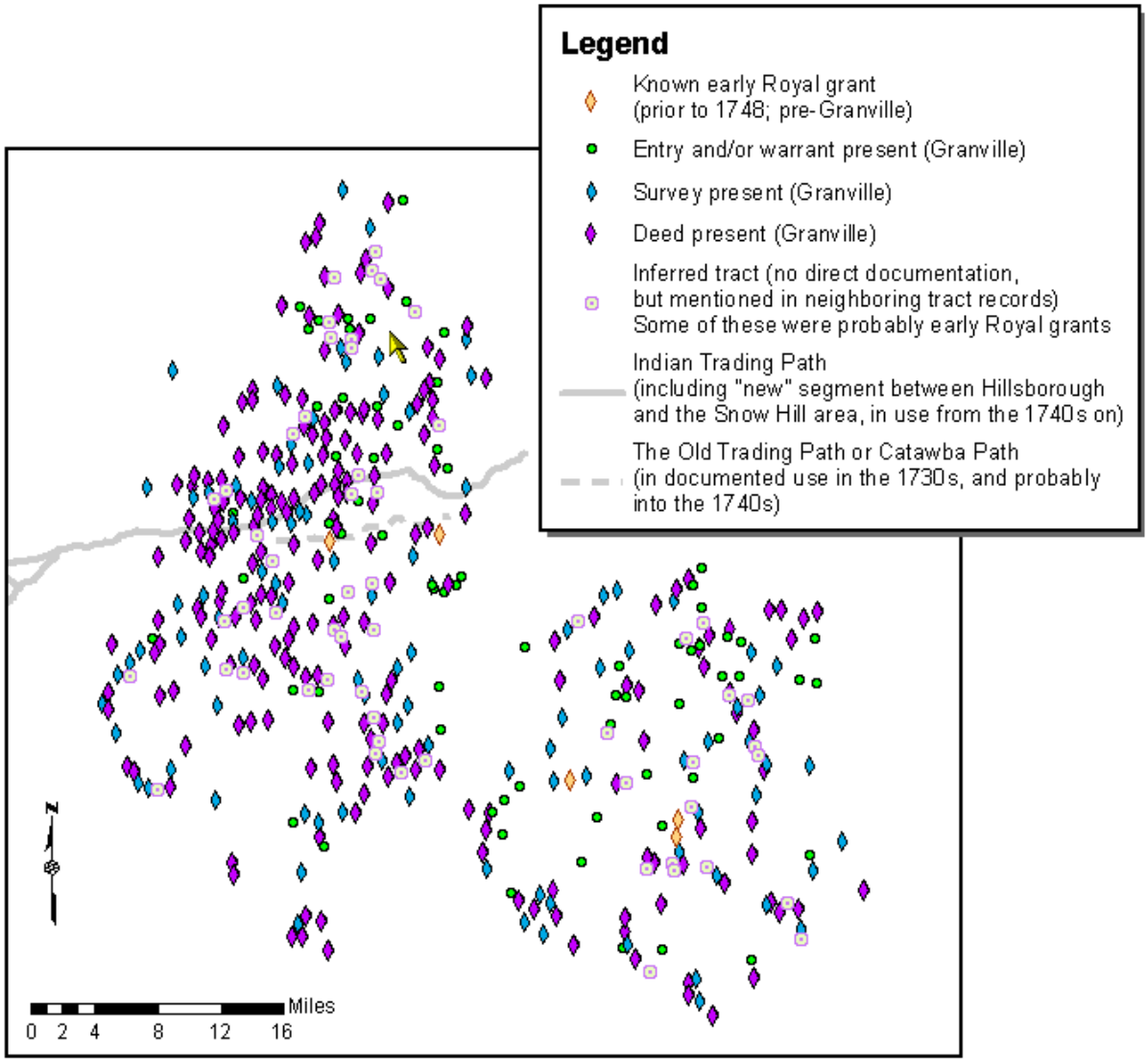

Figure 4.17l. Time series showing tracts by type: 1759. This group of maps may be viewed as a Powerpoint animation at http://www.emporia.edu/~dobbsreb/ncsettlement/.

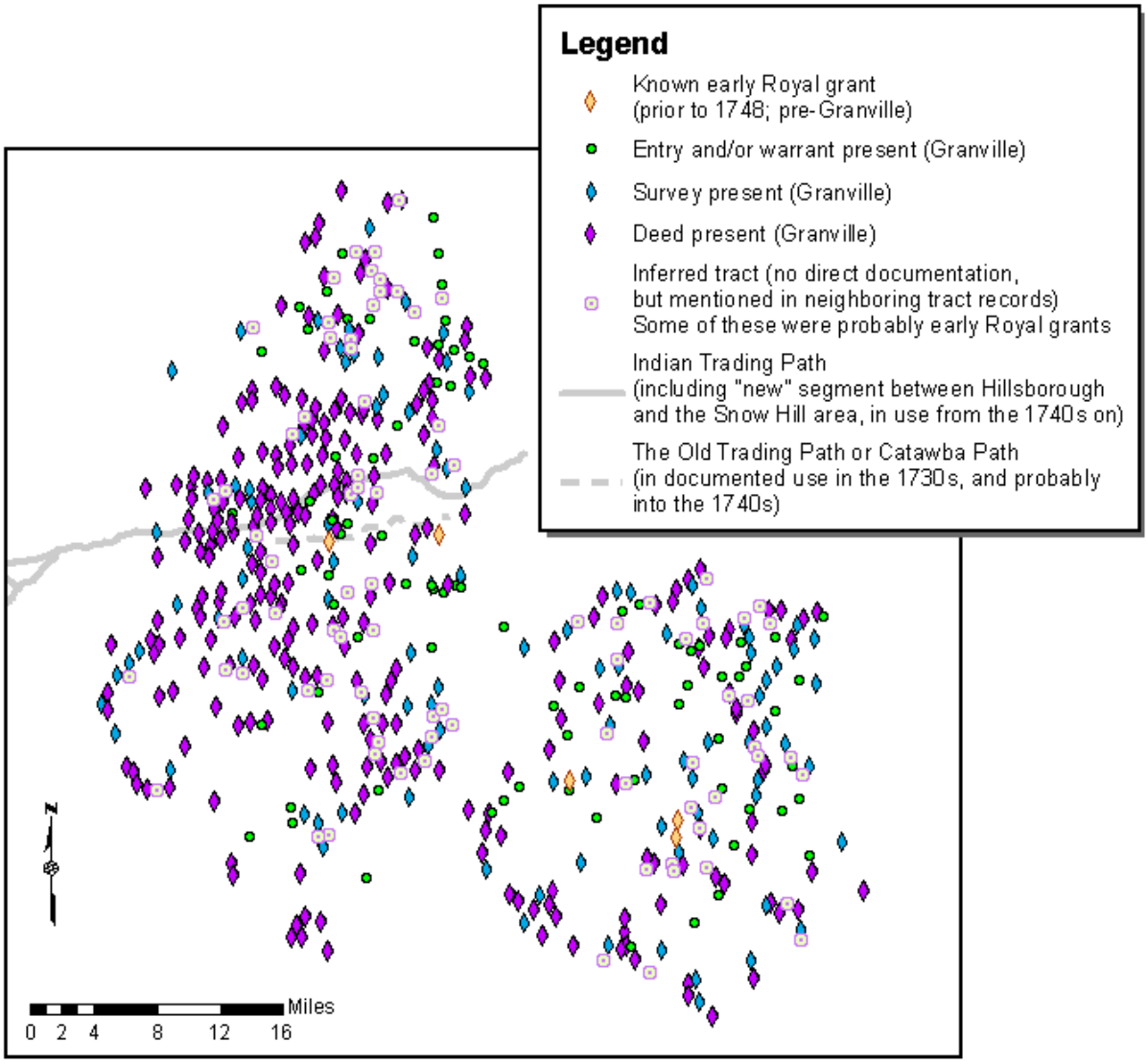

Figure 4.17m. Time series showing tracts by type: 1760. This group of maps may be viewed as a Powerpoint animation at http://www.emporia.edu/~dobbsreb/ncsettlement/.

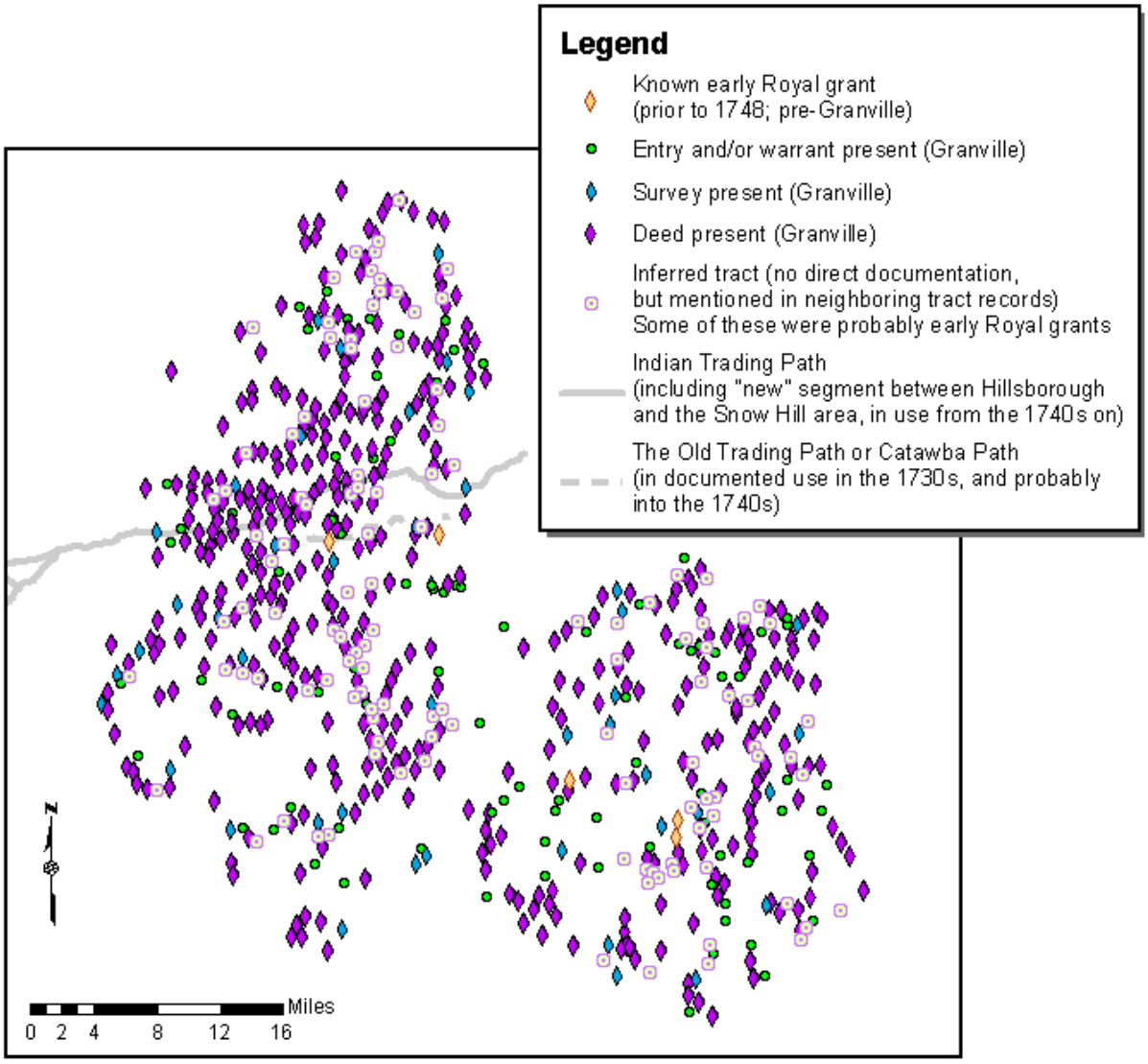

Figure 4.17n. Time series showing tracts by type: 1761. This group of maps may be viewed as a Powerpoint animation at http://www.emporia.edu/~dobbsreb/ncsettlement/.

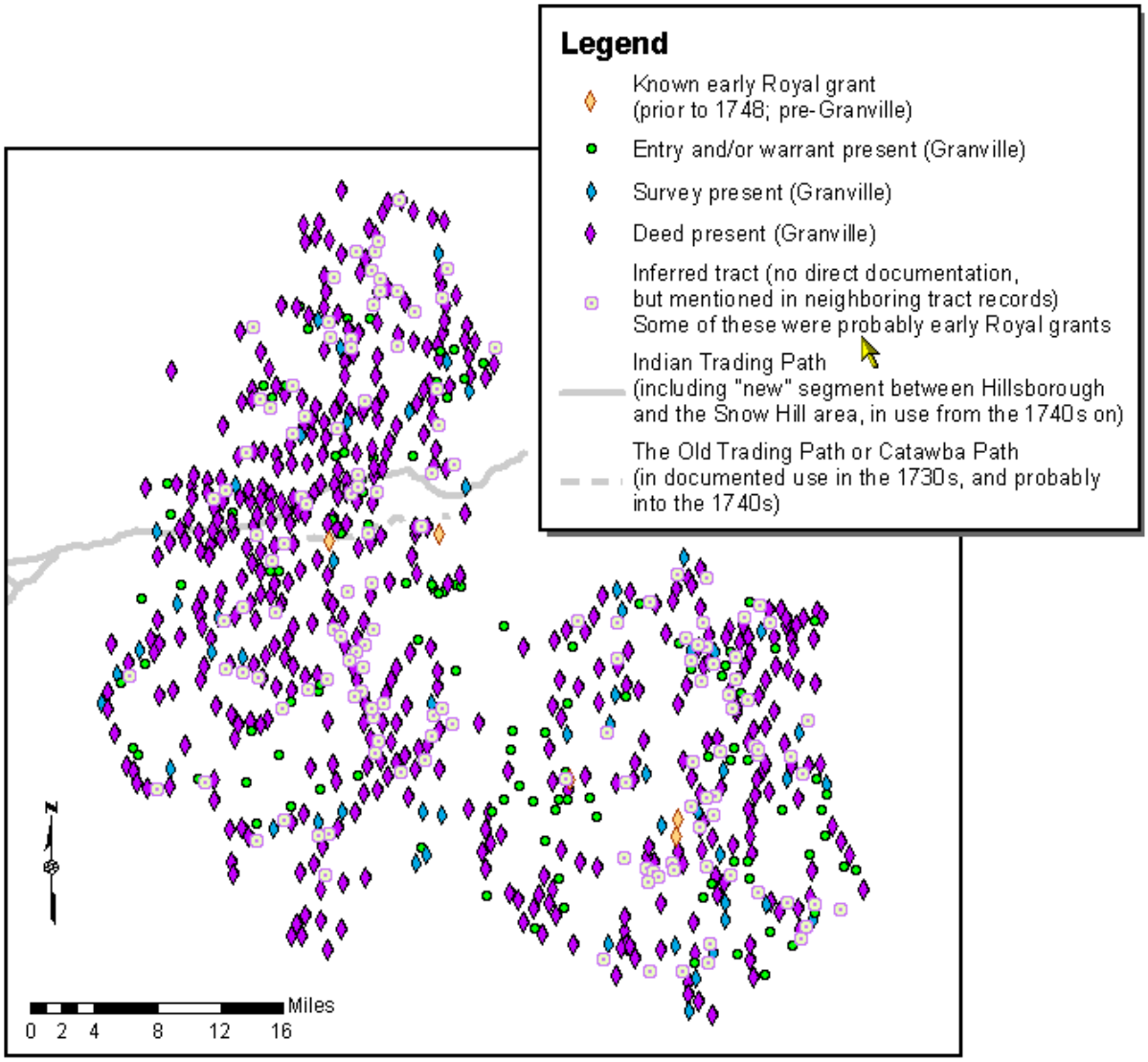

Figure 4.17o. Time series showing tracts by type: 1762. This group of maps may be viewed as a Powerpoint animation at http://www.emporia.edu/~dobbsreb/ncsettlement/.

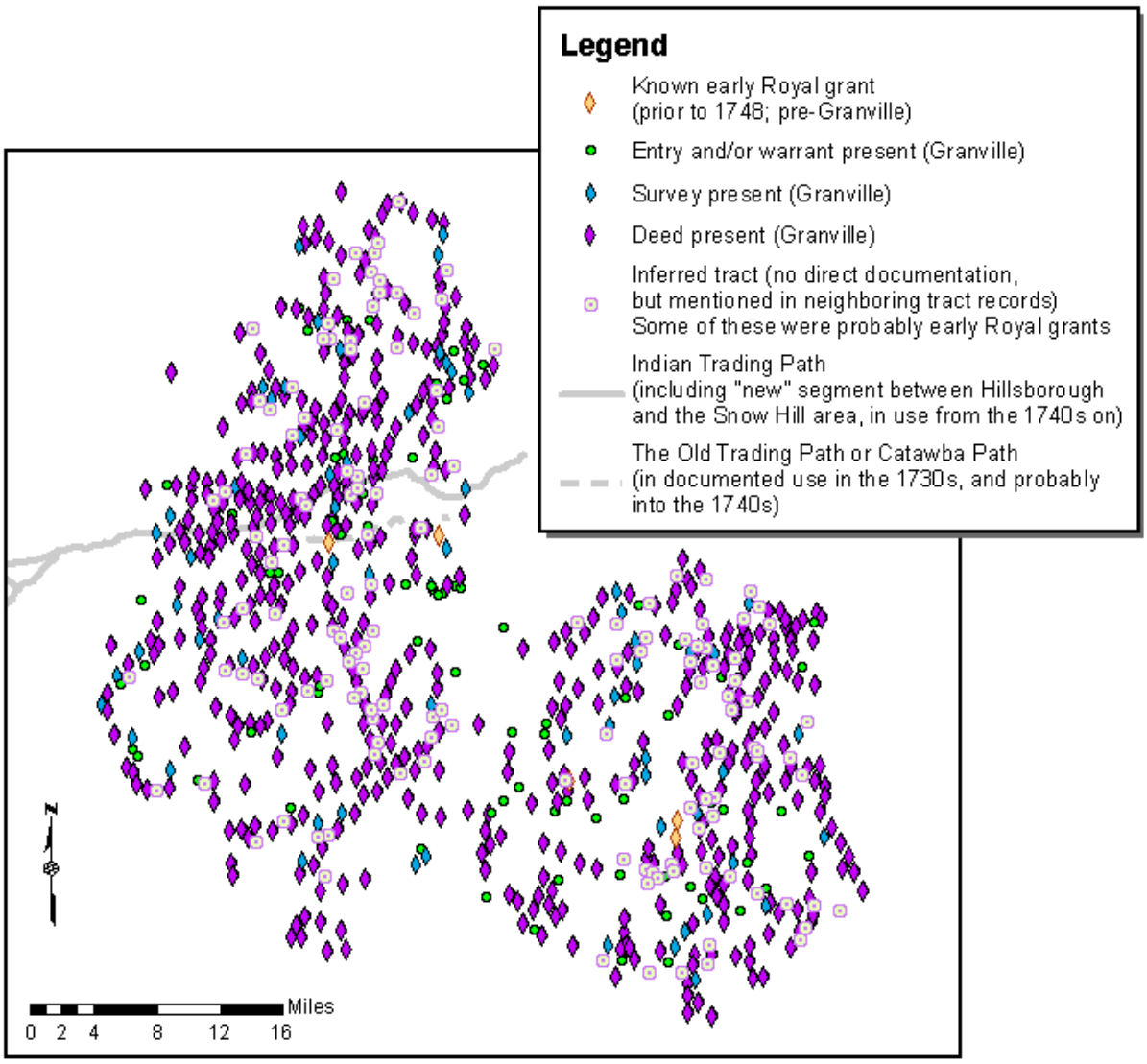

Figure 4.17p. Time series showing tracts by type: 1763. This group of maps may be viewed as a Powerpoint animation at http://www.emporia.edu/~dobbsreb/ncsettlement/.

CHAPTER 5

DISCUSSION AND CONCLUSION

In Chapter 4 I discussed the geographic knowledge output of the Phase I work in a general way. In this chapter I discuss the Phase I results in relation to the theory and model presented in Chapter 2, and think further about what the implications of the work so far might be, to see if the geographic knowledge produced can be converted to the more advanced level of geographic understanding. Then I examine a range of ways that this work could go forward, and additional ways that the digital dataset can be utilized.

Phase I results and the two-scale model

It is now clear that the area around Hillsborough exhibited a significant concentration of density by the end of the study period in 1763. This statement represents the level of geographic knowledge in the multi-stage transformation process. Application of the concepts and model introduced in Chapter 2 can take this further and perhaps produce geographic understanding.

First, Hillsborough represents a site with a high level of nodality. It is located on the Path and the Eno River, at a good crossing point, as predicted by Whebell; furthermore several other routes of pre-European or early settlement era origin intersect here. As a nodal and desirable site, it may be one of the best sites in the Piedmont.

Second, from the time series visualization (Fig. 4.17), density began to accumulate here, relative to the rest of the Phase I study area, by 1751. Most of these tracts are not right

on the Path, but near it; from this it can be inferred that the claimants were oriented at least partly toward rural functions and not urban ones. By 1752, however, an increase in claims right on the Path, as well as near the Path, had begun to complement the rural neighborhood to the north of the present-day town site. This stage probably represents the beginning of an urban orientation, very likely associated with servicing the Path's travelers. By 1754 there was a marked increase in claims on the Path and immediately adjacent to it, and also the emergence of a strong rural neighborhood to the south. Recalling that this is the year the town of Hillsborough was surveyed and occupied (Table 3.1), one can say with confidence that the visual pattern corresponds with the commitment to urbanism, and possibly with the creation of centrality.

The next few years saw infill in the immediate town area, indicating that the town was indeed acting as a growth magnet for urban-oriented migrants, and also considerable additions to nearby rural neighborhoods, implying the rural density needed to support centrality in the town. It is important to remember, of course, that what one is watching evolve here is density of claims, not population density, and that one can expect many more people to be present than it might appear from the number of claims. Taking Mitchell's estimated density required to support centrality, I used the GIS to put an eight mile buffer around the point representing Hillsborough, and discovered that the centroids of 153 tracts lie within that circle in 1763 (Fig. 5.1). This yields a tract density of 0.76 tracts per square mile. To meet Mitchell's estimate of 20 people per square mile to support centrality, one would need to discover an average of 26 people living on each tract. At present I have no data about numbers of people, but an estimate could be derived from documentary evidence in the future to help quantify the point at which Hillsborough's hinterland population was able to

sustain centrality in the town. However, the value of this hinges on Mitchell's estimate and a host of other factors; such quantification is probably moot anyway since Hillsborough became firmly established as an important town in colonial and early national times.

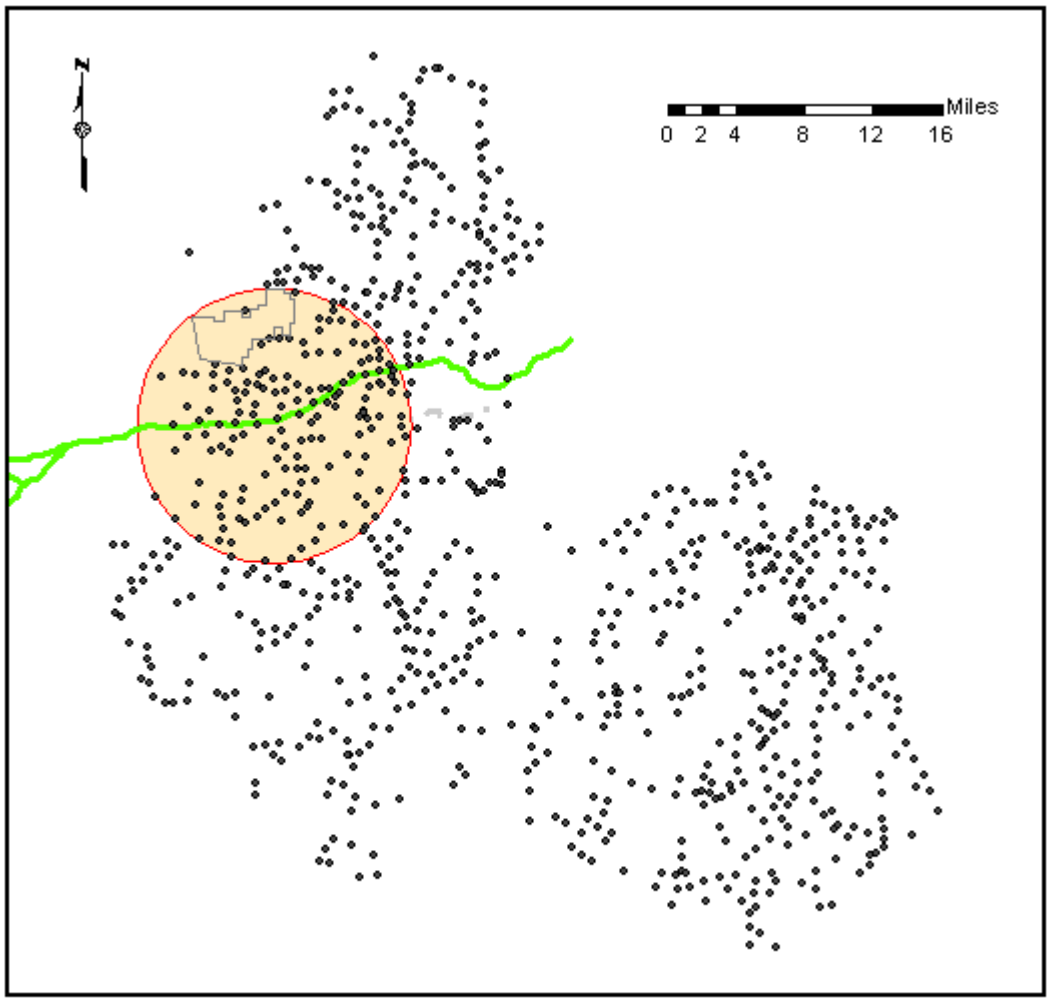

Figure 5.1. An eight-mile radius buffer around Hillsborough included 153 centroids in 1763.

Barring such quantitative confirmation of the creation of centrality, it appears that the town-scale model proposed in Chapter 2 is supported by the evidence as visualized in the temporal maps. However, I cannot be entirely certain the model is supported, first because this is the only town that can currently be tested, and second because I have pattern

knowledge along very little of the Path outside the immediate town area. It is possible (if unlikely) that this is a density pattern that will appear all up and down the Path, and that there are edge effects occurring in this truncated study area rather than a true clustering at Hillsborough. Nevertheless it strongly appears that the Indian Trading Path did indeed influence the formation of the town of Hillsborough. Further, the process approach in visualizing changes to the settlement landscape is validated by this examination.

At present little can be done with the system-scale model; this will require the region-wide transformation of data to knowledge. It is possible, however, to indulge in some speculation. If the town-scale process unfolds as expected for the four main towns, or even the three on the Trading Path, that result will validate a region-wide conclusion that indigenous routes such as the Indian Trading Path did indeed influence European settlement development. If, on top of that, it is possible to show more concretely a high level of interaction and interdependence within the region, and to show that from the beginning there was not a dominant town but an array of entrepôts of roughly equal stature, this will have implications at a much deeper level. Interdependence and a lack of one dominant city are defining characteristics of a polycentric urban region. If these turn out to have existed in the North Carolina Piedmont settlement system as early as, say, the 1760s, only a decade or so after the emergence of urban centers, this will support the idea that the Indian Trading Path is the root of the Piedmont Urban Crescent in a much more complex way than just the creation of density leading to town formation.

In the meantime, this study has already produced some implications for settlement development geography. First, geographic specificity cannot be ignored; the very different connectivity characteristics of the North Carolina Piedmont as compared to other Southern

backcountry regions require a different conceptualization of frontier development than any more generalized model. Second, there was no blank slate; the existing cultural landscape features that Europeans confronted can no longer be dealt with by a ritualistic disclaimer, but must be investigated like any other geographic variable. Third, there is tremendous potential in the approach used here, that of assembling microscale data and using GIS to analyze mesoscale patterns and change over time at both micro- and mesoscale.

Future work

The most obvious future work is the necessary completion of the data transformation through Phase III. Only then will the true picture of the region's settlement system and the Trading Path's influence on it emerge. From the work done so far, however, a number of needed refinements and extensions have emerged. Some of these should be addressed immediately; others are for some future time.

1) Ways need to be found to resolve some of the uncertainty in the mapping stage. This could be done through additional documentary evidence and comparing distinctive property lines, where possible, to modern parcel maps. In addition, practical ways to incorporate indications of uncertainty should be developed.
2) Additional work on the database design is needed. The main issues are the parcel-as-object, alias tables, and adjustments to date output for attachment in the GIS.
3) The extension of the study area to include modern Granville, Vance, Warren, and Franklin counties. The original decision not to include them was based on the fact that they have never seen significant urbanization despite the Indian Trading Path and/or other indigenous routes, and the perception that they represented expansion from the east rather than migration from the north, and there is much sense in that

decision. A comparison of those areas with the areas that did urbanize would be instructive, however.

4) The addition of other kinds of evidence at select locations, namely town sites, to illuminate further the process of town formation.
5) The development, as discussed above, of a method to explore intraregional interaction and interdependence.
6) Other GIS enhancements, such as the reconstruction of historical terrain underlying modern reservoirs, would be helpful for mapping and displaying local areas, though not necessary for the actual pattern analysis.

Additional uses for the dataset

From the beginning of capturing the data in an organized manner, I have envisioned the dataset being made available to others for a range of research purposes. Especially once more of the overall study area is mapped and some of the uncertainty issues are resolved, the database/GIS combination is likely to open up a number of research possibilities across several disciplines. For example, social historians could use grantees' signatures and marks to map literacy and thereby test Kars' (2002) assertion that educational attainment declined during the religious fervor of the Great Awakening. Historical geographers could ask a variety of research questions with this historical-data-made-geographic. Ethnic clustering could be mapped, for instance, although this would need to be done very cautiously due to the Anglicization of names. In one sequence of documents in the dataset, one Simon Yonoss (presumably a phonetic transliteration of a Germanic name by an English clerk) became Simon Jonas and then Simon Jones—Germanic to Welsh in three easy steps.

Environmental historians could profit greatly from this dataset. Feature names across the study area reflect the presence of animals we no longer see, or the dominance of particular tree species in certain locations. Occasionally a survey description gives clues to stages of succession, as in a "sapling level". And the vast majority of surveys indicate tree species for corner markers; these could be used as sample points to reconstruct the vegetation regimes of the region. In fact, one researcher, Miguel Schwartz at Duke's Nicholas School of the Environment, is already using the dataset to do just that in a limited area. Archaeologists could use the dataset to help identify potential excavation sites, as well. In fact I'm certain there are further possibilities here that I have been unable to imagine, and that await only the creative thinking of other scholars.

Conclusion

In 1998 Mitchell laid out a research agenda for interdisciplinary work on the Southern backcountry. He spoke of the need to "appreciate its wide and often subtle internal variations" rather than relying on broad generalizations (21), and proposes, among other things, a strategy of "examin[ing] the formation of backcountry neighborhoods and relat[ing] them to the evolution of settlement system and the development of regional economies" (23). As it happened, I was well along on my research path before I read these comments; yet I believe I have made a significant start on fulfilling Mitchell's call to action on the backcountry. Most importantly, I have established both methodology and technique for transforming microscale data from archival sources to geographic knowledge at the mesocale, and have used this knowledge to begin teasing out a theoretically informed body of understanding of the backcountry settlement in North Carolina.

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