MISSISSIPPIAN CHIEFDOM ORGANIZATION:

A CASE STUDY FROM THE SAVANNAH RIVER VALLEY

by

MALCOLM JARED WOOD

(Under the Direction of David J. Hally)

ABSTRACT

This study reconstructs the chronological and sociopolitical relationships among three closely-spaced Mississippian period (A.D. 900-1600) mound sites: Lawton, Spring Lake, and Red Lake. Such closely-spaced mound sites have traditionally been explained as representing administrative tiers in hierarchically-organized chiefdoms. Alternate explanations include the fusion of two or more chiefdoms into a single non-hierarchical polity, and alternating use of mound centers within a single chiefdom.

I and archaeologists from the University of South Carolina conducted archaeological survey and excavation of the three sites. Each was contour mapped, systematically shovel-tested, and had test units placed in mound flanks, habitation areas, and plazas.

Analyses of over 58,000 potsherds and 14 radiocarbon dates show the sites were contemporaries during the Hollywood ceramic phase (A.D. 1250-1350). Site mapping and test excavations reveal the sites are Mississippian in design, and conform to the architectural traditions of the Savannah River valley. Each site exhibits a formal mound and plaza complex surrounded by a habitation area. Red Lake has three mounds, Lawton has two, and Spring Lake one. Although Red Lake has the most mounds, Lawton occupies a more favorable terrace landform, has the largest single construction stage mound, and has the only confirmed defensive ditch and palisade among the sites. In addition, the communal labor required to construct the mounds, ditch, and palisade at Lawton is over four times greater than that required for the Red Lake mounds, and over 12 times greater than that required for the Spring Lake mound. I conclude the sites are different enough to merit hierarchical ranking, with Lawton designated as the primary mound center.

This study increases our knowledge in several ways. Current explanations for the relationships among closely-spaced mound sites are evaluated. Lawton, Spring Lake, and Red Lake do not appear to be fused chiefdoms, or occupied in an alternating fashion. Instead, they may represent administrative centers of a complex chiefdom. The research methods employed in this study can be applied to other closely-spaced Mississippian mound sites, potentially revealing patterns in the way they were politically organized. Such research will increase our general understanding of the nature of chiefdom organization.

INDEX WORDS: Archaeology, Chiefdoms, Mississippian period, Hierarchy, Settlement systems, Chronology, Pottery analysis, Site architecture, Platform mounds, Savannah River valley, Southeastern United States

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DEDICATION

To curiosity, which has always served me well. May I never run out of it, and may it never be satisfied.

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"A dream that comes only once is oftenest only an idle accident, and hasn't any message, but the recurrent dream is quite another matter–oftener than not it has come on business."

- Mark Twain, *3,000 Years Among the Microbes*

Since I was a child, I have dreamt of being an archaeologist. I owe a great deal of debt to many people and several institutions for helping to make that dream my business. I would like to thank them here, but as the list is long, I fear I may forget some of them. I apologize sincerely for any omissions, as they are unintentional and completely my own.

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CHAPTER 1

INTRODUCTION

The organization of Mississippian period chiefdoms is a topic of debate. Numerous researchers have identified individual chiefdoms in the archaeological record using the distribution and spacing of Mississippian platform mound sites, but the relationships that existed among these sites are not completely understood. This study attempts to reconstruct the chronological and sociopolitical relationships found among one group of closely-spaced Mississippian mound sites in the interior Coastal Plain of the Savannah River valley. Data from intensive archaeological investigations at each site are used to date their occupations, characterize their layout and architecture, and evaluate current explanations for the relationships found among them.

1.1 The Mississippian Period

The term Mississippian embodies many concepts in archaeological studies of the southeastern and midwestern United States. Originally coined to describe the co-occurrence of specific material culture traits such as shell-tempered pottery, wall-trench houses, and flat-topped rectangular platform mounds, Mississippian has come to include models of prehistoric economy and sociopolitical organization (Hally 1999; Milner and Schroeder 1999; Steponaitis 1986). Decades of modern archaeological research confirm that around A.D. 900, significant changes in subsistence strategies, settlement patterns, site architecture, and mortuary treatment occurred at various locales throughout the Southeast and Midwest (Muller 1986; Steponaitis 1986). Despite regional variations and slight modifications in certain material culture traits, these lifeways continued for several hundred years through the initial time of European contact. This span of time, from A.D. 900 to 1600, is termed the Mississippian period.

The Mississippian period is marked by the widespread adoption of intensive horticulture (Milner and Schroeder 1999:95; Muller 1986:173, 177-178; Smith 1986; Steponaitis 1986:388). Maize, beans, and squash are the most notable domesticates. Although the tropical cultigen maize was introduced before this time and used in small quantities, its use becomes characteristic of much of the Mississippian world by A.D. 1200, comprising perhaps 50% of the diet (Steponaitis 1986:388). Along with this increased reliance on intensive maize horticulture, Mississippian peoples practiced a mixed subsistence economy. Use of native cultigens (chenopodium, sumpweed, sunflower, etc.) continues, and a variety of wild plant resources (notably nuts) and animals (fish, deer, turkey, turtles, waterfowl, etc.) are regularly exploited (Hally 1999:98; Steponaitis 1986:388-389).

Specific settlement strategies accompanied the increased reliance on horticulture during the Mississippian period. The floodplains of rivers and secondary streams were loci for year-round, long-term settlements (Milner and Schroeder 1999:95; Muller 1986:173; Smith 1978). These locations provided fertile, annually replenished, easily workable soils ideal for intensive horticulture, as well as a concentrated diversity of natural resources not found elsewhere in the Mississippian landscape. Two general forms of settlement patterns occur at this time: nucleated and dispersed (Hally 1999:98; Muller 1986:173-174; Smith 1978; Williams 1995:127). Nucleated settlements are characterized by numerous large villages at which hundreds or thousands of people resided, while dispersed settlements are characterized by widespread distribution of smaller farmsteads that housed single families or family groups.

The construction of earthen platform mounds is another hallmark of Mississippian culture (Anderson 1994; Hally 1996; Lindauer and Blitz 1999). The great majority of Mississippian platform mounds are square to rectangular in shape, with level summits that supported one or more structures (Payne 1994). Summit structures are usually interpreted as elite residences, mortuary temples, or other public buildings (Hally 1999; Lindauer and Blitz 1997; Milner and Schroeder 1999). Many platform mounds were periodically enlarged by the addition of new layers of earth, prior to which summit structures were usually dismantled or destroyed (Hally 1996). Platform mounds are almost always found in conjunction with open plazas and surrounded by domestic habitation areas (Hally 1999; Holley 1999; Lewis et al. 1998). These mound centers exhibit architectural complexity beyond that of the village or farmstead, and are found across the entire extent of the Mississippian world.

Mississippian society was hierarchically organized into at least two strata; commoners and elites (Hally 2008:8; Steponaitis 1986:389-390). Some social positions were hereditary, being ascribed at birth, though limited social mobility was afforded through personal achievements, particularly in warfare (Steponaitis 1986:390). Archaeological and early historic evidence supports the notion that elite individuals and kin groups were treated deferentially, both in life and in death. In life, elites enjoyed better diets than some commoners, they were respected through numerous social customs, their residences were segregated atop mounds or near plazas, and they had access to exotic materials and finished goods that others did not (Steponaitis 1986:389-392). Elites held coercive political power and ideological authority, were able to demand tribute from communities, and periodically conscripted labor from the common populous (Hally 2008:8-12). In death, some elites were afforded lavish burial treatment with elaborate grave offerings, and they were interred in earthen mounds (Anderson 1994; Muller 1986; Steponaitis 1986).

Both nucleated and dispersed settlement systems during the Mississippian period exhibit site clustering and site hierarchy. Groups of sites are usually composed of numerous villages or farmsteads, along with one or more contemporaneous mound centers (Hally et al. 1990; Smith and Kowalewski 1980; Steponaitis 1986). These clusters of sites are believed to be evidence of polities in which all of the communities are socially, economically, and politically linked (Hally 2008:9; Milner and Schroeder 1999:96; Steponaitis 1986:391). Archaeology and ethnohistory show that mound centers were the political and ceremonial administrative centers of polities, occupying the upper levels of the settlement hierarchy (Emerson 1997; Hally 1993, 1996; Lindauer and Blitz 1997; Milner 2004; Peebles and Kus 1977; Robertson 1993; Smith and Hally 1992; Swanton 1911; Worth 1993a, 1993b, etc.). Elites resided at and governed from such mound centers. These characteristics are generally viewed as evidence for political centralization during the Mississippian period (Anderson 1994:5-9; Hally 2008:8).

Political centralization, institutionalized social hierarchy, and hierarchical arrangement of settlements have prompted many Mississippian period researchers to classify these polities as chiefdoms (Anderson 1994; Hally 2008; King 2003; Milner and Schroeder 1999, etc.). The chiefdom as a form of sociopolitical organization (Carneiro 1981; Service 1962) has been criticized as a typological concept of lineal cultural evolution (Feinman 1995; Pauketat 2007; Paynter 1989) and as a term that obscures developmental and operational variety found among societies of similar scale and organization (Feinman 1995, 1991; McGuire 1983; Pauketat 2007; Upham 1987). While these criticisms are valid in certain respects, there exist worldwide social formations that are neither loosely organized egalitarian groups nor bureaucratic states. If we adopt a simplified definition of the chiefdom, it retains its comparative usefulness as a framework on which we can add the specific details of each cultural case study (Spencer 1987). Using Earle's (1987) definition[1], Mississippian societies can be confidently classified as chiefdoms.

1.2 Mississippian Chiefdom Organization

Our understanding of Mississippian society and chiefdoms in general has benefited greatly from a long tradition of study focused on the nature of chiefdom organization. Classic examples (Anderson 1994; Earle 1997; Smith 1978; Steponaitis 1978; Wright 1984, etc.) of this focus tend to emphasize the political centralization and hierarchical nature of chiefdoms while explaining the variation seen among these complex polities. Central to this view is the concept of multi-tiered administrations within chiefdoms and the archaeological correlates of such organizations. Regardless of slight differences in interpretation, the consensus among these authors is that chiefdoms may be differentiated according to the number of tiers in their administrative hierarchies. Typically, chiefdoms exhibiting one level of political control above that of the local community are referred to as "simple chiefdoms," those exhibiting two or more levels are termed "complex chiefdoms," and the loosely-organized union of several separate chiefdoms into one entity ruled by one dominant chief are identified as "paramount chiefdoms" (Anderson 1994; Hudson et al. 1985).

Further, it has been postulated that archaeological evidence of such organizational differences can be found in local settlement hierarchies. Simple chiefdoms should have one administrative center and a number of associated communities. Complex chiefdoms should have two or more administrative centers, with one center distinctly larger and more architecturally

[1] "Chiefdoms are probably best defined as regionally organized societies with a centralized decision-making hierarchy coordinating activities among several village communities." (Earle 1987:288)

complex than the others. This larger center is often termed the “primary center,” and is the seat of power for the head chief; all associated centers represent subordinate, lower levels in the administrative hierarchy, and are termed “secondary centers” (Anderson 1994; Hally 1993).

The use of a politically-centralized model of chiefdom organization and the distinction between simple, complex, and paramount chiefdoms seems particularly applicable to the Mississippian world. European accounts from the sixteenth century, coupled with a continued focus on chiefdom organization by recent scholars (Anderson 1994; Hally 1999; Hally et al. 1990; Lindauer and Blitz 1997, etc.) support the application of political centralization and sociopolitical hierarchy to Mississippian societies.

Hally’s work (Hally 1993, 1999; Hally et al. 1990) on the territorial size of Mississippian chiefdoms is a prime example. Hally compiled a large sample of 47 Mississippian mound sites spanning 600 years of occupation in Northern Georgia and adjacent portions of Tennessee and Alabama. The mound centers included in this sample range from single-mound sites to the eight-mound Macon Plateau site. Using established ceramic chronologies and available radiocarbon dates, Hally identified Mississippian mound centers that were contemporaneous. Measuring the straight-line distances between these centers, he found that they were separated by either more than 32 km or less than 18 km. From these observations, Hally proposed that mound sites separated by more than 32 km were the administrative centers for politically independent chiefdoms, while those located less than 18 km apart were the primary and secondary administrative centers of complex chiefdoms. Further, by comparing the chronological components at these mound sites, Hally proposed that most chiefdoms in his sample had a life cycle of approximately 100 years (Hally 1993; Hally et al. 1990).

The above characteristics of Mississippian societies and the archaeological findings of Hally and others (Smith and Kowalewski 1980) may be combined to provide a model of Mississippian chiefdom organization. This model may be explicitly summarized as follows. First, Mississippian platform mound sites were the administrative centers of politically centralized chiefdoms (Hally 1993; Lindauer and Blitz 1997). Second, when platform mounds were being built, used, or enlarged, the chiefdom existed as a sociopolitical entity (Hally 1996). Third, a simple chiefdom had one administrative center, while a complex chiefdom had multiple administrative centers (Anderson 1994; Hally 1993, 1999). Fourth, contemporaneous platform mound sites separated by more than 32 km were the administrative centers for politically independent chiefdoms (Hally 1993, 1999). Fifth, groups of contemporaneous mound sites located 18 km or less from each other were the administrative centers for complex chiefdoms (Hally 1993, 1999). Lastly, individual chiefdoms had territories measuring up to 40 km in diameter (Hally 1993, 1999).

Applying the criteria of this model, Hally was able to identify as few as many as 47 individual Mississippian chiefdoms in the northern Georgia area (Hally 1999:106). These include many simple chiefdoms, each of which had a single administrative center with a single platform mound, and at least eight complex chiefdoms with multiple, closely-spaced administrative centers (Hally 1999:104). In four of the complex chiefdoms identified by Hally, each had one administrative center with more mounds that is assumed to be the primary center of the chiefdom.

The findings of Hally and his colleagues (Anderson 1994; Hally et al. 1990; Hudson et al 1985; Smith and Kowalewski 1980) reduced a poorly understood Mississippian political landscape containing many mound sites of various sizes, occupational histories, and spatial distributions, to one in which all mound sites could be assigned to one or more simple or complex chiefdoms. This model of chiefdom size and spacing may be applicable to much of the Mississippian world; similar spacing of mound centers has been identified among Powers phase settlements in Southeastern Missouri and in the Moundville chiefdom in Alabama (Knight and Steponaitis 1998; O'Brien 2001). Further, the findings of Hally and colleagues suggest that there was relatively little variation in the way Mississippian chiefdoms were organized (i.e. simple, complex, and paramount chiefdoms were the most common forms of organization).

To the extent that these findings are valid, it can be argued that most chiefdom organization was structured or determined by a relatively small number of principles, some of which are universal. One of these is span of control. Johnson (1982) posits that in social groups, there is a limit to the number of people or the number of communities that a single leader can effectively manage and direct. If the population grows or additional communities are established, another level must be added to the decision-making hierarchy, or the system will likely collapse in time. Another principle affecting the organization of chiefdoms is limitation on a leader's ability to effectively delegate authority (Wright 1984). The administrative body of a chiefdom typically does not exhibit internal specialization; in other words, the chief serves as political, ceremonial, and economic leader simultaneously. If the chiefdom grows, additional levels of administration (i.e. subordinate chiefs) must be added to compensate for this growth. Each of these subordinate chiefs performs duties similar to those of the head chief, and is a potential rival that could by force or political subversion attempt to establish their self as the primary leader. A third principle affecting chiefdom organization is the limitation on the spatial distance that a chief could directly govern (Hally 1993; Smith and Kowalewski 1985). Chiefs or their representatives likely had to visit local communities away from the administrative center in order to demonstrate their power and reaffirm their authority. Foot travel was necessary to reach some of these communities. It has been suggested that a distance of 20 km or less between an administrative center and a local community, or between primary and secondary administrative centers, would allow for round trip foot travel in a single day (Hally 1993:162-163; Spencer 1987:375). He further suggests that communities beyond this distance from the administrative center would be difficult to directly govern.

There are still fundamental questions concerning the organization of chiefdoms such as those in the Mississippian world. The research presented here attempts to resolve some of these questions. Specifically, can the relationships between closely-spaced Mississippian mound centers be explained hierarchically (i.e. complex chiefdoms), or are there alternative models that better explain these groupings?

1.3 Closely-spaced Mound Centers in Spatial and Sociopolitical Models of Mississippian Chiefdoms

The Complex Chiefdom Model

The complex chiefdom model developed by Hally (1993) and others (Anderson 1994; Smith and Kowalewski 1980) concerning the territorial size, spacing, and archaeological identification of simple and complex chiefdoms explains the distribution of most mound sites in northern Georgia. It also may be applicable to much of the Mississippian world (Knight and Steponaitis 1998; O'Brien 2001). The model does, however, have one significant shortcoming. According to the expectations of the model, the primary center in a complex chiefdom should have site layout, architecture, and artifactual characteristics that set it apart from the subordinate, secondary centers. In the Mississippian world, the primary center should exhibit some or all of the following characteristics: larger overall size, larger or more numerous mounds, a larger plaza, or higher-status occupants. The early Wilbanks phase (A.D. 1250-1325) chiefdom of Etowah is a good example; the three-mound Etowah site was the primary center of a complex chiefdom that included four other single-mound sites located within 18 km (King 2003). In at least 10 cases, however, groups of two or more closely-spaced, seemingly contemporaneous mound sites in Georgia and South Carolina have been challenged as possibly not representing primary and secondary centers of complex chiefdoms (Blitz 1999; Williams and Shapiro 1990). These include Neisler and Hartley-Posey; Lamar and Stubbs; Park and Avery; Rood's Landing and Singer-Moye sites; Scull Shoals and Dyar; Eastwood and Nacoochee; Tugalo, Chauga, and Estatoe; Rembert and Beaverdam Creek; Mason's Plantation and Hollywood; Lawton and Red Lake (Figure 1.1). While some members of these groupings may be differentiated by number of mounds, all are not. The question arises whether these mound sites are primary or secondary centers in complex chiefdoms, or something else altogether. Alternative explanations for the relationships between closely-spaced mound centers have been proposed by Blitz (1999) and Williams and Shapiro (1990).

The Fission-Fusion Model

Blitz (1999) criticizes the model of simple and complex chiefdoms suggested for Mississippian polities in the South Appalachian area. According to Blitz, emphasis on the hierarchy of primary and secondary centers is inflexible, lacking room for other possible political relationships to exist between established political leaders and their administrative centers. He argues further that this model is theoretically unable to account for certain mound site arrangements in the South Appalachian Mississippian world. Specifically, Blitz points to two types of mound site distribution that are not explained by this model: 1) pairs of closely-spaced single mound sites, and 2) spatially isolated multiple mound sites (i.e. greater than 33 km from the nearest contemporary mound site). How, he asks, are we to account for these situations? Are they simple chiefdoms, complex chiefdoms, or something else entirely?

To answer this question, Blitz (1999) looks to the processes of fission and fusion described among the okla-talwas of the Choctaw and Muskogee during the eighteenth and nineteenth centuries. Blitz describes the oklas (Choctaw) and talwas (Muskogee) as the basic political units of these groups, sometimes referred to as towns, that “shared a common civic-ceremonial center” (Blitz 1999:583). Fission occurred when one okla-talwa separated into two smaller groups as a result of internal stress such as political dissent. The weaker of the two groups traveled elsewhere to establish their own okla-talwa. Fusion occurred when one weak okla-talwa sought alliance with a stronger, established neighboring okla-talwa, primarily for protection against military attack. If accepted by the host okla-talwa, the newcomers assumed a subordinate rank in a senior-junior relationship. There is some ambiguity in the historic documents as to whether or not the okla-talwas joined to form one larger okla-talwa or if the newcomers established a new okla-talwa nearby. It is clear, however, that some subordinate groups were allowed to construct and maintain their own public or ceremonial buildings. Blitz proposes that this same fission-fusion process could and did occur at the level of the polity in prehistoric Mississippian societies. He suggests that pairs of closely spaced single mound sites, and closely spaced multiple mound sites, may represent fused chiefdoms. He further posits that isolated multiple mound sites may represent fusions in which the host population and the newcomers combined and lived at the same site. One result of chiefdom fusion, then, would be that the administrative centers of two fused polities would be located close together, and might not differ greatly from one another in size, layout, and architectural complexity.

The Alternating Occupation Model

Williams and Shapiro conducted excavations at a number of Mississippian mound sites in the Oconee River valley of Georgia during the 1970s and 1980s, and developed a fine scaled ceramic sequence for the area (Williams and Shapiro 1990). Comparison of the occupational histories of two closely-spaced mound sites, Dyar and Scull Shoals, led Williams and Shapiro to conclude that they were occupied in an alternating fashion during the period A.D. 1100-1450. Dyar was occupied A.D. 1100-1225, then abandoned. Scull Shoals was occupied A.D. 1225-1350, then abandoned. Dyar was then reoccupied from A.D. 1350-1475. The two sites were simultaneously occupied from A.D. 1450-1590.

Williams and Shapiro (1990) expand on this interesting observation in their work entitled “Paired Towns” (1990). They note at least 10 pairs of mound sites in Georgia and South Carolina with straight-line distances of 8 km to 16 km between pair members. The authors accept that some of these pairs may represent primary and secondary centers within complex chiefdoms, but perhaps not all of them. They propose that the occupation of some mound site pairs may alternate in a manner similar to that of Scull Shoals and Dyar. Further, they propose several possible reasons for this shifting occupation between mound centers: depletion of natural resources (such as fertile horticultural soils, firewood, wild plants or game), military conquest, and chiefly prerogative. In the latter scenario, Williams and Shapiro suggest that a new chief resulting from succession may choose to reside at the established primary administrative center, or move the population of that center to the one where he or she resided prior to becoming chief (1990:171-173). The result of this move might be the complete or near abandonment of one mound center.

1.4 Model Hypotheses and Expectations

Our understanding of how Mississippian chiefdoms are organized, both in specific cases and generally, will remain incomplete until we are able to identify the relationships that existed between closely-spaced, contemporaneous mound sites. Lawton (38AL11), Spring Lake (9SN215), and Red Lake (9SN4) are three such sites (Figures 1.2, 1.3)[2]. Although this cluster of sites is not a pair, as was originally thought (Anderson 1994; Blitz 1999; Williams and Shapiro 1990), all three models presented above are capable of accounting for the grouping and must be tested archaeologically. The research presented here is designed to investigate the nature of the political relationships that existed among the three mound centers and to determine which of the three models developed by Hally, Blitz, and Williams and Shapiro best accounts for those relationships.

The Complex Chiefdom Model

Hally (1993) accounts for closely-spaced mound sites in two ways:

1) The mound sites represent the primary and secondary administrative centers in a complex chiefdom.

2) The mound sites are the administrative centers for separate, non-contemporaneous chiefdoms.

When stated as hypotheses, these scenarios may be tested archaeologically. Under the first scenario, I would expect Lawton, Spring Lake, and Red Lake to be occupied at the same time, but exhibit differences in site layout and architecture. If the sites are contemporaneous, they should have nearly identical pottery assemblages, including similar type frequencies, similar decorative motifs, and similar vessel shape modes. Any absolute dates generated from the sites should overlap significantly. If the sites represent different administrative levels in a single

[2] Figures with exact site locations will not be included in the publicly-distributed version of this document. Qualified researchers may contact the author for a copy of this document with all figures included.

chiefdom, one of them (the primary center) should have one or more of the following characteristics: more or larger mounds, more mound construction stages, more complex mound summit architecture, a larger plaza, larger overall site size, and a larger resident population.

Under the second scenario, I would expect the sites to be occupied at different times and exhibit similarities in site layout and architecture. Absolute dates from the sites should not overlap significantly, and there should be perceptible differences between the two sites' pottery assemblages.

The Fission-Fusion Model

Blitz' (1999) model suggests an alternative relationship for the sites; they represent the administrative centers of separate chiefdoms fused together in a senior/junior sociopolitical relationship similar to that described for some historic period Choctaw and Muskogee okla-talwas.

Under this scenario, I would expect Lawton, Spring Lake, and Red Lake to be occupied at the same time, at least for part of their histories, with the senior administrative center established first. If the senior center were occupied for a significant amount of time prior to the arrival of the junior center(s), I would expect it to exhibit a wider range of absolute dates and pottery types, and perhaps more mound construction stages. If the senior center was occupied for a relatively short time prior to the arrival of the junior center(s), I would expect little variability in pottery or absolute dates among the sites. The sites should exhibit architectural similarity, having among other things the same number of mounds, the same mound summit architecture, and mounds of approximately similar size. Using Blitz' historical analogy, I would expect the junior mound center(s) to be slightly smaller in scale and population, at least in the early stages of settlement, than the senior, established mound center. This discrepancy in size may have disappeared altogether as the junior polity grew under the protection of the senior polity.

The Alternating Occupation Model

Williams and Shapiro's (1990) model suggests that the mound sites were alternately-occupied administrative centers within a single chiefdom. The archaeological example they use to support this argument, the closely-spaced mound centers of Scull Shoals and Dyar, show alternating occupation at the level of ceramic phases, every 125 years in this case. The apparent occupation span of Lawton, Spring Lake, and Red Lake includes only one ceramic phase of 100 years, A.D. 1250-1350 (Anderson 1994; Dale 2007; Stephenson and King 2001; Wood 2006a). Thus, this grouping of sites perhaps is not ideal for a test of the alternating occupation model. If the sites were alternately occupied, the individual occupations could be fairly short, and nearly impossible to differentiate with current methods of chronology building (i.e., construction of ceramic phases and radiocarbon dating). This does not preclude the possibility that this alternation occurred, however, and underscores the importance of constructing a fine-grained, sub-phase chronology based on stratigraphically-secure pottery collections from each of the sites.

In this scenario, I would expect the sites to be occupied at different times and exhibit similarities in site layout and architecture. They should be occupied in an alternating fashion, as the chief and the residents of his or her administrative center moved back and forth from one center to the other. Pottery assemblages and absolute dates for the sites should reflect this alternating occupation.

1.5 Research Methods

The following is an abbreviated form of the research methods used in the current study. Detailed descriptions of the methods employed are included in Chapter 4.

Site Chronologies

Constructing detailed chronologies of all three sites is the first critical step in determining their relationships to each other. Ideally, multiple lines of evidence from both relative and absolute dating methods should be used to construct these chronologies.

Pottery

Stratigraphically secure pottery collections should provide evidence for the construction of detailed ceramic trends through time. Although initial pottery identification (Stephenson and King 2001; Wood 2006a) placed all three sites within the Hollywood phase (A.D. 1250-1350), I conducted further detailed analyses of pottery types and modes from stratigraphically-secure collections found at each site. Such data has been used to establish relatively fine-grained ceramic chronologies elsewhere in the Southeast. This approach has proven effective at other Mississippian sites on the phase and sub-phase levels; Milner et al. (1984) report phase lengths as short as 50 years for Cahokia, and Kowalewski and Williams (1989) suggest sub-phase distinctions of 20 to 30 years at the Carroll site (9PM85) in Georgia, based specifically on pottery ratios of width and number of incised lines, rim treatment and width, and occurrence of complicated stamping from stratigraphically deposited collections.

Smith and Williams (1994) describe the occurrence of stratified refuse deposits on the flanks of Mississippian mounds and demonstrate its usefulness for determining mound chronology. Further, they demonstrate these middens often occur on one particular mound flank (such as the northeastern), though exactly which flank varies. I systematically cored, and in some cases, post-hole tested the flanks of all mounds at Lawton, Spring Lake, and Red Lake in search of stratified, pottery-bearing mound-flank midden. Unfortunately, no such midden was detected at any of the sites. There were, however, extensive sub-mound middens encountered in mound-flank excavations that yielded large, stratigraphically-secure pottery collections that proved invaluable for the construction of site chronologies.

To locate non-mound pottery-bearing midden, I used data from systematic, 10 m interval post-hole tests placed away from the mound at Spring Lake. I then excavated two 2 m X 2 m squares in the areas of highest sherd density within this midden, recovering artifacts and collecting soil samples for flotation. Similar work was conducted at Red Lake (Dale 2007), and at Lawton (Stephenson et al. 2001).

Absolute Dates

I collected charcoal and sooted sherds from each excavated stratum, and submitted the most appropriate of these for Accelerator Mass Spectrometry dating. The resulting dates contributed significantly to an established pool of dates obtained from Lawton and Red Lake samples submitted by Adam King. I also collected small soil samples from each mound construction stage in the Lawton North Mound and Red Lake Mound A, with the intent of submission for optically stimulated luminescence (OSL) analysis. This method could directly date the deposition of mound strata by measuring energy accumulated in the crystal lattices of quartz or feldspar particles exposed and then buried during mound construction (Garrison 2003). These OSL samples have not been analyzed.

Site Layout and Architecture

Understanding the site layout and architecture of Lawton, Spring Lake, and Red Lake is the second crucial step in determining their relationships to each other. I conducted several specific testing strategies to obtain multiple lines of evidence relating to site architecture and layout at the sites.

Mound Testing

Each mound was mapped with a Total Station to determine its shape, dimensions, and orientation. Each mound's flanks were cored, and in some cases, post-hole tested to locate midden deposits. Excavation units or trenches were placed to recover the densest portions of sub-mound middens located in this fashion, as well as to record the number and nature of construction stages present in each mound. The mound at Spring Lake was subjected to a gradiometer survey to identify whether any burned summit structures or hearths were present. In addition, two large tree tips or looter's holes on the summit of Red Lake Mound A were cleaned and mapped to search for evidence of summit architecture. Unfortunately, no summit architecture was apparent.

Soil samples from each stratum were collected for flotation to recover botanical remains. These samples have been floated, but the resulting botanical remains have not yet been analyzed. Animal remains recovered from excavations were segregated for zooarchaeological analysis, a portion of which has been completed. Plant and animal remains recovered from these contexts may indicate diet, seasonality, and mound summit activities. Similar studies of plant and animal remains from southeastern mounds have been used to suggest ritual function, feasting, and differential access to quality cuts of meat (Jackson and Scott 1995; Smith and Williams 1994).

Non-Mound Areas

Each site's non-mound areas were systematically tested at 10 m intervals using shovel testing or posthole testing. Site size and shape, the presence or absence of habitation areas, artifact concentrations that may represent structures or features, and the presence of a plaza are several types of information related to site layout and architecture that such testing can provide.

Several test units were excavated in the non-mound portions of each site to investigate areas of especially high and low artifact density, as indicated through shovel or post-hole testing. The midden deposits indicated by high artifact densities yielded large, non-mound pottery and artifact collections that proved useful for characterizing habitation midden and comparison with that recovered from sub-mound contexts. Test units located in areas of low artifact density allowed for investigation of potential plazas at each site. Soil samples were recovered from each of these test units for flotation. These samples have been floated, but the resulting botanical remains have not yet been analyzed.

1.6 Summary

Lawton, Spring Lake, and Red Lake present an excellent opportunity to test the models of Mississippian chiefdom organization proposed by Hally (1993), Blitz (1999), and Williams and Shapiro (1990) for closely-spaced mound sites. As administrative centers, Lawton, Spring Lake, and Red Lake represent critical links in the prehistoric sociopolitical dynamics of the Savannah River valley. This research furthers our knowledge of these centers, but more importantly, will provide an archaeological example that may be used to understand the relationships between other groups of closely-spaced administrative centers. The outcome of this research also has relevance to the entire Mississippian world. At a fundamental level, if the complex chiefdom model promoted by Hally is correct, then southeastern chiefdoms were organized hierarchically according to a simple set of structural principles. However, if the fission-fusion model (Blitz 1999) or the alternating occupation model (Williams and Shapiro 1990) is supported, it may be the case that numerous political or environmental issues and specific historical circumstances contributed to variations in chiefdom organization and operation. Although the three models are presented and tested as distinct ideas, they are not mutually exclusive. At a global scale, this research deals fundamentally with spatial and operational aspects of chiefdoms, a form of sociopolitical organization found worldwide. This project has the potential to increase our knowledge of chiefdoms and perhaps contribute to the study of complex pre-state societies elsewhere.

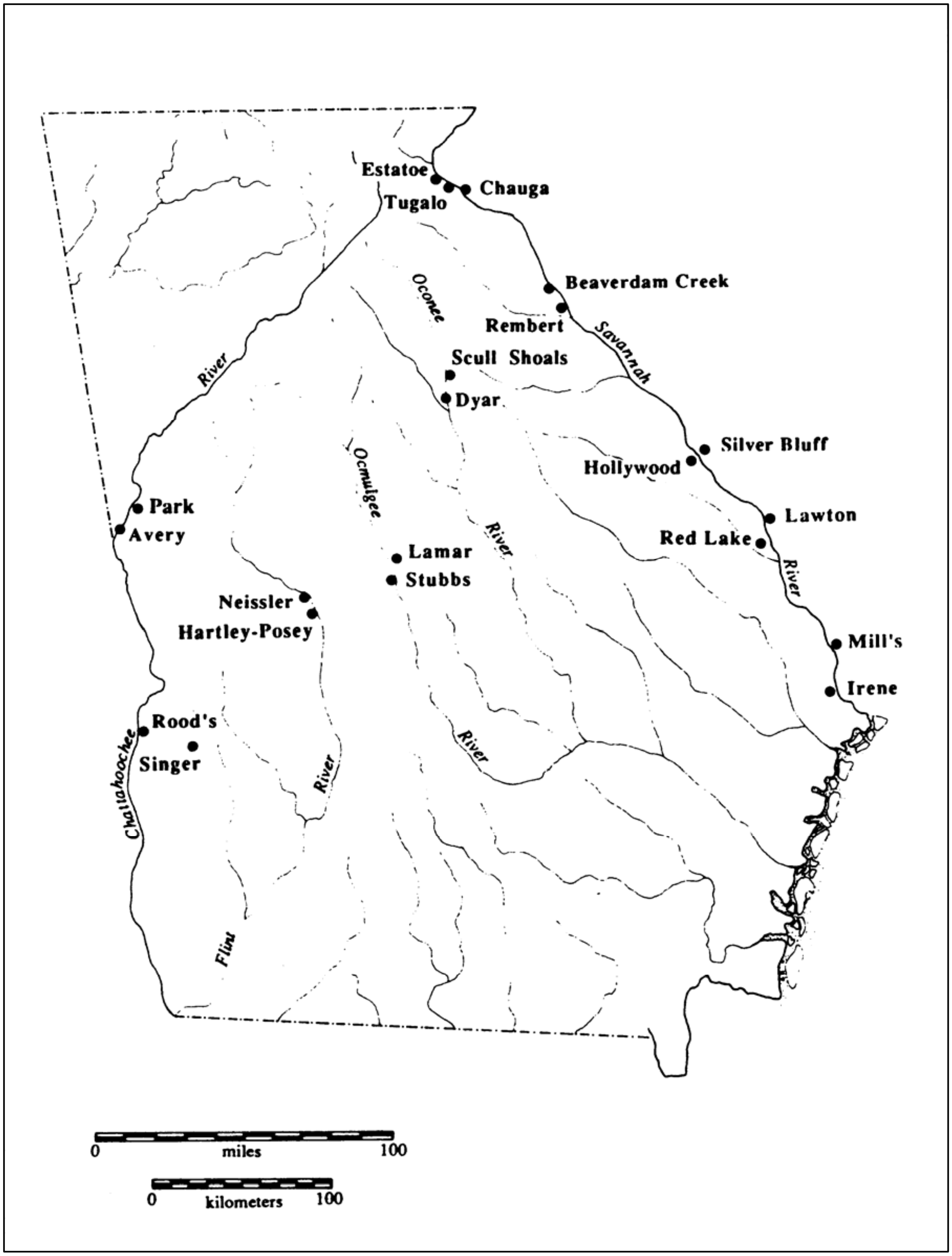

Figure 1.1 Closely-Spaced Mound Sites
(Williams and Shapiro 1990:166)

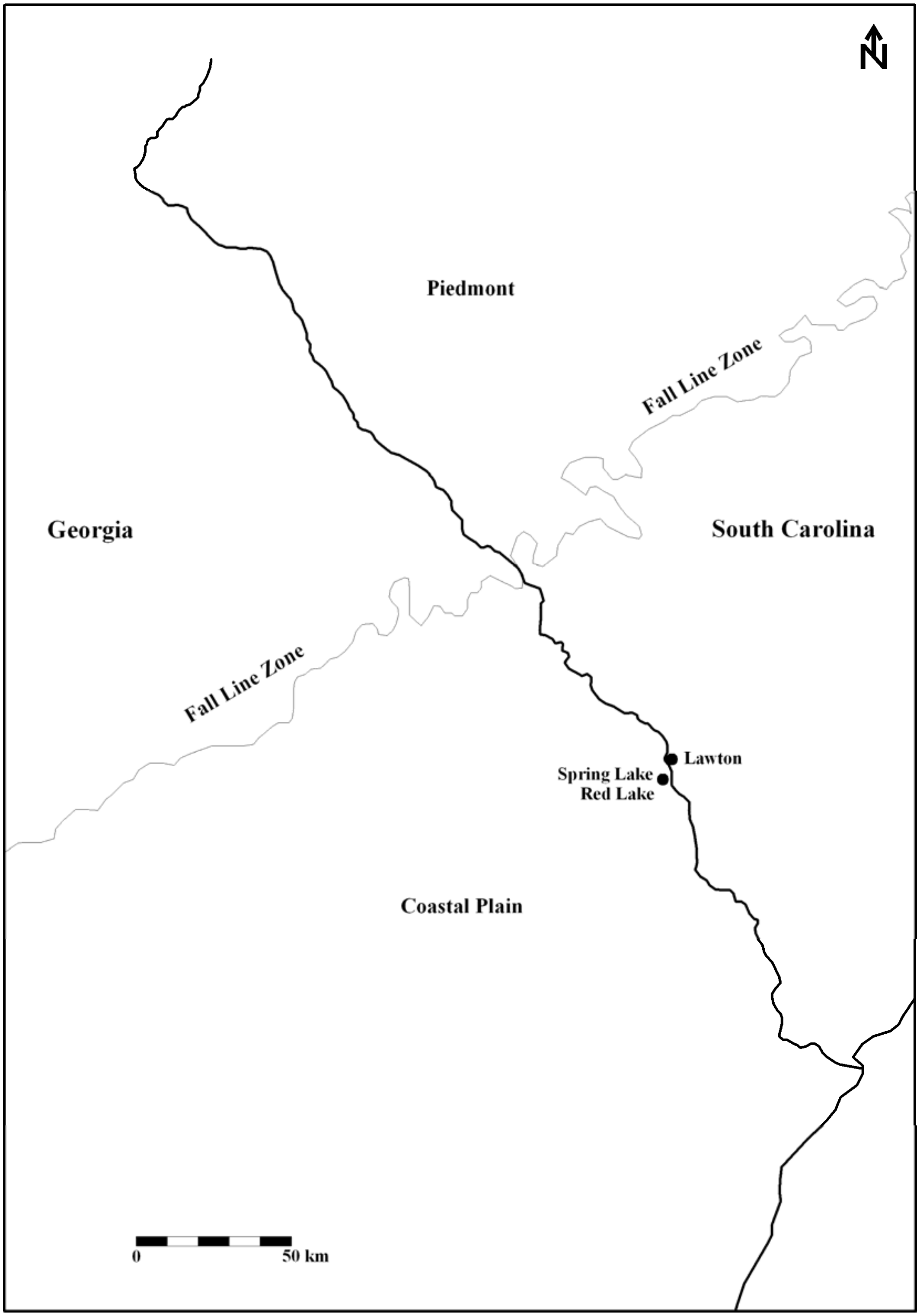

Figure 1.2 Lawton, Spring Lake, and Red Lake in the Savannah River valley

Figure 1.3 Lawton, Spring Lake, and Red Lake USGS Locations

CHAPTER 2

THE NATURAL ENVIRONMENT OF THE INTERIOR COASTAL PLAIN IN THE SAVANNAH RIVER VALLEY

2.1 Geologic and Fluvial Background

The closely-spaced mound centers of Lawton, Spring Lake, and Red Lake occupy similar environments in the Savannah River basin. All three are located within the Coastal Plain physiographic province, which is bounded to the north by the Fall Line, to the southeast by the Atlantic Ocean, and to the southwest by the Gulf of Mexico (Hodler and Schretter 1986) (Figure 1.1). The Coastal Plain is characterized by gently sloping topography, low elevations, sandy soils, and meandering streams. Elevations of the Coastal Plain in Georgia and South Carolina range from 225 m to modern sea level. Soils of the Coastal Plain are marine in origin, are generally sand or sandy clays, are acidic in nature, and are generally low in fertility due to heavy leaching of nutrients. The Coastal Plain physiographic province of Georgia is further divided into five physiographic districts, each of which is unique according to topography, soils, and natural resources (Clark and Zisa 1976). Spring Lake and Red Lake are located within the Vidalia Uplands District, a moderately dissected area marked by meandering streams, extensive swamps that border the Savannah, and an elevation that ranges from 152 m to 30 m above sea level (Clark and Zisa 1976; Hodler and Schretter 1986) (Figure 2.1). South Carolina shares the same physiographic provinces as Georgia, but they have not been further divided into physiographic districts. The physiography of Lawton's location is similar to that of Georgia's Vidalia Uplands physiographic district.

In terms of landscape modification and diversity of natural resources, the streams and rivers of the Coastal Plain are certainly the most important features of this region. These waterways have evolved both in form and behavior, and this evolution was critical to the settlement of and subsistence strategies employed by people in the Savannah River valley. During most of the Pleistocene epoch (1.8 million years B.P-11,500 years B.P.), the Savannah River exhibited a braided stream pattern (Gibbard and Kolfschoten 2004; Leigh et al. 2003). This braiding was the result of large amounts of debris and sediment tilled by glacial activity to the north and deposited in streams as glaciers melted. The Savannah River basin at this time was a relatively high energy, unstable environment, marked by downcutting and a steeper gradient than seen in later times (Brooks et al. 1986; Leigh et al. 2003; Sassaman et al. 1990). Pleistocene sea level, at 70 m or more below present, contributed significantly to the behavior of the Savannah, encouraging swifter flow and preserving the steep gradient of the stream (Sassaman et al. 1990). No human occupation of the lower Savannah River valley has been confirmed for the majority of the Pleistocene epoch, likely due to the fact that the landscape has been modified significantly since then (rising sea levels likely submerged early coastal sites, while river meandering may have eroded and redeposited inland ones) and little evidence has been found elsewhere for a pre-Clovis cultural component in the southeastern U.S.

Towards the end of the Pleistocene (15,000 years B.P. or later), the Savannah evolved from a braided stream to a meandering stream (Leigh et al. 2003). There are, however, small sections that retain braided properties (Sinha 1959). This fundamental shift saw great changes in the environment of the Savannah River valley, and was caused by rising temperatures, glacial retreat, and an accompanying rise in sea level. During the Holocene epoch (11,500 years B.P.-present), the Savannah continued to evolve, from downcutting to aggrading, a higher energy regime to a lower energy regime, and a steeper gradient to a more gentle one (Brooks and Sassaman 1990; Brooks et al. 1986; Gibbard and Kolfschoten 2004; Sassaman et al. 1990). Modern estuary and floodplain development commenced at approximately 6000 B.P., as near-modern sea level was established (Sassaman et al. 1990). Sea level continued to rise for nearly 4000 more years, slowing at 4200 B.P., and fluctuating in 1 m to 2 m increments with a rising trend until stabilization at approximately 2000 B.P. (Brooks et al. 1986). This rise in sea level and stabilization is evidenced archaeologically in the stratigraphic sedimentation of several securely dated sites from the coast and upriver (Brooks et al. 1986).

The mid-Holocene Savannah River exhibits classic characteristics of a meandering stream, migrating laterally within a belt of unconsolidated sediment and forming a sinuous channel pattern (Brooks and Sassaman 1990; Brooks et al. 1986; Sassaman et al. 1990; Saucier 1994; Sinha 1959). In this system, natural levees are created from overbank flooding; the coarser, heavier sediment particles (often sand and gravel) are deposited quickly as the river overflows its banks, typically on the outer curves, or cutbank sides of meander bends, while finer silts and clays are carried further into the adjacent floodplain. Such repeated overbank deposition builds up over time, resulting in low, relatively broad ridges (natural levees) that slope away from the parent channel. Natural levees are the most elevated topography within the lower Savannah River floodplain. The incremental growth of natural levees ceases only when flooding stops or flow from the parent channel is redirected.

Beyond the natural levees lay river swamps, low elevation floodplain that often contains standing water. River swamps are usually discontinuous combinations of old, silted in channels, eroded former levees, and active floodplain, all of which are subject to influxes of silt and clay and scouring episodes from river flooding (Saucier 1994). This combination of formerly active floodplain features and continued movement and redeposition of soil results in topography of variable elevations. Periodic overbank flow from the parent channel brings additional water, soil, nutrients, and organisms into these river swamps. The swamps generally drain slowly, and slight differences in elevation significantly impact submersion by floodwaters and what species of plants and animals are present.

Another critical component of the meandering stream system is the cutoff channel and/or oxbow lake (Saucier 1994). Over time, the neck of a meander bend will become narrower as the two cutbank sides continue to erode. During flood stage, the river may cut across this narrowed neck to follow a straighter path. This effectively removes the meander bend from the main channel, creating a body of slow-moving or still water; the cutoff channel or oxbow lake (see Figures 1.2 and 4.17). These lakes have a predictable life cycle, involving quick silting in of the upper and lower arms; annual influxes and draining of water, nutrients, and organisms from and to the parent channel through batture channels; creation of marshes in the southern ends as they fill in with sediment; and eventual filling by sedimentation and erosion. This life cycle typically lasts several hundred to several thousand years (Saucier 1994). The combination of active channel, natural levees, river swamps, and oxbow lakes found in the meandering river system results in a complex array of topographic and geologic features, as well as different hydrologic conditions and biotic communities.

Coastal Plain soils are composed primarily of sand, the remains of ancient sea beds and former coastlines. The south-central portion of the Savannah River valley where Lawton, Spring Lake, and Red Lake are located is no exception. The sandy soils in this area are generally acidic, do not hold moisture or nutrients well, and are subject to leaching. The upland soils- those outside of the floodplain- have been weathered, leached, moved, and redeposited to the extent that their acidity and low natural fertility support little more than pine forests and grass prairies with relatively low biodiversity in both plants and animals (Larson 1980; Pearson and Ensminger 1957). The upland soils are not well suited to intensive agriculture without the addition of fertilizers. The stream and river floodplains of this area, while primarily composed of these same soils, benefit from regular moisture and annual deposition of nutrient-rich sediments from overbank flow. The USDA Soil Survey of nearby Burke County (Paulk 1986), which should be representative of the available soils for most of the south-central portion of the valley, lists the dominant floodplain soil, "Tawcaw", as a very poor habitat for grain and seed crops. However, another soil found in association with Tawcaw, and located on river levees, "Shellbluff", offers the second-highest yield per acre for maize in the county, and is listed as "good" on a scale from "good" to "very poor" for grain and seed crops, grasses and legumes, wild herbaceous plants, hardwoods and conifers, and wildlife. The areal extent of levees in the lower Savannah River valley is limited, however, compared to larger meandering systems such as that of the Mississippi River. Although subject to high moisture levels, poorly drained swamps, and repeated overbank flow, the river floodplain is considerably more productive and biodiverse than most of the inland Coastal Plain of Georgia and South Carolina.

The steady availability of water, higher productivity of soils, and increased biodiversity present in plants and animals of the river floodplain were most certainly a draw to human populations in the lower Savannah River valley (Anderson 1975; Brooks et al. 1986; Lamoreaux 1999; Larson 1980; Sassaman et al. 1990). Relatively dry, stable levee land suitable for settlement was present, and the combination of active river channel, confluences with smaller streams, raised levees, extensive river swamps, and oxbow lakes provided a suite of natural resources well-suited to a mixed economic strategy of hunting, gathering, and horticulture.

Aquatic resources such as fish, turtles, freshwater mussels, as well as waterfowl, would have been plentiful and easily harvested in the seasonally-replenished oxbow lakes and river swamps (Kidder 1996; Limp and Reidhead 1979; Weinstein 1981). Terrestrial fauna such as deer, raccoon, opossum, squirrels, rabbits, turkey, and land turtles were readily available from both the adjacent uplands and the higher elevation patches of land within the floodplain (Larson 1980; Sassaman et al. 1990).

Archaeologically, there is a significant increase in the number of prehistoric sites and the density of artifacts found at those sites in the Coastal Plain, beginning in the late Archaic period, peaking in the Woodland period, and declining until the abandonment of the lower Savannah River valley by the late Mississippian period (Anderson 1975, 1994; Brooks et al. 1986; Lamoreaux 1999). The late Archaic period increase in aboriginal populations coincides with the rise and relative stabilization of sea level, the establishment of the modern meandering river regime, and the development of the estuary and floodplain in the Coastal Plain Savannah River valley.

The resources that drew populations to the Savannah River valley (floodplain soil, natural levees, plants and animals, etc.) were not concentrated in particular locales (with perhaps the exception of oxbow lakes), which encouraged and supported dispersed settlement for much of prehistory and a diffuse, broad spectrum socioeconomic strategy (Brooks et al. 1986; Schnell and Wright 1993; Wood 2006).

2.2 Plants of the Interior Coastal Plain in the Savannah River Valley

Modern climatic conditions were established in the lower Savannah River valley, and much of North America, with the transition to the Holocene geological epoch at approximately 11,500 years B.P. At this time, the spruce forests that dominated the late glacial period (13,500 to 10,000 B.P.) began to deteriorate from south to north, and were replaced by mesic forests of oak, hickory, beech, elm, and ironwood (Watts 1980). These mesic forests were apparently stressed by higher average temperatures and longer growing seasons throughout the Holocene, with a resulting increase in pine and decrease in oak. Swamp development, evidenced by the establishment of large cypress stands, occurred in the lower Coastal Plain between 6,500 and 5,000 B.P. (Watts 1980; Williams et al. 2000). It is generally accepted that mid-Holocene biomes were similar in vegetational structure to those of today, but that the composition of individual plant communities was not necessarily constant or stable throughout time (Prentice et al. 1991; Stahl 1996; Williams et al. 2000).

Reconstruction of the prehistoric environment in the lower Savannah is problematic due to many factors. It is clear from early descriptions of Georgia and the Carolinas that forest composition and the nature of streams is markedly different than that of today (Bartram 1998; Lawson 1984, etc.). The effects of extensive logging, intensive agriculture, and the manipulation of streams by damming and channelization should not be understated (Trimble 1974). On the other hand, these early historic snapshots of the southeastern landscape are by no means full-coverage surveys of all previously existing geology, plants, and animals, and do not deal specifically with the locales of Lawton, Spring Lake, and Red Lake. These observations were also made hundreds of years after these sites were abandoned, and could reflect conditions different than those experienced by the aboriginal occupants of these sites. Taking these impacts into account, it is worthwhile to investigate and discuss the modern vegetation of the study area, treating it as the most accurate analog for the plants present during the late prehistoric occupation of the lower Savannah.

Discussion of Coastal Plain plants has generally fallen into two categories; those that emphasize the seeming lack of soil productivity and ecological diversity (Larson 1980) and those that caution against a simplified view of Coastal Plain plant resources, either by pointing to the limited number of detailed regional studies available (Schnell and Wright 1993) or through modern vegetation surveys that indicate greater diversity of plant species (Imm and McLeod 2005; Whipple et al. 1981; Workman and McLeod 1990). The study area falls entirely within the Southeastern Evergreen Forest Region, as identified by Braun (1950). Braun emphasizes that the Southeastern Evergreen Forest Region is distinct from other regions and composed of a wide variety of forest communities. This diversity is due primarily to soil types, soil chemistry, soil moisture, fire regimes, modern land utilization, and differences in elevation throughout the region (Braun 1950; Larson 1980). The Southeastern Evergreen Forest Region is further divided into distinct types. The most relevant of these to the study area is the bottomland forest, which encompasses those communities found in the floodplain river basins of the Coastal Plain. Braun (1950) and others (Imm and McLeod 2005; Whipple et al. 1981; Workman and McLeod 1990) further divide the bottomland forest into bottomland hardwoods and swamp forests. The distinction between these two is primarily the result of differences in elevation and soil moisture and the effects these have on the composition of the forest communities. Bottomland hardwood forests occupy land of slightly higher elevation that is subject to flooding of limited depth, duration, and season. They are found in the floodplain, and are often temporarily flooded during the late winter and early spring, when plants are typically dormant. Swamp forests, however, are found in lower areas on the inland side of river levees. They are inundated most or all of the year, and are composed of species that tolerate consistently high moisture levels. The river levees themselves support bottomland hardwood forest species. While particular areas may be generally characterized as bottomland hardwood forest or swamp forest, there is variation in the number and abundance of species present due to variations in frequency, depth, and duration of flooding.

Bottomland hardwood forests are similar in composition to most mixed hardwood forests in the low, wet areas of the Coastal Plain. They comprise approximately 40% of the Savannah River swamp from the headwaters to the coastal river mouth (Whipple et al. 1981). These forests are dominated by sweetgum, swamp gum, red maple, water oak, laurel oak, and red ash trees, while tulip poplar, beech, and southern magnolia also occur in small percentages (Imm and McLeod 2005; Whipple et al. 1981; Workman and McLeod 1990). The understory of the bottomland hardwood forest is fairly complex and dense, with many species of woody shrubs, vines, grasses, and herbs, many of which have value as food, medicine, and raw material for tools and goods. Swamp forests are very distinct from bottomland hardwoods; their dominant tree species are bald cypress and tupelo gum (Imm and McLeod 2005; Whipple et al. 1981; Workman and McLeod 1990). Also found in small percentages are water ash, red ash, red maple, swamp gum, American elm, and sycamore. Understory is either nonexistent or poorly developed due to frequent inundation. These categories of bottomland hardwood forest and swamp forest tend to hold true for the study area and are typical of the environments in which Lawton, Spring Lake, and Red Lake are found.

2.3 Animals of the Interior Coastal Plain in the Savannah River Valley

The Coastal Plain portion of the Savannah River valley is home to a great variety of animals, many species of which were utilized by native peoples. Historic studies, as well as archaeological evidence, emphasize the importance of the river floodplain as the main source of animals (Larson 1980:51; Reitz et al. 1987:218). This is due both to the availability of browse, water, and richness of biological diversity in the floodplain and a general lack of these qualities in the Coastal Plain uplands.

Modern surveys of extant taxa, though not exact reflections of those present in late prehistory, are likely similar and can provide useful information on the resources available to the Mississippian period occupants of the region. The most complete surveys conducted to date are from the Savannah River Site (SRS), a 310 square mile U.S. Department of Energy facility located approximately 20 km north of the Lawton site (Figure 2.1). Fifty years of environmental research on the SRS have generated a wealth of data regarding animals of the central Savannah River valley.

Eighty-seven fish species from 23 families have been recorded on the SRS (Marcy 2005:184). This represents a significant portion of the 98 fish species reported for the central Savannah River basin (Marcy 2005:187) and the 106 total species for the entire basin (Smock et al. 2005). All of these species are edible. While some fish species' habitat is dependent on certain factors (speed of water flow, depth of water, temperature of water, substrate, type and amount of organic matter in the water, etc.), many can thrive in a variety of waterways. With the variety of waterways present in the study area, including the main Savannah River channel, feeder streams and creeks, oxbow lakes, and river swamps, there is a diversity of habitat that should support most of the species listed for the SRS. Oxbow lakes and river swamps adjacent to Lawton, Red Lake, and Spring Lake likely supported populations of sunfish, bowfin, suckers, and catfish, which tend to dominate slow, deep, muddy waters (Marcy 2005:190). These same habitats (oxbows and river swamps) have historically proven to be "highly productive aquatic system[s]," due to the fact that they receive infusions of nutrients and fish from river flooding (Marcy 2005:198). One unstocked pond on the SRS that historically received water from river floods held 30 species of fish in relatively high densities (Marcy 2005:199). Fish were a significant contributor to the late prehistoric diet (Reitz et al. 1987). They are easily harvested, especially from the slow or still water habitats of oxbows and river swamps (Limp and Reidhead 1979). Although few fish taxa were recovered from a sample of sites in Coastal Plain and Piedmont sections of the valley (Reitz et al. 1987), this may have been due to taphonomic processes. In contrast, several species of fish were recovered from a shell midden at the Red Lake site, which had exceptional preservation (Matthew Compton, personal communication 2008).

Also present in these waterways are at least 20 species of unionid mussels, with eastern elliptio and variable spike being the most common (Smock et al. 2005:91). The number and variety of mussels found in the Savannah has likely suffered historically from human manipulation of river and stream channels and the introduction of chemicals, waste, and sediment to the waterways.

One hundred three species of reptiles and amphibians have been recorded on the SRS (Buhlmann et al. 2005:203). It is likely that some of these were regular contributors to the late prehistoric diet. Turtles, frogs, and snakes are readily available in terrestrial and aquatic habitats. Semi-permanent wetlands, such as oxbow lakes and some swamps, support high populations of yellow-bellied sliders and Florida cooters, while seasonal wetlands support populations of chicken turtles and eastern mud turtles (Buhlmann et al. 2005:218). The American alligator is also present, though this is a rather formidable source of calories. Reitz et al. (1987:217) report a "high presence of deer in combination with a high use of turtles" as evidenced by zooarchaeological remains from five non-coastal sites in the Savannah River valley. This pattern of animal use occurred regardless of the sites' locations above or below the Fall Line, and in both pre-Mississippian and Mississippian period sites (Reitz et al. 1987:217).

The interior Coastal Plain section of the Savannah River valley also supports a wide array of birds. Two hundred fifty-nine species have been recorded on the SRS; this is over two-thirds of the entire species list reported for the State of South Carolina (379 species) (Kilgo and Bryan 2005:223-224). The diversity of habitat, extensive forests, and position of the study area on a migratory flyway all contribute to the great diversity of birds found there. Songbirds, marsh birds, ducks, and geese are all present, at least seasonally, and potentially provided a useful source of protein and raw materials such as feathers and bone.

Fifty-four species of mammals have been recorded on the SRS (Loeb et al. 2005:253). Most of these likely were present during the late prehistoric occupation of the valley, though some have been introduced historically or are invasive (armadillos, Norway rats, and pigs). White-tailed deer, black bear, raccoon, squirrel, rabbit, and opossum likely were important inclusions of the Mississippian period diet. Deer appears to have been especially important, being the predominant taxon in zooarchaeological remains from six sites throughout the valley (Reitz et al. 1987:217). These, and other useful mammals, occur regularly in the area, though their distribution on the landscape is variable according to topography, vegetation, and moisture.

2.4 Mississippian Adaptive Niche

It is important to consider the environmental characteristics and available resources of the lower Savannah River valley in order to better understand the influences these may have had on the development of Mississippian period lifeways at Lawton, Spring Lake, and Red Lake. Smith's (1978) discussion of Mississippian settlement patterns in the lower Mississippi River valley is an appropriate and relevant treatment in this regard. Smith identifies an adaptive niche of Mississippian populations: occupation of the meander belt zone of alluvial valleys, which are environmentally circumscribed areas bounded by the uplands adjacent to the floodplain. He describes these areas and their draw to late prehistoric peoples in terms of energy and resources. The alluvial floodplains of meandering streams are, he posits after Odum (1975:18), "naturally subsidized solar-powered ecosystem[s]," meaning they receive their power, potential for growth and sustenance, from the sun, but also from other sources, or subsidies. In the case of meandering stream systems, these subsidies come in the form of soil and accompanying nutrients (critical for the growth of useful wild and domesticated plants) deposited by overbank flow, fish that move between the main channel, oxbow lakes and river swamps, and migratory waterfowl that stop to rest and feed in these same lakes and swamps.

The complex, linear pattern of active channel, natural levees, abandoned channels, and swamps in the meandering system creates variations in topography and distinct, associated biotic communities that can be found in close juxtaposition. Further, the curvilinear nature of the meandering stream system makes for spatially long, yet relatively narrow, ecotones between adjacent habitats. Smith cites the combination of a "variety of biotic communities" in a circumscribed area (the floodplain) and the presence of extensive ecotones as a recipe for a productive habitat zone that supports relatively high population densities of a wide variety of species (1978:482).

Mississippian populations were dependent on a mixed economy of domesticates (maize, beans, squash, sunflower, marsh elder, gourd) and seasonally-available wild resources (backwater fish, migratory waterfowl, deer, raccoon, turkey, nuts, fruits, berries, and seed-bearing pioneer plants such as chenopodium) (Smith 1978:483). The natural power subsidies, fluvial characteristics, complex topography and resources of alluvial meander belts provided not only seasonally-replenished fertile soils for horticulture, but also habitat for the wild resources most utilized by Mississippian period peoples.

Smith's identification of this adaptive niche as characteristic of Mississippian culture may be questioned on the grounds that many Mississippian societies were not located along large meandering rivers (such as the Piedmont of Georgia, or on the coast) (Shapiro 1986). Nevertheless, the model does seem applicable to the lower Savannah River valley. As previously stated, the lower Savannah River is a meandering river, and exhibits the characteristic features of such: laterally migrating channel, natural levees, oxbow lakes, swamps in various states of infilling, and both periodic and episodic overbank flow and sedimentation. As such, the lower Savannah may be characterized as an example of the adaptive niche described by Smith.

There are significant differences between the lower Savannah River and the lower Mississippi River environments, however. The greatest of these is scale. It is generally well accepted that late prehistoric cultural developments in the Mississippi River valley represent some of the earliest instances of Mississippian lifeways. This is likely due in part to both the high horticultural productivity of the Mississippi River floodplain and the vast expanse that it covers. The Lower Mississippi alluvial valley ranges from 48 km to 145 km in width, and the Holocene alluvial plain of the Lower valley, where the river occupies a meander belt, covers approximately 39,523 km^2 (Saucier 1994). This valley is full of oxbow lakes, filled-in meander scars, natural levees, and river swamps. The Lower Mississippi River flow is approximately 14,600 m^3 of water per second, with enormous amounts of suspended sediment (100 to 1000 mg per liter) during floods (Brown et al. 2005:239, 240). This translates to incredible amounts of fertile, arable land replenished by overbank flow of water, rich loess sediment, and silt (Brown et al. 2005; Mac et al. 1998; Saucier 1994). The abundance of fertile soils, moisture, and biotic resources combine to form an extremely productive environment conducive to year-round settlement and a mixed subsistence economy capable of supporting large prehistoric populations.

The lower Savannah River valley, though similar in structure and behavior to the Lower Mississippi River valley, is much smaller. The floodplain ranges in width from approximately 1.6 to 8.4 km, widening just below the Fall Line at Augusta, narrowing in the middle section, and widening again near the mouth at Port Wentworth and Savannah. The interior Coastal Plain section of the floodplain, where Lawton, Spring Lake, and Red Lake are located, ranges from 2.9 to 5.6 km wide. Although they most certainly utilized the floodplain on either side of the active river channel, the floodplain available directly adjacent to the sites (on their respective sides of the river) is even smaller; at Lawton it ranges from 0.8 to 1.6 km wide, and at the Spring Lake/Red Lake locale it is approximately 2.1 km wide. The flow of the lower Savannah River is also at a much lower scale than the lower Mississippi River, with an average minimum of 32 m^3 of water per second (Smock et al. 2005:90). The narrower floodplain of the lower Savannah River, combined with a relatively low flow and suspended sediment load for natural levee buildup, essentially limits the areal amount of all characteristics of the meandering stream system- natural levees, river swamps, and oxbow lakes. The geologic composition of the suspended sediment carried by the lower Savannah River is also quite different than the sediments of the lower Mississippi River. The lower Savannah River sediments are derived from heavily weathered rocks and soils of the Blue Ridge, Piedmont, and upper Coastal Plain; as such, they are generally less fertile than the loersic soils derived from the mid-continent and carried by the lower Mississippi River.

In terms of impacts on human settlement and subsistence, the smaller scale of the lower Savannah River floodplain, with its limited amount of levee land suitable both for settlement and horticulture, fewer oxbow lakes, and limited expanse of river swamps may have discouraged or prevented the establishment of large prehistoric populations such as those of the lower Mississippi River valley. Within its local environment, however, the floodplain of the lower Savannah River was the most productive portion of the interior Coastal Plain, and the area most suited to prehistoric settlement, including that during the Mississippian period.

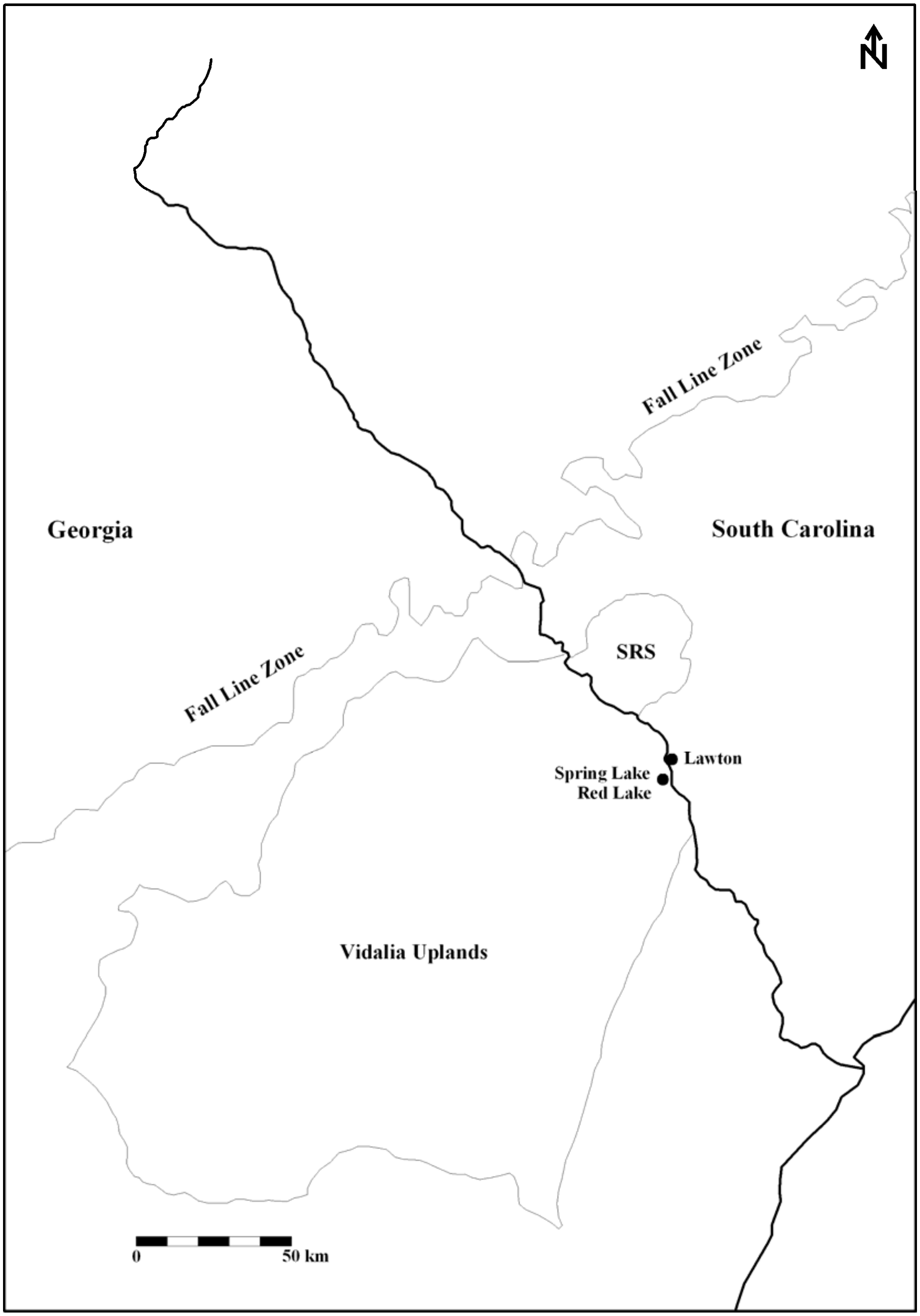

Figure 2.1 Site Locations, Vidalia Uplands District, and the U.S.D.O.E Savannah River Site

CHAPTER 3

MISSISSIPPIAN PERIOD RESEARCH IN THE SAVANNAH RIVER VALLEY

3.1 Archaeology of the Mississippian Period in the Savannah River Valley

Published descriptions of Mississippian sites in the Savannah River valley began in the late 1700s. It was over a century later, however, before true archaeological investigations and identification of shared material culture traits coalesced to form what may be termed Mississippian period research in the area. This 200 year plus span of investigations thus provides an uneven picture of the chronological Mississippian period developments in the Savannah River valley (Figure 3.1). Each of the sites presented here (Figure 3.2) vary in the quality and intensity of investigation conducted. The following summary of Mississippian period archaeology in the Savannah River valley is by no means exhaustive, but does provide a historical context for the current investigations of Lawton, Spring Lake, and Red Lake.

The Mason's Plantation site (38AK15) was perhaps the largest Mississippian mound center in the valley, yet it is also one of the least known. The six-mound site, located in western Aiken County, South Carolina (Figures 3.2, 3.3), was documented by Bartram in the mid 1770s (Bartram 1998) and by C.C. Jones in the 1860s and 1870s (Jones 1873). Jones noted the presence of a canal, or ditch-like feature, dug around the mounds and part of the surrounding field (Jones 1873). Later in 1898, Clarence Bloomfield Moore visited Mason's Plantation and noted that all of the mounds had been destroyed by the Savannah River. David Anderson conducted a reconnaissance of the area of Mason's Plantation in 1990 and discovered no mounds but found ceramics on nearby river sandbars (Anderson 1994). Adam King, Keith Stephenson, and Christopher Thornock of the South Carolina Institute of Archaeology and Anthropology

(SCIAA) recently confirmed the location of Mason's Plantation and began limited testing of the site. Augering indicates that cultural deposits lie under at least 1 m of historic alluvium. A small sample of pottery and two radiocarbon dates indicate a middle Mississippian period Hollywood phase (A.D. 1250-1350) occupation (Figure 3.1) (Thornock 2005).

Excavations at Savannah River Mississippian sites began in earnest with Henry Reynolds' 1891 work at the Hollywood site (9RI1) in eastern Richmond County, Georgia (Figures 3.2, 3.4) (Thomas 1985:317-326). Reynolds was sent to Hollywood under the direction of Cyrus Thomas as part of the Bureau of Ethnology's efforts by the Division of Mound Exploration. Reynolds provided a general description of the site's two earthen mounds, which he noted were damaged by both flooding and historic activities such as construction of barns and cattle pens. He conducted extensive excavations in the northern of the two mounds, later termed Mound B, and discovered a sub-mound midden, two mound construction stages, and a series of human burials, several of which were accompanied by elaborate grave goods. These grave goods included a repoussé copper plate, copper celts, a copper ax, an unidentified copper ornament, large pieces of mica, stone celts, stone discoidals, many shell beads, and several whole ceramic vessels. Three of the latter had elaborate decoration, including tripod feet molded into the shape of human heads, complicated stamping including a cross in circle motif, and the incised design of a plumed serpent. It was undoubtedly these grave goods that prompted Thomas to describe the mound as "of unusual interest" (Thomas 1985:317).

Although not stated in Reynolds' report on Hollywood, it was known in the 1890s that repoussé copper plates, plumed serpent designs, and painted vessels with similar imagery had been found elsewhere in the Southeast (e.g., Etowah, Moundville, etc.). These items, among others, have since been used as evidence for a widespread system of shared ritual and beliefs among late prehistoric societies in the Southeast- a phenomenon termed the “Southern Cult” or the “Southeastern Ceremonial Complex” (Waring and Holder 1945). Although these terms have fallen out of favor, and their validity as a true pan-southeastern complex has been questioned (Knight 2006), it is noteworthy that Hollywood Mound B is the only Savannah River mound center to yield such a collection of elaborate artifacts. Although the occupation span of the Hollywood site was misunderstood for many years, later excavations and analyses placed the occupation of the site well into the Mississippian period; thus, excavations at Hollywood indirectly marked the beginning of Mississippian investigations within the Savannah River valley.

The mounds near Hudson’s Ferry (9SN3 and 9SN242) are located on an upland terrace just west of the river floodplain in eastern Screven County, Georgia (Figures 3.2, 3.5). These sites are separated by a distance of 0.8 km, and each is marked by a low sand mound (75 cm high and 1.4 m high, respectively). The mounds were investigated by C.B. Moore (1998); Moore discovered four burials in the first mound, and one cremation burial in the second. Although Moore’s description of mound stratigraphy is brief and lacks detail, it is generally assumed that these were burial mounds similar to those common after A.D. 900 along Georgia’s Atlantic Coast (Anderson 1994). Stylized ceramic pipes from the mounds suggest their use in the middle Mississippian period, A.D. 1200-1400 (Figure 3.1); similar artifacts were found at Rucker’s Bottom, Irene, and Hollywood, and similar mounds occurred at Irene and Haven Home (Anderson 1994:186-187). No further work has been done at the mounds near Hudson’s Ferry.

The Haven Home mound (9CH15) is located approximately 1.6 km east of Haney’s Creek, a tributary of the Vernon River in eastern Chatham County, Georgia (Figures 3.2, 3.6). The site was excavated by a young Antonio Waring, Jr. and two friends in 1928 and 1929

(Waring 1968:209-215). The rounded, slightly conical burial mound stood between 1.8 and 2.4 m high, was constructed in two stages, and included at least 44 burials. Grave goods were interred with 12 of the burials (three with shell beads, eight with ceramic vessels, and one with a conch shell bowl). The remaining portions of the mound were removed for fill by Chatham County work crews, and no other investigations were done at the site. Pottery from Haven Home suggests it was used during the St. Catherines (A.D. 1050-1150) and/or Savannah I/II (A.D. 1150-1250) periods (Figure 3.1) (Anderson 1994:171-174).

Although late nineteenth and early twentieth century investigations at Savannah River valley Mississippian sites brought attention to the region, it was undoubtedly large-scale excavations at the Irene site (9CH1) near the river mouth that paved the way for future Mississippian research (Figures 3.2, 3.7). First investigated by Clarence B. Moore in 1897, Irene was intensively excavated from 1937 to 1940 as part of the Works Projects Administration's efforts to relieve unemployment (Caldwell and McCann 1941). Under the direction of Joseph Caldwell, crews excavated a major portion of the site, including large block excavations in the two mounds and surrounding village. The WPA-era work at Irene stands as the first modern excavation of a Mississippian site in the Savannah River valley. Caldwell and McCann's report of the excavation includes not only detailed descriptions of the mounds and surrounding features, but also recognition of two distinct Mississippian components at the site dating to the Savannah and Irene periods (Figure 3.1). Definition of the Savannah and Irene ceramic complexes is based entirely on pottery recovered from stratigraphic contexts in the mounds and other areas of the site (Caldwell and Waring 1939a, 1939b).

Nearly all of the 1.5 ha Irene site was excavated[3]. This included both mounds and an associated complex of buildings and enclosures. At the time of excavation, the Savannah River

[3] Anderson (1994:174) incorrectly estimates the size of Irene at 6 acres, or 2.43 ha.

had cut into and destroyed an unknown portion of the eastern edge of the site (Caldwell and McCann 1941:4). The large mound at Irene had eight construction stages, most of which had at least one associated structure. The first seven of these stages date to the Savannah period (Figure 3.1) (Caldwell 1952:318, Caldwell and McCann 1941). Construction stages one through three were interpreted as square to rectangular earth-embanked structures, whereas stages four through seven were true platform mounds with relatively level summits. The final, eighth construction stage of the large mound dated to the Irene period occupation of the site (Figure 3.1). This mound was approximately 4.7 m in height, 48.8 m in diameter, rounded in appearance, and contained six burials. Caldwell and McCann (1941:18) note the differences in mound size and shape, as well as the inclusion of six burials, as a shift in mound-building tradition at the site. A sand and shell burial mound roughly 16.8 m in diameter and 76 cm high was located to the west of the large mound. This mound contained the remains of 106 individuals, most of which had no associated grave goods. The site also contained what Caldwell and Waring interpreted as a mortuary structure to the south of the burial mound. The mortuary consisted of a square to rectangular building, which was eventually burned and covered with a low sand mound and two successive circular enclosures. In addition to these mounds, a large circular structure was found to the southeast of the large mound. Termed the rotunda by Caldwell and Waring, this structure was 36.6 m in diameter. Numerous walls and enclosures were also found at Irene that surrounded or separated the mounds, mortuary, and rotunda from the remainder of the site.

The next modern Mississippian period investigations in the Savannah River valley were conducted at the Rembert site (9EB1) in eastern Elbert County, Georgia (Figures 3.2, 3.8). During its occupation, Rembert was located on the western bank of the Savannah River, though it is now submerged in the Clark Hill Reservoir. Rembert was once the site of five earthen mounds, the largest of which was at least 12 m in height (Thomas 1985:315-317). The Rembert site was visited by William Bartram, George White, C.C. Jones, and John Rogan prior to the twentieth century. The site received no professional attention following these visits until Carl Miller and Joseph Caldwell conducted excavations there in 1948 (Caldwell 1953). Descriptions prior to Miller and Caldwell's work are useful for reconstructing Rembert, which had suffered from plowing and historic floods in the interim. At the time of their excavations, the only remaining earthwork at the site was the badly eroded and damaged basal portion of the large mound, which stood at a height of 1.2 m and was ovoid in shape, measuring approximately 36 m long and 11 m wide (Caldwell 1953:309). Many scoured areas were observed around the mounds, indicating flood damage to the site over the years.

Excavations in the mound remnant revealed a sub-mound midden and three mound stages, overlain by historic alluvium. The mound fill layers sloped downward and towards the center of the mound, possibly indicating that the earliest stages were earth-embanked structures. Caldwell and Miller excavated several small test squares in the presumed village area away from the mound, and discovered pottery, bones, and lithic artifacts in most of the squares. Caldwell identified the great majority of ceramics from Rembert as late Mississippian Lamar period, including Lamar Plain, Lamar Complicated Stamped, and Lamar Incised (Caldwell 1953:315-317). He notes that these types are coeval with Irene phase types, including complicated stamping with the filfot cross motif. Caldwell also notes, however, the presence of earlier Mississippian period ceramic types, including Etowah nested diamonds, check stamped sherds that are similar to Savannah period pottery, and some cobmarked sherds. These types, although occurring in low percentages at Rembert, can be assigned to an early Etowah phase component and to a Beaverdam phase component, although the latter assignment is not certain (Figure 3.1) (Rudolph and Hally 1985:453).

The years following excavations at Rembert were marked by an increase in Mississippian excavations in the upper reaches of the Savannah River valley. Investigations of the Tugalo, Chauga, and Estatoe mound sites each revealed important information regarding the Mississippian occupation of the upper Savannah River valley. The Tugalo site (9ST1) is located on the western bank of the Tugaloo River in eastern Stephens County, Georgia (Figures 3.2, 3.9). The site, which consists of one mound and an associated village, was well known during the historic period as a major town of the Lower Cherokee (Smith and Williams 1978; Williams and Branch 1978). The Tugalo mound, approximately 30 m in diameter and 4.3 m tall, was first investigated by John Rogan, who dug a vertical shaft into the mound and noted several strata (Thomas 1985). Tugalo was later visited by William Edwards, who opened a block excavation in the village in 1952; his results were never published (Williams and Branch 1978). As part of the Hartwell Reservoir project, Joseph Caldwell conducted excavations at Tugalo in 1956 and 1957, intensively investigating the mound. Caldwell's unpublished work revealed the mound to have nine construction episodes. The first four mound stages were relatively well-preserved; each was topped by an earth-embanked structure that is interpreted as an elite residence. Stages two, three, and four of the mound had flanks that were covered by mantles of logs. The most recent investigation of the site, directed by Mark Williams, included topographic mapping as well as shovel testing to determine Tugalo's spatial extent (Williams 2008).

Pottery from the site indicates occupation dating from the late Swift Creek period through historic Cherokee (Anderson 1994:206). Pottery from the first four stages of the Tugalo mound show they were constructed during the early Mississippian period Jarrett phase (Figure 3.1).

Although their summits were destroyed by historic plowing, remnants of five additional mound construction stages were present on the Tugalo mound flanks. Pottery collections recovered from these flank deposits indicate their deposition during the late Etowah period, the Rembert phase, the Tugalo phase, and the historic Cherokee Estatoe phase (Figure 3.1).

The Chauga site (38OC47) is located in western Oconee County, South Carolina, on the northern bank of the Tugaloo River just upstream of the confluence of the Tugaloo and the Chauga Rivers (Figures 3.2, 3.10). This Lower Cherokee town is referenced in several documents dating to the first half of the eighteenth century, but was not excavated professionally until 1958, when Robert Neitzel directed investigations at the site (Kelly and Neitzel 1961:3-5). Chauga includes one ten-stage mound, approximately 2.4 m tall, and projected to have been at least 3.7 m tall before historic plowing and erosion reduced its size (Kelly and Neitzel 1961:8). The shape of the mound was also damaged significantly, but may have been rectangular in outline. Historic looting in the core of the mound damaged many of the strata, making identification of summit structures nearly impossible. As a result, the last four strata were evidenced only in the remaining mound flanks. Additional features noted in the mound excavations include logs and boulders on the flanks of the first six mound stages, and palisades or screening walls that surrounded the mound during the use of stages one and six. No evidence for a sub-mound earth-embanked structure was discovered at Chauga. Excavations away from the mound revealed numerous pit features and postmolds, indicating a village associated with the mound.

Ceramics indicate the main occupations of Chauga occurred during the early Mississippian Woodstock and Jarrett phases, and later in the late Mississippian and early historic Tugalo and Estatoe phases (Anderson 1994:213). Mound stages one through six are associated with early Etowah period Jarrett phase ceramics, while stages seven through ten date to the late Lamar/early Historic periods (Figure 3.1). No Savannah period components were identified at Chauga.

The Estatoe site (9ST3) is located on the western bank of the Tugaloo River in eastern Stephens County, Georgia (Figures 3.2, 3.11). As with Tugalo and Chauga, Estatoe was a well known Lower Cherokee town during the eighteenth century. The site was first investigated by Carl Miller for the Smithsonian Institution. In 1958 and 1960, Joseph Caldwell and Clemens DeBaillou of the University of Georgia conducted excavations in the mound, and in 2004 Mark Williams directed shovel testing and mapping of the village (Kelly and DeBaillou 1960; Williams 2004). Estatoe includes one six-stage mound, each stage of which was topped by a square summit structure that measured approximately 12 m on a side. The second through fourth mound stages were marked by 5 to 10 cm thick layers of soil that capped and sealed the previous stage, and the fifth stage was covered by a layer of boulders and cobbles topped by soil in preparation for the construction of the sixth summit structure. Each of the six mound structures used the same four corner support post holes. An associated village area at Estatoe is indicated through positive shovel tests (Williams 2004) and unreported test excavations away from the mound (University of Georgia Laboratory of Archaeology Field Records).

Ceramics from Estatoe confirm that the main occupation of the site, and the use of the mound itself, occurred from the Tugalo phase through the historic Cherokee Estatoe phase (Figure 3.1) (Anderson 1994). Earlier occupations at the site are indicated by some Woodland and Etowah-like ceramics, but they are not well documented or understood (Anderson 1994:211).

In 1965, Clemens DeBaillou conducted additional excavations at the Hollywood site. Hollywood's prominence as a mound center in the Savannah River valley was due primarily to Reynolds' excavation of the elaborate burials in Mound B; Mound A had never been formally investigated. In addition to this, nothing was known of Mound B's state following these earlier excavations. By the time of DeBaillou's investigations, Mound B was little more than a "slight elevation" above the surrounding ground surface, having been bulldozed by a previous landowner (DeBaillou 1965:4). Mound A also had been damaged by historic activities, namely the construction of a barn and the penning of cattle on the summit. DeBaillou sought to answer basic questions regarding the mounds by excavating two 10 foot square test units in the remainder of Mound B and a 70 foot long, 10 foot wide trench into the flank of Mound A.[4] DeBaillou demonstrated from these test units that portions of Mound B's base and sub-mound midden were extant but buried under at least 5 feet of historic alluvium. His trench into Mound A revealed at least two construction stages, relatively large collections of ceramics, and two burials near the foot of the mound, neither of which were accompanied by grave goods like those from the Mound B burials.

One of the greatest contributions of DeBaillou's excavations at the Hollywood site was the large collection of ceramics he recovered from the Mound A trench. This collection was distinct from others studied within the Savannah River valley. It contained a high percentage of check stamped and complicated stamped pottery, along with the use of decorative rim forms on complicated stamped vessels. DeBaillou explicitly labels these types as Savannah Check Stamped and Savannah Complicated Stamped; it is clear from this that he was familiar with those types identified at the Irene site by Caldwell, and believed that the ceramics were evidence

[4] The Mound A trench profile (DeBaillou 1965:9) includes an apparent vertical exaggeration; beneath the bar scale is the inscription "V.E.=2." In actuality, the slope of the mound strata would have been much less.

of a Savannah period occupation at the Hollywood site. He also makes explicit mention of "some Etowah types" in the Mound A collection, though he does not elaborate on them. Despite his obvious belief that the Hollywood site was occupied during the Savannah period, DeBaillou does not discuss the chronological or cultural implications that this entails. In the same publication, Reid points out the similarities between the Hollywood ceramics and those found at the Irene site, though the main thrust of his comparisons involved Hollywood and the Town Creek mound site in North Carolina (1965:21). DeBaillou and Reid each made note of a specialized rim treatment found on Hollywood ceramics; the use of hollow cane punctations and punctated rosettes or nodes near the vessel lip. Reid recognized this type from descriptions of Irene site ceramics (Reid 1965:21). Both DeBaillou's and Reid's observations were important in establishing the firm presence of Savannah period pottery types far into the interior from the Georgia coast.

The I.C. Few site (38PN2) is located in western Pickens County, South Carolina (Figure 3.2). The site was first mentioned by Bartram (1998), and partially excavated in 1967 during the Keowee Reservoir project (Grange 1972). The site includes three low circular mounds and an associated habitation area evidenced by numerous burials and hearth, pit, and post features (Anderson 1994:217). The one mound tested was approximately 20 m in diameter and 50 to 70 cm higher than the surrounding floodplain. The mound contained several human burials, some with grave goods. Ceramics indicate late Woodland through historic Cherokee occupation of the site, with the primary occupation occurring during the Rembert phase, A.D. 1300-1450 (Figure 3.1) (Anderson et al. 1986; Grange 1972).

Following excavations at Hollywood and I.C. Few, the next major excavations at a Savannah River valley Mississippian site occurred as part of the Richard B. Russell Reservoir mitigation project. In 1969, Brooks Hutto reported the presence of a single mound and village site located near the confluence of Beaverdam Creek and the Savannah River in eastern Elbert County, Georgia (Hutto 1970) (Figures 3.2, 3.12). The Beaverdam Creek site (9EB85), as it came to be known, was heavily damaged from decades of looting. Excavations at the site began with a 1971 University of Georgia summer field school led by Joseph R. Caldwell (Lee 1976). Caldwell and crew excavated a trench through the center of the mound, but few records were made and no report was prepared prior to Caldwell's death in 1973. Chung Ho Lee's summary of Caldwell's work at Beaverdam Creek showed the mound to contain several construction stages, and likely dated to the Savannah period. Subsequent investigations by SCIAA in 1977 and the Thunderbird Research Corporation in 1979 proved the site extended well beyond the mound and likely included village deposits, but the main occupation period of the site was not determined (Gardner and Rappleye 1980; Taylor and Smith 1978).

In 1980 and 1981, James Rudolph and David Hally directed extensive excavations at Beaverdam Creek prior to the site's inundation within the Russell Reservoir (Rudolph and Hally 1985). Block excavations in the mound remnant revealed a relatively complex construction history. Prior to mound building, two successive earth-embanked structures were erected at ground level. They were square in outline, measured 7.5 m and 6.2 m on a side, respectively, and had earth embanked exterior walls. Atop these two structures were four successive mound stages, each presumably topped with one or more summit structures. Evidence of these structures was largely destroyed by looting and erosion. Test excavations and large-area excavations beyond the mound confirmed the presence of a habitation area (approximately 1.5 ha). Although numerous features, postmolds, and deposits of domestic refuse were found, only one likely domestic structure was identified. Ceramics recovered from the site place the occupation during the Savannah period Beaverdam phase (Figure 3.1) (Rudolph and Hally 1985:262).

Excavations at the Rucker's Bottom site (9EB91) revealed evidence of a substantial Mississippian period village in the upper Savannah River valley. Rucker's Bottom is located on a terrace adjacent to the Savannah River, approximately 10 km upstream of the Beaverdam Creek site (Figures 3.2, 3.13). A large portion of the site was intensively excavated as part of the Russell Reservoir project from 1980 to 1982 (Anderson and Schuldenrein 1985). The site covers at least 2 ha, contained extensive midden deposits, several thousand features, 41 human burials, over 20 structures, and numerous pits. Ceramic collections from the site indicate successive occupation during the Beaverdam phase and Rembert phase. The Beaverdam phase site layout consists of a circular arrangement of houses including one larger town house or rotunda (14 m in diameter) surrounding a central plaza. The Rembert phase site layout is very similar, but was shifted to the north and enclosed by two successive stockaded ditches.

Tate (9EB86) is a single-mound site located 0.5 km to the west of Beaverdam Creek in eastern Elbert County, Georgia (Figures 3.2, 3.14). The site was first recorded by Brooks Hutto in 1969, who noted the badly-damaged mound to be approximately 30 m in diameter and 4.6 m tall (Hutto 1970:23-25). Taylor and Smith revisited the site in 1977 and collected surface artifacts near the mound (Taylor and Smith 1978). In 1995, Mark Williams conducted an investigation of Tate, including contour mapping, shovel testing to determine site limits, and test units placed in the habitation area and mound flank (Williams 1996). Ceramics from the site indicate a Savannah period occupation, perhaps during the Beaverdam phase, A.D. 1200-1300 (Figure 3.1) (Anderson 1994:205; Williams 1996:31).

The Fitzner site (9SN220) lies on the bank of the Savannah River near the confluence of the river with Brier Creek in eastern Screven County, Georgia (Figure 3.15). John Fitzner, Jr., a local resident of Screven County, took me to the site in the spring of 2006. It was previously unrecorded and unknown to archaeologists. There appears to be only one low sand mound, roughly 60 to 70 cm higher than the surrounding ground surface, and possibly 15 m to 20 m in diameter, that is one-half to two-thirds destroyed by the encroaching river. I collected a small scatter of pottery from a summit looter's hole and in the eroding riverbank. The pottery indicates a middle Mississippian component. The land on which the site rests is currently under joint ownership of several individuals. Landowner permission to investigate the site was not granted in time to allow Fitzner to be incorporated into the current study. Testing of the Fitzner site will commence in June 2009.

3.2 Chronology of the Mississippian Period in the Savannah River Valley

The Mississippian period chronology for the Savannah River valley is based primarily on variations in pottery decoration and vessel shape modes through time. The evidence for this ceramic variability comes primarily from pottery collections excavated from stratified deposits at mound sites located throughout the valley. The development of Mississippian period ceramic sequences is the product of approximately 70 years of excavations and ceramic analyses, and is characterized by increasingly finer typological subdivisions that identify both spatial and temporal variation in pottery decoration and attributes (Figure 3.1).

Recent attempts (Anderson 1994; Anderson et al. 1986) to synthesize the late prehistoric occupational history of the Savannah River valley have highlighted a number of important characteristics of that history. First, there are clear, easily recognizable changes in pottery through time. Surface treatments such as complicated stamping and vessel shape modes such as rim treatments have proven especially useful for the relative dating of sites. Notably, there is a shift through time from the use of rectilinear Etowah Complicated Stamped motifs to curvilinear Savannah Complicated Stamped motifs, which are then followed by curvilinear Lamar Complicated Stamped motifs. Second, there is general uniformity of ceramic types and changes in those types throughout the Savannah River valley. Recognized surface treatments and vessel shape modes are remarkably similar from the headwaters to the river mouth. Nevertheless, ceramic change is not completely uniform throughout the valley. Rather, different regions within the valley follow somewhat different stylistic trajectories and have somewhat different occupational histories. For instance, while they share some characteristics, Savannah I and II phase ceramics from the lower valley are not exactly the same as contemporaneous Beaverdam phase ceramics from the upper valley. Likewise, Rembert phase ceramics collections from the upper valley do not exactly reflect those found in the roughly contemporaneous Irene ceramic complex of the lower valley. Additionally, there are gaps in the Mississippian period occupation of portions of the valley. No late Savannah period occupation has been identified in the upper valley, and no Etowah period ceramic phase has been identified for the middle valley.

Anderson, Hally, and Rudolph (1986) published the first systematic summary of ceramic change and phase sequences for the entire Savannah River valley Mississippian occupation. This work was the compilation of prior research within and adjacent to the valley, the detailed reexamination of previously excavated ceramic collections from Savannah River valley Mississippian sites, and new research at the Beaverdam Creek and Rucker's Bottom sites. The authors outlined phase sequences for both the upper and lower sections of the Savannah River valley, with the Fall Line generally serving as the division between the two regions. The upper Savannah River valley sequence is based on pottery collections from the Estatoe, Tugalo, Chauga, Beaverdam Creek, Rembert, and Hollywood sites that are distributed from the headwaters to the Fall Line. The lower Savannah River valley ceramic sequence is based primarily on pottery collections from the Irene site as well as others found near Georgia's Atlantic coast. There is a noticeable absence of ceramic collections from the interior Coastal Plain section of the valley.

The availability of pottery collections from the Lawton site, located in the interior Coastal Plain, and from the vicinity of the Mason's Plantation site, located near the Fall Line, prompted Anderson (1994) to revise Anderson et al.'s (1986) ceramic sequences slightly in his subsequent work on the Mississippian societies of the Savannah River valley. Most notably, Anderson divided the Savannah River valley into three sections: the upper, middle, and lower, each with its own sequence of ceramic change (Anderson 1994:366-377). He also added two provisional ceramic phases, Lawton and Silver Bluff, to the middle valley sequence. The ceramic phase sequences illustrated in Figure 3.1 are adapted from Anderson et al. (1986), DePratter (1991), and Anderson (1994).

Upper Savannah River Valley Ceramic Sequence

The late Woodland period ceramic sequence of the upper Savannah River valley is not well defined, and no formal phases have been identified for the area. Within the decorated pottery types, there appears to be a general transition from Swift Creek complicated stamped ceramics, Napier complicated stamped, and simple stamped designs (A.D. 500-750) to primarily Napier complicated stamped ceramics in the terminal Woodland (A.D. 750-950) (Anderson 1994:374).

The late Woodland period is followed by a transitional/early Mississippian occupation (A.D. 900-1100), marked by Woodstock complicated stamped motifs; barred ovals and barred diamonds being the most common (Anderson 1994:374). Few sites of this time period have been investigated in the upper Savannah River valley and pottery collections are small. As a result, full characterization of the early Mississippian transitional ceramics is not possible at this time.

The following 100 years, A.D. 1100-1200, mark the first clearly-defined early Mississippian ceramic phase for the upper valley; the Jarrett phase. Ceramics from this time have been identified at the mound centers of Chauga and Tugalo. Jarrett phase assemblages include a majority of plain ceramics (43%). Identifiable surface treatments include Etowah Complicated Stamped (8%), check stamped (4%), burnished plain (3%), red filmed (2%), and corncob impressed (cobmarked, 1%) (Anderson et al. 1986:38). Complicated stamping is primarily rectilinear, with nested diamond motifs being most common. A high percentage (39%) of complicated stamped sherds are not identifiable to motif, but likely are Etowah Complicated Stamped. Some Jarrett phase jars (1%) have collared rims, a trait characteristic of Pisgah phase ceramics from North Carolina assemblages.

The Jarrett phase develops into the Beaverdam Creek phase (A.D. 1200-1300), named after the Beaverdam Creek type site. This phase is marked by an increase in plain ceramics (67%). Frequency changes in identifiable surface treatments include an increase in burnished plain (11%), an increase in check stamped (8%), a slight increase in cobmarked (3%), a decrease in Etowah Complicated Stamped (1%), and the apparent disappearance of red filmed types. Savannah Complicated Stamped appears (1%), with concentric circles being the most common motifs (Anderson et al. 1986:38-40). Though there is a slight decrease in the total number of collared rims (less than 1% of jars), there is a slight increase in collared rims that are decorated by notching, fine incising, or punctations (Anderson 1994:375; Anderson et al. 1986:38-40;

Hally 1985:261-280). There is also a dramatic decrease in unidentifiable (UID) complicated stamped (9%), which indicates an overall decrease in complicated stamping at this time.

Following a hiatus of 50 to 100 years when the upper Savannah River valley may have been unoccupied, the Rembert phase begins (A.D. 1350-1450). Rembert phase assemblages are composed primarily of plain and burnished plain pottery (48%) and Lamar Complicated Stamped (41%), which is characterized by concentric circles, figure 9s, filfot crosses, line blocks, and herring bone motifs (Anderson et al. 1986:41-42). Cobmarked pottery continues in low frequency (1%), check stamping nearly disappears (1%), and Lamar Bold Incised pottery is introduced, but occurs in low frequency (<1%). Collared rims continue, but in low frequency (<1%); cane punctated nodes occur on unthickened jar rims; and folded and pinched rims, and appliqué strips occur for the first time.

The late Mississippian/protohistoric period (A.D. 1450-1600) in the upper valley is referred to as the Tugalo phase, named after the Tugalo mound site. This phase appears to have developed out of the preceding Rembert phase, and is restricted to the upper reaches of the Savannah River valley. The phase is marked by a decrease in plain and burnished plain pottery (29%), an increase in Lamar Complicated Stamped (60%), a decrease in check stamping (<1%), the apparent reappearance of red filmed pottery (<1%), and an increase in Lamar Bold Incised (~9%) (Anderson et al. 1986:42). In general, complicated stamped motifs become larger and less well-executed, and incised designs become more complex. Appliqué strips continue, but folded and pinched rims become the most common rim treatment following plain rims. In addition, folded and pinched rims also increase in width.

No formal phase has been designated for the 100 year interval (A.D. 1600-1700) following the Tugalo phase. Hally (1986) has identified and described a historic Cherokee

Estatoe phase dating to approximately A.D. 1700-1750. Estatoe phase pottery is composed primarily of Lamar Complicated Stamped and Lamar Bold Incised types, but also includes simple stamping, check stamping, burnished plain, and plain surface treatments. Soon after the Estatoe phase, the upper Savannah River valley was abandoned by the Cherokee as a result of the French and Indian War and the American Revolution.

Lower Savannah River Valley Ceramic Sequence

The lower Savannah ceramic sequence is based on assemblages found at or near the river mouth. The terminal late Woodland ceramic assemblage (A.D. 1050-1200) is designated Saint Catherines phase, after the nearby coastal island. The pottery is generally grog tempered and vessels are well-made compared to earlier Woodland types, having thinner walls and smooth interiors. Surface treatments include plain, burnished plain, fine cordmarked, and netmarked (Anderson 1994:367).

The initial Mississippian phase is Savannah I (A.D. 1200-1300). Savannah I ceramics are generally sand tempered, but some grog tempering is also present (DePratter 1991:11). Surface treatments include plain, burnished plain, and fine cordmarked. The subsequent Savannah II phase (A.D. 1300-1325) is similar except for the addition of Savannah Check Stamped and Savannah Complicated Stamped types (DePratter 1991:11). The latter is characterized by curvilinear designs with concentric circles and oval motifs. Ceramics of this phase almost always have unmodified rims, but cane punctations and punctated, riveted nodes applied near the rim appear in late Savannah II (Anderson 1994:367; Anderson et al. 1986:43-44).

Occupation of some Mississippian sites in the lower valley continues into the following Irene I phase (A.D. 1325-1400). The Irene I ceramic assemblage is quite different from the Savannah II phase. Irene Complicated Stamped motifs appear, including the filfot cross, lineblock, and figure nine. Lamar Bold Incised occurs in small frequencies. Cane punctations and punctated, riveted nodes applied near vessel rims occur regularly (Anderson 1994:367; Anderson et al. 1986:44). Finger-pinched appliqué strips are rare, but do occur. Mississippian occupation of the lower Savannah River valley ceases at approximately A.D. 1400-1450, and historic Native American groups settled in the area during the 1600s.

Middle Savannah River Valley Ceramic Sequence

Mississippian ceramics of the middle Savannah River valley seem to combine attributes and decoration from both the upper and lower valley. The middle valley is geographically defined as the area between the Fall Line and the coastal zone, and is commonly referred to as the interior Coastal Plain. Late Woodland ceramics (A.D. 800-1100) in the middle valley are sand tempered. Common surface treatment includes fine cordmarking, and rarely, Napier and Woodstock complicated stamping. Rim treatments, though uncommon, include some folded, stamped, and incised rims (Anderson 1994:369-370). The late Woodland occupation of the middle valley is still not fully understood, though recent research at the U.S. Department of Energy Savannah River Site has yielded numerous sites from the time period and associated ceramics that will certainly aid in building chronologies (Adam King, personal communication 2007).

The early Mississippian occupation (A.D. 1100-1250) of the middle valley has no formally defined phase. Anderson (1994:370) suggested a provisional Lawton phase, based on then-available ceramic collections from the Lawton site. He describes the early Mississippian pottery assemblage as containing plain, burnished plain, check stamped, fine cordmarked, and complicated stamped types. Complicated stamping is primarily Savannah Complicated Stamped, with concentric circle motifs being most common. Etowah Complicated Stamped nested diamond motifs are also present, though in low frequency. Rims of this time period in the middle valley are generally plain. As will be described in a later section, recent excavations at the Lawton site have provided evidence that its occupation postdates A.D. 1250, and is more accurately placed within the Hollywood phase, described below. Since the main Lawton site component is now known to date to the middle Mississippian period, the question arises as to whether there is an early Mississippian occupation of the middle Savannah River valley.

The middle Mississippian period (A.D. 1250-1350) is perhaps the best known time interval for the middle Savannah River valley. DeBaillou's excavations at the Hollywood site provided a collection of pottery which serves as the type collection for the Hollywood phase, recognized by Anderson et al. (1986). Hollywood phase is characterized by a high percentage of plain and burnished plain pottery (38%), a high frequency of check stamping (41%), a considerable amount of Savannah Complicated Stamped (14%), a small amount of Etowah Complicated Stamped (<1%), and a low frequency of cobmarked pottery (<1%) (Anderson et al. 1986:40-41). Cane punctations and cane punctated riveted nodes appear as rim treatments at this time. The entire Hollywood site pottery collection was not stratigraphically analyzed by DeBaillou. As a result, there is some uncertainty as to how long the occupation lasted and whether it was confined to a single phase. Stratified pottery collections from Lawton, Red Lake, and Spring Lake, presented later in this study, provide the opportunity to more precisely define the Hollywood phase.

The latest Mississippian (A.D. 1350-1450) occupation of the middle Savannah River valley, discussed by Anderson (1994:370-371) is speculative at this time. He suggests a provisional Silver Bluff phase for this period. Unfortunately, the mound site that is supposed to have been occupied at this time, Mason's Plantation, was largely destroyed by the Savannah

River in historic times, and the remnants are only now being investigated. A small collection of pottery and two radiocarbon dates from the site indicate that Mason's Plantation actually dates to the earlier, Hollywood phase (A.D. 1250-1350), which does not support Anderson's (1994) provisional designation. Although we might expect to find early Lamar period occupation in the middle Savannah River valley, there is no evidence at this time for such. The entire valley below the Fall Line appears to have been abandoned after A.D. 1450 (Anderson et al. 1986).

<table>
<tr><th rowspan="2">Dates (A.D.)</th><th rowspan="2">Southeastern U.S. Periods</th><th rowspan="2">Georgia Periods</th><th colspan="3">Savannah River Valley Ceramic Phases</th></tr>
<tr><th>Upper Valley</th><th>Middle Valley</th><th>Lower Valley</th></tr>
<tr><td></td><td rowspan="10">Protohistoric-Historic</td><td rowspan="10">Protohistoric-Historic</td><td rowspan="4"></td><td rowspan="16"></td><td rowspan="18"></td></tr>
<tr><td></td></tr>
<tr><td>1800 -----</td></tr>
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<tr><td></td><td rowspan="2">Estatoe</td></tr>
<tr><td></td></tr>
<tr><td>1700 -----</td><td rowspan="4"></td></tr>
<tr><td></td></tr>
<tr><td></td></tr>
<tr><td></td></tr>
<tr><td>1600 -----</td><td rowspan="10">Late Mississippian</td><td rowspan="10">Lamar</td><td rowspan="6">Tugalo</td></tr>
<tr><td></td></tr>
<tr><td></td></tr>
<tr><td></td></tr>
<tr><td>1500 -----</td></tr>
<tr><td></td></tr>
<tr><td></td><td rowspan="4">Rembert</td><td rowspan="4">Silver Bluff (provisional)</td></tr>
<tr><td></td></tr>
<tr><td>1400 -----</td><td rowspan="3">Irene I</td></tr>
<tr><td></td></tr>
<tr><td></td><td rowspan="6">Middle Mississippian</td><td rowspan="3">Late Savannah</td><td rowspan="2"></td><td rowspan="4">Hollywood</td></tr>
<tr><td></td><td>Savannah II</td></tr>
<tr><td>1300 -----</td><td rowspan="4">Beaverdam</td><td rowspan="4">Savannah I</td></tr>
<tr><td></td><td rowspan="3">Early Savannah</td></tr>
<tr><td></td><td rowspan="6">Lawton (provisional)</td></tr>
<tr><td></td></tr>
<tr><td>1200 -----</td><td rowspan="12">Early Mississippian</td><td rowspan="3">Late Etowah</td><td rowspan="4">Jarrett</td><td rowspan="6">St. Catherines</td></tr>
<tr><td></td></tr>
<tr><td></td></tr>
<tr><td></td><td rowspan="5">Early Etowah</td></tr>
<tr><td>1100 -----</td><td rowspan="18"></td><td rowspan="18"></td></tr>
<tr><td></td></tr>
<tr><td></td><td rowspan="16"></td></tr>
<tr><td></td></tr>
<tr><td>1000 -----</td><td rowspan="6">Woodstock</td></tr>
<tr><td></td></tr>
<tr><td></td></tr>
<tr><td></td></tr>
<tr><td>900 -----</td><td rowspan="10">Late Woodland</td></tr>
<tr><td></td></tr>
<tr><td></td><td rowspan="8">Swift Creek / Napier</td></tr>
<tr><td></td></tr>
<tr><td>800 ------</td></tr>
<tr><td></td></tr>
<tr><td></td></tr>
<tr><td></td></tr>
<tr><td>700 ------</td></tr>
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</table>

Figure 3.1 Chronological Sequences Discussed in Text[5]

[5] Blank cells in the table represent periods of time where no ceramic phases have been defined (e.g. the Late Woodland Period in the Savannah River Valley) or periods of time with no known occupation (e.g. the Late Mississippian/Protohistoric Period in the Middle Savannah River Valley).

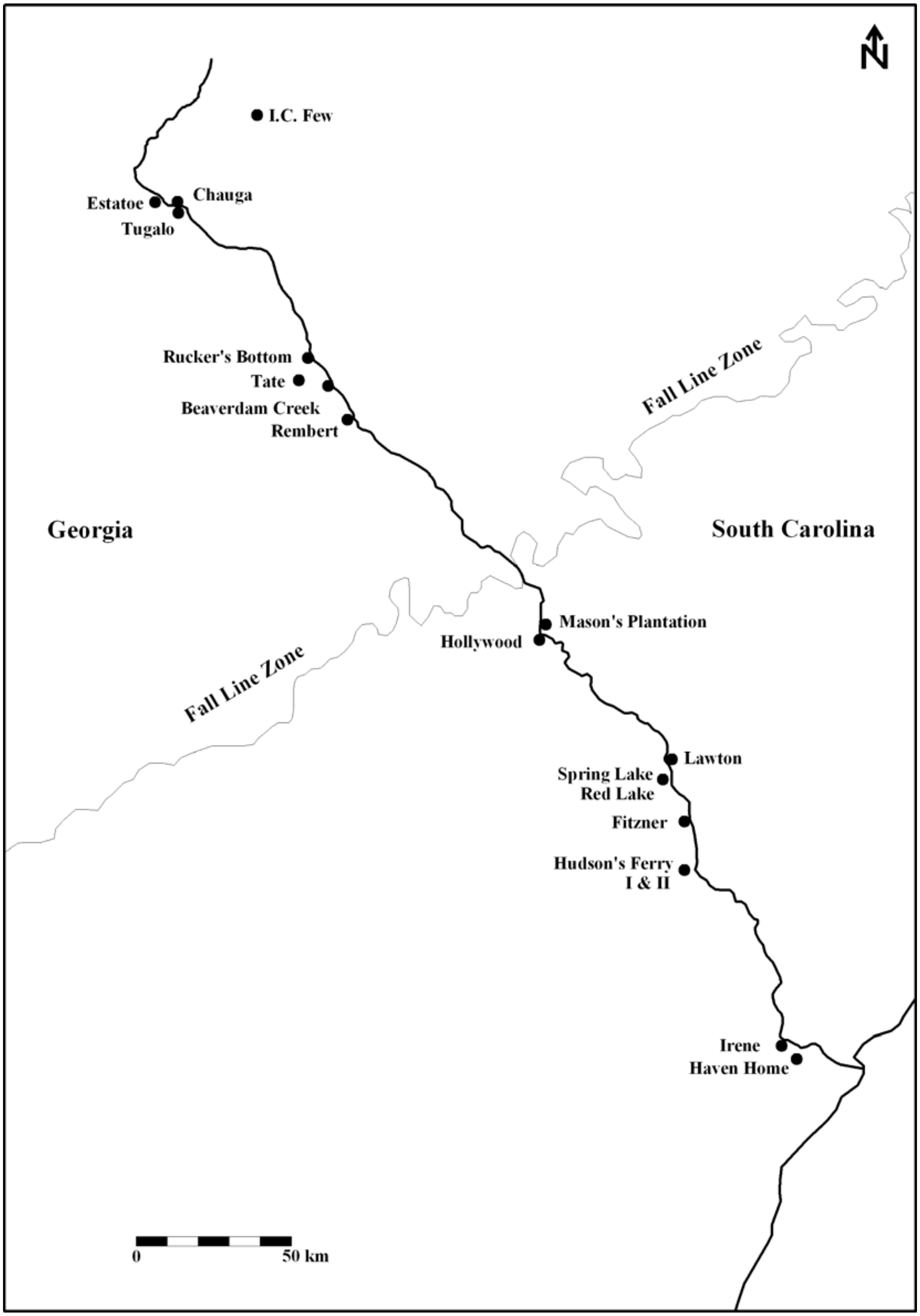


Figure 3.2 Selected Savannah River valley Mississippian Sites

Figure 3.3 Mason’s Plantation USGS Topographic Location

Figure 3.4 Hollywood USGS Topographic Location

Figure 3.5 Hudson's Ferry Mounds USGS Topographic Location

Figure 3.6 Haven Home USGS Topographic Location

Figure 3.7 Irene USGS Topographic Location

Figure 3.8 Rembert USGS Topographic Location

Figure 3.9 Tugalo USGS Topographic Location

Figure 3.10 Chauga USGS Topographic Location

Figure 3.11 Estatoe USGS Topographic Location

Figure 3.12 Beaverdam Creek USGS Topographic Location

Figure 3.13 Rucker's Bottom USGS Topographic Location

Figure 3.14 Tate USGS Topographic Location

Figure 3.15 Fitzner USGS Topographic Location

CHAPTER 4

SITE INVESTIGATIONS

The survey and excavations described in this chapter at the Lawton, Spring Lake, and Red Lake sites were conducted by the author during two UGA summer field seasons in 2005 and 2006 and numerous short term trips to the project area from 2005 to 2007. These investigations included trenching the North Mound at Lawton; mapping, systematic shovel testing, and excavation of test units at Spring Lake, a gradiometer survey on the Spring Lake mound; and trenching Red Lake Mound A, Mound B, and investigating two looter holes on the summit of Mound A. Under the direction of Adam King, University of South Carolina graduate student Emily Dale concurrently conducted mapping, systematic shovel testing, and test excavations of Mound C, village deposits, and the probable plaza at Red Lake.

4.1 Lawton

Site Description and History

The Lawton site (38AL11) is located on a relatively level terrace adjacent to a relict channel of the Savannah River in the Coastal Plain of western Allendale County, South Carolina (Figure 4.1). Lawton lies at an approximate elevation of 70 feet, or 21.3 m above sea level. The site consists of two well-preserved rectangular platform mounds with flat summits (the North Mound and South Mound), on a roughly rectangular space surrounded by a ditch (Anderson 1994; Stephenson and King 2001). The site is currently covered by a mixture of hardwoods, pines, river cane, and brushy undergrowth. The relict channel located to the northwest of the site is generally dry today except when the Savannah floods; at such times, water in the channel usually rises to the height of the terrace or lower. The site appears to have never been plowed, resulting in excellent preservation of the mounds and ditch. Lawton's elevation above the floodplain and distance from the active river channel help to preserve the site from destructive overbank flooding.

In the late nineteenth century, the site was owned by Mr. S.G. Lawton of Allendale, South Carolina, for which it was later named (Moore 1998:269-270). The Lawton site is currently owned by Hattie Watson, a resident of Aiken, South Carolina. The Lawton site has been in her family for numerous years, and they have attempted to prevent disturbance of the site, with some success.

Previous Research

The Lawton site was first recorded and described by C. B. Moore in 1898 (Moore 1998). He referred to the site as "Mounds near Brooks' Landing, Barnwell County, S.C.," and described his investigations as follows:

> "Brooks' Landing, not given on the government chart, is about 121 miles from Savannah by the river. About half a mile in an easterly direction from the landing, in the cypress swamp, are two mounds on the property of Mr. S.G. Lawton, of Allendale, S.C., who courteously placed them at our disposition. The mounds, about the same size and almost contiguous, stand close to the edge of the terrace, which borders the river in high water and is itself submerged in times of freshet. The northernmost mound was chosen for investigation. It was the usual shape, a greatly truncated cone with markedly level summit plateau. The diameter of base was 68 feet; of the summit plateau, 36 feet. Measured from the terrace on which it stands, its average height is 5 feet 4 inches, though, to an observer looking from the north and including the height of the terrace, its altitude would seem much greater. Trenches, aggregating 45 feet in length from 3 to 4 feet wide and from 5 to 6 feet deep, were dug into the summit plateau. About 5 feet down there seemed to be a black basal line indicating the original surface. The mound was of unstratified clay with occasional fire-places, perhaps in use during its construction. Three or four sherds were met with, and 5 feet from the surface was a deposit of small fragments of calcined bones, some of which were undoubtedly human. Probably this mound was domiciliary and the burial incidental." (Moore 1998:269-270)

Since Moore was mainly interested in burials and their associated grave goods, he was likely disappointed in his investigation of Lawton.

Archaeologists from SCIAA visited the site in 1970 and 1989 to establish a site grid, map the site, clean out, record, and profile looters' holes (Figure 4.2), and collect artifacts for analysis (Anderson 1994:189). The site's grid north is approximately 16° East of magnetic North. Recent investigations by Adam King and Keith Stephenson of SCIAA include systematic shovel testing within the area enclosed by the ditch and limited shovel testing outside the ditch (Figure 4.3), the excavation of test units on the North and South Mounds, the plaza, and adjacent to the old channel (Figure 4.4), and some shallow geophysical testing (Stephenson and King 2001). These efforts have resulted in a partial outline of the site's boundaries, the identification of a central plaza and possible habitation area, and the discovery of structural remains atop the South Mound. Excavations into the North Mound revealed two or three construction stages, as well as a sub-mound structure with an associated cremation burial. Excavations into the South Mound revealed one structure on the summit and a mixed fill suggesting a single construction episode. Artifacts from shovel testing and excavation units indicate one main occupational component for the site.

In the summer of 2003, Michael Nelson conducted excavations for his University of South Carolina Master's thesis at Lawton. In search of domestic structural remains, Nelson excavated a total of 42 contiguous 1 m X 1 m test squares to the northeast of the North Mound, and four 1 m X 1 m test squares to the south of the South Mound (Figure 4.5). These excavations expanded on previously dug 1 m X 2 m test units (King et al. 1999). The units to the south of the South Mound revealed no additional cultural features (Nelson 2005:63). The larger block of units to the northeast of the North Mound, however, revealed 19 postmolds, one shell deposit, one concentration of sherds, and two pit features (Nelson 2005:63). No distinct pattern of posts was apparent, however, and the nature of the structure was unclear.

Recent excavations to the west of the North Mound, adjacent to the old river channel, revealed the presence of a possible palisade, consisting of a series of closely-spaced posts accompanied by large amounts of daub (Keith Stephenson, personal communication 2008).

Current Research

My main objectives at the Lawton site were to establish a detailed chronology of occupation based on stratigraphically deposited mound flank midden ceramics and associated absolute dates and to determine mound use, if possible. I succeeded in coring the North and South Mound flanks in search of stratified midden, trenching the western flank of the North Mound, and identifying the limits of a sub-mound midden underlying and extending away from the North Mound. The majority of fieldwork was completed during June and July 2005, with a few additional days to finish and backfill in mid-August, 2005.

I began investigations at Lawton by testing for stratified midden deposits on both the North and South Mounds. The flanks of both mounds were cored with a 1 inch diameter sleeve corer to determine if midden was present. Two parallel series of core tests were excavated around each mound (with the exception of the looter's hole on the western flank of the North Mound), spaced at approximately 1 m intervals. One series was located roughly halfway down the mound flanks and the other was located roughly two-thirds downslope of the summit. Each test was dug to the base of the mound. I chose this rather small coring device both to limit the damage done to the mounds and because it should reveal significant midden if present, whether by soil color and texture, the presence of artifacts, or both.

No midden was obvious on the North Mound flanks except for some darker soil and small sherds from cores on either side of the large western flank looter's hole. This may indicate that there was a midden deposit that the looters damaged and removed. No obvious midden was encountered on any flank of the South Mound, nor was there complex, ordered stratigraphy indicating building episodes. This seems to support Stephenson and King's findings from their South Mound excavation unit, that this mound was constructed in one stage.

Given this evidence, I excavated the large looter's hole on the western flank of the North Mound, then expanded on the southern side of this hole to excavate an intact trench into the mound flank (Figure 4.6). Cleaning up and expanding the looter's hole provided the advantage of observing mound strata prior to disturbing any intact portion of the mound.

I began investigation of the looter's hole by establishing a datum at grid point N468 E505, 20 cm above the ground surface and drawing a planview of the disturbance, backdirt, and slump from the backdirt. Excavations began by digging and screening the looter's backdirt which lay to the west through ¼-inch hardware cloth. The backdirt yielded bone, mussel shell, lithics, and ceramics dating to the Hollywood phase.

In order to determine the extent of the looter's damage and reveal some of the mound strata, I removed the fill from the looter's hole and scraped the edges of the hole vertically. All soil was screened through ¼-inch hardware cloth. The fill was mottled, contained some artifacts, and had no distinct layering. The base of the looter's hole was evident by humus that had been covered and sealed by slumped soil after the looting episode (Figure 4.7). The base of the hole occurred at approximately 1.21 m to 1.24 m below datum. I drew a planview of the hole, roughly leveled to 1.33 m below datum (Figure 4.7). No features were visible in the floor of the pit.

The resulting profiles of the pit were difficult to interpret, being marred by roots and disturbances. I therefore chose to square-up the looter's hole by excavating several of the surrounding 50 cm X 50 cm squares. This size square was recommended by King to retain a high level of detail in horizontal artifact distribution that would be comparable to previous mound excavations at Lawton. Only damaged, partial squares were excavated to a depth of approximately 1.33 m, without regards to stratigraphy. In all, 12 partial squares were excavated in this fashion (Figure 4.7). The resulting southeastern corner profile revealed at least three strata.

I then excavated an intact test square, N468.5 E504, by stratigraphic levels. The first two levels, designated Mound Stratum 1 and Mound Stratum 2, were taken down to a depth of 1.09 m below datum. I collected a 10 liter soil sample for flotation from each intact stratum encountered; I also continued this practice for every intact stratum from each 50 cm square for the remainder of the mound flank excavations. The only deviation from this procedure occurred in the thin humus layer, where I sometimes collected the entire layer for flotation if it was close to or less than 10 liters. I was unsure when the soil samples would be floated and needed the pottery from these samples for chronological analysis, so each sample was screened through ¼-inch hardware cloth to recover larger artifacts.

The third stratum (Mound Stratum 3) of N468.5 E504 clearly continued below the floor of the leveled looter's hole, so it was left intact at this time. To determine how many cultural strata existed below the third stratum, I cored vertically into the northwestern corner of the looter's hole floor, where I encountered a midden layer with dark soil and mussel shell below Mound Stratum 3, that extended to a depth of approximately 1.73 m below datum. I chose to excavate a square into the looter's hole floor to further guide our excavations into intact mound strata. This square, N470.5 E502.5, was excavated to a final depth of 1.74 m below datum (Figure 4.8). The square revealed the base of Mound Stratum 3 at approximately 1.4 m below datum, followed by a medium to dark brown layer flecked with charcoal and filled with mussel shell, designated Mound Stratum 4. Mound Stratum 4 ended approximately 1.6 to 1.7 m below datum, and was followed by a sterile soil indicating a preoccupation ground surface.

With both the cleaned-up looter hole and the small test square at N470.5 E502.5 serving as guides for the internal stratigraphy of the western mound flank, I excavated a 50 cm wide trench into an intact portion of the mound. There was a large tree and root system on the northern side of the looter hole, so I placed the trench adjacent to the southern side. The next squares excavated were N468.5 E504, N468.5 E503.5 and N468.5 E503. All that remained in these, due to our previous excavations, was Mound Stratum 3 (only partial in the latter two squares) and Mound Stratum 4, the sub-mound midden / mussel shell layer. These strata confirmed and replicated the same strata found in the small test unit previously excavated in the floor of the looter hole (N470.5 E502.5). I extended this trench by four more 50 cm squares to the west, excavating N468.5 E502.5, N468.5 E 502, N468.5 E501.5, and N468.5 E501. The only appreciable stratigraphic difference within these squares was a red clay layer within the first 5 cm of the surface. Given that this is the downslope portion of the mound flank, and that historic flooding of the lower Savannah deposited significant amounts of sediment from the Piedmont of Georgia and South Carolina in the Coastal Plain, I believe this to be a historic alluvial stratum, overlain by slope wash from the upper portions of the mound and organic buildup during the last century. Figures 4.9 through 4.12 show profiles of this 50 cm wide, 3.5 m long trench. No features were visible in the floor.

I next expanded to the south, excavating a 50 cm wide, 2.5 m long trench running from N468 E504.5 through N468 E502. This provided a complete 50 cm wide test trench into an intact portion of the mound flank. The strata encountered in this trench replicated those found in the adjacent tests to the north. To confirm the sterile, natural layer under the shell midden that was exposed in the looter hole floor square, I excavated the 50 cm square at N468.5 E504.5 an additional 10 cm. This soil was exactly the same as that previously found below the sub-mound midden, and contained little or no artifacts.

There was no significant mound flank midden in or on the mound strata. The only appreciable midden and artifact concentration was that in the sub-mound layer with mussel shell, Mound Stratum 4, with a total of 412 potsherds. It appears that either the looters discovered and destroyed any useful mound flank midden from this spot, or that the occupants of the site disposed of refuse from mound summit activities elsewhere. Stephenson and King discovered significant deposits of ceramics and cultural debris on the steep slope of the slough just to the west of the mounds (Adam King, personal communication 2006); perhaps garbage from mound summit activities was collected and disposed of in this channel. After completing the excavations in this trench expansion, I drew profiles of the walls (Figures 4.13, 4.14). No features, other than the sub-mound shell midden, were encountered in this excavation.

In addition to cleanup of the looter hole and excavation of the trench, I used a 1 inch diameter coring tool to determine the depth and horizontal extent of the shell midden underlying the mound. This midden underlay only the northwestern quadrant of the mound and extended well beyond its footprint, primarily to the north (Figure 4.15). It is possible that this feature was associated with a sub-mound structure identified by Stephenson and King (2001).

The final task completed before backfilling the excavation was taking soil samples for OSL dating. Six soil samples were collected from individual strata in the eastern profile of N468.5 E504 (Figure 4.16). I collected these samples by hammering in a 10 inch long section of 2 inch diameter PVC pipe, then quickly sealing off the ends with wadded plastic wrap (to keep the soil sample tightly packed) and duct tape (to keep the sample away from sunlight and secure within the pipe). These samples have not been submitted for OSL dating. I returned to backfill the looter hole and trench excavation on August 11 and 14, 2005, lining the pit with 6 mil black plastic sheeting and returning the screened backdirt to the hole.

4.2 Spring Lake

Site Description and History

The Spring Lake site (9SN215) is located on a natural levee adjacent to a relict channel of the Savannah River in eastern Screven County, Georgia (Figure 4.17). The site was first reported by C.B. Moore in 1898 (Moore 1998:269), but its location was lost to professional archaeologists until March 19, 2005, when Ralph Beard and Donny Mallard, two lifelong residents and avocational archaeologists of Screven County, took me there. Spring Lake lies roughly 60 feet, or 18.3 m above sea level. The only visible feature of the site is a singular mound that lies near the old river channel (Wood 2006). The site currently lies in mixed hardwoods, river cane, and brushy undergrowth. The relict channel located to the south and west of the site is generally dry except during floods, when overbank flow from the Savannah River fills the channel, but usually does not breach the levee. No historic plowing was evident in excavations at the site.

The Spring Lake site has changed ownership several times since it was first reported in 1898 (Moore 1998:269). Moore listed the owner as Dr. G.L. Mills (George Lovett Mills) of

Hirschman, GA. The plat of land on which the site is found, however, was actually under the joint ownership of Mills and M.T. Wells in 1897 (Screven County Surveyors Record Book [SCSRB] BB:162). The town of Hirschman, which may be spelled incorrectly in the Moore account, is shown on railway maps of 1899 to be just north of the river swamp where Spring Lake is located, and is labeled as Hershman (Central of Georgia Railway Company, 1899). Mills was a physician in the area during the late 1800s, and many of his descendants still reside in Screven County today. Dr. Mills' grave is found in a small family cemetery and is part of a recorded archaeological site (9SN126). The land on which the Spring Lake site rests changed ownership at least five times between 1898 and 1923, when the 431 acre tract was sold to the Savannah River Lumber Company (Screven County Deed Book [SCDB] 20:590, 27:519). Subsequently, the Georgia Pacific Corporation purchased the land and designated it as the Thompson-Towns Tract, which was later exchanged as part of a wetlands mitigation contract to the U.S. Army Corps of Engineers in 1991. The land, while owned and maintained by the USACOE, is managed by the Georgia Department Natural Resources as part of the Tuckahoe Wildlife Management Area.

Previous Research

Prior to the UGA field schools reported here, the only archaeological investigations at Spring Lake were by Clarence Bloomfield Moore. In his travels on the Savannah River, Moore visited two sites listed under the heading "Mounds near Mills' Landing, Screven County, GA" (Moore 1998). The first of these was the Red Lake site, and the second was the site now known as Spring Lake:

> "About half a mile in a northwesterly direction from the other [Red Lake, 9SN4] is a mound apparently of the same type, though somewhat smaller. A small amount of trenching showed it to be of clay, but yielded no other result." (Moore 1998:269)

This scant reference and description of Moore's investigation at Spring Lake is not revealing, other than the fact that he conducted a "small amount of trenching" there and found nothing of interest to him.

Current Research

My goals at Spring Lake were to create a detailed topographic map of the site, systematically shovel test to determine site size and artifact distributions, excavate test units in the village and plaza, test for mound flank midden, and excavate a test unit into the mound flank to record stratigraphy and hopefully recover ceramics and associated organic material for absolute dates. I met all of these goals, and additionally, completed a gradiometer survey of the mound. The majority of fieldwork was completed from February to August, 2006. I returned for a few days in October 2006 and once on June 2, 2007 to backfill. The Spring Lake excavation units were lined with black 6 mil plastic sheeting before backfilling to mark the limits of our excavations.

I began work at the site by clearing the brush on and in the vicinity of the mound itself. This provided a better view of the mound, which was previously covered in 4 to 5 foot tall river cane and weeds. I then established a datum with the coordinates North 500 East 500 to the north of the mound for our site grid. Grid North is also magnetic north. The grid provided reference points for systematic posthole testing and excavation units as well as setup points for topographic mapping of the site. Much of our field time at Spring Lake was spent posthole testing, contour mapping, and clearing dense brush to complete the first two tasks.

Contour mapping of the site was accomplished using a Sokkia Set 6F Total Station. All elevation readings (4,615 total) were linked to the excavation grid and the data processed with Surfer mapping software. The resulting map (Figure 4.18), in 10 cm contour intervals, clearly shows the variable topography of the site, with black being low ground and white being high ground. There is one earthen mound which lies on the edge of the levee, adjacent to an oxbow lake to the south that is now dry except when the river floods. A modern road with drainage ditches impacts the northern limits of the site, running diagonally from the northwest to the southeast. At least one modern borrow pit was excavated near the northwestern limit of the road as shown, presumably for soil to build a crossing over the old river channel. Two ditch-like features, one roughly 8 m long and 5 m wide, and another at least 40 m long and 5 m wide, are visible on the site's southern boundary connecting to the old channel. It is unclear whether these are natural or cultural features.

The mound is approximately 90 cm tall, 20 m in diameter, and has a rounded appearance (Figure 4.19). The mound has likely suffered from erosion over the past few hundred years, but is still in relatively good shape. Several disturbances in the mounds' surface are likely a combination of animal burrowing, limited looting, and Moore's excavations.

Spring Lake is covered with a layer of historic alluvium approximately 20 cm thick. As a result, surface artifacts are not present except where tree tips and animal burrows have exposed aboriginal deposits. To determine site size, site boundaries, and the distribution and relative density of artifacts across the site, I excavated 256 posthole tests at 10 m intervals (Figure 4.20). Each test was approximately 20 cm in diameter. Each was excavated with post-hole diggers to sterile, preoccupation subsoil. All soil was screened through ¼-inch hardware cloth. For each test, I recorded soil strata encountered and the depths of artifacts recovered. The great majority of artifacts were found from 20 cm to 40 cm below the surface. A small green plastic disk with the test number melted into the face was placed in the bottom of each test hole prior to backfilling.

The spatial distribution of positive post hole tests indicates the presence of a habitation area or village associated with the mound. The outer limits of the site, indicated by negative tests, encompass an area of roughly 2.16 ha. All pottery found in the shovel tests indicates a single occupational component for the site. A number of tests located north of the mound had no artifacts or low artifact densities, possibly marking a plaza or public area kept relatively clean of debris.

After completing systematic post hole testing of the site, I chose the two tests with the highest concentrations of potsherds as locations for village excavation units. These tests, shovel test (ST) 145 at N540 E520.5, and ST 149 at N540 E480.5, yielded 245 sherds and 155 sherds, respectively. I excavated a 2 m X 2 m test unit at each of these locations, designated XUA (southwestern corner N538 E520) and XU B (southwestern corner N540 E480) (Figure 4.21). XU A and XU B were subdivided into four 1 m X 1 m quadrants, each with its own designation in a clockwise northwestern to southwestern order, resulting in XU A1, A2, A3, A4, and XU B1, B2, B3, B4. Depth measurements were recorded below datums; the datum for XU A was located 10 cm above the ground surface at N540 E520, and the datum for XU B was located 10 cm above the ground surface at N542 E480. Each of these quadrants was excavated separately according to soil strata, and all soil was screened through ¼-inch hardware cloth. I collected several 10 liter soil samples for flotation from the strata in both XU A and XU B.

The strata in XU A and XU B were identical (Figures 4.22, 4.23). The upper level, designated Level 1, was a 15 cm to 20 cm thick reddish-brown clay, nearly devoid of artifacts. This appears to be historic alluvium. This was followed by 20 cm to 25 cm of mottled clayey sand, Level 2, which yielded nearly all of the artifacts from these test units. Below this stratum was a sterile, mottled clayey sand, Level 3, which we excavated to a depth of approximately 70 cm below datum in XU A and 72 cm below datum in XU B. These excavation units were very productive. XU A midden layer, Level 2, yielded 3,240 sherds. The XU B midden layer, Level 2, was also very productive, yielding 2,884 sherds.

Two possible post molds were recorded in the floor of XU A (Figure 4.24). Each of these was marked by mottled soil, darker than the surrounding sterile subsoil. The northern feature was roughly circular, 25 cm to 30 cm in diameter, and contained numerous sherds. The southern feature was roughly circular, 15 cm to 17 cm in diameter, flecked with charcoal, and surrounded by a larger area of dark, mottled soil 30 cm to 40 cm across that contained some small sherds. Each of these features was excavated and screened separately from the surrounding fill. They continued in depth below the pit floor approximately 10 cm, and had rounded bases. It is possible that these are posts that rotted in place or were removed and the resulting hole filled with darker soil. Considering the relatively small extent of the excavation unit, it is impossible to tell if these features are part of a larger feature, such as a structure.

Testing the mound at Spring Lake was a five-stage process that included using a metal detector on the entire mound, taking gradiometer readings over the mound, coring the mound flanks for midden, digging post-hole tests to determine the area of richest midden, and excavation of a 2 m X 2 m test unit on the mound flank.

The Spring Lake mound seemed the ideal candidate on which to run at least one geophysical survey, given constraints on time, equipment, and available expertise. It was relatively small, had limited tree cover, had never been electronically surveyed, and had limited surface disturbances. I conducted a magnetic survey of the mound using a GSM-19 Overhauser Effect Proton Gradiometer (GEM Systems, Inc.), on loan from Ervan Garrison of the UGA Department of Anthropology. A survey grid measuring 20 m^2 was established with corners at

N490 E489, N490 E509, N470 E489, and N470 E509. Knowing that any metal artifacts would produce strong signatures from the gradiometer and likely mask any prehistoric features such as burned hearths, daub, or structural remains, I first conducted a simple conductivity survey with a metal detector to locate, document, and remove any historic metal objects. This task took significantly longer than expected; nearly two days of work. During this time, 46 iron nails, a large iron hook, a metal buckle, a metal washer, part of a shotgun shell, and an unidentifiable metal fragment were located just under the mound's surface and removed. The location of each metal object recovered was mapped with the Total Station (Figure 4.25). Most of the nails are cut nails, though one is hand wrought. Given the type and number of nails, it is likely that a small, nineteenth century structure once stood on the mound summit. Historic documents and oral history both agree that the floodplain swamps were not farmed, but were used as free-range land for domesticated animals such as cows and pigs. These animals and their offspring were herded annually to small shacks and pens, where some received earmarks and/or brands of ownership and others were culled for slaughter, sale, or trade. This practice was common throughout the 1800s and the first half of the twentieth century. It may be that the nails and metal fragments are the remains of such a stock pen. Regardless, it is obvious that such a large amount of metal would have rendered a gradiometer survey of the mound useless had it not been removed. It is also worthy to note such historic uses of prehistoric mounds, as they inevitably altered the surface characteristics of the mounds themselves, and likely damaged the most recent evidence of aboriginal occupation or use.

The gradiometer survey was conducted in 50 cm transects. Readings were taken at 50 cm intervals along the north-south oriented grid and the results were plotted using Surfer mapping software. The battery of the gradiometer died just prior to our finishing the 20 m X 20 m block;

as a result, the final coverage was a 20 m X 19 m area. This slightly smaller block still encompassed the majority of the mound. I plotted the gradiometer readings using Surfer mapping software. The resulting map does not reveal any geometric patterns (Figure 4.26). If there was a structure on the mound summit, it evidently did not burn. There is a fairly strong dipole signature on the central mound summit; this could be the remains of a hearth, but we could not know without excavating the summit to expose any features. Given the large amount of metal removed from the mound, it is also possible that some piece of historic metal went undetected in the initial mound survey- such a metal fragment could easily produce a strong dipole signature from the gradiometer.

Following the gradiometer survey, a test pit was placed in the southwestern flank of the mound. As with Lawton, I used a 1 inch diameter sleeve corer to determine if midden was present on the mound flanks. I placed two parallel series of core tests around the entire mound; the upper tests were spaced at approximately 1.5 m intervals, while the lower were spaced at approximately 2 m intervals (Figure 4.27). The upper series was located roughly halfway down the mound flanks and the lower was located roughly two-thirds downslope of the summit. Each test was dug to the base of the mound.

There was no clear indication of midden revealed through the flank core tests, so I excavated post hole tests at each of the outer ring core test locations. Each of these tests was dug to sterile subsoil and the soil screened through ¼-inch hardware cloth. Two tests on the southwestern mound flank produced relatively high numbers of sherds- 87 and 76. I chose to place the test pit in this location, hoping to recover a good pottery collection for dating both the site in general and mound chronology in particular (Figure 4.27). This unit was designated XU C, and was further subdivided into four 1 m X 1 m quadrants, each with its own designation in a clockwise upslope-left to downslope-left order, resulting in XU C1, C2, C3, and C4. The datum for XU C was located 10 cm above the ground surface at the upslope right corner stake. Each 1 m square was excavated separately according to soil strata, and all soil was screened through ¼-inch hardware cloth. Several 10 liter soil samples were collected from the Mound C strata. These soil samples have been floated, but the remains have not been analyzed.

There were six strata in XU C (Figures 4.28 through 4.31). The first stratum encountered was clearly backdirt and/or tree slump from an adjacent depression to the north. This stratum is visible in the north and east profiles. The next stratum encountered, Level 1, was a 15 cm to 20 cm thick reddish-brown clay, nearly devoid of artifacts. Again, this appears to be a layer of historic alluvium. This was followed by 20 cm to 25 cm of mottled sandy mound fill, Level 2, which also had few artifacts. Below this mound fill stratum was 20 cm to 25 cm of heavily mottled clayey sand, Level 3, with charcoal, badly deteriorated bone, flaked stone artifacts, river cobbles, and a high density of pottery. This was clearly a sub-mound midden. The great majority of the artifacts recovered from this unit came from Level 3, which yielded 6,792 sherds. The final named stratum, Level 4, was a 30 cm to 35 cm thick mottled sand that underlay the sub-mound midden. There was a thin lens of midden, visible in the north, east, and south profiles, near the base of this level, but it did not extend throughout the entire unit. I ended excavations in XU C at a depth of approximately 150 cm to 160 cm below datum. There were no features encountered throughout the excavation of XU C, and none were apparent in the floor of the unit.

The final excavations conducted at Spring Lake were in the apparent plaza north of the mound. The group of post hole tests in this area yielded few or no sherds. This test unit was intended to provide a comparative collection from a context similar to that of the proposed plazas at both Lawton and Red Lake. Shovel Test 2, located at N510 E500.5, yielded no sherds, and appears to be near the center of the plaza. XU D was a 1 m X 2 m test unit, running north to south, with a southwestern corner at N508 E500. XU D was divided into two 1 m X 1 m units, with the northern square designated XU D1 and the southern square XU D2. The datum for XU D was located 10 cm above the ground surface at N510 E50. These squares were excavated by natural strata. After screening a sample of Level 1, a historic alluvial clay, and observing no artifacts, I excavated the remainder of this level without screening the soil. Level 2, however, was screened through ¼-inch hardware cloth.

The strata in XU D were identical to those seen in surrounding post hole tests (Figure 4.32). The upper level, designated Level 1, was composed of 15 cm to 20 cm of reddish-brown clay, devoid of artifacts. Just as with other tests at the site, this appears to be historic alluvium. This was followed by a stratum of sand, Level 2, which contained relatively few artifacts (61 sherds total, 46 of which were less than ½-inch in size). I excavated approximately 20 cm of this layer from both squares, leveling XU D to a depth of 47 cm below datum. I halted the excavation at this level after reviewing the post hole data from surrounding tests, which indicated that the few artifacts recovered from the plaza occurred between 18 and 31 cm below the surface, and noticing that the number of sherds recovered from XU D had rapidly dwindled at this same depth. No features were apparent in XU D. The relatively small number of sherds recovered, combined with the small size of those found, seems to confirm this area of the site as a plaza or common area that was kept relatively clear of debris.

In order to facilitate future investigations at the site by preserving the grid system, I constructed two relatively permanent benchmarks and buried these at particular grid coordinates (Figure 4.33). Each of these was a three foot long section of 4 inch diameter PVC pipe, filled with concrete and with a central post of ½-inch diameter iron rebar. They were each capped with a flat steel plate. The grid coordinates were melted into the upper side of each PVC post, etched into the face of the steel plates, and the steel plates sprayed with lacquer to help retard oxidation. I seated these datums in concrete at N500 E500 and N500 E510, nearly flush with the ground, then covered them with a thin layer of soil and leaves to prevent them from being seen and molested by any passersby. Future investigators should be able to locate them with the aid of my site maps and a metal detector.

4.3 Red Lake

Site Description and History

The Red Lake site (9SN4) is located on a natural levee adjacent to an oxbow lake (Red Lake) in eastern Screven County, Georgia (Figure 4.17). Red Lake lies roughly 60 ft, or 18.3 m above sea level. Red Lake is labeled incorrectly as Possum Eddy on the USGS Bull Pond topographic quadrangle map; Possum Eddy is actually located to the south near Possum Creek. The site contains three earthen mounds (Mound A, B, and C) in a triangular arrangement. The site currently lies in mixed hardwoods, river cane, and brushy undergrowth, which can be extremely dense in portions of the site. The lake, located directly adjacent on the northwestern border of the site, still holds water, though it is very low in times of drought. No evidence for historic plowing of Red Lake was found at the site.

Historic ownership of the Red Lake site is similar to that of the nearby Spring Lake site. The first recorded mention of the site is in Moore’s 1898 account. The tract of land on which the site rests was owned solely by Dr. G.L. Mills in 1897 (SCSRB BB:162). The 1897 plat of the tract directly to the south of Mills’ tract, owned by Mary Ann Hughes at that time, clearly shows Red Lake and has a small, unlabeled circle drawn in the location of the Red Lake mound site

(SCRSB BB:162) (Figure 4.34). This is the earliest known map of the site's location, and also includes the river landing known as Mills' Landing that is referenced by Moore in his investigation of the area (Moore 1998:269). Between 1897 and 1923, the site changed ownership at least three times. The tract on which the site rests was purchased by the Savannah River Lumber Company in 1923 (SCDB 20:590, 27:519). The land was later purchased by the Georgia Pacific Corporation and became part of the Thompson-Towns Tract. The Thompson-Towns Tract was exchanged as part of a wetlands mitigation contract to the U.S. Army Corps of Engineers in 1991, and is currently managed by the Georgia Department Natural Resources as part of the Tuckahoe Wildlife Management Area.

Previous Research

As with Lawton and Spring Lake, the Red Lake site was first investigated by Clarence Bloomfield Moore. Moore describes his work at the site under the heading "Mounds near Mills' Landing, Screven County, GA," as follows:

> "In the thick cypress swamp bordering the river and accessible only at low stages of the river, is a mound with circular base and marked summit plateau, also circular. This mound, about one-quarter of a mile in a northwesterly direction from the landing… serves as a refuge for live-stock in times of freshet. Its height is 11 feet. Across the base is a distance of 92 feet. Trenching showed it to be of clay, apparently without stratification. No burials were encountered." (Moore 1998:269)

As indicated by his brief treatment of the site, Moore was just as disappointed in his search for elaborate burials and mortuary goods at Red Lake as he was at Lawton and Spring Lake. He also did not notice or neglected to mention the presence of the two smaller mounds located at the site.

The next archaeological investigation of Red Lake occurred in 1987, when Fred Cook directed a crew of volunteers and excavated two test units at the site (Cook 1987). At this time, Red Lake was known to have two mounds, A and B. Cook placed a permanent benchmark on the northern edge of Mound A, which was still in place in 2007 (Figure 4.35). This benchmark was topped with a brass plate stamped with the coordinates N200 E200. Cook excavated a 1 m X 2 m test unit near this benchmark on the northern mound edge, where he encountered a shell midden and a fair concentration of ceramics. Cook noted a lower frequency of complicated stamped sherds than the assemblage from the Hollywood site, and proposed a slightly earlier date for the occupation of Red Lake. He also excavated a 2 m X 3 m test unit between Mounds A and B, which yielded pottery but no apparent features. During these excavations, Mark Williams and Scott Jones of UGA visited the site and created a contour map of Mounds A and B using a transit.

In 1993 archaeologists from Brockington and Associates conducted a survey for the U.S. Army Corps of Engineers of Georgia Pacific owned lands adjacent to the Savannah River in Screven County as part of wetlands reclamation (Espenshade 1994). The Red Lake site was included in the project area. The Brockington and Associates crew excavated a series of fourteen shovel tests radiating in cardinal directions away from Mound A (Figure 4.36). Four of these were positive for artifacts, and Espenshade reported a fairly limited site boundary that enclosed Mounds A and B.

In January 2005, several archaeologists from UGA and the University of South Carolina met for a visual survey of the Red Lake site, in preparation for further fieldwork. At this time, Mark Williams of UGA noticed a small rise in to the east of Mound A, and suggested this was a third mound at the site (UGA field records). Intermittently from May 2005 to January 2007, Emily Dale conducted fieldwork at Red Lake as part of her Master's thesis project for the University of South Carolina (Dale 2007:74). Assisted by crews from the Savannah River Archaeological Research Program and the UGA Archaeological Field School, she established a new site grid (with grid north being approximately 10° East of magnetic North), created a contour map of the site with a Total Station, systematically shovel tested the site, and excavated three 1 m X 2 m test units- one on the northern edge of Mound C, one in the proposed plaza between Mounds A and C, and a third to the north of Mound C in a proposed village area (Dale 2007:78,79) (Figure 4.37). Dale's efforts at Red Lake yielded a wealth of information on the site; contour mapping confirmed the existence of the third mound (Mound C), more clearly defined the shapes of Mounds A and B, and showed the variable topography of the site. Shovel testing revealed the true spatial extent of the site through positive tests to be approximately 3.8 ha, and showed that the site conformed to the higher ground of the natural levee (Figure 4.38). The variable density of artifacts recovered from shovel tests indicated "hot spots" of fairly dense midden on the site, and the presence of a probable plaza between the mounds. Dale's Test Unit 1, on the northern edge of Mound C, revealed five strata underlain by natural subsoil (Figure 4.39). Dale describes but does not interpret these strata, except for the modern alluvium (Stratum I) and the subsoil (Stratum VI) (2007:87-90). Based on her description of the strata and matching this with the associated artifact counts from each 10 cm excavation level, I interpret the remaining strata as mound-summit debris (Stratum II), mound fill from a single construction stage (Stratum III), and a sub-mound midden comprised of Strata IV, V, and the upper portion of Stratum VI. Dale recorded one burnt post and four postmolds in the subsoil of this unit (Dale 2007:90). Test Unit 2, located between Mounds A and C, seemed to confirm the area as a plaza, containing a reported density of artifacts lower than that of the surrounding site (Figure 4.40). Test Unit 3, located to the north of Mound C in an area of high artifact density indicated by shovel testing, revealed the presence of an artifact-rich midden, proposed by Dale to be village remains (Figure 4.41). This unit was not completed due to inclement weather, which resulted in significant slumping of surrounding soil into the open pit. Keith Stephenson returned to Red Lake in 2007 to excavate a 1 m X 2 m unit adjacent to Dale's Test Unit 3 in order to obtain additional artifact samples from a secure context at this location (Keith Stephenson, personal communication 2007). The results of this additional test unit have not been reported.

Current Research

My main objectives at Red Lake were to establish a detailed chronology of occupation based on stratigraphically deposited mound flank midden ceramics and associated absolute dates and to determine mound use, if possible. I succeeded in coring the flanks of Mounds A and B for midden, trenching the northwestern flank of Mound A, identifying the limits of a sub-mound midden underlying and extending away from Mound A, trenching the northwestern flank of Mound B, and investigating two large looter holes on the summit of Mound A. The majority of fieldwork was completed between July and October 2005, with short trips during January, March, and October 2006, and January 2007. The excavations were backfilled on October 13, 2007, after lining the units with 6 mil black plastic. I also placed permanent benchmarks, identical in construction to those at Spring Lake, at grid points N500 E500 and N490 E500, flush with the ground surface.

I began investigations at Red Lake by clearing vegetation from the Mound A and Mound B flanks, then tested for flank midden with a 1-inch diameter sleeve corer. Two parallel series of core tests were excavated around the flanks of both mounds spaced at approximately 2 m intervals. The upper series was located roughly halfway down the mound flanks and the lower was located roughly two-thirds downslope of the summit. Each test, except for those of the upper series on Mound A, was dug to the base of the mound. There was some promising dark soil, charcoal, sherds, and shell present in the cores from the northwestern flank of Mound A and the northern flank of Mound B.

To determine the area of richest ceramic concentration on the Mound A northwestern flank, I excavated nine post hole tests in the approximate locations of the cores on that side of the mound. The richest of these tests yielded 87 potsherds; this is where I placed a trench into the mound flank (Figure 4.42). Although the trench is oriented northwest-southeast, I will simplify this for discussion; the northwestern 1 m wide end of the trench will be the north profile, the southeastern 1 m wide end of the trench will be the south profile, and the long profiles will be east and west. Directly above and adjacent to the selected trench location was a large looter hole on the mound summit. The test trench was 1 m wide, 5 m long, and divided into five 1 m X 1 m squares. Each of these squares was given a letter designation (A, B, C, D, E), and each square was further subdivided into four 50 cm squares with a number designation (A1, A2, A3, A4, etc.). I placed a datum 10 cm above the ground surface on a stake 1 m southwest of the trench's southwestern corner. Several 10 liter soil samples were collected from each of the Mound A excavation squares during the excavations, particularly from the identifiable strata. These soil samples have been floated, but the remains have not been analyzed.

There was no extensive looter hole near the richest midden flank, as there was at Lawton, so I lacked a window into the mound stratigraphy. I began excavating the trench in 10 cm arbitrary levels, but soon recognized natural stratigraphy and afterwards excavated according to natural strata as closely as possible. As excavation progressed through the mound fill, the strata became increasingly difficult to identify, and only became apparent in the cleaned profiles when the trench was completed. The southern end of the trench (XU A) was taken down through sterile soil below the mound and sub-mound midden. The remainder of the trench was excavated to the base of the sub-mound midden. Initially, all mound fill was screened through ⅛-inch hardware cloth. After discovering the fill was relatively free of artifacts, I switched to ¼-inch hardware cloth for the remainder of the excavation.

The stratigraphy of the Mound A trench was fairly complex (Figures 4.43 through 4.46). Some of the mound fill layers became apparent only after excavation and cleaning of the profiles. Had each of the mound strata produced significant collections of ceramics useful for constructing mound chronology, it would have been unfortunate that these collections were mixed together. As it was, there were very few sherds in the mound fill. It is possible that these mound fill sherds were present in the soil gathered for mound construction rather than sherds produced from mound summit activities.

The western profile of the trench begins with a thin humus layer. Below this was a mottled sandy soil that contained a fair amount of pottery, charcoal, and some mussel shell. The next stratum encountered was a reddish-brown clay that contained a fair amount of charcoal. Interestingly, this clay layer contained and directly overlay some historic artifacts such as glass, fragments of lead, and rusted iron. It soon became clear that this clay layer was an alluvial deposit and a feature of historic flooding. It is impressive that historic flooding would have deposited clay so far up on the mound; during our summer of work there, which was plagued by constant flooding, water never reached the foot of Mound A. The most extreme flood recorded in recent history, however, occurred in 1929 and reached a height of 30.8 feet at the Burton's Ferry landing just south of Mill's Landing near the Red Lake site. Given that flooding of the swamps surrounding the site begins at a river stage of 12 feet, it is likely that this extreme flood covered the entirety of Mound A. The nature of this clay layer also supported my interpretation of the initial sand and artifact-bearing stratum above- that it was backfill from the fairly large looter hole located directly above the trench on the mound summit. This clay stratum, then, serves as a chronological benchmark. Any mound disturbances or historic artifacts encountered below it likely pre-date 1929 (unless they were bioturbated or otherwise intruded below the clay), and any disturbances, such as the adjacent looting and associated prehistoric artifacts, or historic artifacts found above it likely post-date 1929. I collected several charcoal samples from this clay stratum; an AMS date may confirm or disprove this hypothesis.

Directly below the alluvial clay was a mottled sandy soil that was likely the final mound stage at the time of site abandonment. I will refer to this stage as Mound Stratum 1. The southern, or upslope, end of this stratum became diffuse and difficult to trace. Below Mound Stratum 1 was a slightly darker sandy soil, Mound Stratum 2. Mound Stratum 2 overlay another mottled sandy soil, Mound Stratum 3. Directly below Mound Stratum 3 was a significantly darker clayey sand that contained a fair amount of pottery, Mound Stratum 4. It is possible that this stratum represents the first constructed mound stage. It was steeply sloped and overlay a relatively level midden. Below Mound Stratum 4 was a 10 cm to 20 cm thick sub-mound midden composed of clayey sand that was densely packed with mussel shells, pottery, stone tools, vertebrate bone, and charcoal. This stratum yielded the highest density of artifacts recovered from the Mound A flank trench, 2,793 sherds. Directly below the shell layer in XU A was a sandy clay, slightly darker than the sub-mound midden soil. This stratum contained a few artifacts in the first 8 cm or so, then became sterile. The stratum encountered below this was a mottled, sterile sand that contained no artifacts.

This ordering of strata was generally repeated throughout the south and east profiles, with some notable exceptions. In the south and east profiles, a series of thin, reddish-brown compact sandy lenses ran throughout the southern end of Mound Strata 1, 2, and 3, complicating and somewhat confusing the distinctions between them. It also appears that there is another mound stratum in the east profile between Mound Strata 2 and 3, a mottled sandy soil similar in color to Mound Stratum 2. This stratum was fairly clear, and was further evidenced by a lens of water-lain sand at its tail-end. This unnamed stratum continues in the south profile and part of the west profile, but was more diffuse in the field than is indicated by these figures. Finally, there was a distinct lens of mussel shell overlying Mound Stratum 4 in the south and east profiles. I removed this lens as a unit, without screening it for artifacts.

Three features were present in the sub-mound midden/mussel shell layer (Figure 4.47). These were roughly circular areas devoid of shell that were likely posts. These posts were presumably set in place after the sub-mound midden was deposited, and may be associated with a pre-mound structure as yet unidentified. I also encountered three small features within XU A at the northern end of the trench, two of which were circular and one that was irregularly shaped (Figure 4.48). They were composed of shell midden surrounded by a zone of mottled, dark clayey soil. I bisected one of the circular features. It had a conical base and disappeared quickly. These features may have been the filled-in remains of tree roots or burrows that intruded the sub-mound midden.

The sub-mound midden/shell layer was a particularly intriguing stratum. Just as at Lawton, I used a 1-inch diameter coring tool to determine the depth and horizontal extent of the shell midden underlying the mound. This coring revealed that the shell midden underlay the north to northwestern portion of Mound A and extended beyond, primarily to the north (Figure 4.49). Even though its artifact density was significantly lower, the sub-mound midden below the North Mound at Lawton was very similar. Both of these features are relatively level, dense layers of freshwater mussel shell containing artifacts that underlie similar portions of the more complex mounds at both sites, and are roughly comparable in areal extent. These characteristics seem to preclude the possibility of chance; I believe that similar cultural activities were responsible for their formation.

In order to understand how the mounds at Red Lake were used, it would be ideal to conduct summit excavations, searching for refuse and structural remains that could indicate domestic versus non-domestic activities. Unfortunately, I did not have the time or permission from the U.S. Army Corps of Engineers to conduct summit excavations beyond cleaning up existing mound disturbances. The Mound A summit is covered with a combination of old open excavations (C.B. Moore), looter holes, and tree tips. I chose to investigate two of these larger disturbances by removing organic buildup, cutting straight profiles, and trowelling the floors (Figure 4.50). All soil removed was screened through ¼-inch hardware cloth. After this general cleanup of the summit holes, I drew profiles and planviews, but there were no observable features or patterns revealed in the soil. It appears the mound summit has suffered too much damage through the centuries and any observable features or patterns of features would be below the summit surface.

Testing on Mound B proceeded in a manner similar to that of Mound A. I first began by coring for mound flank midden with two parallel series of 1-inch diameter tests on the mound flanks. The upper of these were spaced at approximately 1.5 m intervals, while the lower were spaced at approximately 2 m intervals. The upper series was located roughly halfway down the mound flanks and the lower was located roughly two-thirds downslope of the summit. Each test was dug to the base of the mound. There was some indication of midden in the core tests along the northern flank. The crew from SCIAA had already excavated some shovel tests nearby, so I filled in the gaps with post hole tests at N520 E495 and N520 E485. These tests were dug to sterile soil and screened the fill through ¼-inch hardware cloth. The ceramic counts from the former of these were fairly rich; as a result, I placed a 1 m X 2 m test unit (XU F) oriented northeast-southwest into the mound, somewhat between N520 E495 and N520 E500, though further up on the mound (Figure 4.51). XU F was further divided into two 1 m X 1 m units, XU F1 (upslope) and XU F2 (downslope). Depth measurements were recorded below a datum located 10 cm above the ground surface at the southwestern, upslope corner stake of the unit. Each of these squares was excavated separately according to soil strata, and all soil was screened through ¼-inch hardware cloth. I collected several 10 liter soil samples from the Mound B XU F strata for flotation. These soil samples have been floated, but the remains have not been analyzed.

There were four strata in XU F (Figures 4.52 through 4.55). The first was a thin humus layer. Below this was a 3 cm to 7 cm thick reddish-brown clay, designated Level 1. Level 1 was nearly devoid of artifacts and appears to be a layer of historic alluvium. Level 2, a 30 cm to 40 cm thick layer of mottled sandy mound fill, also had few artifacts. Below this was 10 cm to 15 cm of dark, mottled, clayey sand sub-mound midden, Level 3, with charcoal, some thin shell lenses, badly deteriorated bone, flaked stone artifacts, and a relatively high density of pottery. The sub-mound midden yielded 3,118 sherds. I excavated a few cm of the sand below the midden, which proved to be sterile subsoil. There were no features encountered throughout the excavation of XU F, and none were apparent in the floor of the unit.

Figure 4.1 Lawton USGS Quadrangle Location

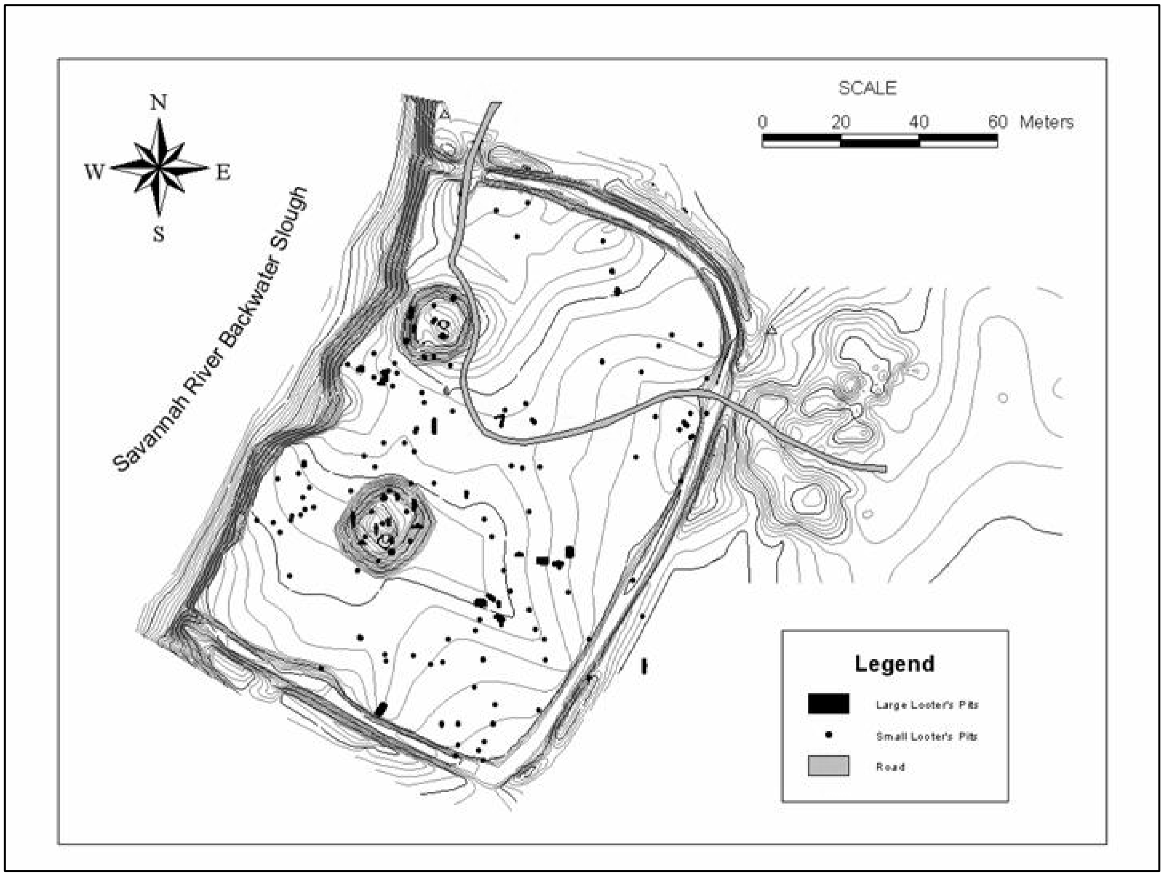


Figure 4.2 Lawton Site Looter Pits
(Image courtesy of SCIAA)

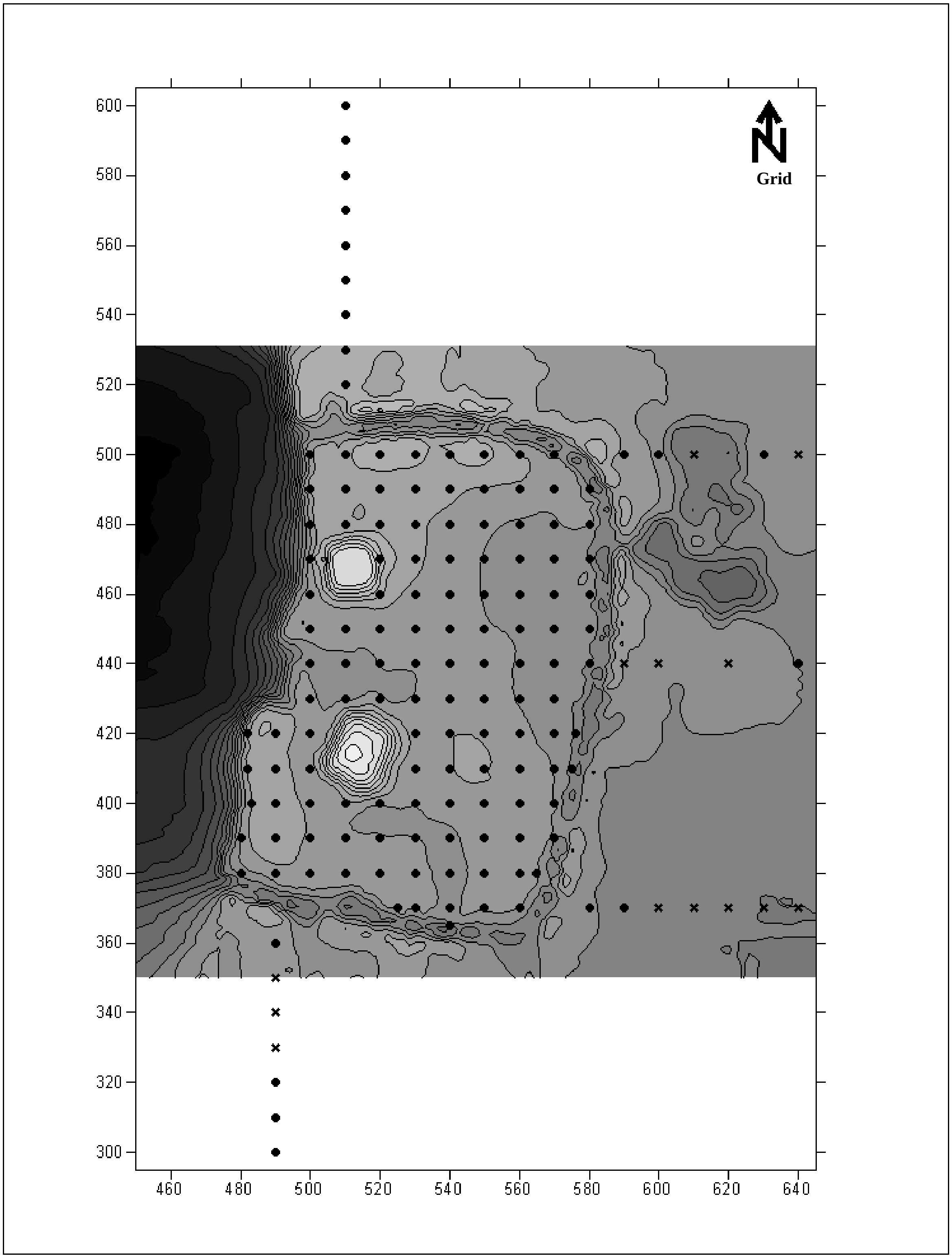


Figure 4.3 Lawton Shovel Tests
(X = negative for ceramics, 30 cm contour intervals, scale in meters, data courtesy of SCIAA)

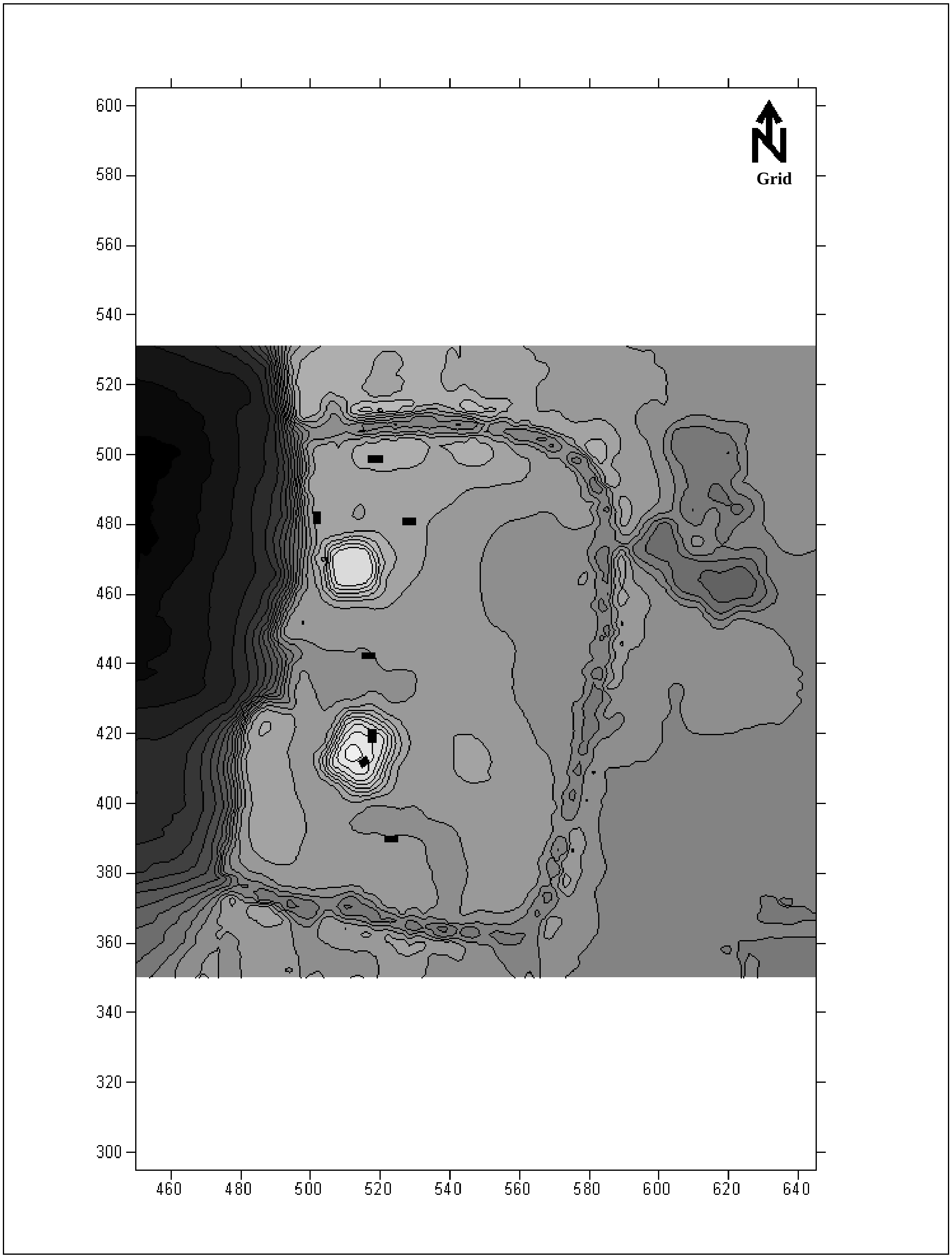


Figure 4.4 Lawton SCIAA Test Units
(Units not to exact scale; 30 cm contour intervals, scale in meters, data courtesy of SCIAA)

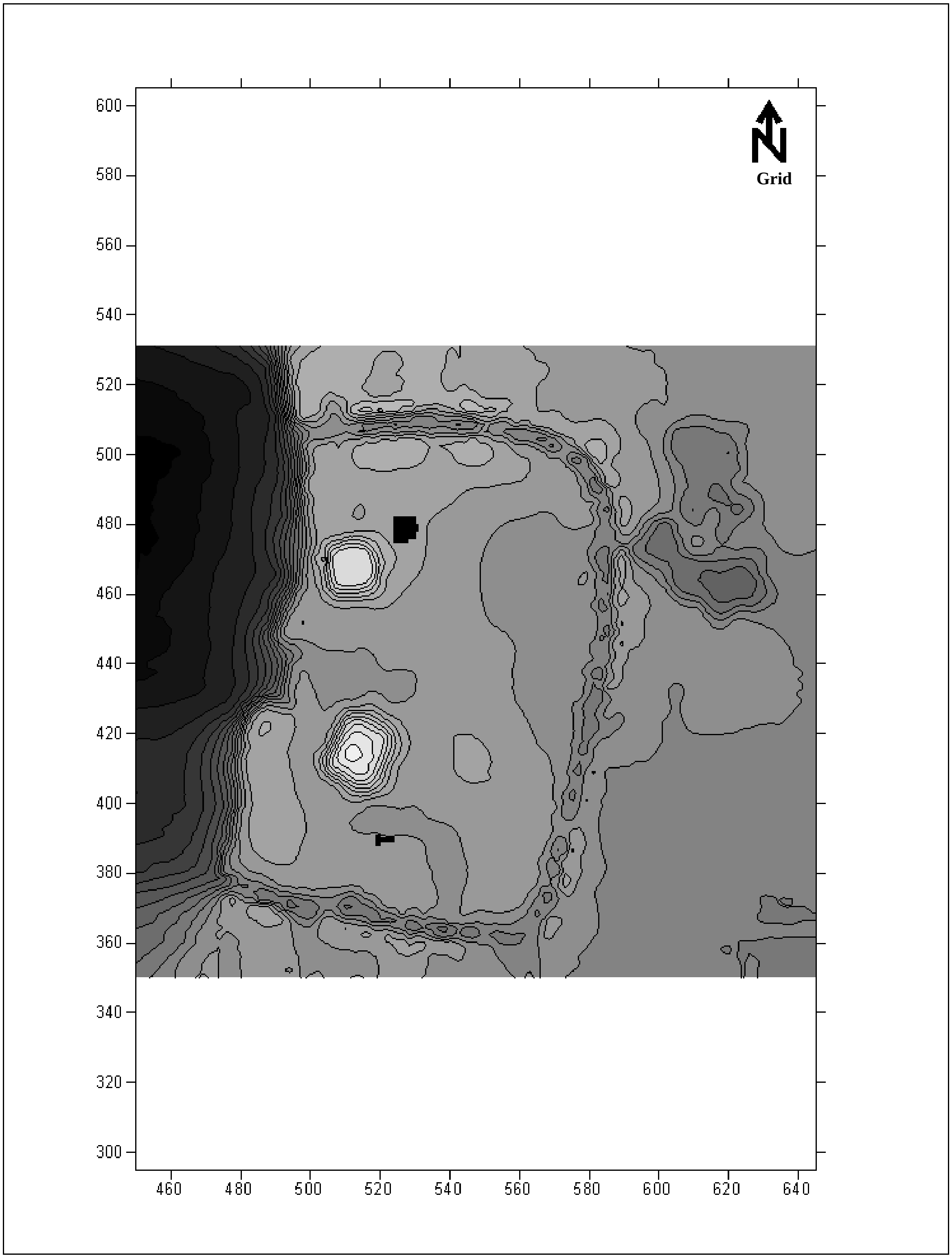


Figure 4.5 Lawton Nelson Test Units
(30 cm contour intervals, scale in meters, data courtesy of SCIAA)

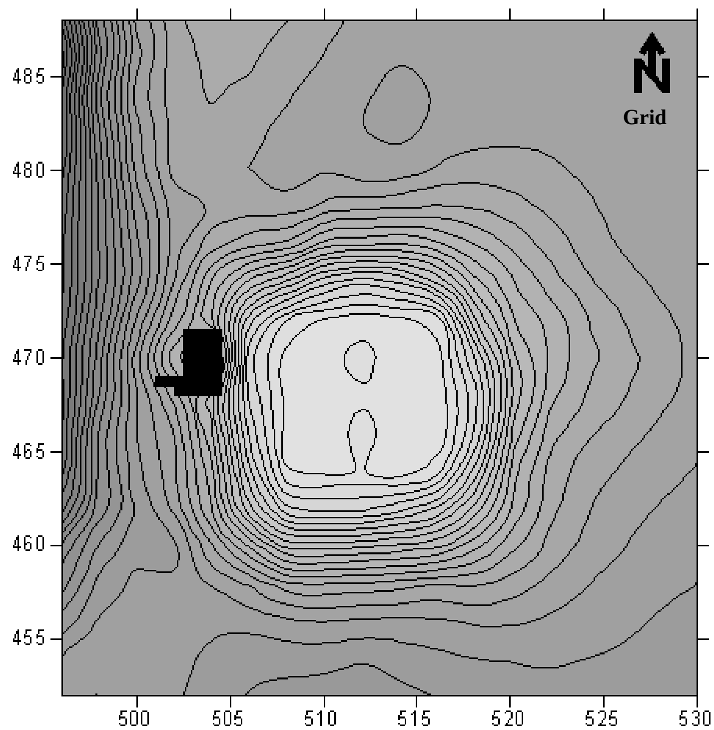


Figure 4.6 Lawton North Mound Wood Test Unit
(10 cm contour intervals, scale in meters, contour data courtesy of SCIAA)

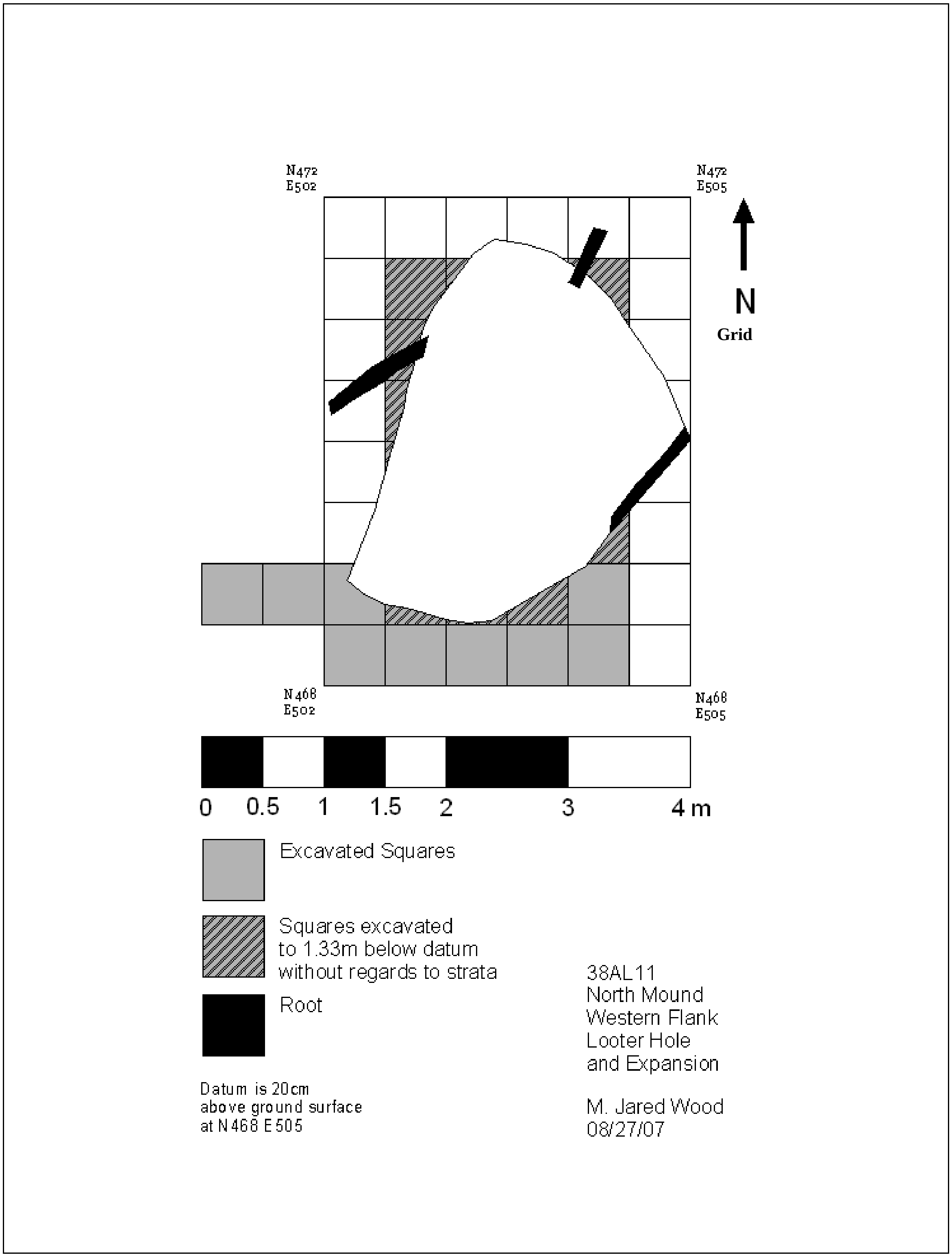


Figure 4.7 Lawton North Mound Looter Hole and Excavation

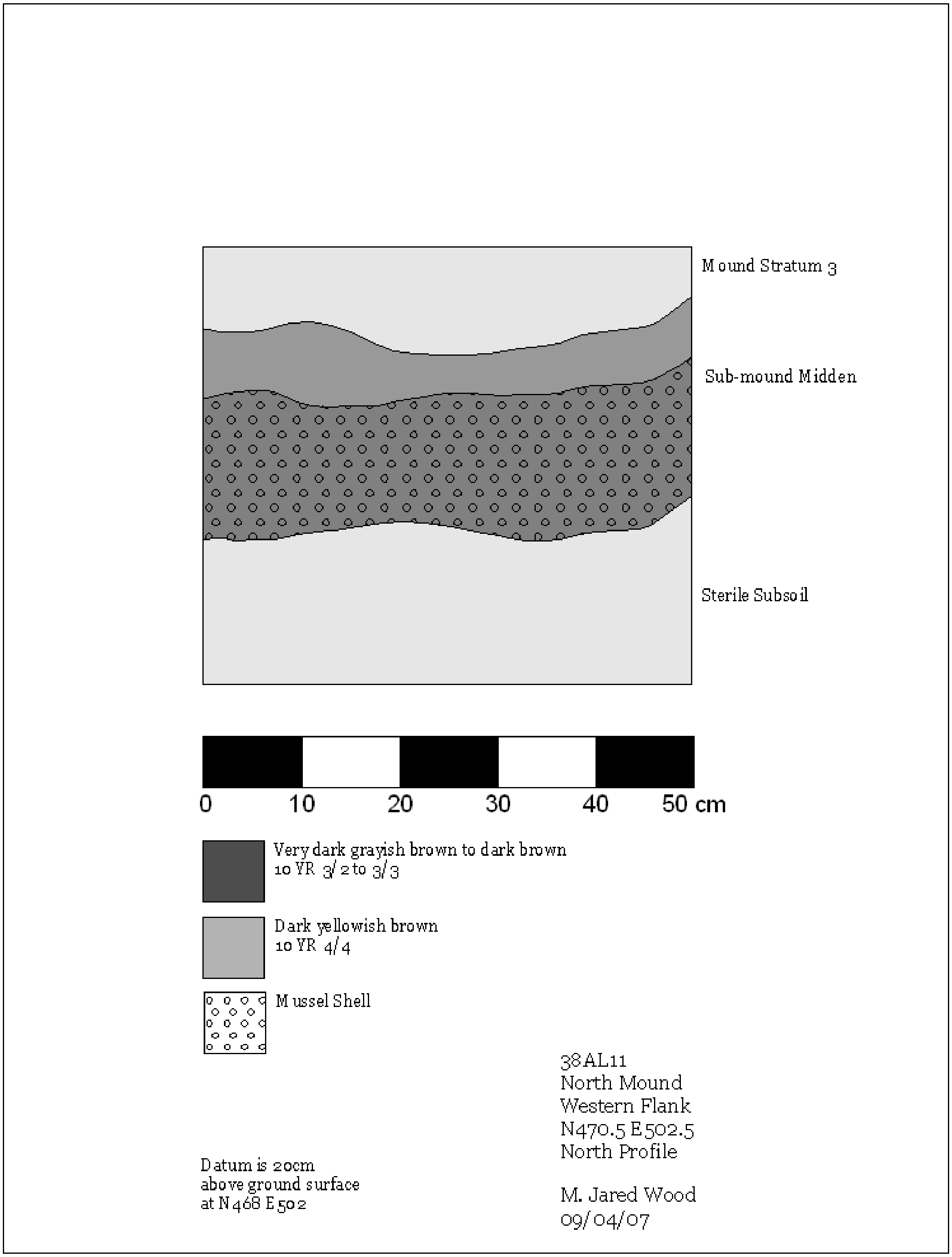


Figure 4.8 Lawton North Mound Looter Hole, Floor Test Unit, North Profile

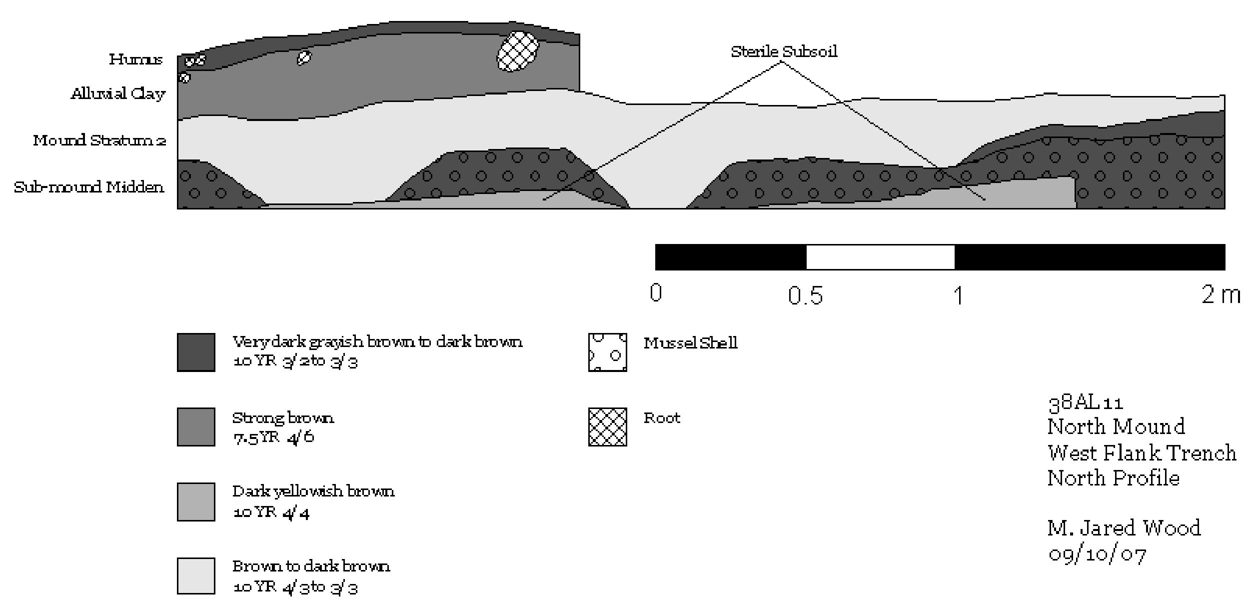


Figure 4.9 Lawton North Mound Trench, North Profile

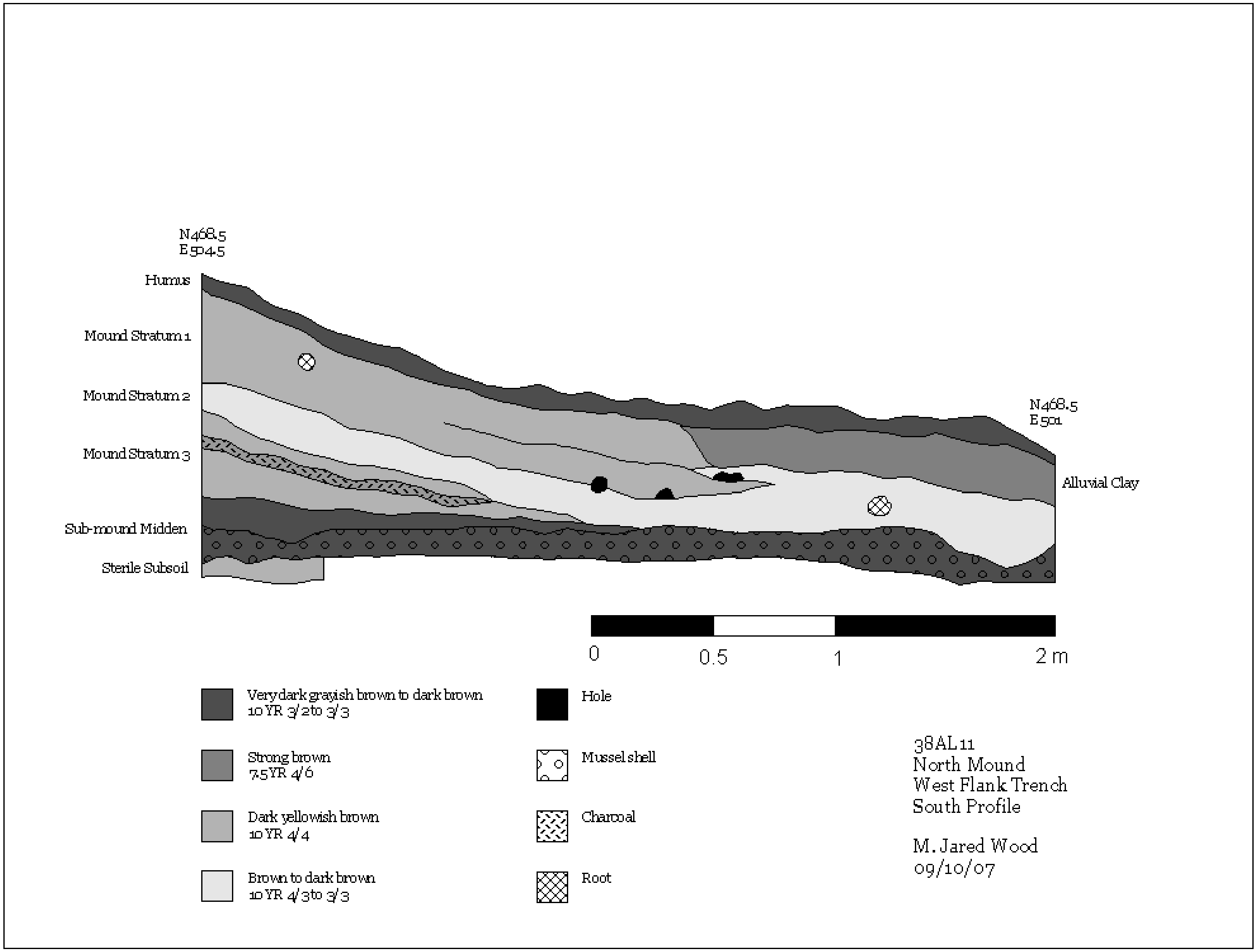


Figure 4.10 Lawton North Mound Trench, South Profile

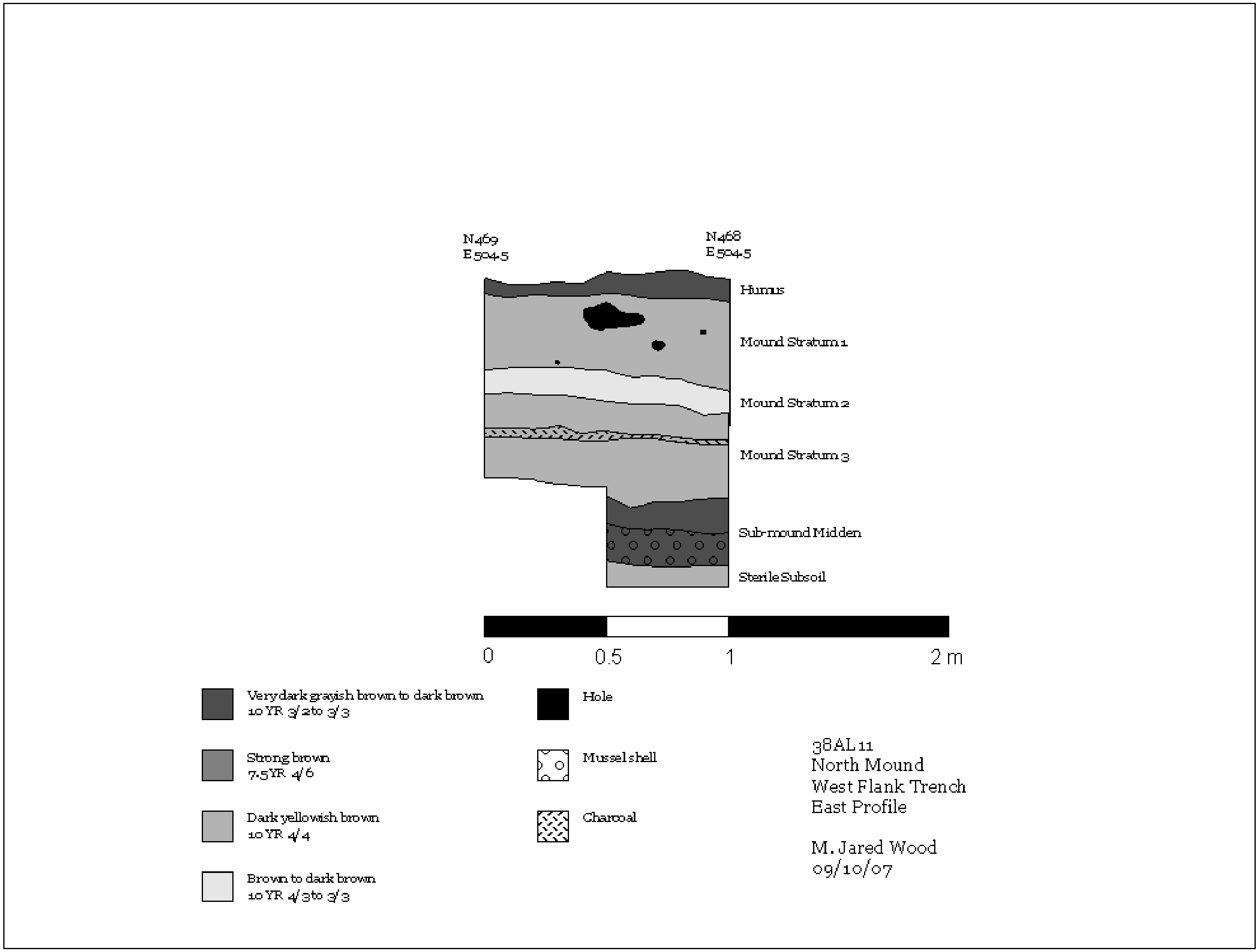


Figure 4.11 Lawton North Mound Trench, East Profile

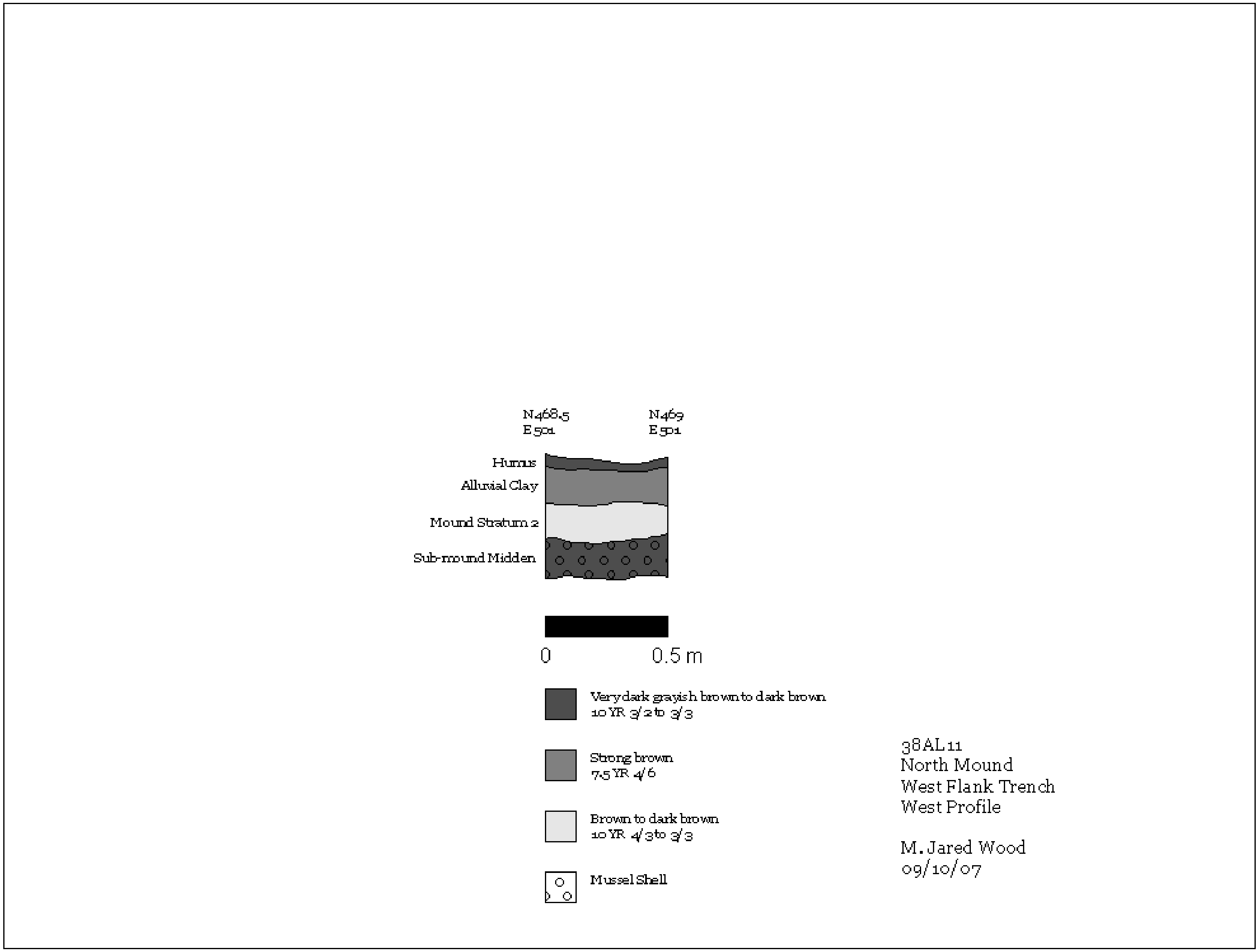


Figure 4.12 Lawton North Mound Trench, West Profile

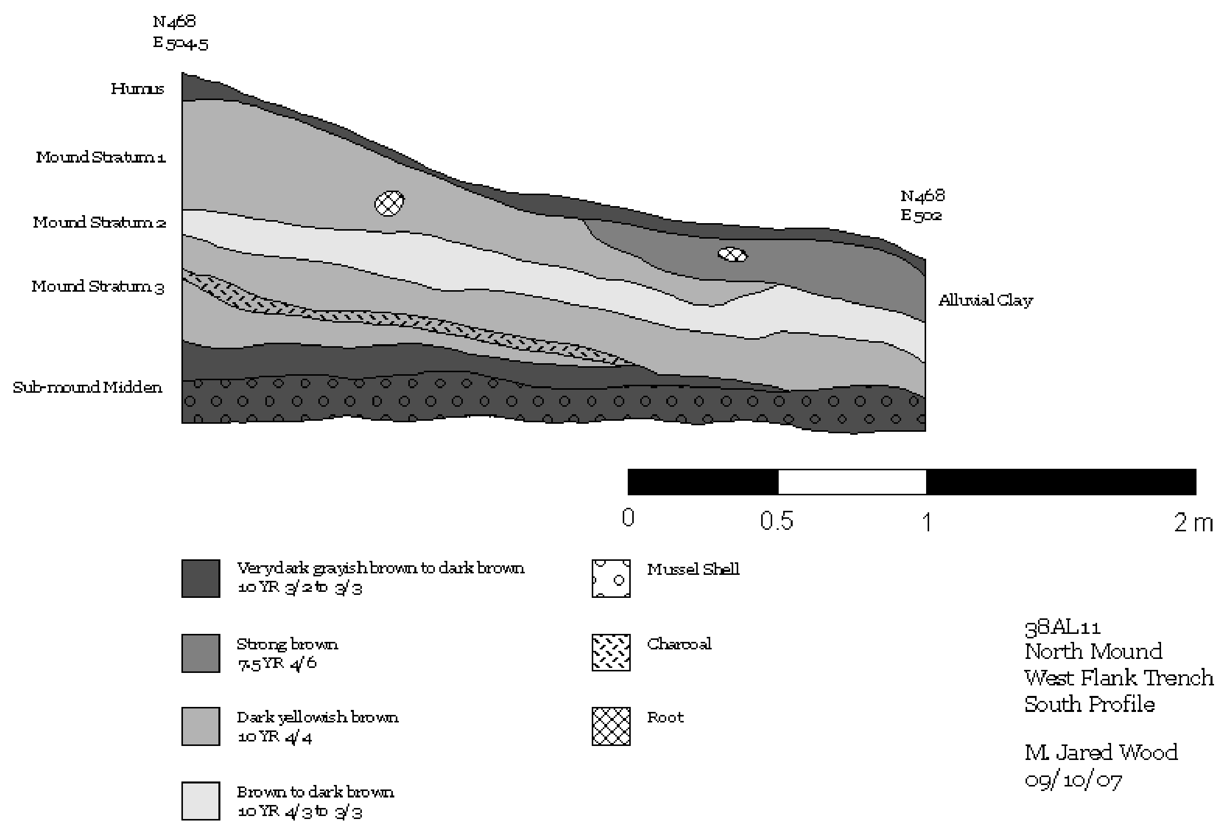


Figure 4.13 Lawton North Mound Trench Expansion, South Profile

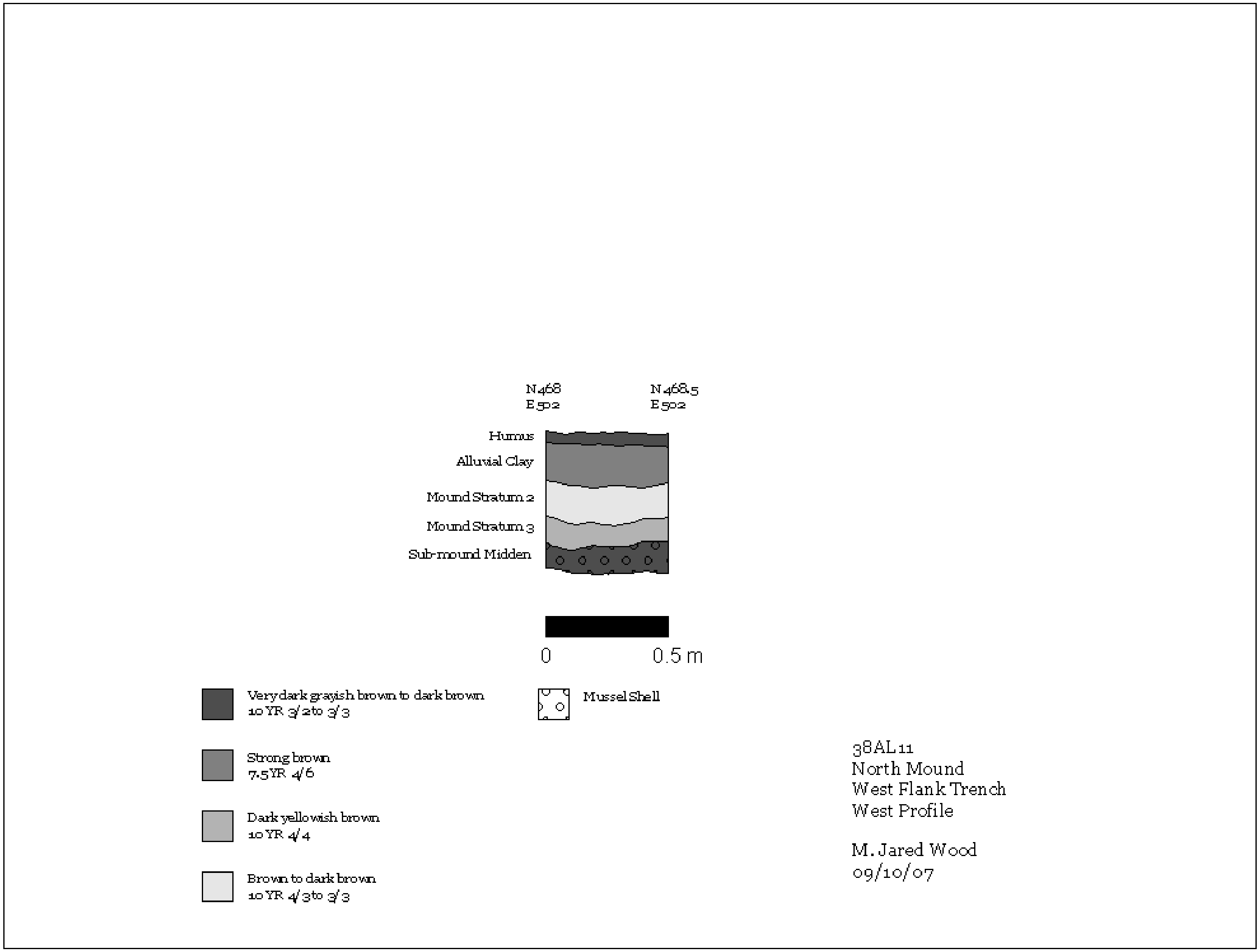


Figure 4.14 Lawton North Mound Trench Expansion, West Profile

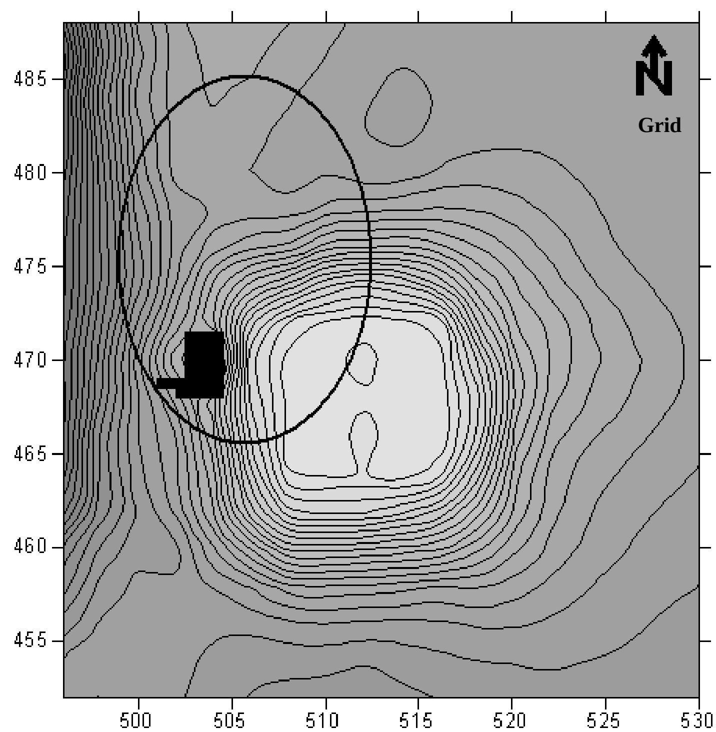


Figure 4.15 Lawton North Mound, Estimated Extent of Shell Midden
(10 cm contour intervals, scale in meters)

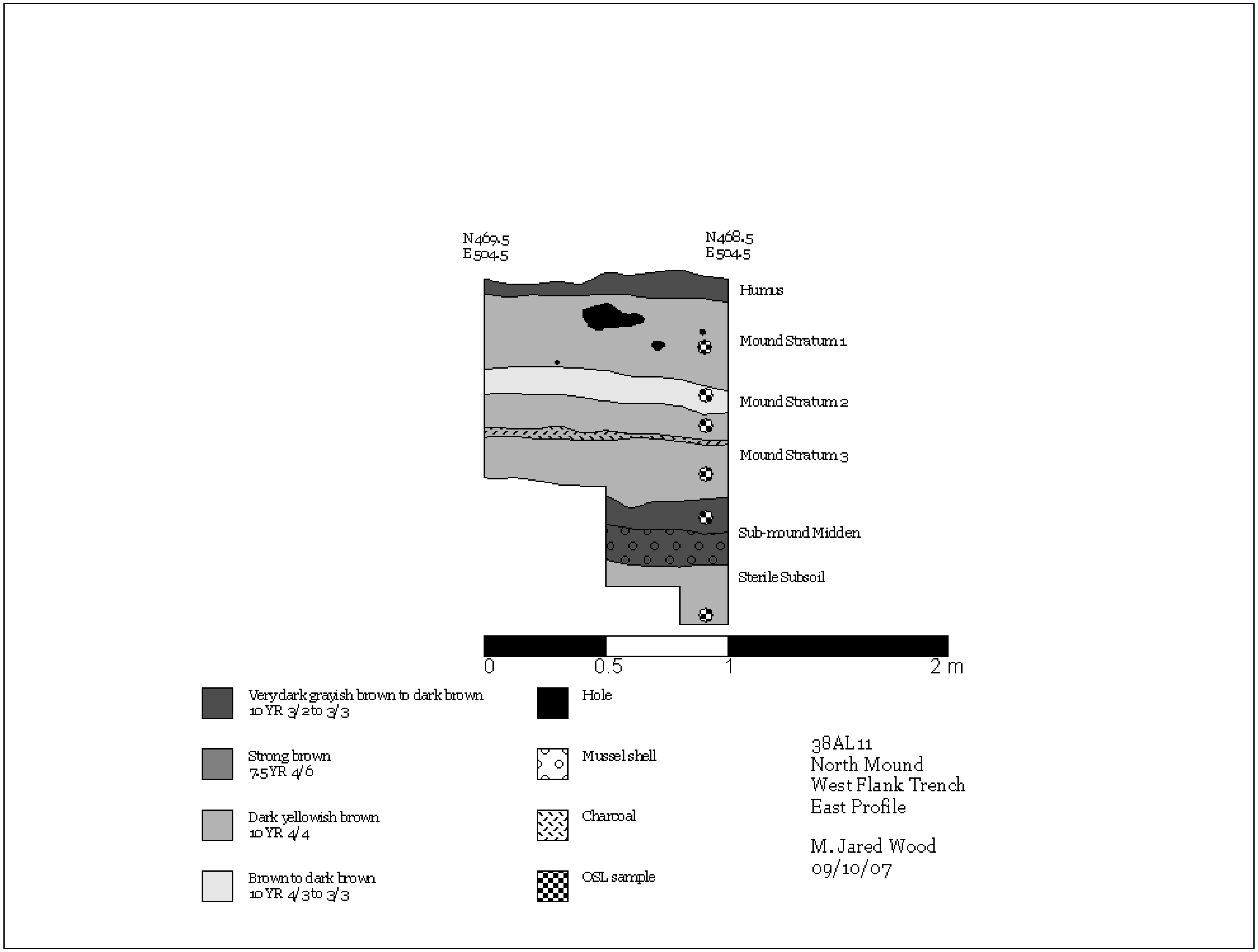


Figure 4.16 Lawton North Mound Trench Expansion, East Profile

Figure 4.17 Spring Lake and Red Lake USGS Quadrangle Locations

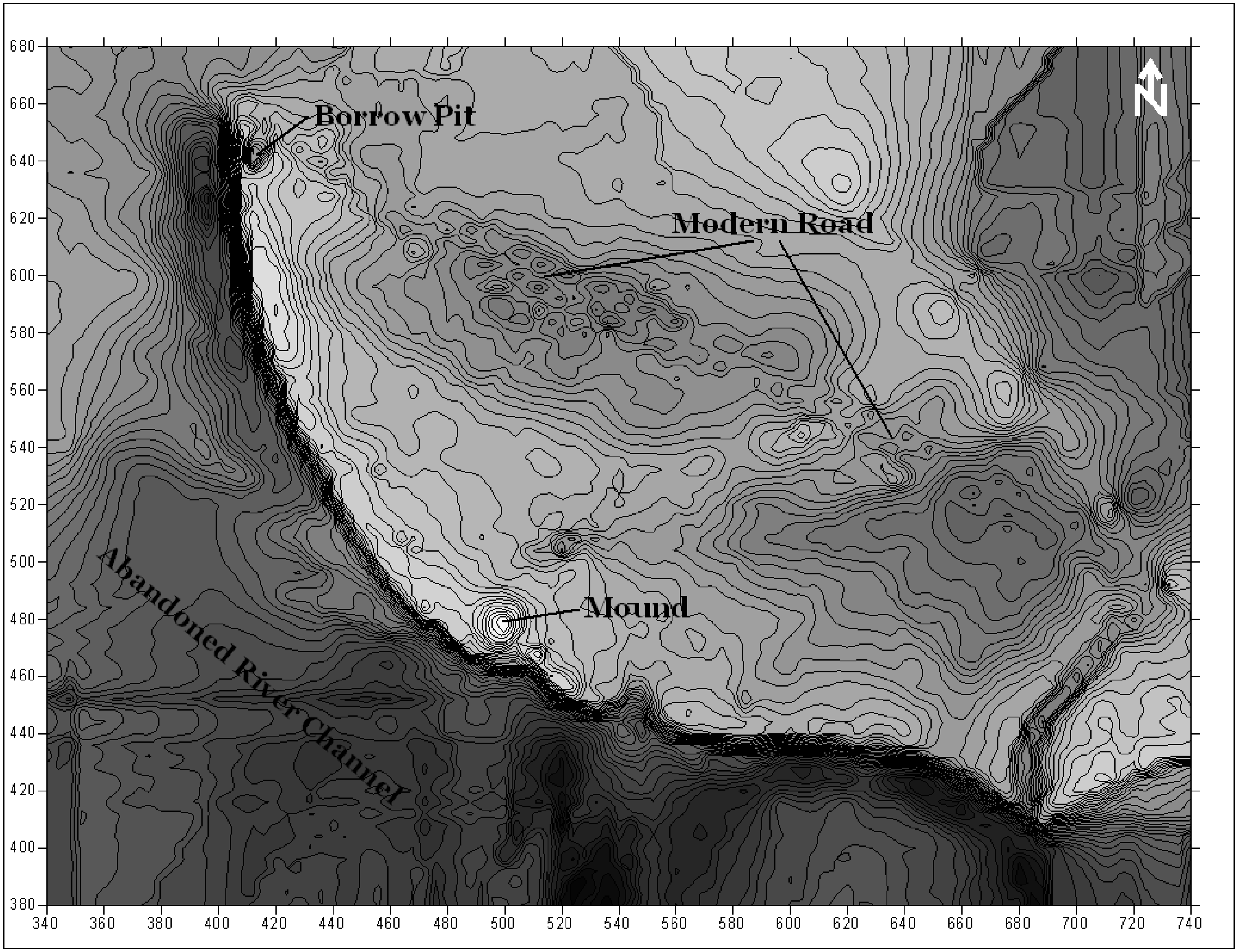


Figure 4.18 Spring Lake Topography and Features (10 cm contour intervals, scale in meters)

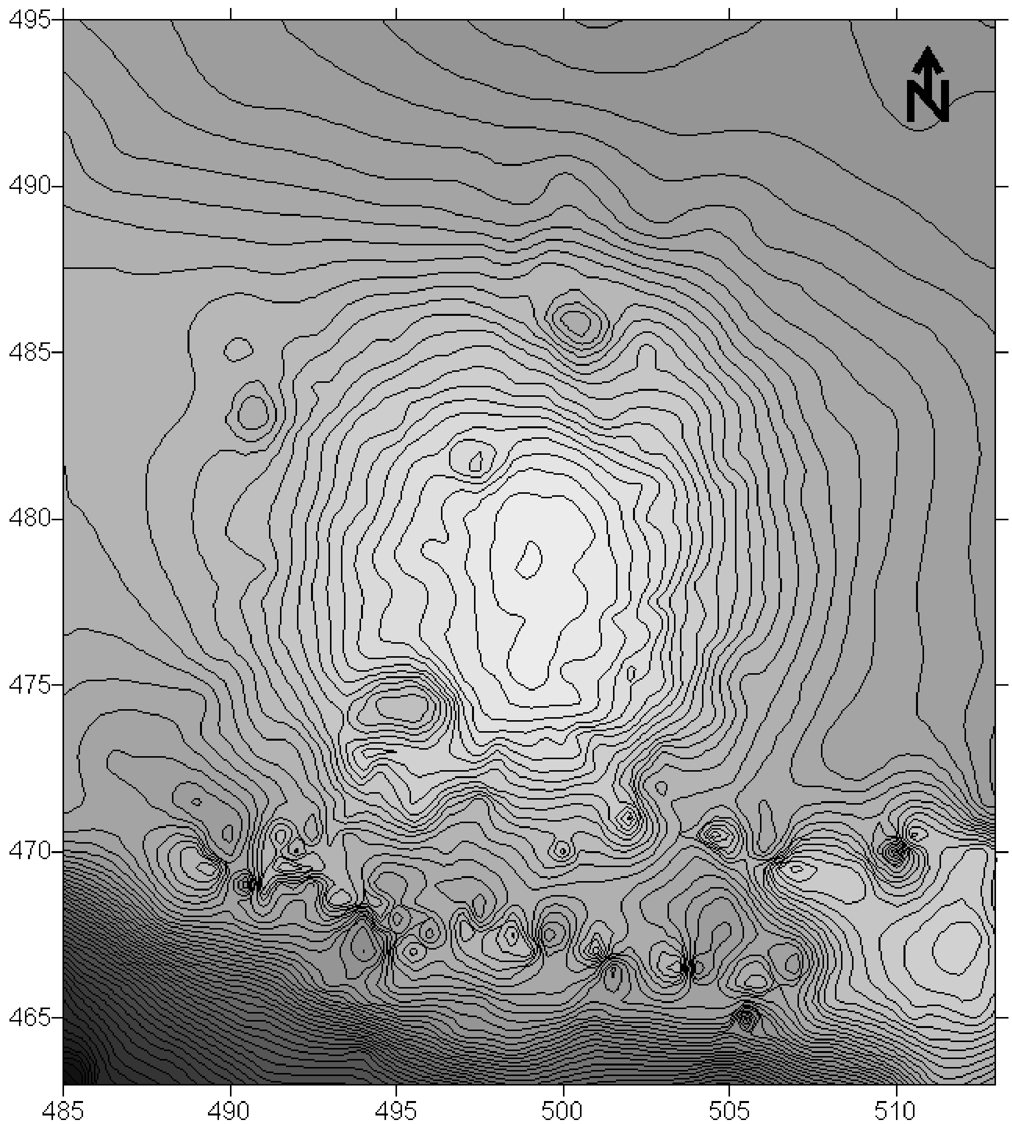


Figure 4.19 Spring Lake Mound
(5 cm contour intervals, scale in meters)

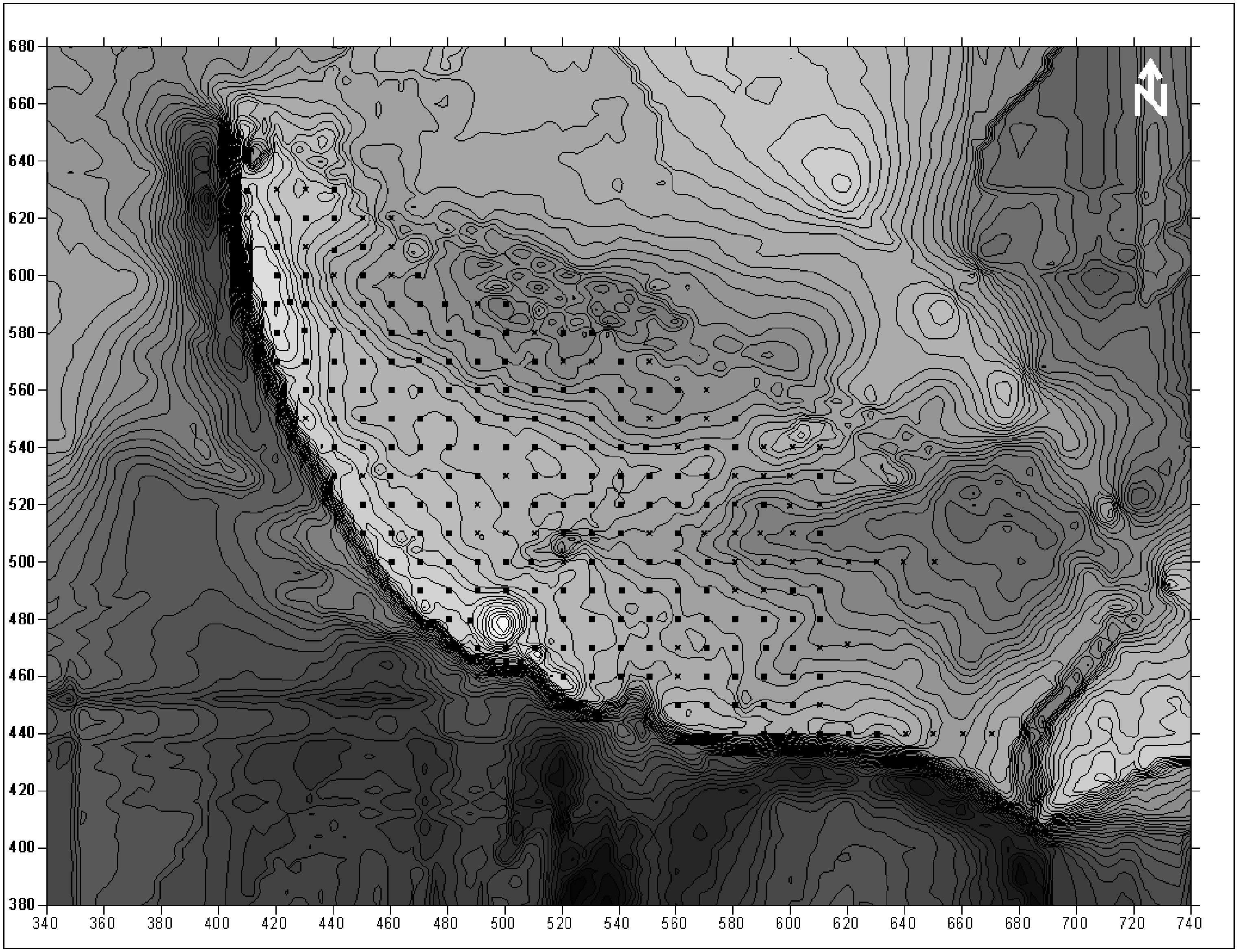


Figure 4.20 Spring Lake Post Hole Tests (X = negative for ceramics, 10 cm contour intervals, scale in meters)

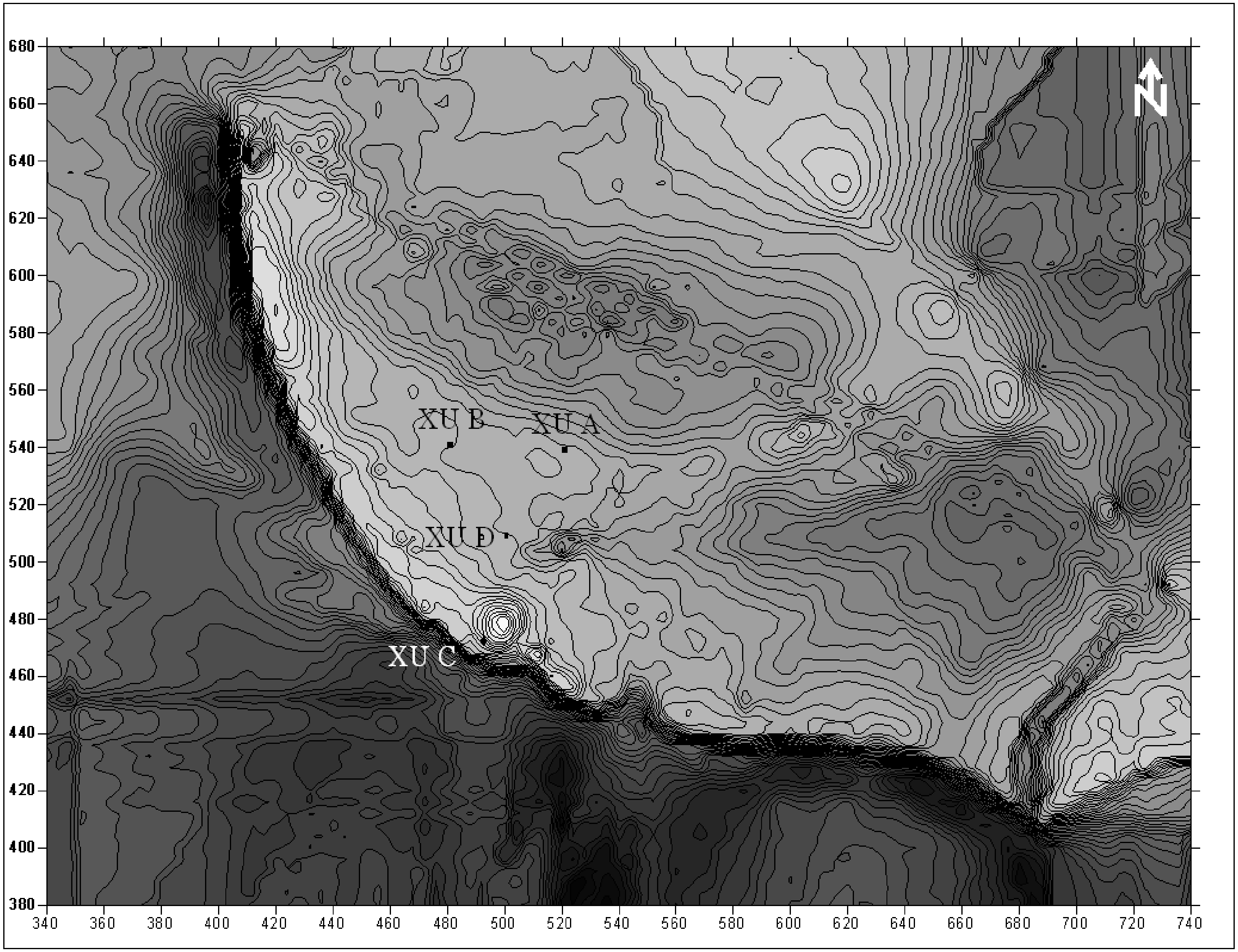


Figure 4.21 Spring Lake Test Units (10 cm contour intervals, scale in meters)

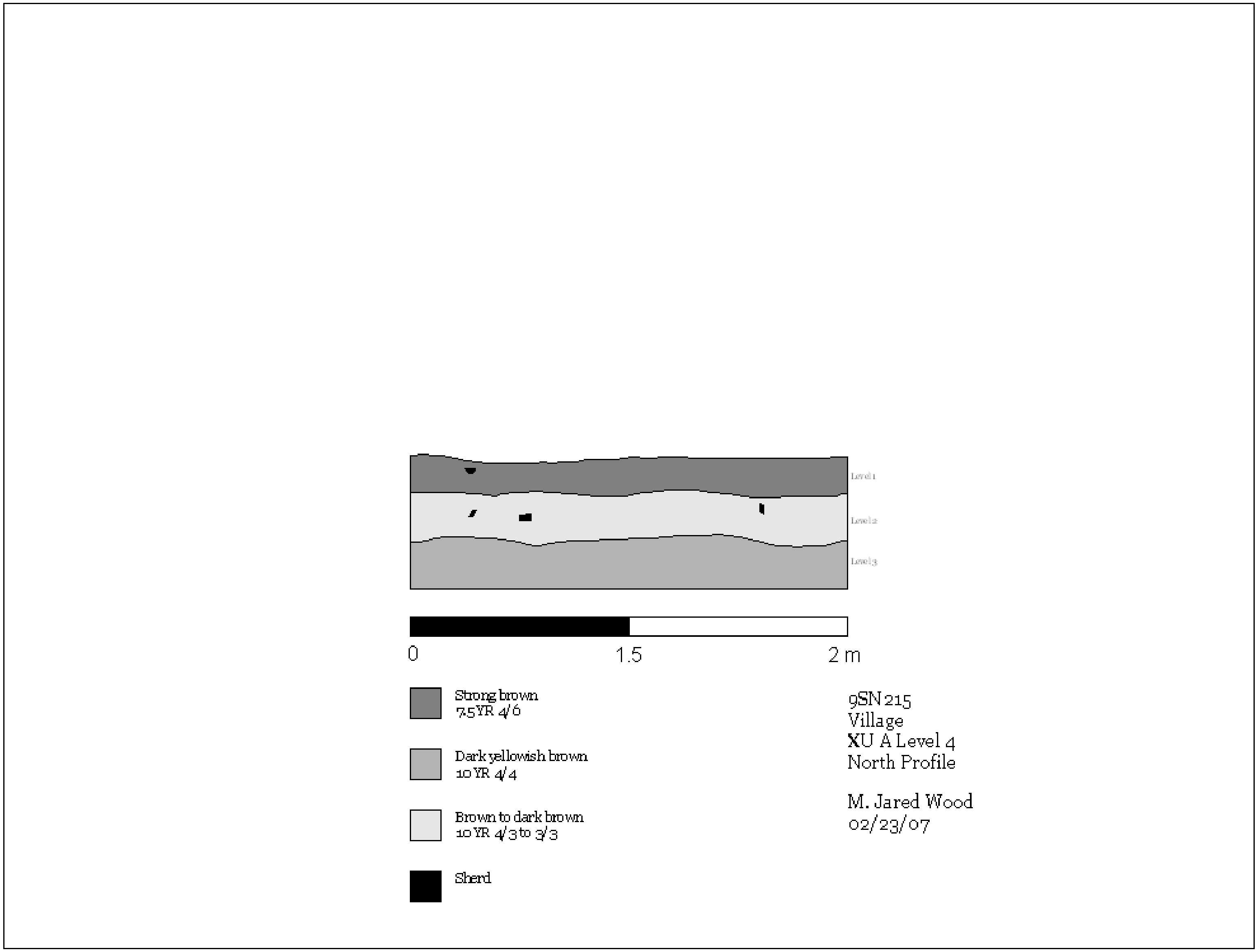


Figure 4.22 Spring Lake XU A North Profile

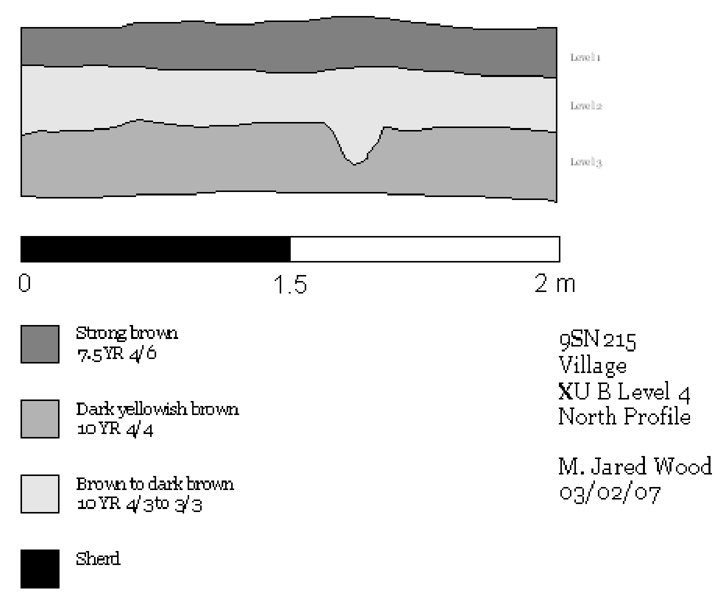


Figure 4.23 Spring Lake XU B North Profile

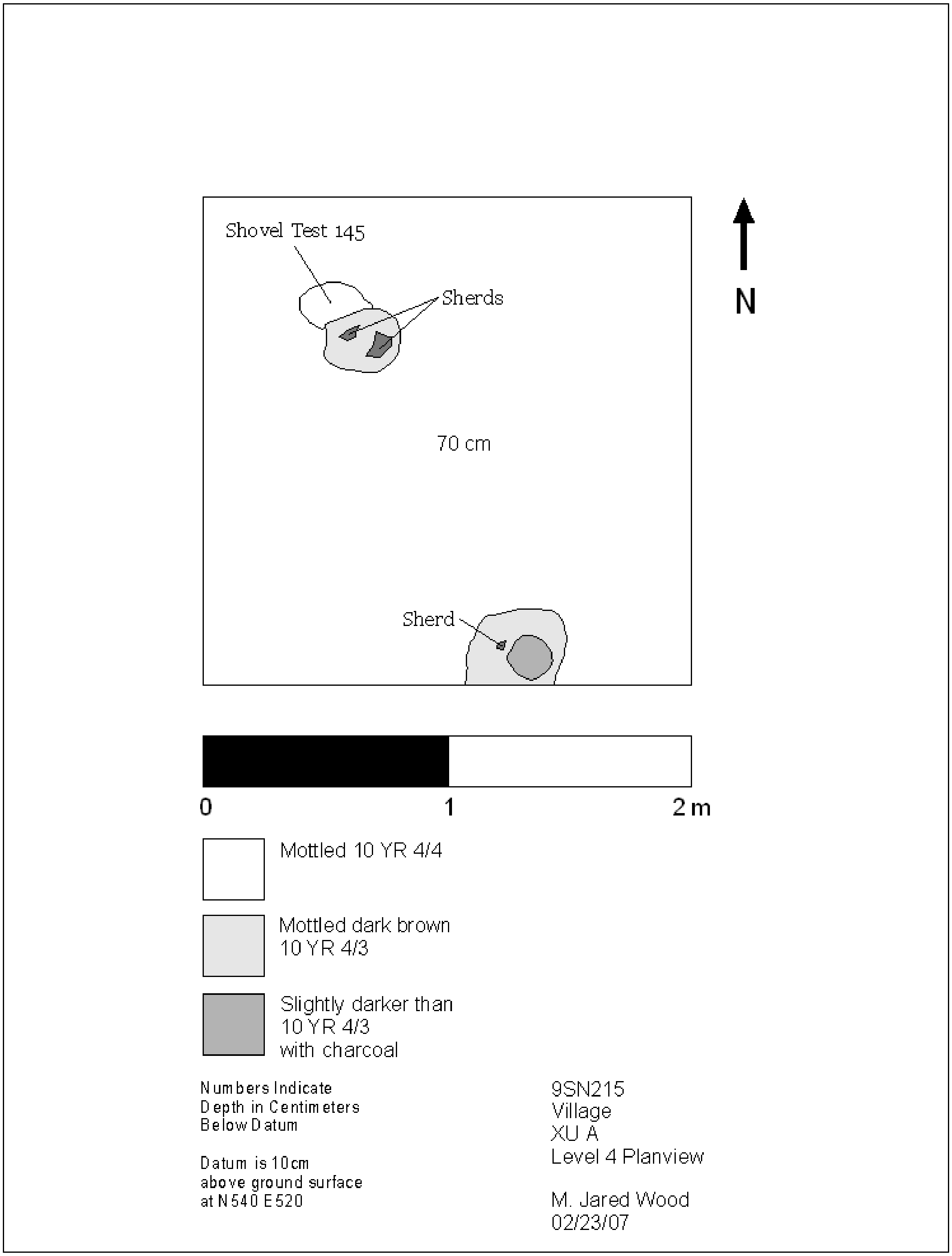


Figure 4.24 Spring Lake XU A Planview

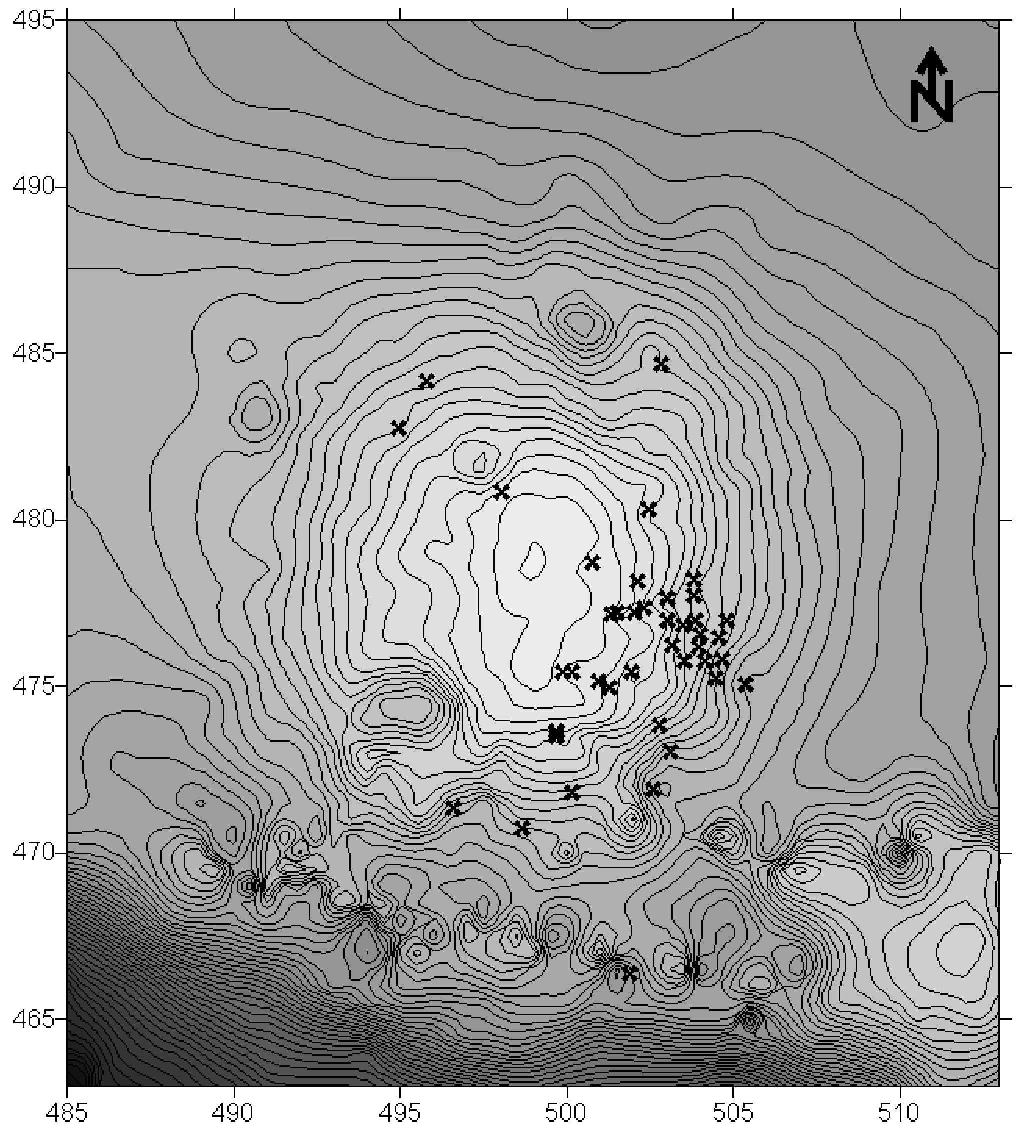


Figure 4.25 Spring Lake Mound (X = Historic metal, 5 cm contour intervals, scale in meters)

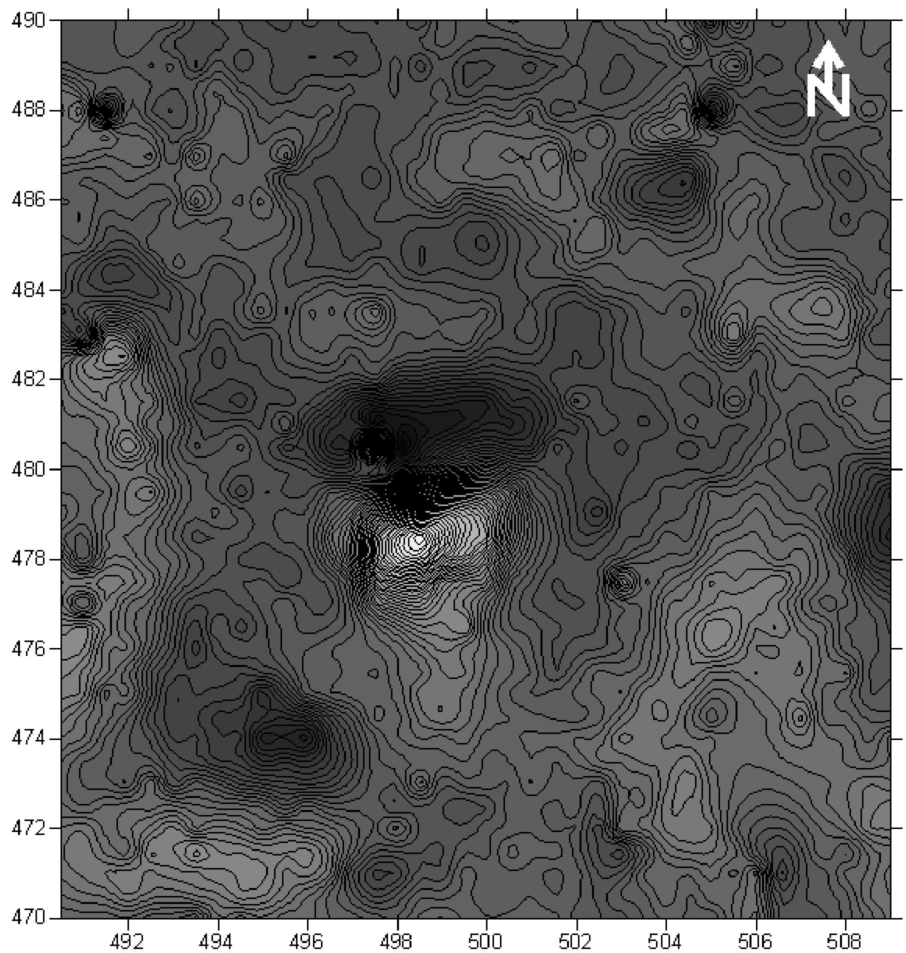


Figure 4.26 Spring Lake Mound Gradiometer Results
(15 cm contour intervals, scale in meters)

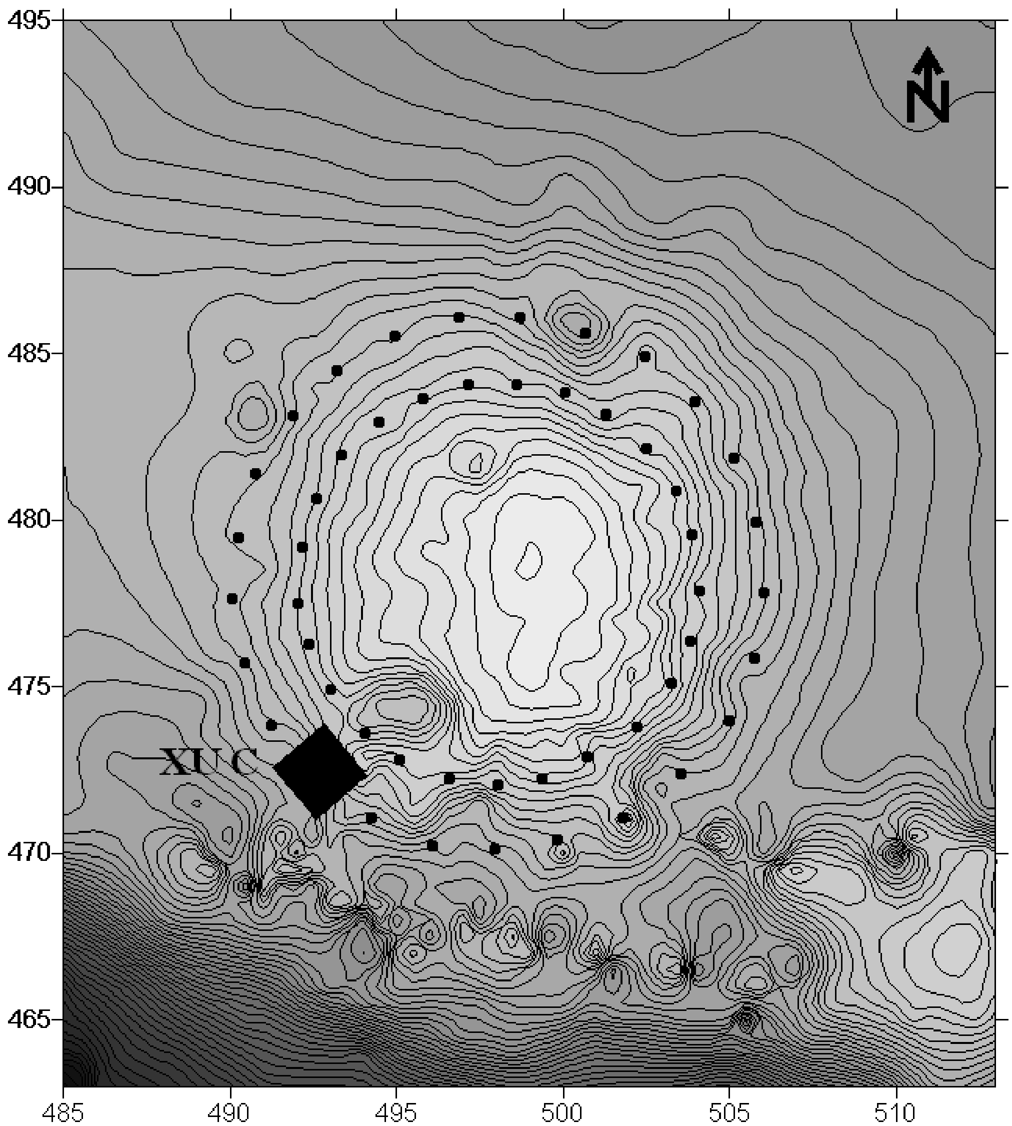


Figure 4.27 Spring Lake Mound Flank Test Locations and XU C
(5 cm contour intervals, scale in meters)

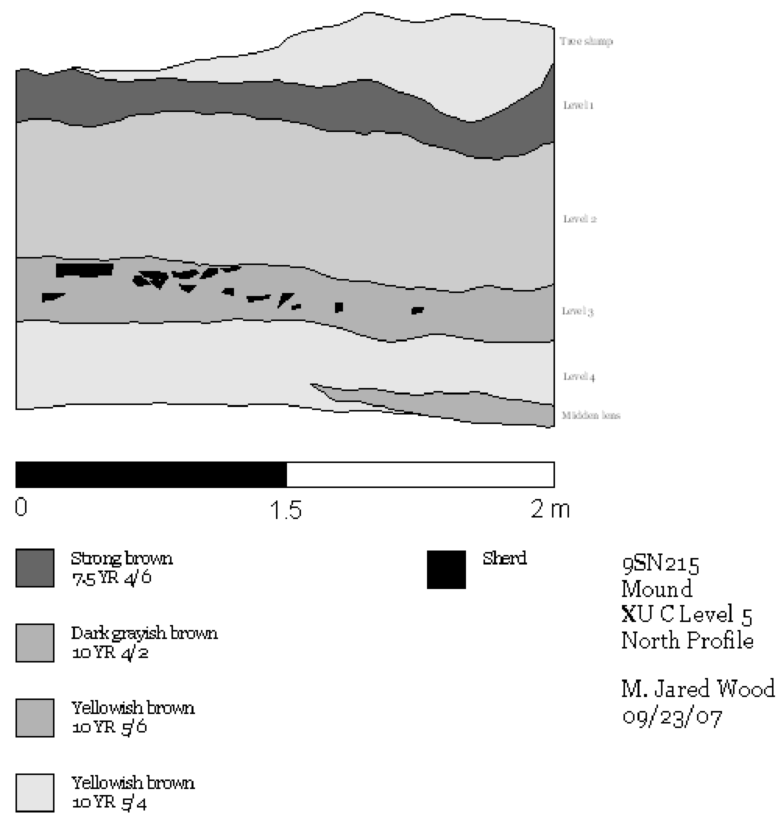


Figure 4.28 Spring Lake Mound XU C North Profile

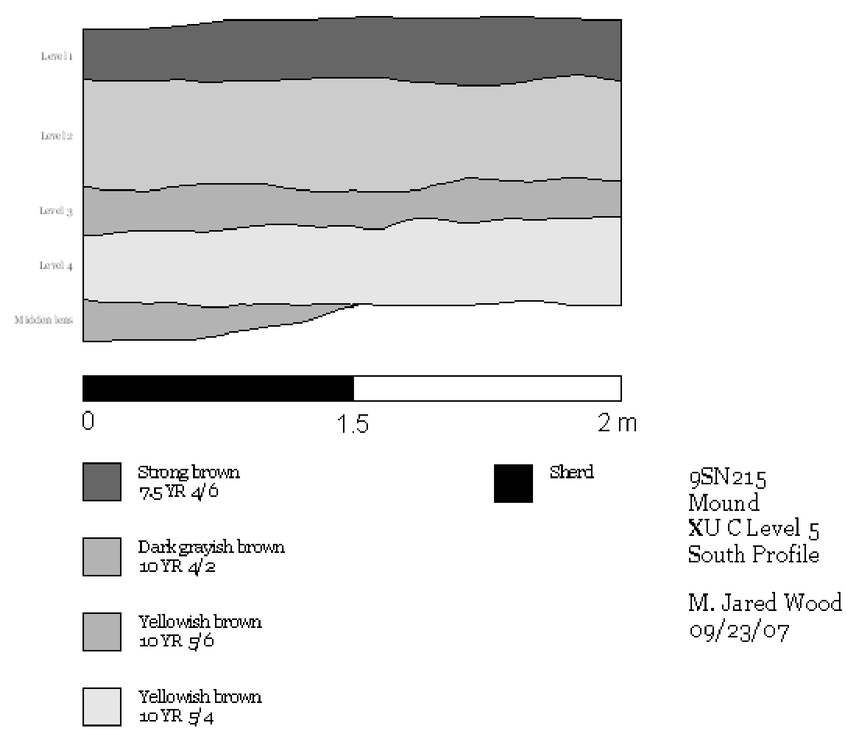


Figure 4.29 Spring Lake Mound XU C South Profile

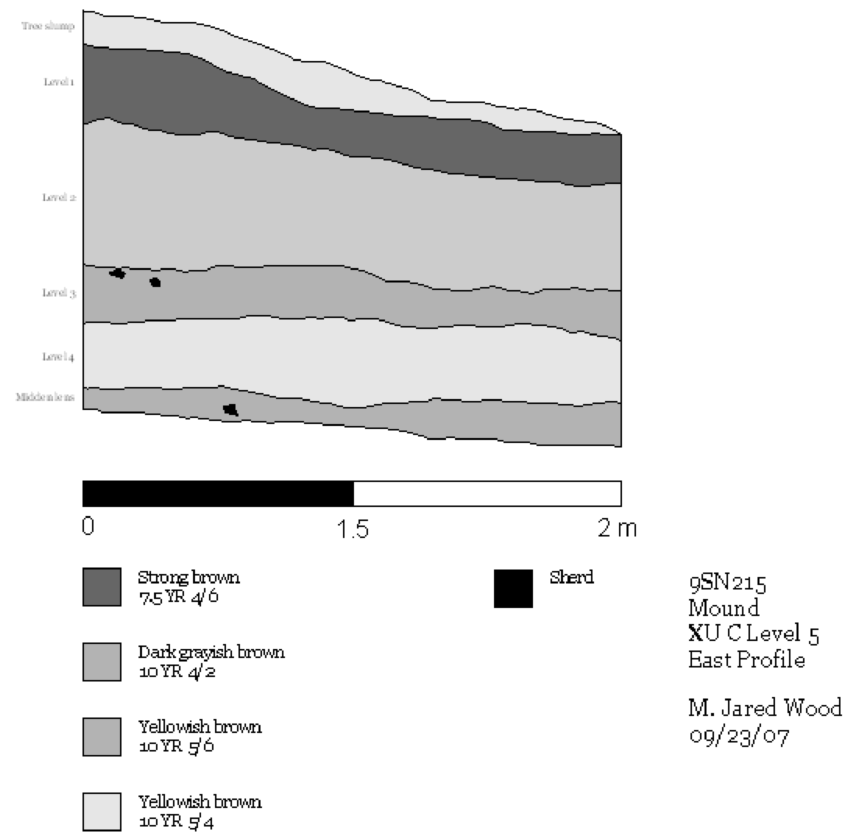


Figure 4.30 Spring Lake Mound XU C East Profile

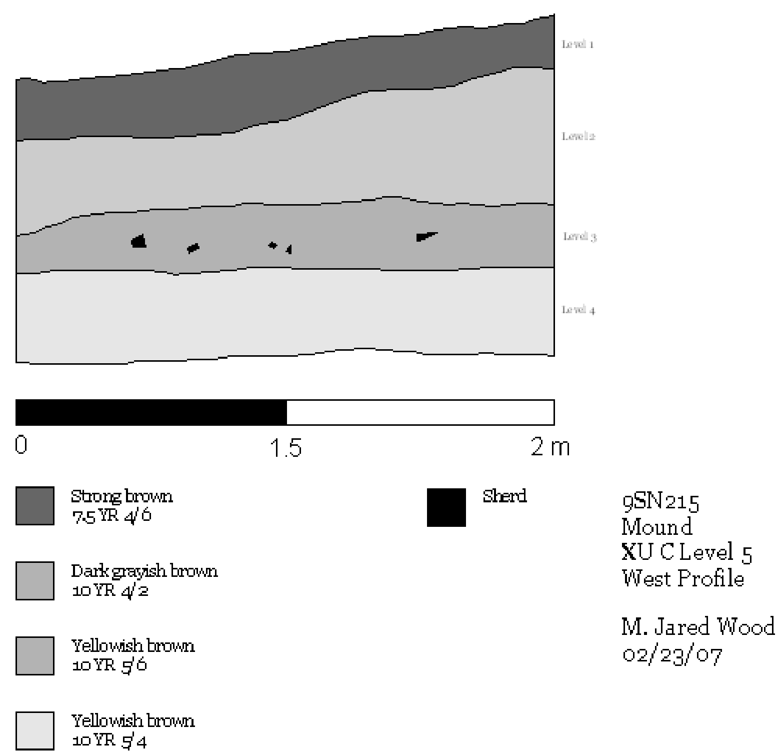


Figure 4.31 Spring Lake Mound XU C West Profile

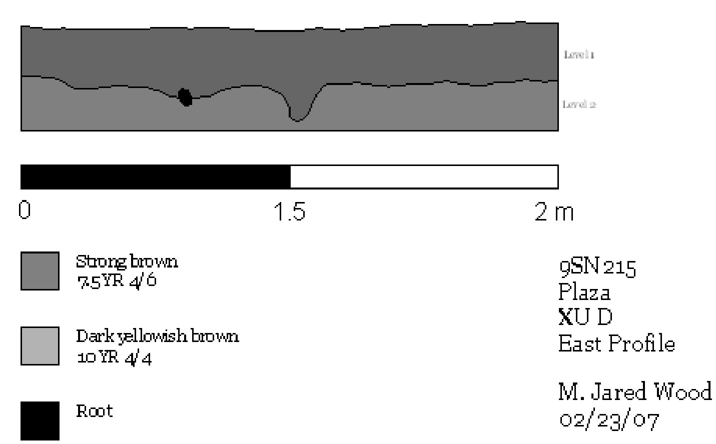


Figure 4.32 Spring Lake Plaza XU D East Profile

Figure 4.33 Spring Lake Benchmarks

Figure 4.34 Red Lake 1897 Survey Plat

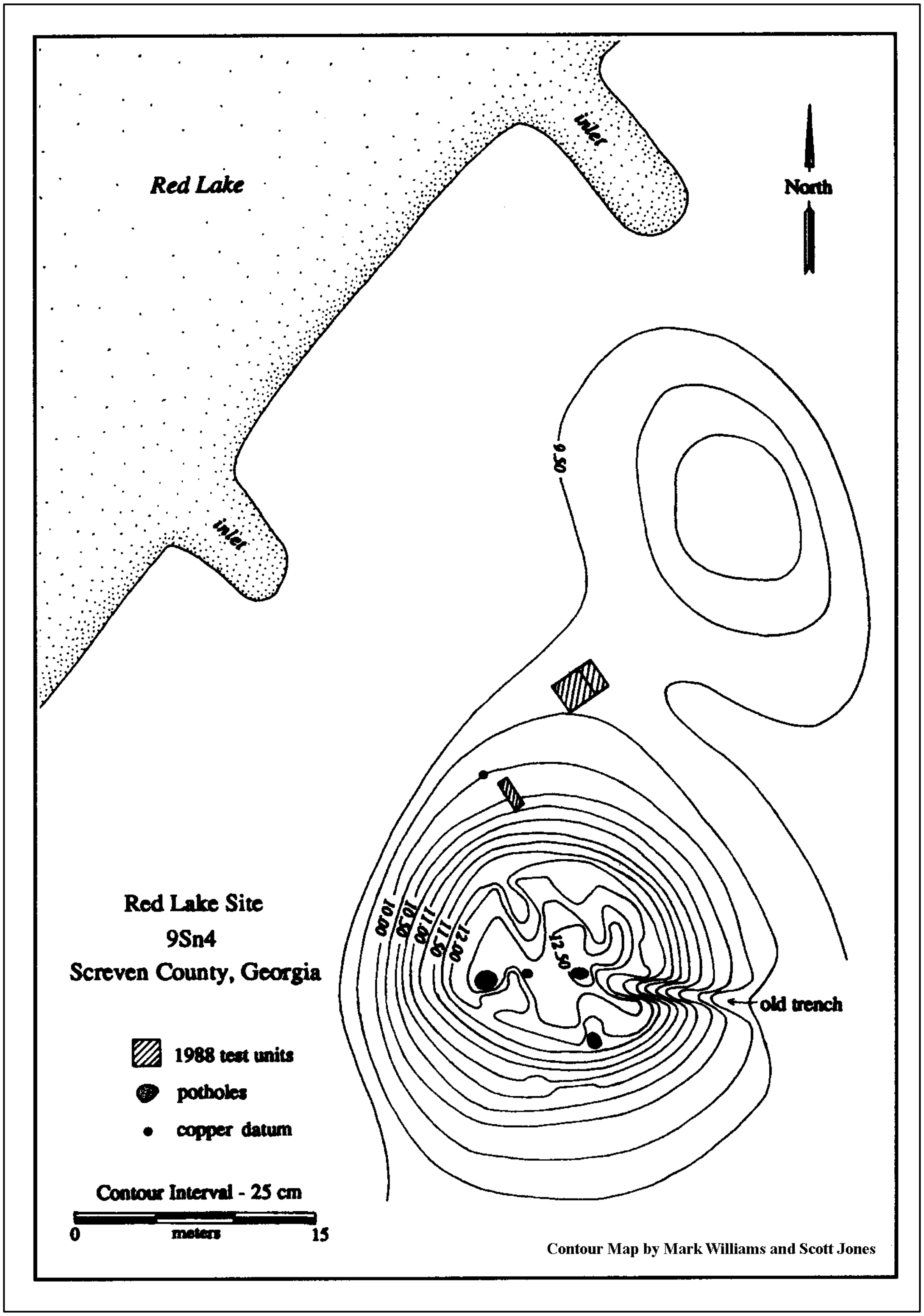


Figure 4.35 Red Lake Mounds A & B, Cook Test Units, Williams' Contour Map (Anderson 1994:188)

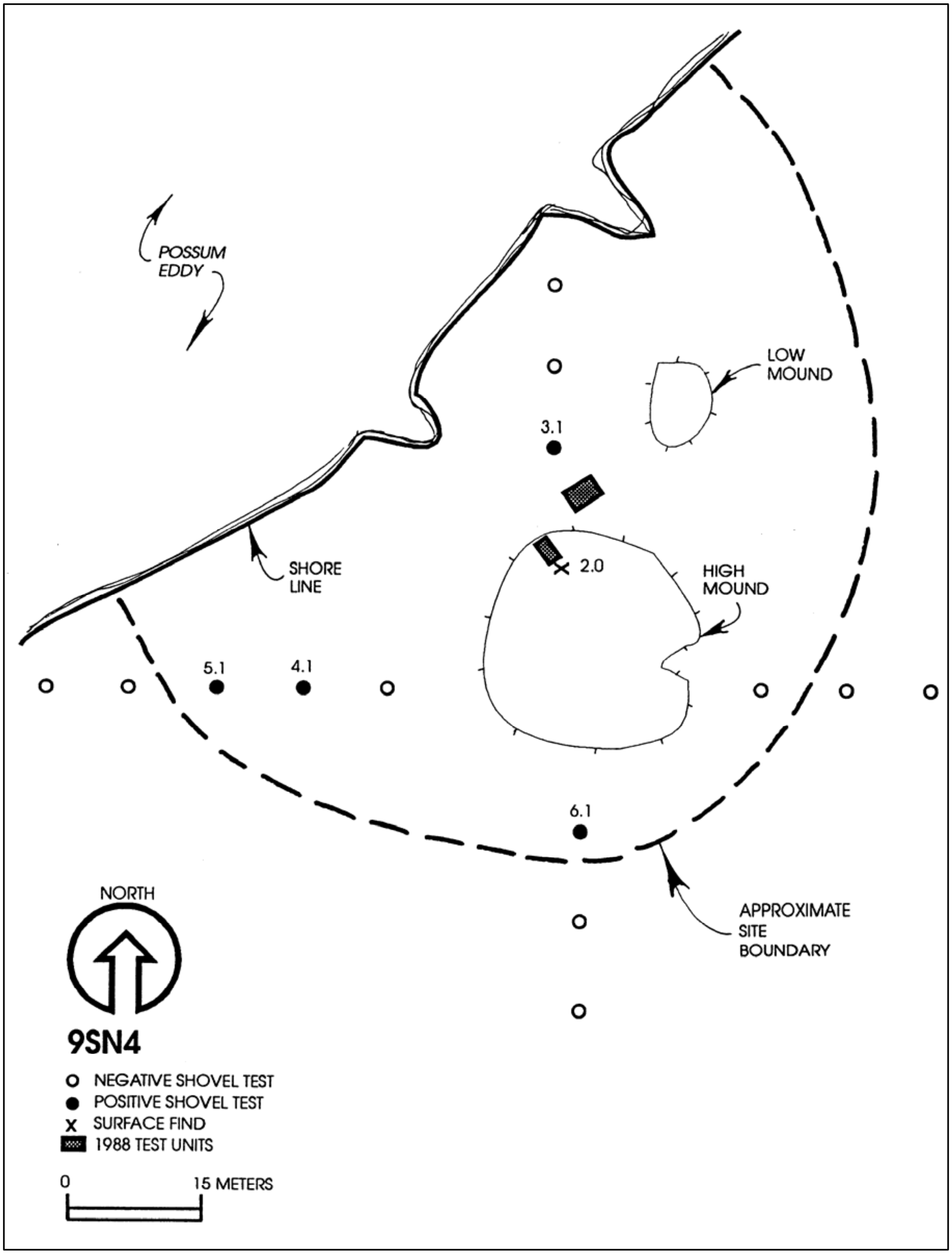


Figure 4.36 Red Lake Site Map, Brockington and Associates
(Espenshade 1994:42)

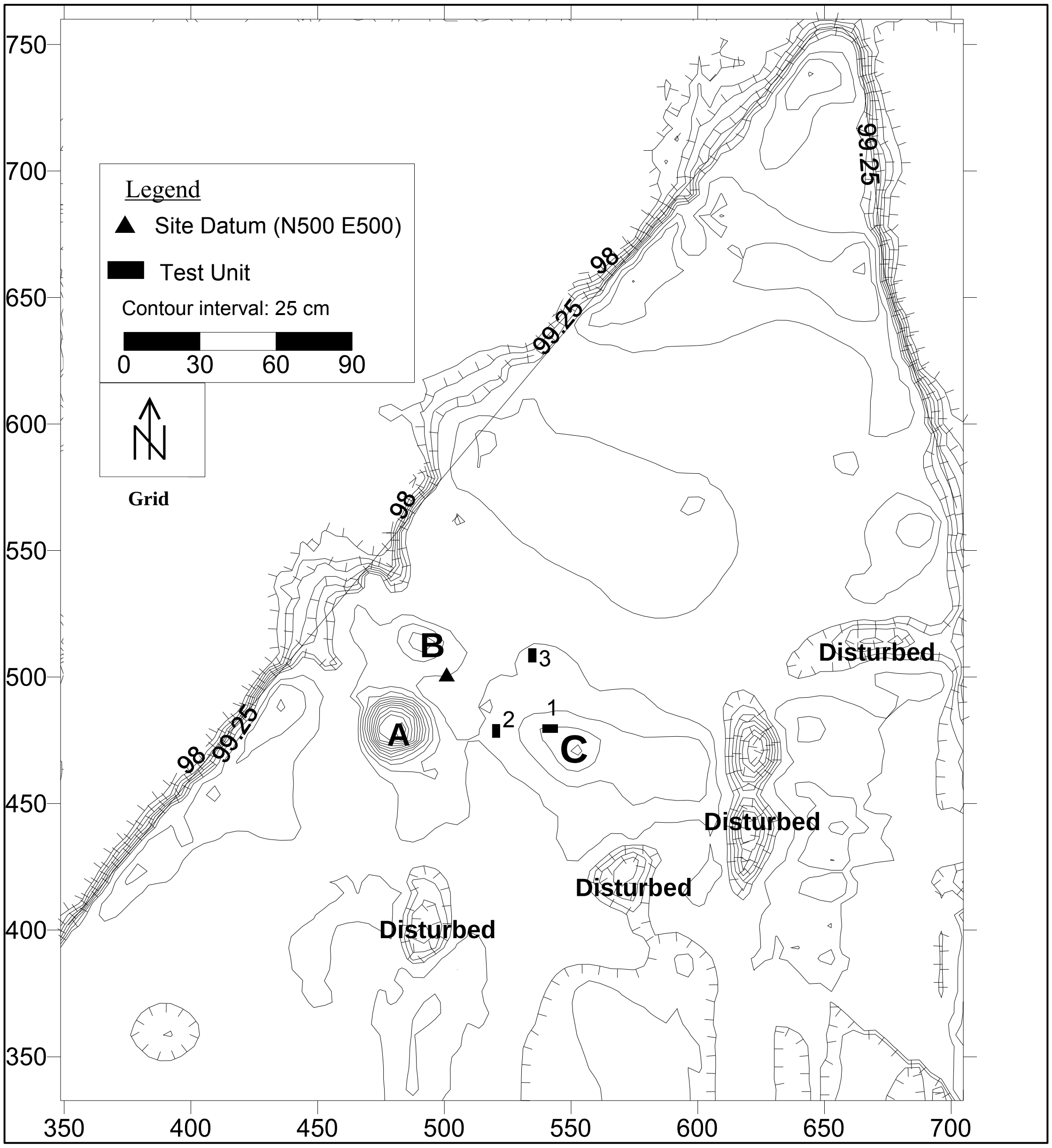


Figure 4.37 Red Lake Dale Test Units
(Dale 2007:79)

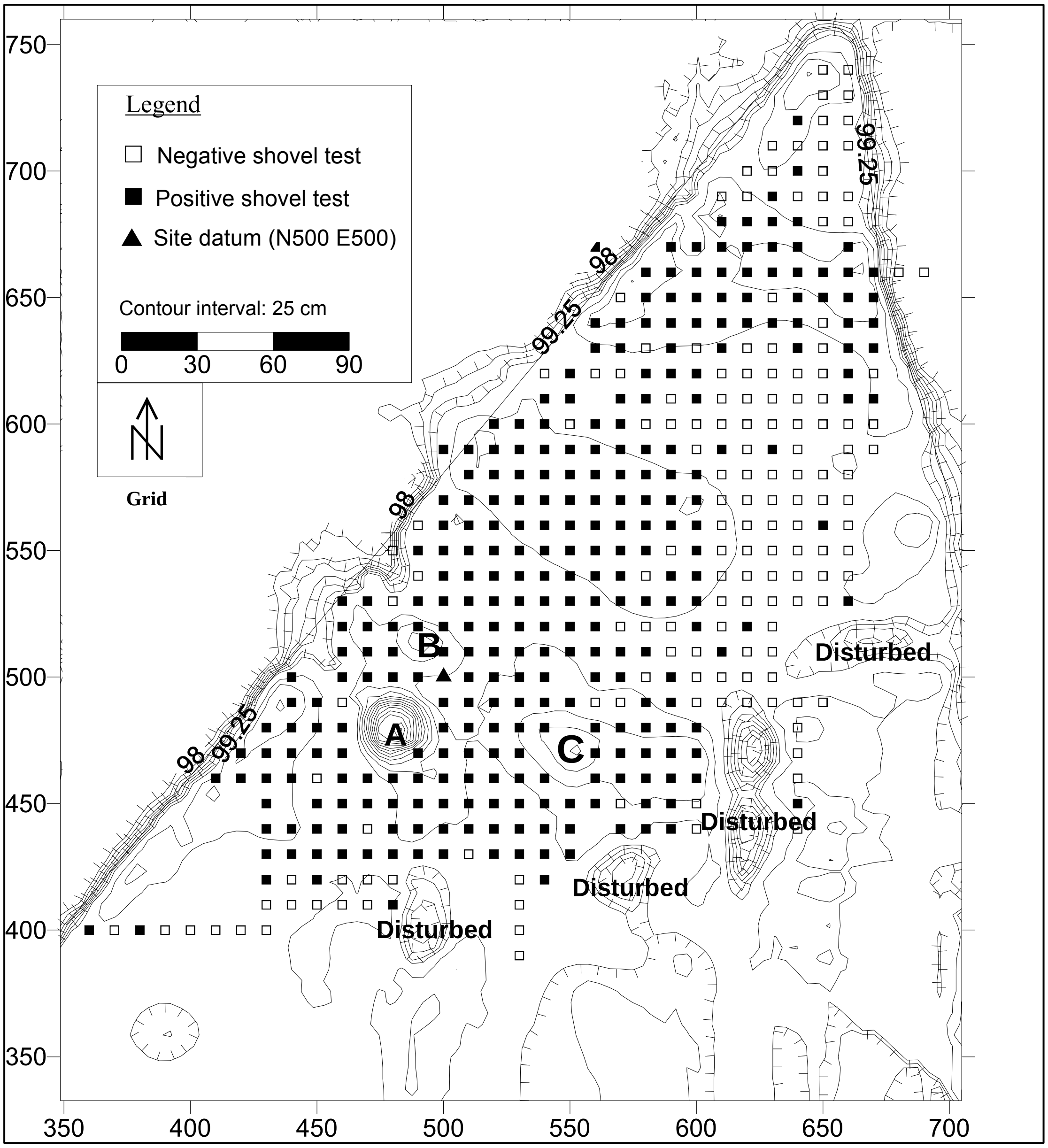


Figure 4.38 Red Lake Dale Shovel Tests
(Dale 2007:76)

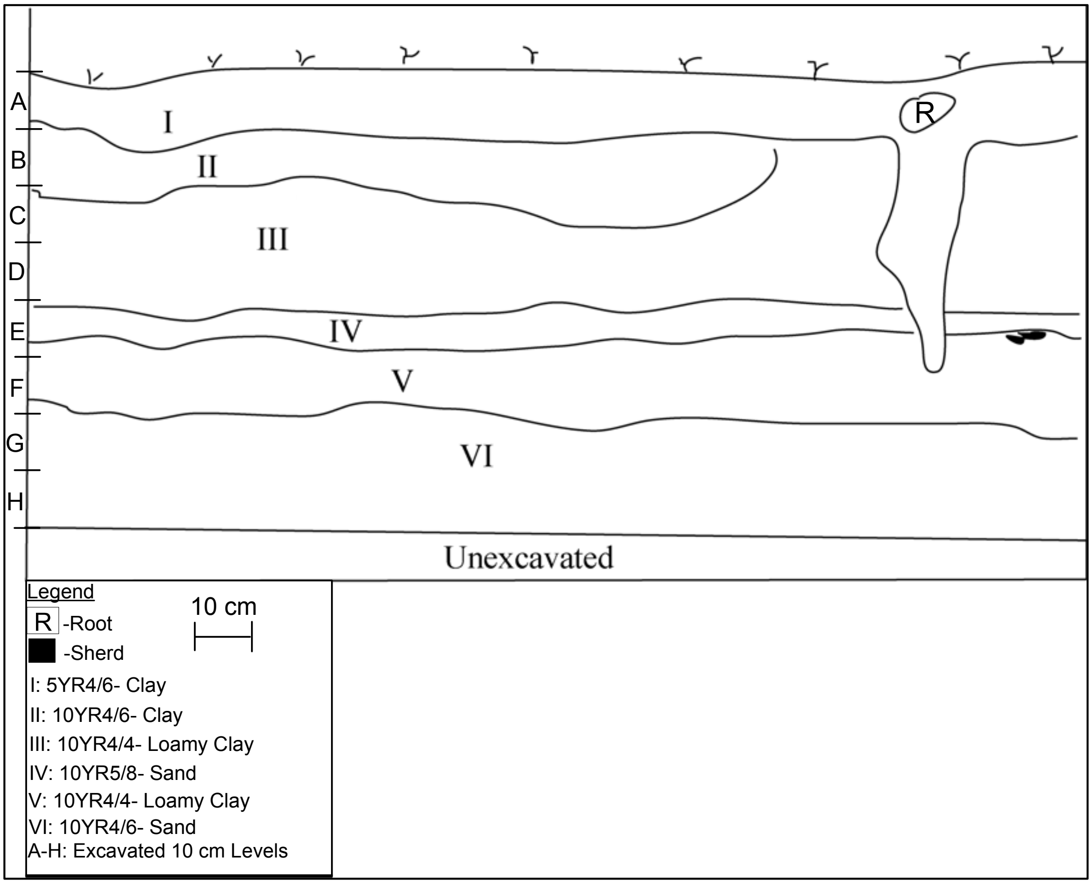


Figure 4.39 Red Lake Dale Test Unit 1 South Profile
(Dale 2007:88)

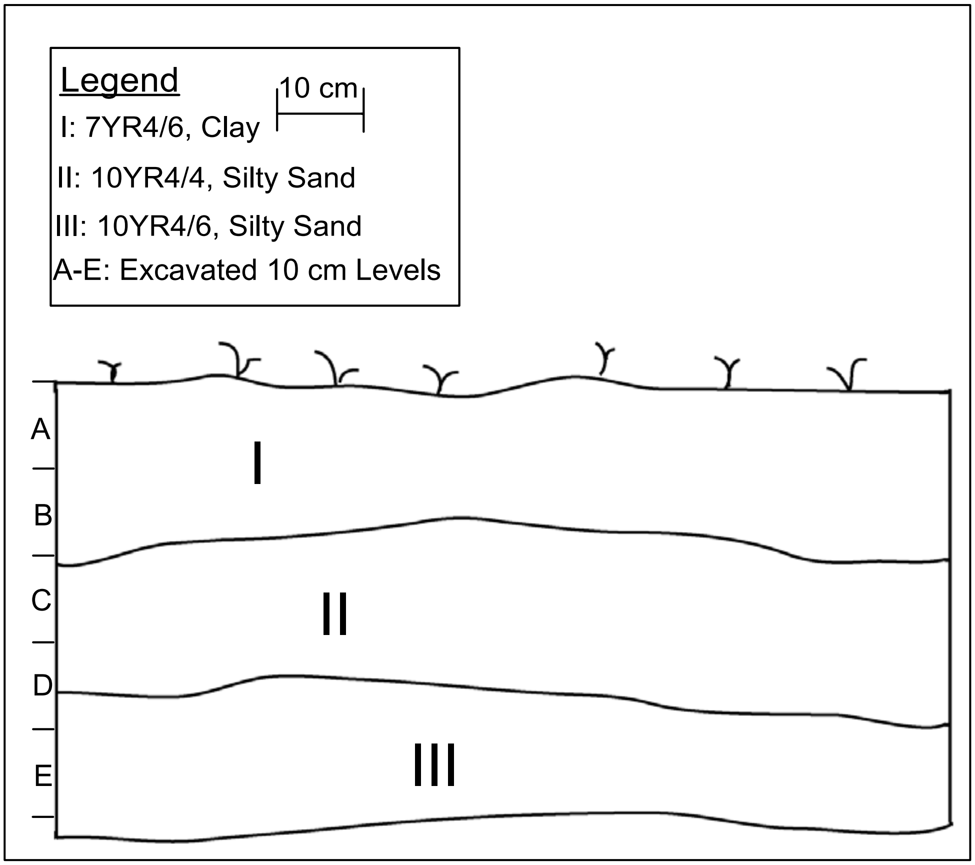


Figure 4.40 Red Lake Dale Test Unit 2 South Profile
(Dale 2007:94)

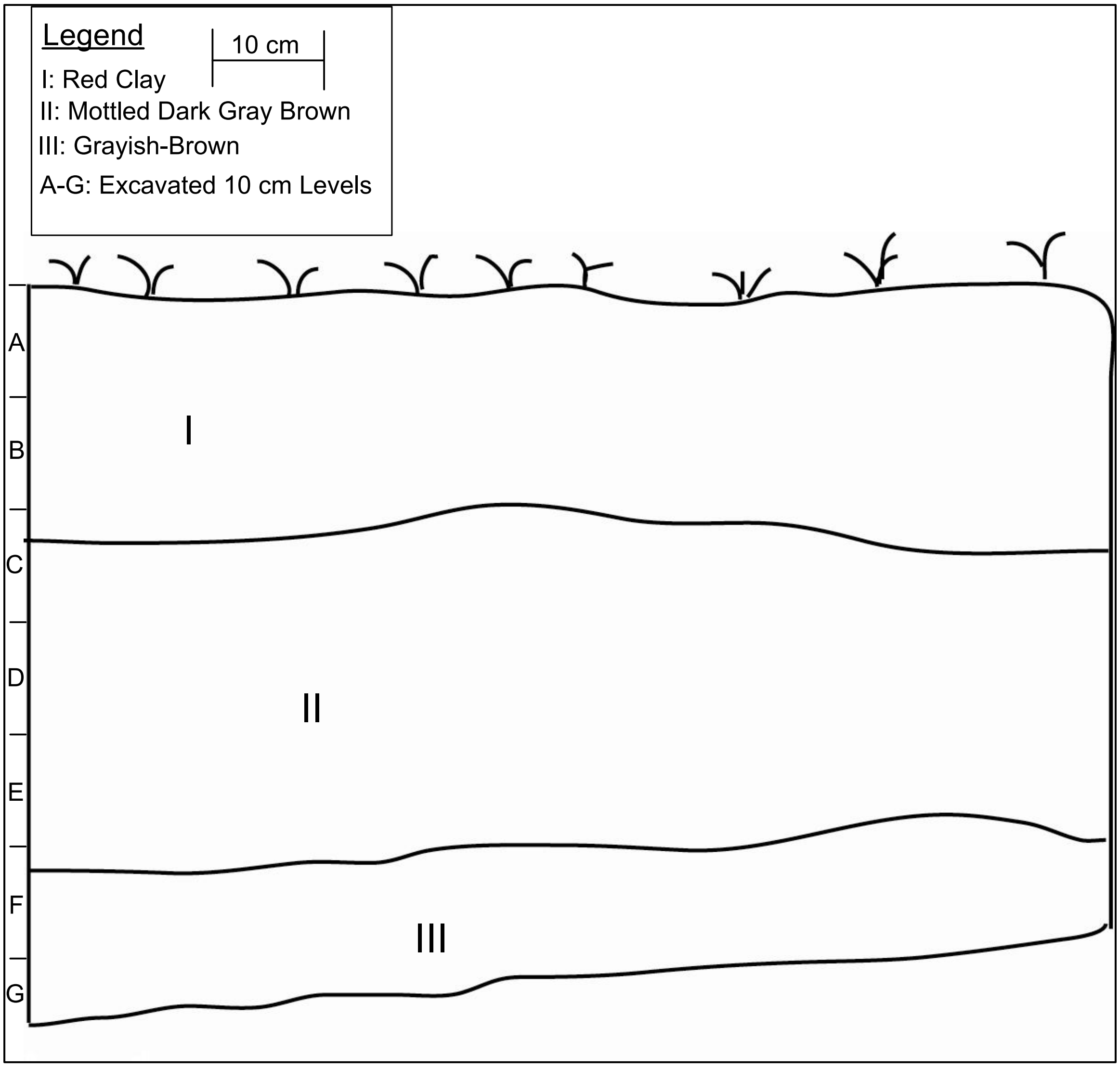


Figure 4.41 Red Lake Dale Test Unit 3 South Profile
(Dale 2007:95)

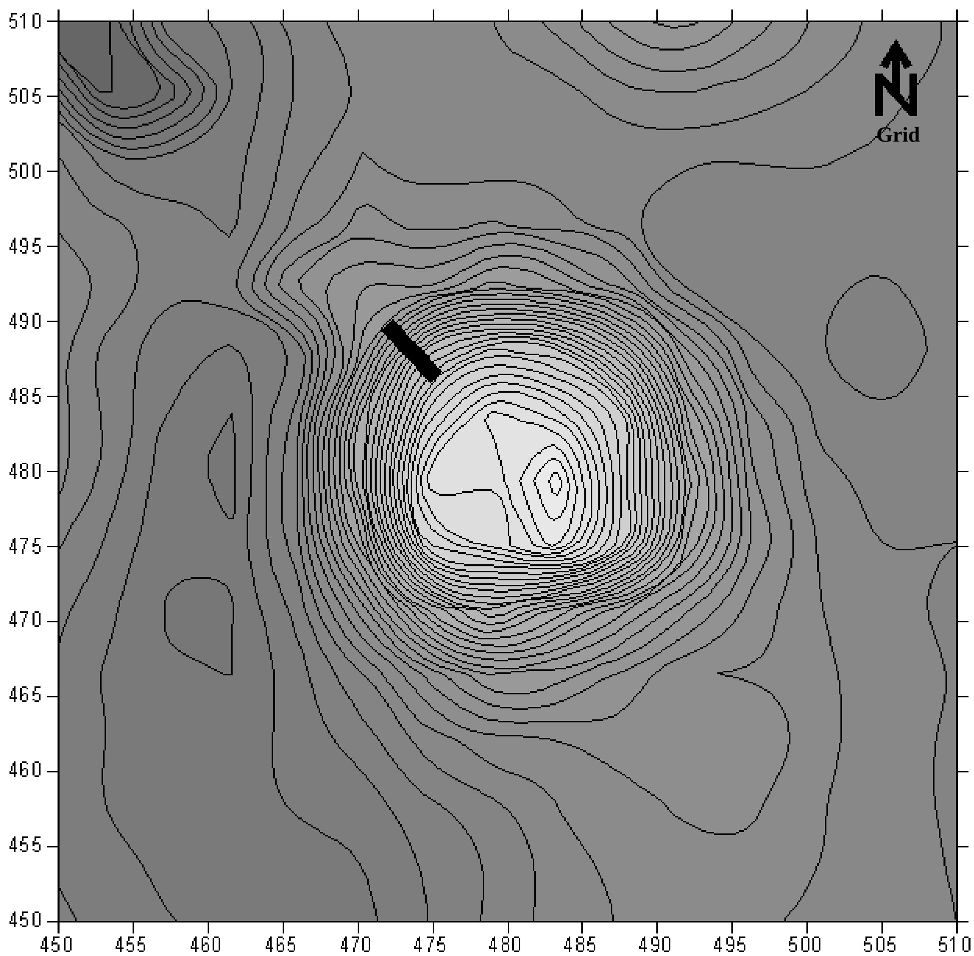


Figure 4.42 Red Lake Mound A Wood Trench
(10 cm contour intervals, scale in meters)

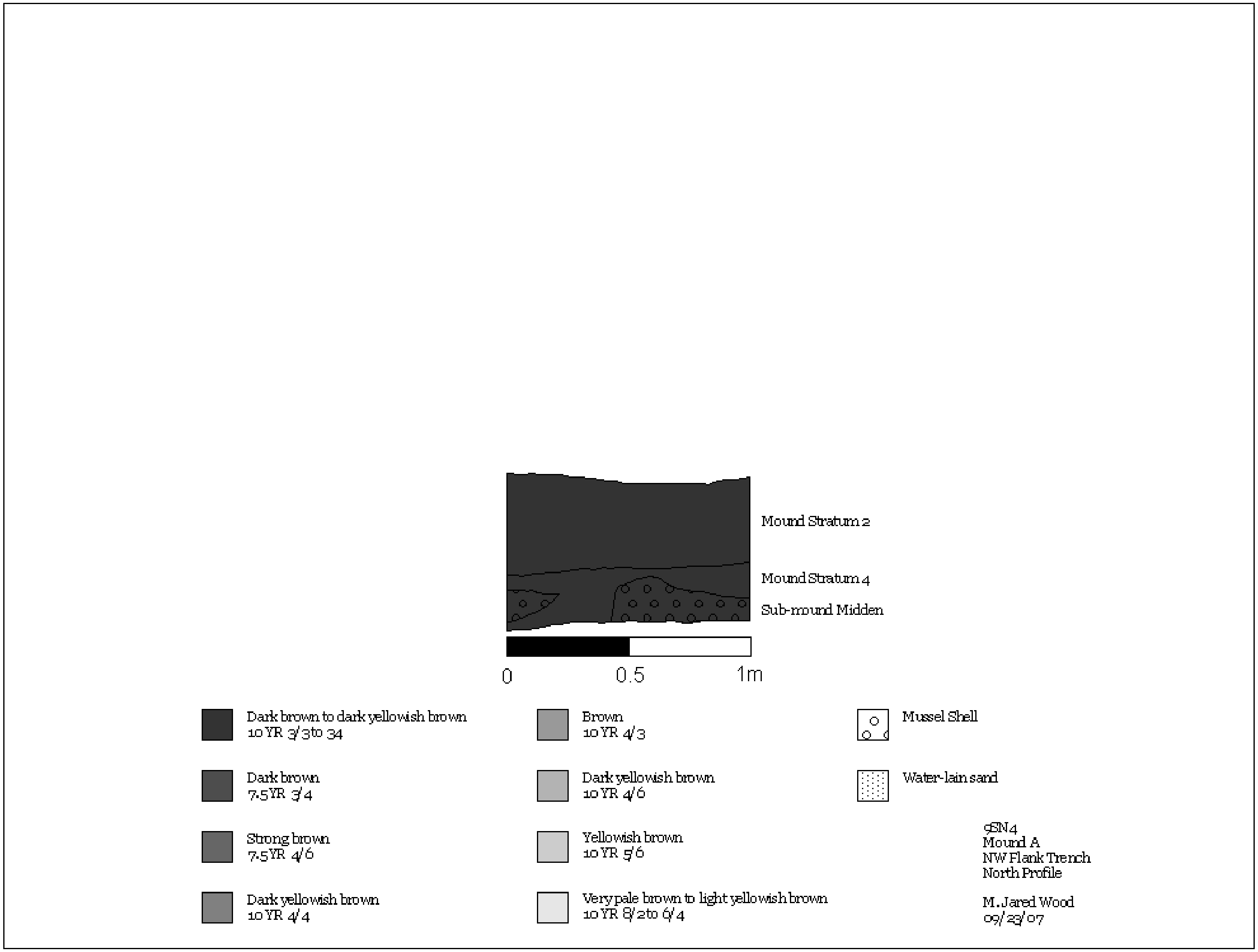


Figure 4.43 Red Lake Mound A Trench North Profile

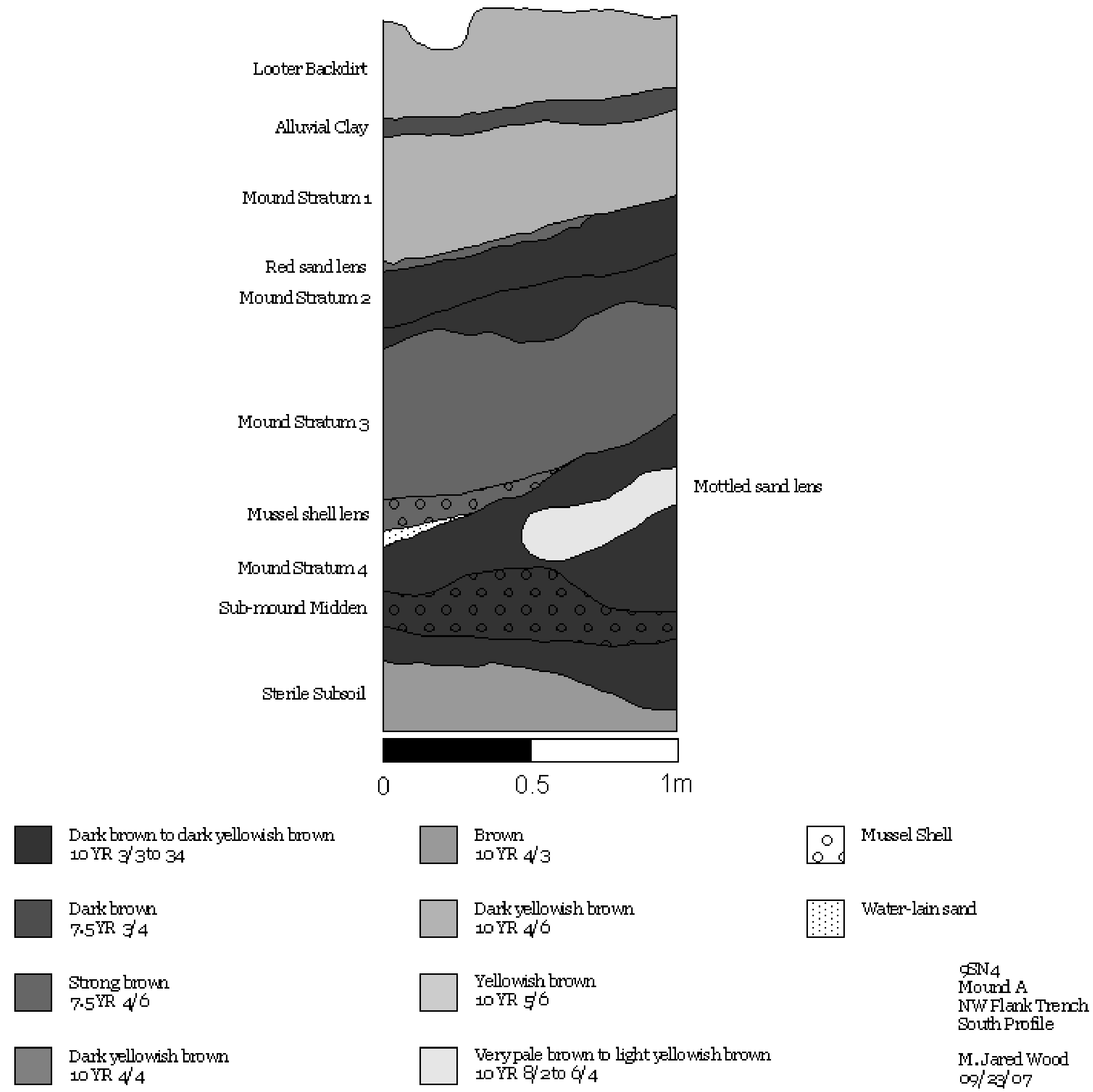


Figure 4.44 Red Lake Mound A Trench South Profile

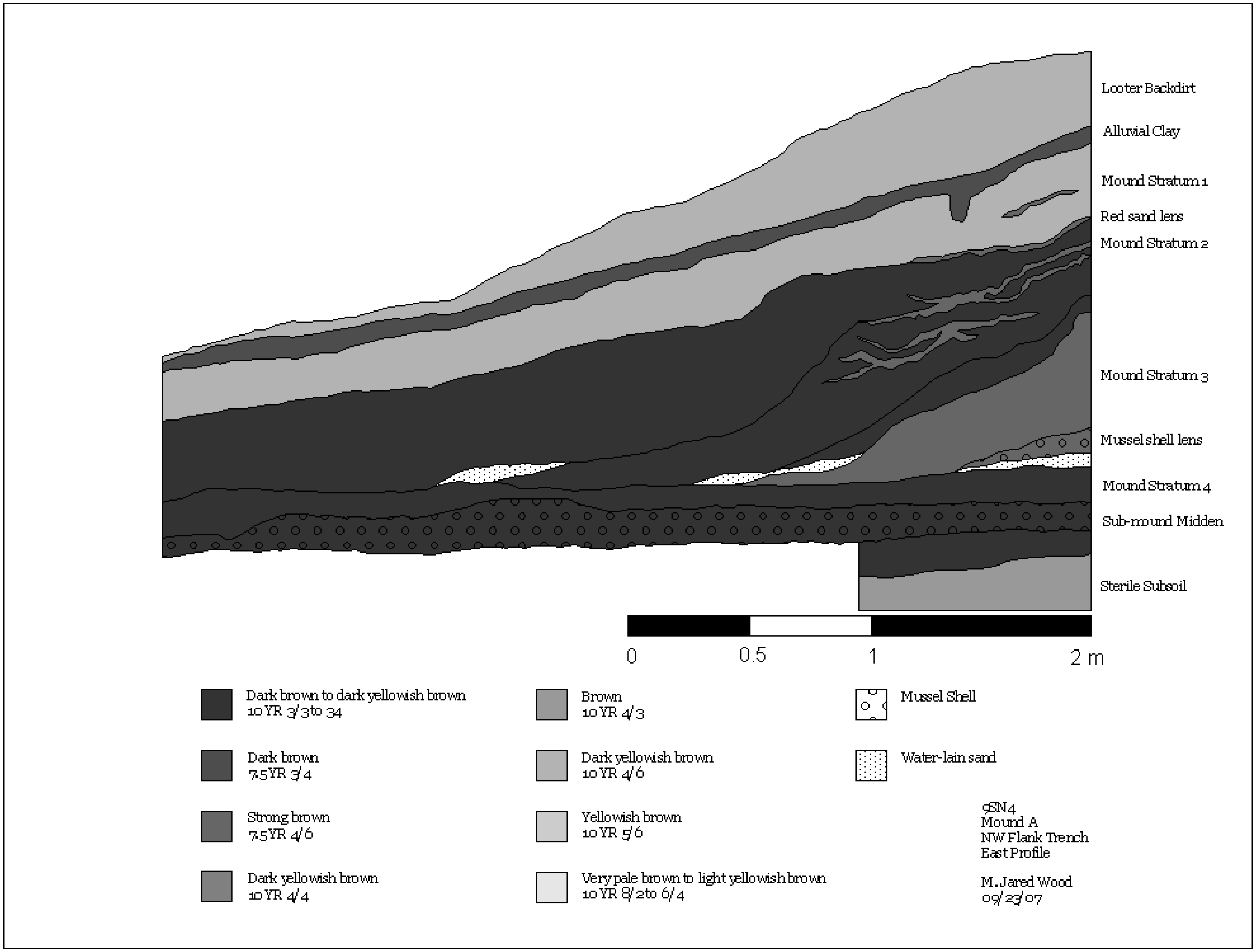


Figure 4.45 Red Lake Mound A Trench East Profile

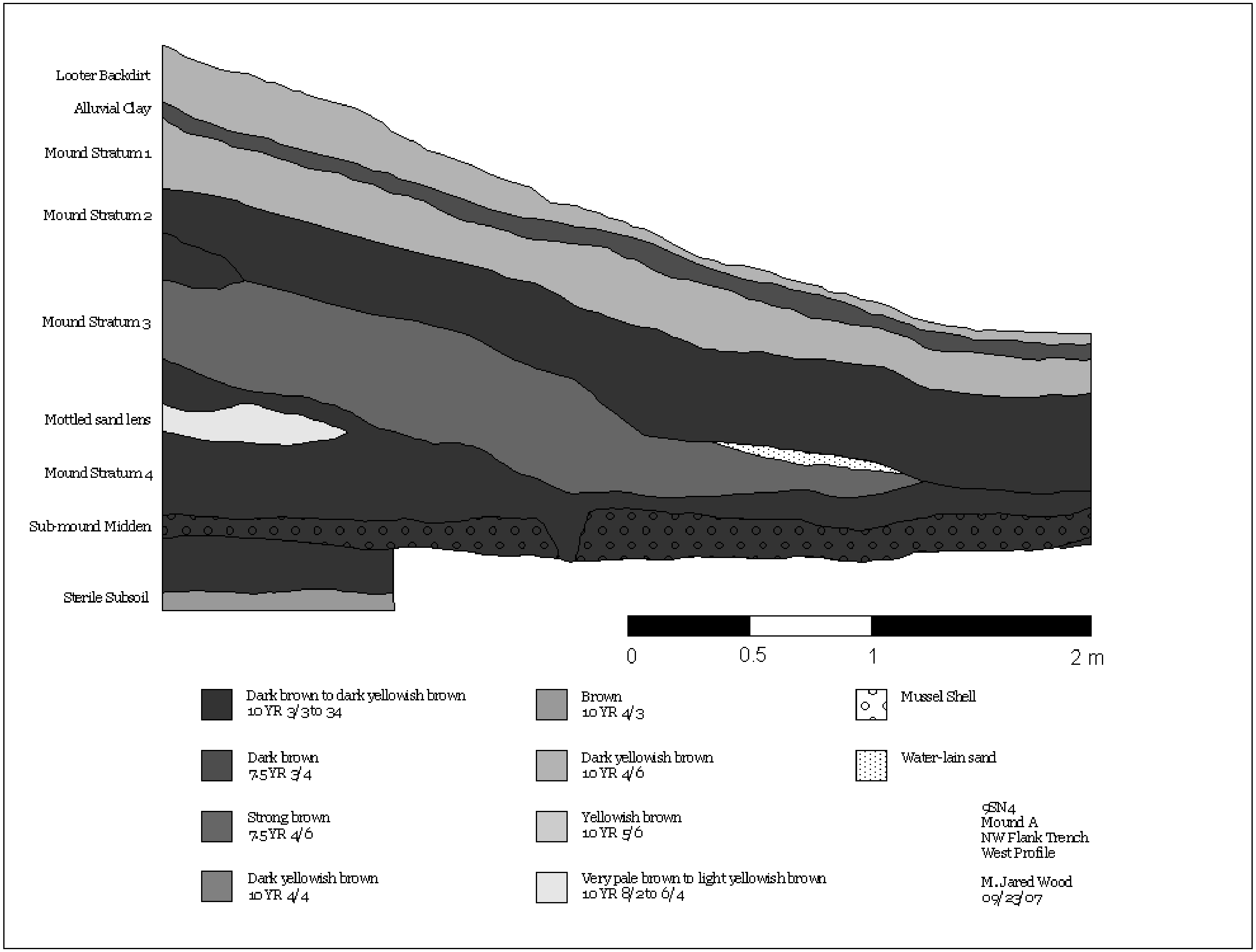


Figure 4.46 Red Lake Mound A Trench West Profile

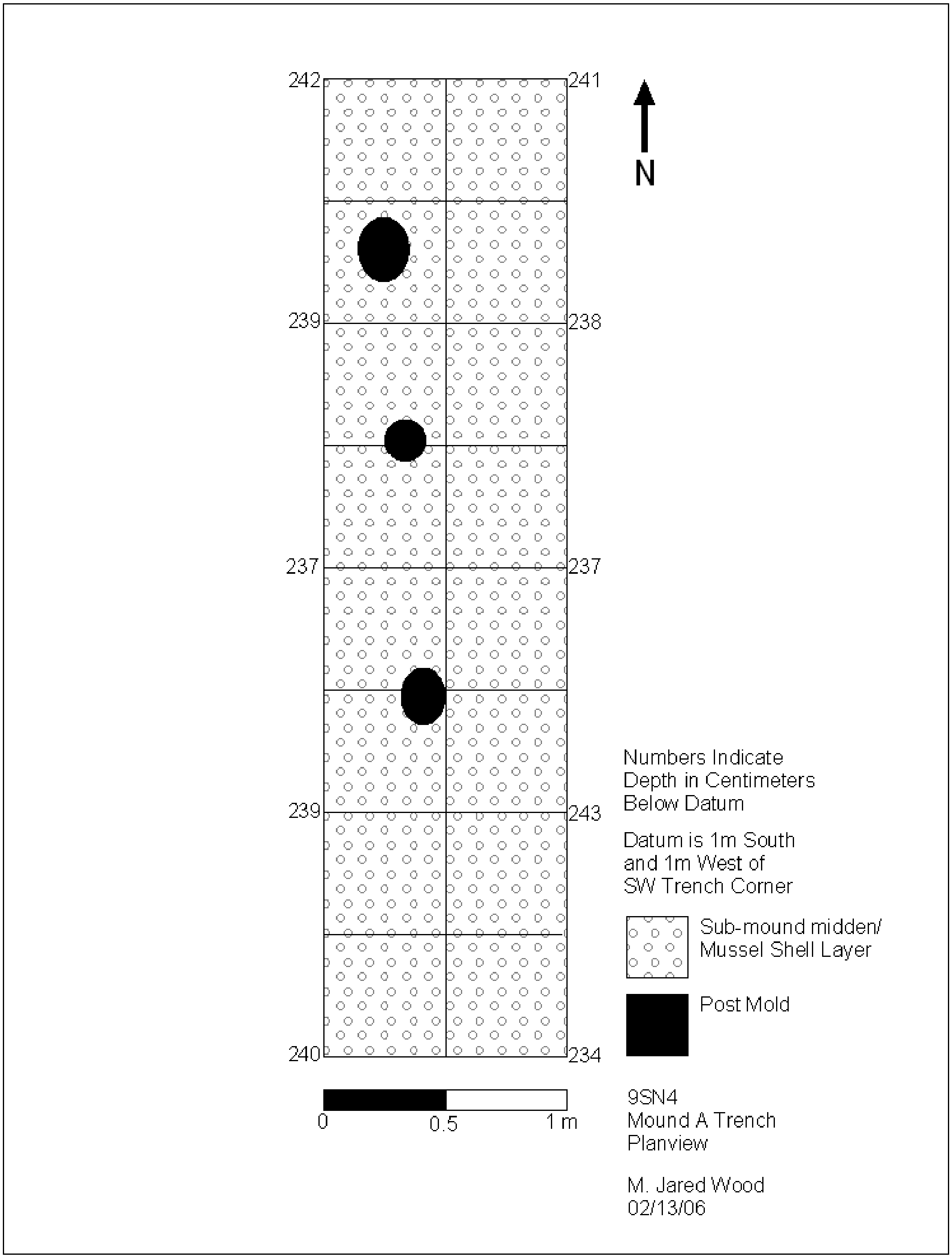


Figure 4.47 Red Lake Mound A Trench Sub-Mound Midden Planview

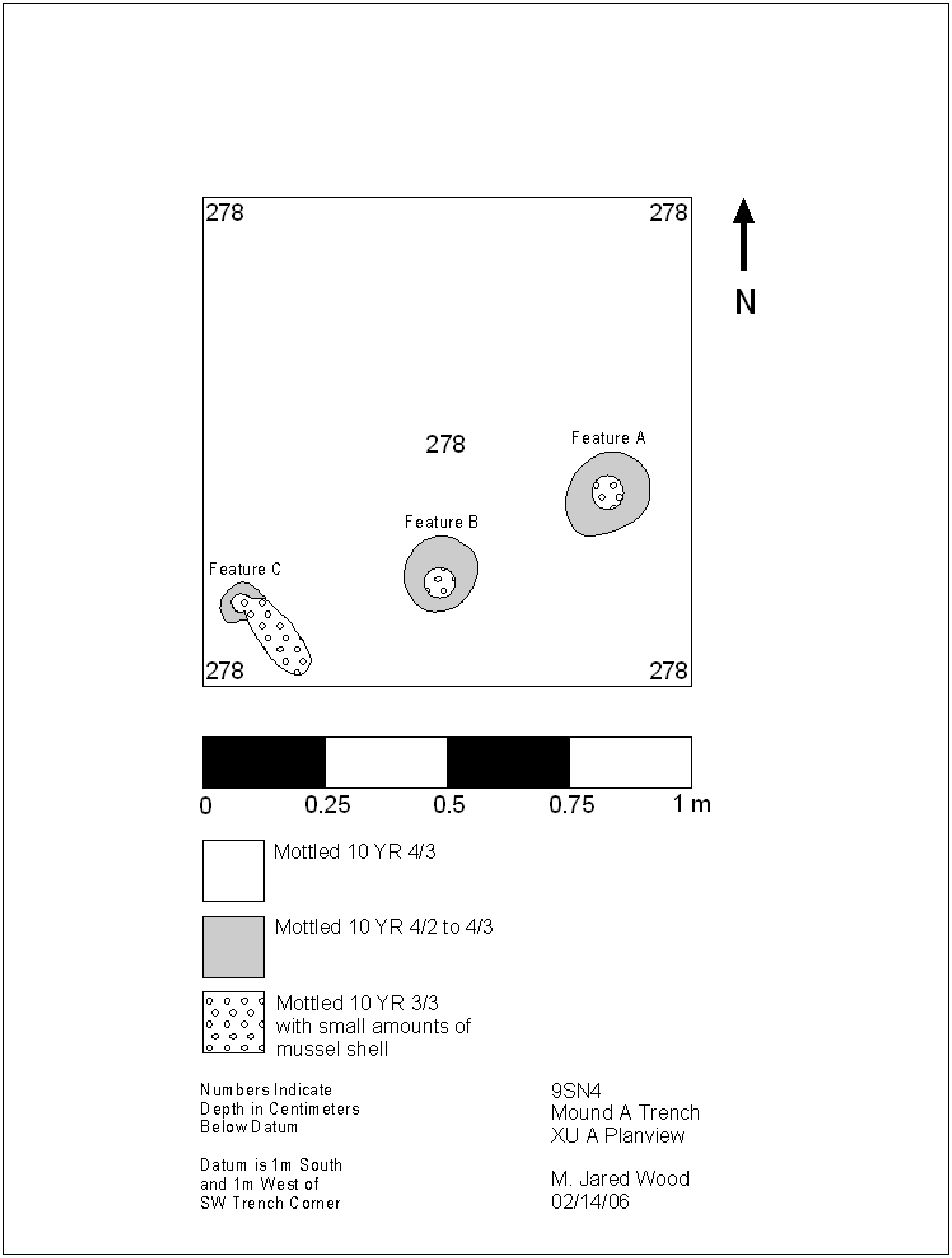


Figure 4.48 Red Lake Mound A Trench XU A Planview

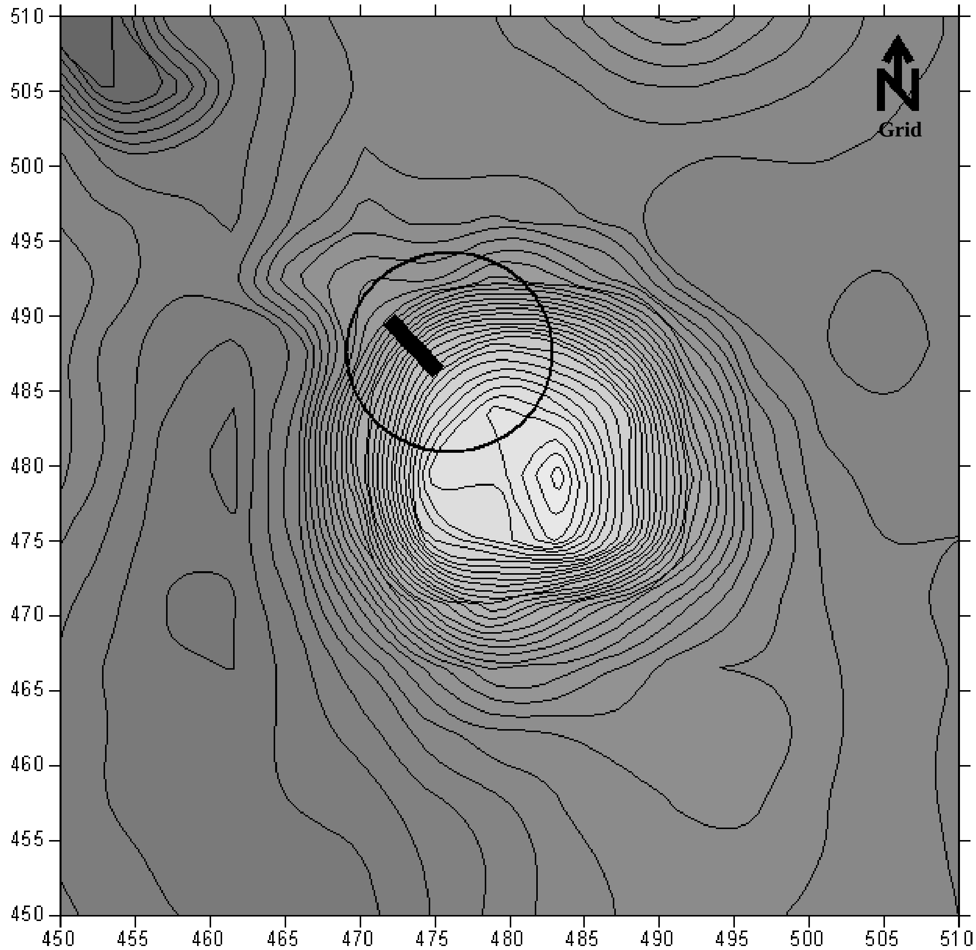


Figure 4.49 Red Lake Mound A, Estimated Extent of Shell Midden
(10 cm contour intervals, scale in meters)

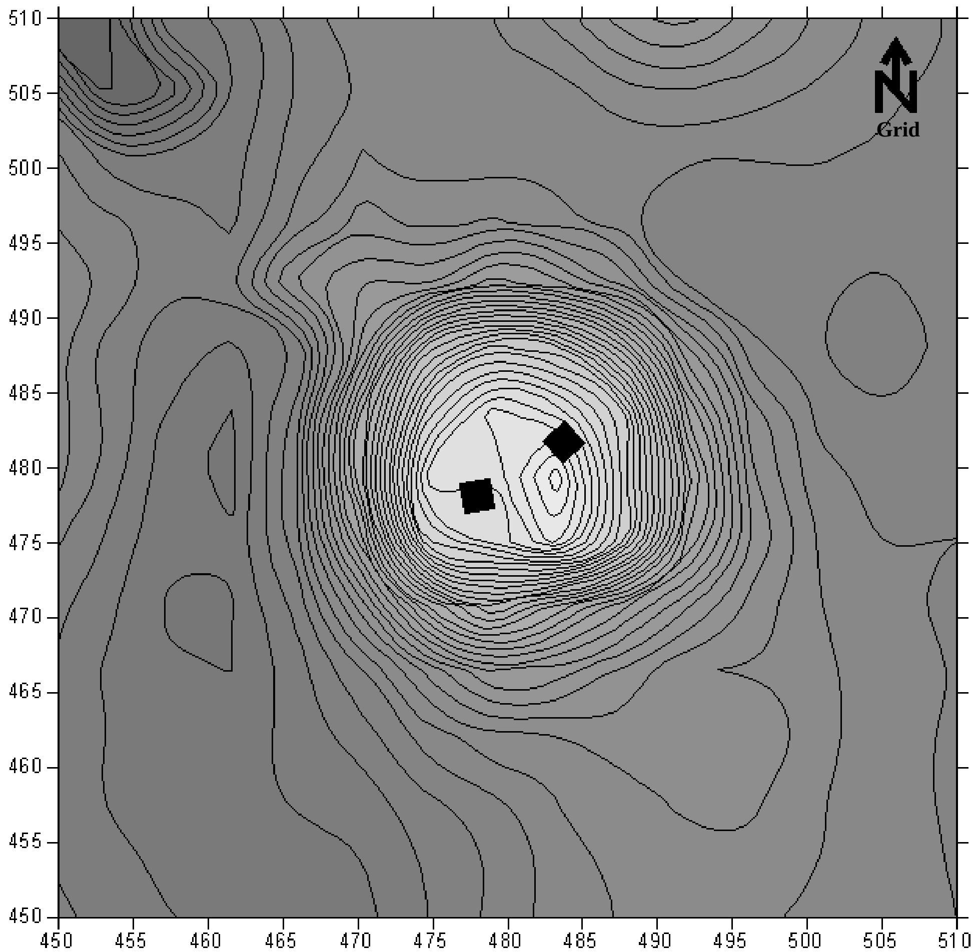


Figure 4.50 Red Lake Mound A Summit Units
(10 cm contour intervals, scale in meters)

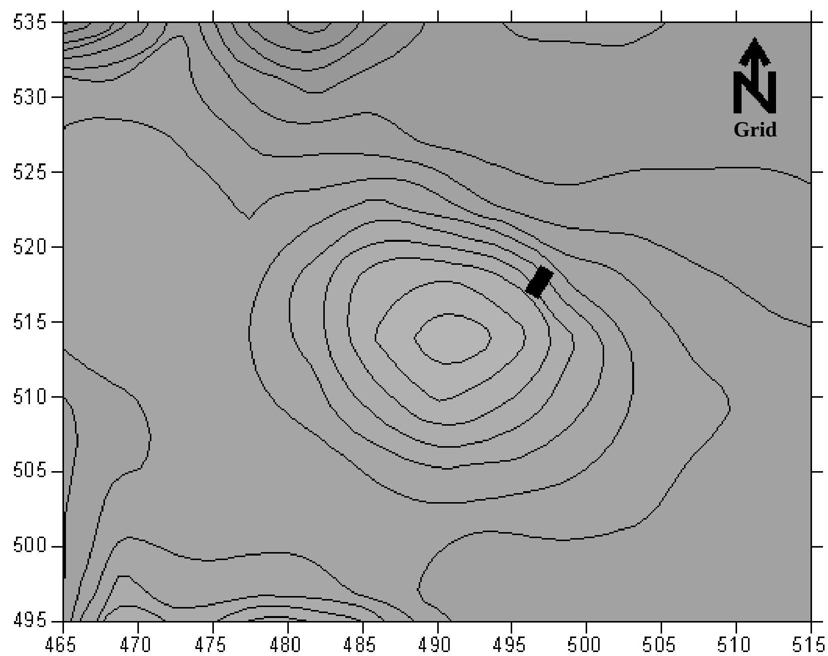


Figure 4.51 Red Lake Mound B XU F
(10 cm contour intervals, scale in meters)

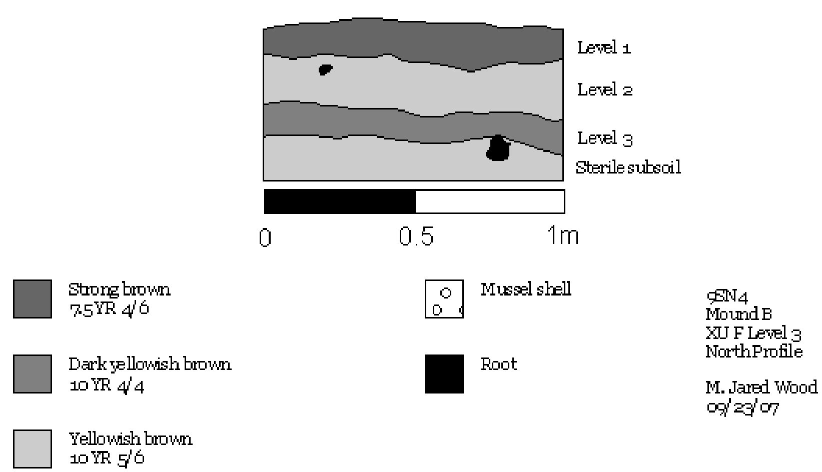


Figure 4.52 Red Lake Mound B XU F North Profile

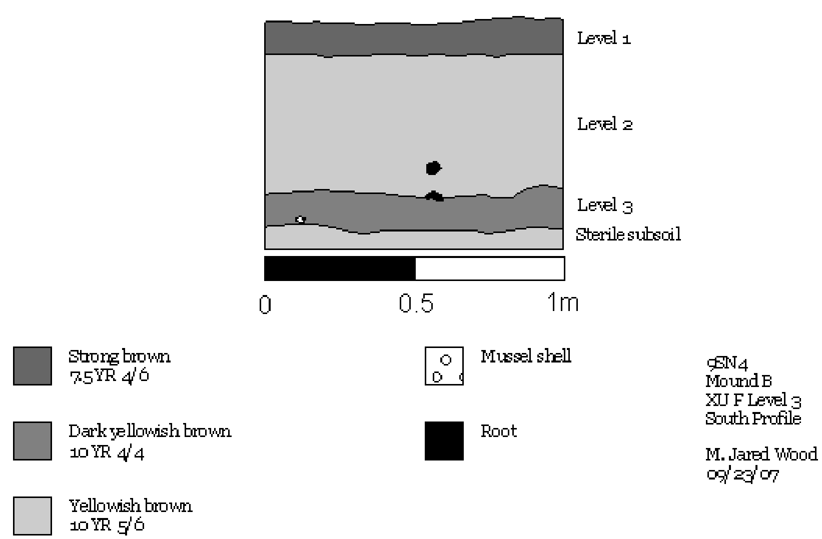


Figure 4.53 Red Lake Mound B XU F South Profile

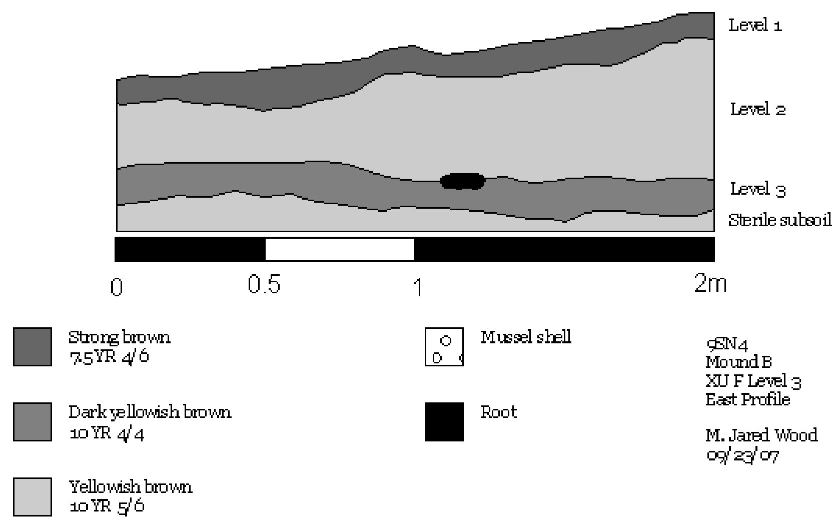


Figure 4.54 Red Lake Mound B XU F East Profile

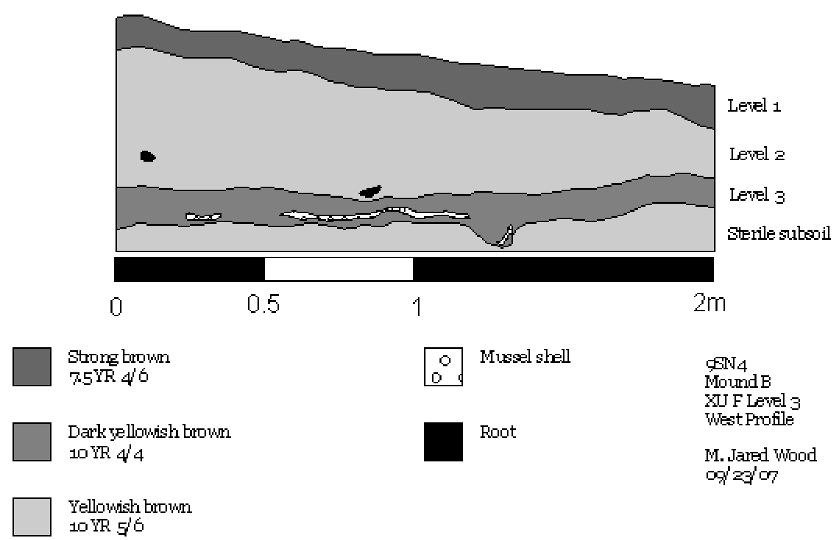


Figure 4.55 Red Lake Mound B XU F West Profile

CHAPTER 5

POTTERY ANALYSIS

5.1 Introduction and Analysis Methods

The majority of pottery recovered from excavations at Lawton, Spring Lake, and Red Lake falls within the Savannah ceramic complex (Caldwell and Waring 1939a, 1939b, Caldwell and McCann 1941), and is comparable to Savannah II phase pottery from the mouth of the Savannah River (DePratter 1991:11) and Hollywood phase pottery at the Fall Line (Anderson et al. 1986:40-41). The Savannah ceramic complex includes five main types: Savannah Plain, Savannah Burnished Plain, Savannah Check Stamped, Savannah Complicated Stamped, and Savannah Cordmarked. Minority surface treatments include brushed, Etowah Complicated Stamped, and combinations of the above surface treatments (Caldwell and McCann 1941:51-52). Savannah Complicated Stamped motifs from the three sites are primarily curvilinear and include concentric circles, filfot crosses, and filfot scrolls. There are also a small number of Etowah Complicated Stamped sherds bearing nested diamond motifs. The pottery from all three sites is sand/grit tempered, relatively thin and well made, and generally falls within the categories of bowls with restricted openings and jars with straight to excurvate rims. No formal vessel shape analyses have been completed for these collections, however, and the Beaverdam Creek pottery collection suggests there may be more variation in vessel shape at Lawton, Spring Lake, and Red Lake (Rudolph and Hally 1985). Vessel shape analyses of these collections should be conducted in the future.

The collections discussed below were sorted either by myself or individuals working under the direction of Adam King and Keith Stephenson of SCIAA. In general, sorting of pottery types from these collections followed the same procedures. First, the pottery was sorted by size; sherds smaller than ½-inch were excluded from further analyses. Sherds larger than ½-inch were then sorted by type when possible. Sherds of each type were then counted and weighed in grams.

The main pottery types identified from the study collections are Savannah Plain, Savannah Burnished Plain, Savannah Check Stamped, and Savannah Complicated Stamped. In addition to these, several decorative and vessel shape modes, as well as pottery types occurring with low frequencies, were identified in the collections.

The term “mode” here is used after the fashion of Phillips (1970:28-29). The decorative modes include hollow reed cane punctations; fine incised lines; and corncob impressions. Decorative modes will be listed in tables along with the primary surface treatment of the sherds on which they occur (e.g., “Savannah Check Stamped with Cob Marking”). If the primary surface treatment is not identifiable, decorative modes will be listed separately (e.g., “Cob Marked”). The vessel shape modes include one appendage (nodes) and five rim forms. Rims were sorted according to their lip shape in profile and any additional treatments that were applied on or near the rim. Since nodes are the only appendage identified in these collections, and they occur near the rim, both rim modes and appendage modes will be presented in the same tables.

Two new ceramic types have been identified in the study collections from Lawton, Spring Lake, and Red Lake: “Savannah Burnished Plain and Fluted”, and “Savannah Zoned Check Stamped”. These will be described in the following section along with the main pottery modes and types identified in the study collections.

5.2 Pottery Mode Descriptions

Nodes

Sample Size: 10 sherds from Red Lake

Description: Nodes are rounded pellets of clay located near the rims of vessels, either applied to the exterior vessel surface or riveted to the vessel wall (Figures 5.1.1, 5.1.2). They range in diameter from 1 to 1.5 cm, and project from the vessel wall less than 1 cm. Other researchers have referred to these as either nodes or rosettes, here the term node will be used. Nodes can either be plain or punctated, the latter consisting of a single hollow cane punctation in the center of the node. Nodes are often found in combination with double rows of punctates that follow the vessel rim and either encircle or dip below the nodes (Figure 5.1.3).

Cane Punctations

Sample Size: 44 sherds; Lawton (1), Spring Lake (1), Red Lake (42)

Description: Punctations are made on the exterior vessel surface with a hollow section of river cane (Figure 5.1.3). All appear to be located just below the rims of jars. In some cases, these punctations occur in double rows that follow the rim of the vessel and either encircle or dip below punctated nodes located near the rim. This may represent the most common form in which cane punctations occur at Lawton and Red Lake, but sherds are often too small to allow identification of the complete arrangement. Vessels bearing double-row punctations interrupted by punctated nodes were reported from the Hollywood site at the Fall Line (DeBaillou 1965) and the Irene site near the Atlantic coast (Caldwell and McCann 1941).

Incising

Sample Size: 12 sherds; Lawton (10), Spring Lake (1), Red Lake (1)

Description: Incising refers to shallow, narrow lines carved into the exterior of the vessel surface prior to firing. Incised lines are 1 mm or less in width.

At Lawton, 10 incised sherds were recovered from the Nelson Block 1 excavation (Nelson 2005). These sherds are not described. The remaining incised sherd was recovered from the North Mound sub-mound midden. In this case, the incising occurred as a secondary surface treatment near the squared rim of a Savannah Burnished Plain vessel (Figure 5.2.1). The incising is extremely thin and shallow and appears to be a portion of a rectilinear geometric design.

The single incised body sherd from Spring Lake was recovered from the sub-mound midden (Figure 5.2.2). It exhibits a combination of fine incising with very small punctations.

The single incised sherd reported from Red Lake was recovered by Dale in a shovel test. The sherd is not described (Dale 2007).

Cob Marked

Sample Size: 503 sherds; Lawton (170), Spring Lake (266), Red Lake (67)

Description: Cob Marked refers to pottery bearing the impressions of corncobs as the only identifiable exterior decorative mode. Hally (1985:273) refers to this surface treatment as Corncob Impressed in the Beaverdam Creek Site report. At Beaverdam Creek, cob marking was restricted to the neck area of jars, and the corncob may have been used as a tool for shaping that portion of the vessel. At that site, it was a secondary surface treatment on jars whose primary surface treatment was complicated stamped, check stamped, or plain.

In the study collections from Lawton, Spring Lake, and Red Lake, only 14 sherds were identified that bore cob marking that was clearly a secondary surface treatment. The primary surface treatment of those sherds was check stamping. It is possible that cob marking always served as a secondary surface treatment at these sites, but the sherds were either too small to identify the primary surface treatment or the underlying surface treatment was obliterated by the cob marking.

Rounded Rims

Sample Size: 266 sherds; Lawton (11), Spring Lake (166), Red Lake (89)

Description: Rounded rims are plain rims with a slightly convex curved lip (Figure 5.3.1).

Squared Rims

Sample Size: 343 sherds; Lawton (13), Spring Lake (185), Red Lake (145)

Description: Squared rims are plain rims with a squared, flat lip (Figure 5.3.2).

Rolled Rims

Sample Size: 13 sherds; Lawton (1), Spring Lake (7), Red Lake (5)

Description: Rolled rims have lips that have been smoothed outward so that they slightly overhang the exterior vessel surface (Figure 5.3.3). Rolled rims are almost never uniform in shape around the rim of an entire vessel, and seem hastily executed.

Outflaring Notched Rims

Sample Size: 4 sherds from Red Lake

Description: Outflaring notched rims are applied to highly burnished, shallow, open bowls (Figures 5.3.4, 5.3.5). Rim sections of two vessels exhibiting this mode were recovered from the Red Lake Mound A sub-mound midden (Figure 5.3.8). Their orifice diameters are approximately 22 cm and 28 cm. V-shaped or U-shaped notches were cut into the vessel rims after they were formed and are very regular in size and appearance. Notches on the larger diameter vessel are approximately 3 mm deep and 4 to 5 mm wide. Notches on the smaller diameter vessel are approximately 4 mm deep and 7 to 8 mm wide. A vessel with a similar rim, labeled "noded bowl," is reported from the Beaverdam Creek site, but it is a small, globular, restricted orifice vessel, and not an open bowl (Rudolph and Hally 1985: 376, 524).

Folded and Squared Rims

Sample Size: 1 sherd from Red Lake

Description: Folded and squared rims have relatively narrow folds that are flattened or squared on the top of the lip (Figures 5.3.6, 5.3.7). This rim type is represented by only one sherd in the study collections, and it has a node applied to the vessel wall just below the fold.

Cord Marked Rims

Sample Size: 1 sherd from Lawton

Description: The single cord marked rim recovered from Lawton bears impressions of narrow, twisted cordage applied directly to the top surface of the lip, which is slightly rounded in profile.

Check Stamped Rims

Sample Size: 36 sherds; Lawton (1), Spring Lake (2), Red Lake (33)

Description: Check stamped rims bear check stamping on the top surface of the lip. Rims are rounded or slightly squared in profile, and the check stamping seems hastily applied.

Incised Rims

Sample Size: 1 sherd from Red Lake

Description: The single incised rim recovered from Red Lake has narrow, shallow incising applied to the top surface of the lip, which is slightly rounded in profile.

5.3 Pottery Type Descriptions

Savannah Plain

Sample Size: 10,143 sherds; Lawton (7,280), Spring Lake (782), Red Lake (2,081)

Description: Savannah Plain pottery recovered in the present study is very similar to that described by Hally (1985:272-273) from the Beaverdam Creek site. Paste is fine to medium in texture, temper is fine to medium sand and grit. No formal vessel shape analyses have been conducted on these study collections, but jars with excurvate rims and carinated bowls appear to have been commonly used forms. Rims are predominantly rounded but occasionally squared.

Savannah Burnished Plain

Sample Size: 4,409 sherds; Lawton (1,075), Spring Lake (1,589), Red Lake (1,745)

Description: Savannah Burnished Plain pottery recovered in the present study is very similar to that type first identified by Caldwell and Waring (1939b) and later described by Hally (1985:271-272) from the Beaverdam Creek site. Paste is fine to medium in texture, temper is fine to medium sand and grit. No formal vessel shape analyses have been conducted on these study collections, but most sherds of this type appear to come from carinated bowls. The great majority of rims are squared, but rounded rims are also relatively commons. Infrequent rim modes include outflaring notched (four sherds) and incised (one sherd). Savannah Burnished Plain sherds infrequently bear other decorative modes; ten sherds with cane punctations and one sherd with fine incising were identified in the study collections. The latter is a relatively large rim sherd from the Lawton North Mound sub-mound midden (Figure 5.2.1).

Savannah Burnished Plain and Fluted

Sample Size: 14 sherds; Lawton (2), Spring Lake (8), Red Lake (4)

Description: Savannah Burnished Plain and Fluted has been identified previously as a variant of the Savannah Burnished Plain type, but not by this name. It was first described by Caldwell and Waring as "carefully made vertical or slanting tooling…in the rim area of carinated bowls" (1939b:7). No note of the prevalence of this decoration is made in their report. Caldwell and Waring (1939b) do state, however, that this decoration has been found on vessels from Irene, Haven Home, Eulonia, Cox, and Cannon's Point- all sites near or on the Georgia Coast.

I have confirmed Caldwell's identification of this type from Irene and Eulonia, and identified this type in collections from Lawton, Spring Lake, and Red Lake. Vessels and sherds are characterized by vertically oriented, shallow, concave flutes or tooling marks that extend from the shoulder of Savannah Burnished Plain carinated bowls to the rim (Figures 5.4.1, 5.4.2). The flutes are relatively narrow, averaging around 3 mm in width, though a few are 6 to 7 mm wide. Flutes are usually carefully executed, but occasionally they are slightly sloppy. Most sherds from the study collections are too small to estimate vessel orifice diameters, but one specimen from Red Lake is from a vessel measuring roughly 26 cm in diameter. The vessel from Eulonia has an orifice diameter of 24 cm. Paste is fine to medium in texture, temper is fine to medium sand and grit.

Savannah Check Stamped

Sample Size: 8,306 sherds; Lawton (3,148), Spring Lake (1,377), Red Lake (3,781)

Description: Savannah Check Stamped pottery recovered from Lawton, Spring Lake, and Red Lake is very similar to that type identified by Caldwell and Waring (1939a) and described from the Beaverdam Creek site (Hally 1985:271). Paste is fine to medium in texture, temper is fine to medium sand and grit. No formal vessel shape analyses have been conducted on these study collections, but most sherds of this type appear to come from jars. The majority of rims are rounded, but squared, check stamped, and rolled rims are relatively common. Stamping is often carelessly applied and overstamping is common. Checks range from square to diamond shaped, and range in size from 2 to 7 mm, with checks in the 4 mm range most common. Savannah Check Stamped sherds infrequently bear other decorative modes; seven sherds with cane punctations and 14 sherds with cob marking were identified in the study collections.

Savannah Zoned Check Stamped

Sample Size: 17 sherds from Red Lake

Description: Savannah Zoned Check Stamped is a newly proposed type identified only at the Red Lake site (Figures 5.5.1, 5.5.2). The surface decoration appears to be a combination of rectilinear complicated stamping (at least two to three parallel lines, possibly with 90 degree angles at certain points) that borders areas filled with check stamping. All specimens are from the Mound A sub-mound midden and may belong to a single vessel. Paste is fine to medium in texture, temper is fine to medium sand and grit. The sherds average 5 mm in wall thickness. Three rim sherds are present in the sample, all of which are slightly excurvate and squared. Stamping occurs up to the rim, and overstamping is present.

The sherds' stratigraphic context, the remaining ceramic collection from this stratum, and associated carbon dates indicate that these are middle Mississippian period sherds. Other published instances of combined complicated stamping and check stamping include New River, a Middle Woodland variant of Swift Creek Complicated Stamped found in northwestern Florida (Willey 1949:386), Swift Creek Complicated Stamped sherds from southeast Tennessee and the Kolomoki site in Georgia illustrated by Broyles (1968:Plate 13), a rare variety of early

Woodstock Complicated Stamped ("Weird and Wonderful Woodstock") from northwestern Georgia identified by Joseph Caldwell (Mark Williams, personal communication 2008), and a single sherd identified at a late Woodland period site tested during the Wallace Reservoir project (Ledbetter 1978). None of these occurrences of combined complicated stamping and check stamping are contemporaneous with Red Lake's Savannah Zoned Check Stamped, and all involve curvilinear, not rectilinear stamped designs. They do illustrate, however, that this combination of stamping does have chronological precedents in the southeastern United States. Perhaps more worthy of note is Pisgah phase (A.D. 1000-1450) pottery from western North Carolina; Pisgah has a high percentage of rectilinear complicated stamping, and a minority of check stamping, though no combination of the two has been identified (Dickens 1976:172-182).

Complicated Stamped

Sample Size: 2,728 sherds; Lawton (2,088), Spring Lake (275), Red Lake (365)

Description: Complicated Stamped represents a catch-all category that includes Savannah Complicated Stamped, Etowah Complicated Stamped, UID Curvilinear Stamped, and UID Rectilinear Stamped pottery. This category allows for simplification of most pottery type tables. Complicated Stamped pottery was further subjected to detailed sorting, the results of which are presented in tables devoted solely to complicated stamped designs and motifs. Specific motifs discussed in the text are illustrated in Figure 5.6.

Paste is fine to medium in texture, temper is fine to medium sand and grit. No formal vessel shape analyses have been conducted on these study collections, but most sherds of these types appear to come from jars. Very few rim sherds from complicated stamped vessels were found, but those with rounded lips and squared lips appear to be most common. A single complicated stamped sherd with a check stamped lip has also been found. Stamping is often carelessly applied and overstamping is the rule, making identification of individual motifs very difficult. Complicated stamping is usually not combined with other decorative modes, but six complicated stamped sherds bearing cane punctations were recovered from Red Lake excavations.

Complicated stamped sherds were first sorted according to whether they had rectilinear or curvilinear stamped designs or motifs. Rectilinear stamped designs contained no curvilinear elements. If any portion of the stamped design contained curvilinear lines, it was designated as a curvilinear stamped design. An effort was made to identify individual stamped motifs. If only portions of motifs were present, or overstamping made identification of motifs impossible, the sherds were sorted into groups of possible motifs. Many curvilinear complicated stamped sherds were only recognizable as having portions of motifs including concentric circles or curves; these were listed as "Savannah concentric circles & curves". Those complicated stamped sherds that could be identified only as having stamping were sorted into either UID Curvilinear or UID Rectilinear.

A number of stamp motifs such as the filfot cross, the filfot scroll, the figure nine, and the keyhole, combine both straight and curved lines. Depending on how much of the motif is represented on a sherd, it could be identified as either rectilinear or curvilinear. For example, the central element of the filfot scroll appears to be a rectilinear design, and could be mistaken for a line block motif. It should also be noted that sherds identified as having the bisected herring bone motif could be fragmentary examples of the Etowah nested diamond motif.

Etowah Complicated Stamped is very similar to the type description reported by Wauchope (1948) for northern Georgia and by Hally (1985:264-269) for the Beaverdam Creek site. Twenty-one definite Etowah Complicated Stamped sherds were identified in the study collections. Two individual stamped motifs were recognizable: the one-bar cross and two-bar cross varieties of Etowah nested diamonds.

Savannah Complicated Stamped is very similar to that type described by Caldwell and Waring (1939a) from Irene and that from the Beaverdam Creek site (Hally 1985:269-270). Two hundred ninety-three Savannah Complicated Stamped sherds were identified in the study collections. Seven individual stamped motifs were recognizable among these. These include the filfot cross, the filfot scroll, the concentric circle (bulls eye), the concentric circle (hollow center), the concentric circle with two-bar cross, the figure eight, and a cross-in-circle with curves motif. The great majority of Savannah Complicated Stamped sherds were either too small or too overstamped to identify individual motifs.

Savannah Cord Marked

Sample Size: 336 sherds; Lawton (235), Spring Lake (19), Red Lake (82)

Description: Savannah Cord Marked is similar to Savannah Fine Cordmarked described by Caldwell and Waring (1939b). Paste is fine to medium in texture, temper is fine to medium sand and grit. No formal vessel shape analyses have been conducted on these study collections, but most vessels of this type from the Irene site were jars with excurvate rims. Only five rim sherds were identified in the study collections; of these, three are rounded, one is squared, and one bears cordmarking on the lip's surface.

UID Decorated

Sample Size: 1,458 sherds; Lawton (441), Spring Lake (515), Red Lake (502)

Description: Unidentified (UID) Decorated refers to sherds that bear evidence of decorative surface treatment, yet cannot be confidently identified or assigned to any category. These sherds are likely complicated stamped or check stamped, given the prevalence of those two surface treatments in the study collections.

UID Eroded

Sample Size: 6,111 sherds; Lawton (3,682), Spring Lake (837), Red Lake (1,592)

Description: Unidentified (UID) Eroded refers to sherds whose surface has been damaged or eroded to the extent that no identification of decorative surface treatments is possible.

Red Filmed

Sample Size: 6 sherds from Red Lake

Description: Red Filmed is similar to the type Etowah Red Filmed identified by Sears at the Wilbanks site (1958:192). Paste is fine to medium in texture, temper is fine to medium sand and grit. All six sherds represent part of the same vessel, a Savannah Burnished Plain bowl with red filming applied to the outer surface.

5.4 Pottery Collections

The research design for this project emphasized the excavation of stratigraphically deposited mound-flank middens at each site. These types of deposits have been documented elsewhere on Mississippian period mound sites. The pottery they contain is extremely useful for documenting ceramic change through time, and for dating when mound construction and use occurred. Unfortunately, no mound-flank middens were found at Lawton, Spring Lake, or Red Lake. Pottery occurred in very low numbers in the mound construction fill layers, but no overlying midden layers were discovered on the mound flanks. Evidently refuse generated by mound summit activities was discarded elsewhere. The most stratigraphically-secure pottery collections were recovered from sub-mound middens. In most cases, these deposits yielded large numbers of potsherds. These deposits were sealed by mound construction, and should represent a relatively narrow window of time early in the occupation of the sites. Shovel testing, along with excavation units in village areas and plazas, yielded large quantities of pottery, but it is likely that these deposits accumulated over a greater amount of time than those under the mounds. Each pottery collection used in the current study will be presented below, by context within the site at which it occurred. Combined pottery counts will also be presented for each site.

Lawton Pottery Collections

Mound Collections

The pottery described here was excavated from sub-mound middens beneath the North and South Mounds. These deposits offer stratigraphically-secure collections of pottery that may represent early occupation at the site.

North Mound

Two excavation units encountered midden beneath the North Mound at Lawton. The pottery from these is presented here separately, but the deposits occurred at approximately the same depth and could be combined under the assumption that they both accumulated during a single occupation predating mound construction. The first, a 2 m X 2 m square excavated by Stephenson and King, uncovered debris from a structure that predates the initial stage of the North Mound. I reanalyzed the pottery from this unit in the fall of 2007 to assure comparability of types with my own analyzed collections. This midden yielded 573 sherds; 203 of which were larger than ½-inch and identifiable to type (Table 5.1).

The identifiable sherds are dominated by Savannah Plain and Savannah Burnished Plain, Savannah Check Stamped, Savannah Cord Marked, and complicated stamped types. There are minority amounts of Savannah Burnished Plain and Fluted, Savannah Burnished Plain with fine incising, Savannah Check Stamped with cobmarking, and cob marked pottery.

Complicated stamping is predominantly curvilinear, and therefore represents primarily the type Savannah Complicated Stamped (Table 5.2). Concentric circles and curves, not identifiable to a particular motif, dominated the collection; followed by an unidentifiable cross and circle motif (Figure 5.6.15); and UID curvilinear designs. One sherd with a portion of either a figure eight, figure nine, or filfot scroll motif was recovered. The single rectilinear complicated stamped sherd was UID.

Stephenson and King recovered 17 rim sherds from this midden (Table 5.3). Rim modes include rounded, squared, and cord marked.

I excavated and analyzed the second North Mound sub-mound collection. Three 1 m X 1 m squares yielded 411 potsherds, 141 of which were larger than ½-inch and identifiable to type (Table 5.4).

The assemblage of identifiable sherds is dominated by Savannah Plain and Savannah Burnished Plain, Savannah Check Stamped, and complicated stamped surface treatments. Cob marked, Savannah Cord Marked, and Savannah Check Stamped with punctates are present as minorities in the collection.

Complicated stamping is predominantly curvilinear, and represents the type Savannah Complicated Stamped (Table 5.5). Concentric circles and curves, not identifiable to a particular motif, make up the majority of designs. Two sherds bearing the filfot cross motif were recovered, as well as one sherd bearing a portion of the figure eight, figure nine, filfot cross, or filfot scroll motif. Of the two rectilinear design sherds, one is UID rectilinear, and the other is either a line block motif or the center of a filfot scroll motif.

Ten rim sherds were recovered from this midden (Table 5.6). Rim forms include rounded, squared, rolled, and check stamped.

South Mound

Stephenson and King's 2 m X 2 m excavation in the South Mound revealed a thin scatter of artifacts just below the initial mound fill. I analyzed this small collection of 43 sherds, 24 of which were larger than ½-inch and identifiable to type (Table 5.7). This is admittedly a very small collection, and has questionable value in construction of site chronology.

Savannah Plain, Savannah Check Stamped, and complicated stamped types make up the majority of this assemblage. Minority surface treatments include cob marked and Savannah Cordmarked.

The complicated stamped sherds include both Etowah Complicated Stamped and Savannah Complicated Stamped types (Table 5.8). The rectilinear designs include one sherd that has an Etowah Complicated Stamped nested diamonds or bisected herring bone motif. The curvilinear designs include the Savannah Complicated Stamped filfot scroll motif and concentric circles and curves, not identifiable to particular motif. No rims were identified in this small assemblage.

Non-mound Collections

The non-mound collections described here come from three different contexts at Lawton: a block excavation conducted to the northeast of the North Mound, a 1 m X 2 m test unit excavated in the proposed plaza, and the combined artifacts from systematic shovel testing at the site.

Nelson Block 1

Nelson's Block 1 excavation (42 1 m X 1 m squares) to the northeast of the North Mound yielded 21,119 total sherds, 11,399 of which were larger than ½-inch and identifiable to type (Table 5.9). This collection was analyzed by Nelson.

The assemblage of identifiable sherds from the block excavation is dominated by Savannah Plain and Burnished Plain, Savannah Check Stamped, and complicated stamped types. Low frequencies of cob marked, Savannah Cord Marked, incised, and brushed are also present.

Nelson reports a relatively high percentage of Savannah Plain pottery and a relatively low percentage of Savannah Burnished Plain. The frequencies of these types are markedly different from the percentages in my own analyses of the study collections. This may indicate that his sorting criteria for these types varied from my own. It is also possible that a much lower percentage of burnished plain pottery was used and deposited in the Nelson Block 1 vicinity. A third possibility is that the Block 1 deposits suffered from additional weathering and trampling that degraded or removed their thin burnished surfaces; these deposits were not protected by overlying mound construction fill.

Nelson's typological categories for complicated stamping are slightly different than my own. Nelson (2005:86) reports that the majority of complicated stamped sherds are curvilinear designs, likely Savannah Complicated Stamped, while the remainder are divided among rectilinear designs and UID complicated stamped (Table 5.10). I have no general UID complicated stamped category; these sherds were reported as being "obviously" complicated stamped, but having no recognizable curvilinear or rectilinear impressions (Nelson 2005:86). Nelson reports eight sherds identifiable to particular motifs. These include the Savannah Complicated Stamped filfot scroll, Etowah Complicated Stamped nested diamonds, and the

Pisgah Complicated Stamped ladder. In March 2008, Adam King and Keith Stephenson inspected the sherds reported by Nelson as Etowah and Pisgah types. Their identifications of rectilinear motifs were slightly different; King and Stephenson confirmed the Etowah nested diamond motifs referenced by Nelson (both 2-bar and 1-bar diamonds), but could not find any Pisgah ladder motifs. This only minimally alters Nelson's type percentages. I will use King and Stephenson's identifications in any further discussions regarding particular motifs and their frequencies.

No rim analysis has been conducted on the Nelson Block 1 pottery (Nelson 2005:84). Though not quantified, Nelson also reports that he "found a noted presence of cane punctations and punctated nodes" in the Block 1 collection (Nelson 2005:88).

Plaza Test Unit

As part of their testing at Lawton, SCIAA archaeologists excavated a 1 m X 2 m test unit between Mounds A and B in an area of low artifact density thought to be a plaza. I analyzed the pottery from this test unit; there were 14 sherds in total, seven of which were larger than ½-inch and identifiable to type (Table 5.11). The identifiable sherds were divided among plain, cord marked, and simple stamped. Stephenson (Keith Stephenson, personal communication 2007) has identified the simple stamped and cord marked sherds as being from the Woodland period, and my observations confirm this; the sherds are thick with heavy grit tempering and exhibit very wide stamping characteristic of Woodland period pottery. In addition, these sherds were recovered from a relatively deep context compared to most, approximately 50 cm below modern ground surface. No rims were found in this small assemblage.

Shovel Tests

The last non-mound collection reported here is the combined artifact totals from systematic shovel testing at Lawton. To date, 157 shovel tests have been excavated at Lawton; the great majority of these from the portion of the site enclosed by the ditch. A total of 4,225 sherds was recovered from these tests and analyzed by SCIAA archaeologists, 2,270 of which were larger than ½-inch and identifiable to type (Table 5.12).

The majority of identifiable types from shovel tests are Savannah Plain and Burnished Plain, Savannah Check Stamped, and Complicated Stamped. Minority surface treatments include cob marked, Savannah Cord Marked, simple stamped, and incised. No detailed examination of complicated stamped motifs or rim forms from the Lawton shovel test pottery has been reported.

Combined Totals

In order to gain a representative pottery collection that covers much of Lawton's Mississippian occupation, I combined the type counts from several contexts at the site. Combining the types and counts from these separate collections should help to eliminate or minimize biases introduced by small sample sizes and potential differences in the types of pottery located in functionally diverse areas of the site. Combining the pottery counts from these separate collections does, however, introduce another form of bias. Some of these collections were analyzed by researchers other than me. Their sorting criteria and identification of types and motifs likely varies from my own to some degree. Having discussed this issue at length with Adam King and Keith Stephenson, who either conducted some of these analyses themselves or trained the students who did, I am confident that our sorting criteria are at least roughly comparable.

This combined collection includes pottery from all shovel tests, Nelson's Block 1 excavation, and the North and South Mound sub-mound middens. These combine for a total of 14,037 sherds larger than ½-inch and identifiable to type (Table 5.13).

The dominant pottery types in this combined assemblage are Savannah Plain and Burnished Plain, Savannah Check Stamped, and complicated stamped. The complicated stamped pottery is primarily Savannah Complicated Stamped, with a minority of Etowah Complicated Stamped. Minority surface treatments include cob marked, Savannah Cord Marked, simple stamped, incised, brushed, Savannah Check Stamped with punctates, Savannah Check Stamped with cob marking, Savannah Burnished Plain and Fluted, and Savannah Burnished Plain with fine incising.

Spring Lake Pottery Collections

Mound Collection

The Spring Lake sub-mound midden collection was recovered from a 2 m X 2 m excavation unit. This deposit yielded 8,065 sherds, 2,514 of which were larger than ½-inch and identifiable to type (Table 5.14). I analyzed this and all other Spring Lake collections described here.

The sub-mound midden assemblage of identifiable sherds is composed primarily of Savannah Plain, Savannah Burnished Plain, and Savannah Check Stamped types. High minority frequencies of cob marked and complicated stamped were also present. Additional minority surface treatments identified were Savannah Burnished Plain and Fluted; Savannah Check Stamped with cob marking; Savannah Cord Marked; brushed; and incised with punctations.

Complicated stamping is predominantly curvilinear Savannah Complicated Stamped, though rectilinear Etowah Complicated Stamped is also present (Table 5.15). Concentric circles and curves, not identifiable to motif, comprise the majority of the curvilinear designs, followed by motifs that are either figure eights, figure nines, or filfot scrolls; concentric circles with bull's eye or hollow center; and concentric circle with 2-bar cross. Rectilinear motifs include bisected herring bone and possibly Etowah nested diamonds (2-bar or 2-bar cross).

Two hundred forty-six rim sherds were recovered from this midden (Table 5.16). Rim modes are primarily rounded or squared, though a small number of rolled rims are also present.

Non-mound Collections

The non-mound Spring Lake collections described here were excavated from four different contexts: village middens from two excavation units (XU A and XU B), one plaza excavation unit (XU D), and the combined artifacts from systematic shovel testing.

XU A Midden

XU A was a 2 m X 2 m excavation unit located in the proposed village area of the Spring Lake site. The XU A midden deposit yielded a collection of 3,240 potsherds, 695 of which were larger than ½-inch and identifiable to type (Table 5.17).

The XU A village midden collection of identifiable sherds is composed primarily of Savannah Plain, Savannah Burnished Plain, and Savannah Check Stamped types. Savannah Complicated Stamped, Savannah Check Stamped with cob marking, and cob marked are present in minority percentages. All of the Savannah Complicated Stamped sherds were concentric circles and curves, not identifiable to particular motif (Table 5.18).

This midden yielded 46 rim sherds (Table 5.19). Rim forms include rounded, squared, rolled, and check stamped.

XU B Midden

The XU B village deposit was recovered from a 2 m X 2 m square. This midden yielded 2,884 potsherds, 711 of which were larger than ½-inch and identifiable to type (Table 5.20).

The XU B village midden collection of identifiable sherds is dominated by Savannah Plain, Savannah Burnished Plain, and Savannah Check Stamped types. Complicated stamped and cob marked surface treatments are present in high minority frequencies. There are also minority percentages of Savannah Burnished Plain and Fluted; Savannah Check Stamped with cob marking; Savannah Cord Marked; and brushed.

Complicated stamping in this collection is predominantly Savannah Complicated Stamped (Table 5.21). Of the curvilinear designs, most are concentric circles and curves, not identifiable to particular motif. Other curvilinear designs include the figure 8 and motifs that are either the figure eight, figure nine, or filfot scroll. The single rectilinear design sherd was UID to motif.

This midden yielded 68 rim sherds, including rounded, squared, check stamped, and rolled rim forms (Table 5.22).

XU D Plaza Debris

XU D, a 1 m X 2 m excavation unit, yielded 61 sherds, only 10 of which were larger than ½-inch and identifiable to type (Table 5.23). This very small assemblage of identifiable sherds contains primarily Savannah Plain and Savannah Burnished Plain types, while the remainder is Savannah Check Stamped. No rims were found in this assemblage.

Shovel Tests

UGA crews excavated 256 shovel tests at Spring Lake. Two thousand fifty-eight sherds were recovered from these tests, with 392 larger than ½-inch and identifiable to type (Table

5.24). The assemblage of identifiable sherds is composed primarily of Savannah Plain, Savannah Burnished Plain, and Savannah Check Stamped. Complicated stamped occurred as a high minority surface treatment. Other minority surface treatments present in shovel tests were cob marked, Savannah Cord Marked, and brushed. No detailed analysis of complicated stamped designs or rim forms has been completed for the pottery from these shovel tests.

Combined Totals

In order to gain a representative assemblage that covers much of Spring Lake's Mississippian occupation, I combined the ceramic counts from several contexts at the site. These include all shovel tests; village middens from XU A and XU B; XU D Plaza sherds; and the sub-mound midden from XU C. Four thousand, three hundred twenty-two sherds larger than ½-inch and identifiable to type were recovered from these combined contexts (Table 5.25).

The dominant surface treatments in this combined assemblage are Savannah Plain, Savannah Burnished Plain, and Savannah Check Stamped. Cob marked and complicated stamped (primarily Savannah Complicated Stamped, with a minority of Etowah Complicated Stamped) are the most abundant minority surface treatments. Other minority surface treatments occur, but in relatively low frequencies: Savannah Burnished Plain and Fluted; Savannah Check Stamped with cob marking; Savannah Cord Marked; brushed; and incised with punctations.

Red Lake Pottery Collections

Mound Collections

The Red Lake mound assemblages described here were excavated from four contexts: sub-mound middens from Mounds A and B dug by the author, a sub-mound midden from Mound C dug by Emily Dale, and a Mound A unit on the northern mound flank dug by Fred Cook. The sub-mound middens offer stratigraphically-secure collections of pottery that may represent early occupation at the site. Cook's Mound A flank unit collection is comprised of both mound fill and sub-mound midden deposits.

Mound A Sub-Mound

The Mound A sub-mound midden was sampled with a 1 m X 4 m excavation trench. This midden yielded 2,793 potsherds, 1,752 of which were larger than ½-inch and identifiable to type (Table 5.26). I analyzed this pottery collection.

The collection of identifiable sherds is composed primarily of Savannah Plain, Savannah Burnished Plain, and Savannah Check Stamped types. Several minority surface treatments are present in the assemblage: complicated stamped; Savannah Burnished Plain with punctuates; Savannah Burnished Plain and Fluted; Savannah Check Stamped with punctates; Savannah Check Stamped with cob marking; Savannah Zoned Check Stamped; cob marked; Savannah Cord Marked; brushed; and red filmed.

This midden yielded 111 complicated stamped sherds, including both Savannah Complicated Stamped and Etowah Complicated Stamped (Table 5.27). The curvilinear designs include concentric circles and curves, not identifiable to a particular motif; filfot scroll; and figure nine or filfot scroll. Rectilinear designs include nested diamonds (1-bar and 2-bar cross).

One hundred ninety-eight rim sherds were recovered from this midden, including rounded, squared, rolled, check stamped, incised, and outflaring notched (Table 5.28).

While the majority of pottery from Mound A came from the sub-mound midden, I did recover diagnostically important fragments of a small vessel directly above the sub-mound midden in Mound Stratum 4. This vessel was a miniature check stamped jar of which I recovered five squared rim sherds. The upper neck of this vessel, adjacent to the rim, was decorated with nodes bearing single hollow-cane punctations and a parallel double row of hollow cane punctations that followed the rim and dipped around the nodes (Figure 5.1.3).

Cook's Mound A Flank Unit

Cook's 1 m X 2 m excavation unit from the Mound A northern flank yielded 365 sherds, 302 of which were larger than ½-inch and identifiable to type (Table 5.29). This collection was analyzed by SCIAA archaeologists. The assemblage of identifiable sherds is composed primarily of Savannah Plain, Savannah Burnished Plain, and Savannah Check Stamped. Minority frequencies of complicated stamped, cob marked, Savannah Cord Marked, and brushed surface treatments are also present. Detailed examination of complicated stamped motifs and rim treatments for this assemblage have not been reported.

Mound B Sub-Mound

The Red Lake Mound B sub-mound midden was tested with a 1 m X 2 m excavation unit. This deposit yielded 3,118 potsherds, 916 of which were larger than ½-inch and identifiable to type (Table 5.30). I analyzed this pottery collection.

The identifiable sherds from Mound B are dominated by Savannah Plain, Savannah Burnished Plain, and Savannah Check Stamped types. Minority surface treatments include complicated stamped, Savannah Check Stamped with punctates, cob marked, and Savannah Cord Marked.

A total of 43 complicated stamped sherds were recovered from the Mound B sub-mound midden (Table 5.31). The majority of these are Savannah Complicated Stamped, including concentric circles and curves, and motifs that are either the figure eight, figure nine, or filfot scroll. The rectilinear designs were not identifiable to motif.

This collection includes 80 rim sherds (Table 5.32). Rim forms present include rounded; squared; check stamped; and folded and squared.

Mound C Sub-Mound

The Mound C sub-mound midden collection was recovered from a 1 m X 2 m unit and analyzed by Emily Dale of the University of South Carolina. This midden yielded 739 sherds, 424 of which were larger than ½-inch and identifiable to type (Table 5.33). The majority of identifiable sherds are Savannah Plain, Savannah Burnished Plain, and Savannah Check Stamped types. There are minority percentages of complicated stamped and Savannah Cord Marked types. Complicated stamping is dominated by Savannah Complicated Stamped curvilinear designs, with only one rectilinear design present (Table 5.34). No detailed examination of rims from this collection has been completed, but Dale did note the presence of one punctated node.

Non-mound Collections

The Red Lake non-mound assemblages described here were excavated from four contexts; a plaza unit and a village midden unit excavated by SCIAA members and reported by Dale (2007), a unit located between Mounds A and B excavated by Cook (1987), and systematic shovel tests across the entire site.

SCIAA Test Unit 2

The following collection was recovered from SCIAA's Test Unit 2 (1 m X 2 m) and analyzed by Dale (2007:90-93, 143). Test Unit 2 was located several meters to the northeast of Dale's Mound C Test Unit 1, in a probable plaza area encircled by the mounds. Test Unit 2 yielded 269 sherds, 69 of which were larger than ½-inch and identifiable to type (Table 5.35).

The identifiable sherds from Test Unit 2 were primarily Savannah Plain and Savannah Check Stamped types. The only other identifiable sherds recovered from this unit were

Savannah Cord Marked. No detailed examination of rims from this assemblage has been reported.

SCIAA Test Unit 3

SCIAA's Test Unit 3 (1 m X 2 m) at Red Lake targeted village midden deposits (Dale 2007:93-95, 143). The great majority of artifacts from Test Unit 3 were recovered from 10 to 30 cm below ground surface (arbitrary levels B and C, strata I and II). Stratum III was not completely excavated or screened (Dale 2007:93).

Seven hundred seventy-four sherds were recovered from levels B and C, 299 of which were larger than ½-inch and identifiable to type (Table 5.36). Dale analyzed this collection of sherds. The identifiable sherds are primarily of Savannah Plain, Savannah Burnished Plain, and Savannah Check Stamped types. Complicated stamped, Savannah Burnished Plain with punctates, cob marked, Savannah Cord Marked, and Savannah Check Stamped with punctates are also present as minority surface treatments.

The complicated stamped sherds are predominantly Savannah Complicated Stamped, including curvilinear designs, not identifiable to motif, and the filfot cross or scroll (Table 5.37). No detailed examination of rims from this assemblage has been reported, but Dale reported the presence of one punctated node.

Cook's Unit between Mounds A and B

Cook's 2 m X 2 m excavation unit, located between Mounds A and B, yielded 2,128 sherds, 1,870 of which were larger than ½-inch and identifiable to type (Table 5.38). This collection was analyzed by SCIAA archaeologists. The assemblage of identifiable sherds is dominated by Savannah Plain, Savannah Burnished Plain, and Savannah Check Stamped types. Minority frequencies of complicated stamped, cob marked, Savannah Cord Marked, brushed, and simple stamped surface treatments were also recovered. Detailed examination of complicated stamped motifs and rim treatments for this assemblage have not been reported.

Shovel Tests

Dale and SCIAA archaeologists conducted systematic shovel testing survey of the Red Lake site; approximately 300 of these tests have been analyzed to date, also by SCIAA archaeologists (Dale 2007). Five thousand, two hundred forty-six sherds were recovered from these tests, of which 2,536 were larger than ½-inch and identifiable to type (Table 5.39). The majority pottery types present in these tests are Savannah Plain, Savannah Burnished Plain, and Savannah Check Stamped. Minority surface treatments present are complicated stamped, Savannah Cord Marked, Savannah Check Stamped with punctates, linear check stamped, Savannah Burnished Plain with punctates, complicated stamped with punctates, simple stamped, cob marked, and incised.

The majority of complicated stamped sherds recovered from the Red Lake shovel tests are Savannah Complicated Stamped, including curvilinear designs, unidentifiable to particular motif and the filfot cross/scroll. The remainders are UID rectilinear designs and UID complicated stamped (Table 5.40). No detailed analysis of rims is reported; however, four folded rims and six punctated nodes were found in shovel tests.

Combined Totals

In order to gain a representative assemblage that covers much of Red Lake's Mississippian occupation, I combined the ceramic counts from several contexts at the site. These include all shovel tests; Dale's Mound C sub-mound midden; SCIAA test unit 2, levels C and D; SCIAA test unit 3, levels B and C; Cook's units on the Mound A flank and between Mounds A and B; and the Mound A and B sub-mound middens excavated by myself. Eight thousand, one hundred sixty-eight sherds larger than ½-inch and identifiable to type were recovered from these combined contexts (Table 5.41).

The dominant types in this combined collection are Savannah Plain, Savannah Burnished Plain, and Savannah Check Stamped. Complicated stamped pottery is the most abundant minority type. Other minority surface treatments occur, but in relatively low frequencies: Savannah Burnished Plain with punctates; Savannah Burnished Plain and Fluted; Savannah Check Stamped with punctates; Savannah Check Stamped with cob marking; Savannah Zoned Check Stamped; linear check stamped, complicated stamped with punctates; cob marked; Savannah Cord Marked; simple stamped; brushed; red filmed; and incised.

Table 5.1 Lawton North Mound Sub-mound Midden (SCIAA) Pottery

All Pottery	**Count**	**Percent**
Savannah Plain	15	2.62
Savannah Burnished Plain	80	13.96
Savannah Burnished Plain & Fluted	2	0.35
Savannah Burnished Plain & Fine Incised	1	0.17
Savannah Check Stamped	44	7.68
Savannah Check Stamped w/ Cob Marking	1	0.17
Complicated Stamped	25	4.36
Cob Marked	3	0.52
Savannah Cord Marked	32	5.58
UID Decorated	30	5.24
UID Eroded	4	0.70
<1/2 inch	336	58.64
Totals	573	100.00

Identifiable Pottery	**Count**	**Percent**
Savannah Plain	15	7.39
Savannah Burnished Plain	80	39.41
Savannah Burnished Plain & Fluted	2	0.99
Savannah Burnished Plain & Fine Incised	1	0.49
Savannah Check Stamped	44	21.67
Savannah Check Stamped w/ Cob Marking	1	0.49
Complicated Stamped	25	12.32
Cob Marked	3	1.48
Savannah Cord Marked	32	15.76
Totals	203	100.00

Table 5.2 Lawton North Mound Sub-mound Midden (SCIAA) Complicated Stamped Sherds

Stamp Type	**Count**	**Percent**
Curvilinear Designs	24	96.00
Rectilinear Designs	1	4.00
Total	25	100.00
Motif		
Savannah Cross & Circle with Curves	4	16.00
Savannah Figure 8, Figure 9, or Filfot Scroll	1	4.00
Savannah Concentric Circles & Curves	15	60.00
UID Curvilinear	4	16.00
UID Rectilinear	1	4.00

Table 5.3 Lawton North Mound Sub-mound Midden (SCIAA) Rims

Rim Mode	Count	Percent
Rounded	7	41.18
Squared	9	52.94
Cord Marked	1	5.88
Total	17	100.00

Table 5.4 Lawton North Mound Sub-mound Midden (Wood) Pottery

All Pottery	Count	Percent
Savannah Plain	5	1.21
Savannah Burnished Plain	51	12.38
Savannah Check Stamped	55	13.35
Savannah Check Stamped w/ Punctates	1	0.24
Complicated Stamped	20	4.85
Cob Marked	5	1.21
Savannah Cord Marked	4	0.97
UID Decorated	21	5.10
UID Eroded	15	3.64
<1/2 inch	234	56.80
Totals	411	100.00

Identifiable Pottery	Count	Percent
Savannah Plain	5	1.21
Savannah Burnished Plain	51	12.38
Savannah Check Stamped	55	13.35
Savannah Check Stamped w/ Punctates	1	0.24
Complicated Stamped	20	4.85
Cob Marked	5	1.21
Savannah Cord Marked	4	0.97
Totals	141	100.00

Table 5.5 Lawton North Mound Sub-mound Midden (Wood) Complicated Stamped Sherds

Stamp Type	Count	Percent
Curvilinear Designs	18	90.00
Rectilinear Designs	2	10.00
Total	20	100.00
Motif		
Savannah Filfot Cross	2	10.00
Savannah Filfot Scroll central element or Line Block	1	5.00
Savannah Figure 8, Figure 9, Filfot Cross, or Filfot Scroll	1	5.00
Savannah Concentric Circles & Curves	10	50.00
UID Curvilinear	5	25.00
UID Rectilinear	1	5.00

Table 5.6 Lawton North Mound Sub-mound Midden (Wood) Rims

Rim Mode	Count	Percent
Rounded	4	40.00
Squared	4	40.00
Check Stamped	1	10.00
Rolled	1	10.00
Total	10	100.00

Table 5.7 Lawton South Mound Sub-mound Deposit Pottery

All Pottery	Count	Percent
Savannah Plain	6	13.95
Savannah Check Stamped	3	6.98
Complicated Stamped	12	27.91
Cob Marked	2	4.65
Savannah Cord Marked	1	2.33
UID Eroded	1	2.33
<1/2 inch	18	41.86
Totals	43	100.00

Identifiable Pottery	Count	Percent
Savannah Plain	6	25.00
Savannah Check Stamped	3	12.50
Complicated Stamped	12	50.00
Cob Marked	2	8.33
Savannah Cord Marked	1	4.17
Totals	24	100.00

Table 5.8 Lawton South Mound Sub-Mound Deposit Complicated Stamped Sherds

Stamp Type	Count	Percent
Curvilinear Designs	5	41.67
Rectilinear Designs	7	58.33
Total	12	100.00
Motif		
Savannah Filfot Scroll	2	16.67
Savannah Concentric Circles & Curves	2	16.67
UID Curvilinear	1	8.33
Etowah Nested Diamonds or Herring Bone, Bisected	1	8.33
UID Rectilinear	6	50.00

Table 5.9 Lawton Nelson Block 1 Excavation Pottery

All Pottery	**Count**	**Percent**
Savannah Plain	6173	29.23
Savannah Burnished Plain	749	3.55
Savannah Check Stamped	2622	12.42
Complicated Stamped	1533	7.26
Cob Marked	139	0.66
Savannah Cord Marked	169	0.80
Brushed	5	0.02
Incised	9	0.04
UID Decorated	180	0.85
UID Eroded	1913	9.06
<1/2 inch	7627	36.11
Totals	21119	100.00

Identifiable Pottery	**Count**	**Percent**
Savannah Plain	6173	54.15
Savannah Burnished Plain	749	6.57
Savannah Check Stamped	2622	23.00
Complicated Stamped	1533	13.45
Cob Marked	139	1.22
Savannah Cord Marked	169	1.48
Brushed	5	0.04
Incised	9	0.08
Totals	11399	100.00

Table 5.10 Lawton Nelson Block 1 Excavation Complicated Stamped Sherds

Stamp Type	**Count**	**Percent**
Curvilinear	629	41.00
Rectilinear	506	33.00
UID Complicated Stamped	398	26.00
Total	1533	100.00
Motif		
Savannah Filfot Scroll	3	0.20
UID Curvilinear	626	40.83
Etowah Nested Diamonds	4	0.26
Pisgah Ladder	1	0.07
UID Rectilinear	501	32.68
UID Complicated Stamped	398	25.96

Table 5.11 Lawton Plaza Pottery

All Pottery	Count	Percent
Plain	1	7.14
Cord Marked	2	14.29
Simple Stamped	4	28.57
UID Eroded	4	28.57
<1/2 inch	3	21.43
Totals	14	100
Identifiable Pottery	**Count**	**Percent**
Plain	1	14.29
Cord Marked	2	28.57
Simple Stamped	4	57.14
Totals	7	100

Table 5.12 Lawton Shovel Tests Pottery

All Pottery	Count	Percent
Savannah Plain	1081	25.59
Savannah Burnished Plain	194	4.59
Savannah Check Stamped	422	9.99
Complicated Stamped	498	11.79
Cob Marked	21	0.50
Savannah Cord Marked	29	0.69
Simple Stamped	24	0.57
Incised	1	0.02
UID Decorated	210	4.97
UID Eroded	1745	41.30
Totals	4225	100.00

Identifiable Pottery	Count	Percent
Savannah Plain	1081	47.62
Savannah Burnished Plain	194	8.55
Savannah Check Stamped	422	18.59
Complicated Stamped	498	21.94
Cob Marked	21	0.93
Savannah Cord Marked	29	1.28
Simple Stamped	24	1.06
Incised	1	0.04
Totals	2270	100.00

Table 5.13 Lawton Pottery, Combined Proveniences

Identifiable Pottery	**Count**	**Percent**
Savannah Plain	7280	51.86
Savannah Burnished Plain	1074	7.65
Savannah Burnished Plain & Fluted	2	0.01
Savannah Burnished Plain & Fine Incised	1	0.01
Savannah Check Stamped	3146	22.41
Savannah Check Stamped w/ Punctates	1	0.01
Savannah Check Stamped w/ Cob Marking	1	0.01
Complicated Stamped	2088	14.87
Cob Marked	170	1.21
Savannah Cord Marked	235	1.67
Simple Stamped	24	0.17
Brushed	5	0.04
Incised	10	0.07
Totals	14037	100.00

Table 5.14 Spring Lake Sub-mound Midden Pottery

All Pottery	**Count**	**Percent**
Savannah Plain	458	5.68
Savannah Burnished Plain	856	10.61
Savannah Burnished Plain & Fluted	7	0.09
Savannah Check Stamped	828	10.27
Savannah Check Stamped w/ Cob Marking	1	0.01
Complicated Stamped	148	1.84
Cob Marked	207	2.57
Savannah Cord Marked	7	0.09
Brushed	1	0.01
Incised & Punctated	1	0.01
UID Decorated	270	3.35
UID Eroded	184	2.28
<1/2 inch	5097	63.20
Totals	8065	100.00

Identifiable Pottery	**Count**	**Percent**
Savannah Plain	458	18.22
Savannah Burnished Plain	856	34.05
Savannah Burnished Plain & Fluted	7	0.28
Savannah Check Stamped	828	32.94
Savannah Check Stamped w/ Cob Marking	1	0.04
Complicated Stamped	148	5.89
Cob Marked	207	8.23
Savannah Cord Marked	7	0.28
Brushed	1	0.04
Incised & Punctated	1	0.04
Totals	2514	100.00

Table 5.15 Spring Lake Sub-mound Midden Complicated Stamped Sherds

Stamp Type	Count	Percent
Curvilinear Designs	125	84.46
Rectilinear Designs	23	15.54
Total	148	100.00
Motif		
Savannah Concentric Circle- bulls eye	2	1.35
Savannah Concentric Circle- hollow center	1	0.68
Savannah Concentric Circle- bulls eye or hollow center	3	2.03
Savannah Concentric Circle- 2-bar cross	1	0.68
Savannah Figure 8, Figure 9, or Filfot Scroll	8	5.41
Savannah Concentric Circles & Curves	83	56.08
UID Curvilinear	27	18.24
Etowah Nested Diamonds- 2-bar, 2-bar cross, or Herring Bone, bisected	2	1.35
Herring Bone, bisected	6	4.05
UID Rectilinear	15	10.14

Table 5.16 Spring Lake Sub-mound Midden Rims

Rim Mode	Count	Percent
Rounded	111	45.12
Squared	132	53.66
Rolled	3	1.22
Total	246	100.00

Table 5.17 Spring Lake XU A Village Midden Pottery

All Pottery	Count	Percent
Savannah Plain	105	3.24
Savannah Burnished Plain	331	10.22
Savannah Check Stamped	236	7.28
Savannah Check Stamped w/ Cob Marking	6	0.19
Complicated Stamped	13	0.40
Cob Marked	4	0.12
UID Decorated	58	1.79
UID Eroded	349	10.77
<1/2 inch	2138	65.99
Totals	3240	100.00

Identifiable Pottery	Count	Percent
Savannah Plain	105	15.11
Savannah Burnished Plain	331	47.63
Savannah Check Stamped	236	33.96
Savannah Check Stamped w/ Cob Marking	6	0.86
Complicated Stamped	13	1.87
Cob Marked	4	0.58
Totals	695	100.00

Table 5.18 Spring Lake XU A Village Midden Complicated Stamped Sherds

Stamp Type	**Count**	**Percent**
Curvilinear Designs	13	100.00
Total	13	100.00
Motif		
Savannah Concentric Circles & Curves	13	100.00

Table 5.19 Spring Lake XU A Village Midden Rims

Rim Mode	**Count**	**Percent**
Rounded	23	50.00
Squared	21	45.65
Check Stamped	1	2.17
Rolled	1	2.17
Total	46	100.00

Table 5.20 Spring Lake XU B Village Midden Pottery

All Pottery	**Count**	**Percent**
Savannah Plain	132	4.58
Savannah Burnished Plain	243	8.43
Savannah Burnished Plain & Fluted	1	0.03
Savannah Check Stamped	210	7.28
Savannah Check Stamped w/ Cob Marking	3	0.10
Complicated Stamped	68	2.36
Cob Marked	50	1.73
Savannah Cord Marked	1	0.03
Brushed	3	0.10
UID Decorated	121	4.20
UID Eroded	122	4.23
<1/2 inch	1930	66.92
Totals	2884	100.00

Identifiable Pottery	**Count**	**Percent**
Savannah Plain	132	18.57
Savannah Burnished Plain	243	34.18
Savannah Burnished Plain & Fluted	1	0.14
Savannah Check Stamped	210	29.54
Savannah Check Stamped w/ Cob Marking	3	0.42
Complicated Stamped	68	9.56
Cob Marked	50	7.03
Savannah Cord Marked	1	0.14
Brushed	3	0.42
Totals	711	100.00

Table 5.21 Spring Lake XU B Village Midden Complicated Stamped Sherds

Stamp Type	**Count**	**Percent**
Curvilinear Designs	67	98.53
Rectilinear Designs	1	1.47
Total	68	100.00
Motif		
Savannah Figure 8	1	1.47
Savannah Figure 8, Figure 9, or Filfot Scroll	1	1.47
Savannah Concentric Circles & Curves	58	85.29
UID Curvilinear	7	10.29
UID Rectilinear	1	1.47

Table 5.22 Spring Lake XU B Village Midden Rims

Rim Mode	**Count**	**Percent**
Rounded	32	47.76
Squared	32	47.76
Check Stamped	1	1.49
Rolled	3	4.48
Total	68	100.00

Table 5.23 Spring Lake XU D Plaza Pottery

All Pottery	**Count**	**Percent**
Savannah Plain	2	3.28
Savannah Burnished Plain	7	11.48
Savannah Check Stamped	1	1.64
UID Decorated	2	3.28
UID Eroded	3	4.92
<1/2 inch	46	75.41
Totals	61	100.00

Identifiable Pottery	**Count**	**Percent**
Savannah Plain	2	20.00
Savannah Burnished Plain	7	70.00
Savannah Check Stamped	1	10.00
Totals	10	100.00

Table 5.24 Spring Lake Post Hole Tests Pottery

All Pottery	**Count**	**Percent**
Savannah Plain	85	4.13
Savannah Burnished Plain	152	7.39
Savannah Check Stamped	92	4.47
Complicated Stamped	46	2.24
Cob Marked	5	0.24
Savannah Cord Marked	11	0.53
Brushed	1	0.05
UID Decorated	64	3.11
UID Eroded	179	8.70
<1/2 inch	1423	69.14
Totals	2058	100.00

Identifiable Pottery	**Count**	**Percent**
Savannah Plain	85	21.68
Savannah Burnished Plain	152	38.78
Savannah Check Stamped	92	23.47
Complicated Stamped	46	11.73
Cob Marked	5	1.28
Savannah Cord Marked	11	2.81
Brushed	1	0.26
Totals	392	100.00

Table 5.25 Spring Lake Pottery, Combined Proveniences

Identifiable Pottery	**Count**	**Percent**
Savannah Plain	782	18.09
Savannah Burnished Plain	1589	36.77
Savannah Burnished Plain & Fluted	8	0.19
Savannah Check Stamped	1367	31.63
Savannah Check Stamped w/ Cob Marking	10	0.23
Complicated Stamped	275	6.36
Cob Marked	266	6.15
Savannah Cord Marked	19	0.44
Brushed	5	0.12
Incised & Punctated	1	0.02
Totals	4322	100.00

Table 5.26 Red Lake Mound A Sub-mound Midden Pottery

All Pottery	**Count**	**Percent**
Savannah Plain	37	1.32
Savannah Burnished Plain	680	24.35
Savannah Burnished Plain w/ Punctates	2	0.07
Savannah Burnished Plain & Fluted	4	0.14
Savannah Check Stamped	850	30.43
Savannah Check Stamped w/ Punctates	3	0.11
Savannah Check Stamped w/ Cob Marking	3	0.11
Savannah Zoned Check Stamped	17	0.61
Complicated Stamped	112	4.01
Cob Marked	29	1.04
Savannah Cord Marked	3	0.11
Brushed	6	0.21
Red Filmed	6	0.21
UID Decorated	178	6.37
UID Eroded	22	0.79
<1/2 inch	841	30.11
Totals	2793	100.00

Identifiable Pottery	**Count**	**Percent**
Savannah Plain	37	2.11
Savannah Burnished Plain	680	38.81
Savannah Burnished Plain w/ Punctates	2	0.11
Savannah Burnished Plain & Fluted	4	0.23
Savannah Check Stamped	850	48.52
Savannah Check Stamped w/ Punctates	3	0.17
Savannah Check Stamped w/ Cob Marking	3	0.17
Savannah Zoned Check Stamped	17	0.97
Complicated Stamped	112	6.39
Cob Marked	29	1.66
Savannah Cord Marked	3	0.17
Brushed	6	0.34
Red Filmed	6	0.34
Totals	1752	100.00

Table 5.27 Red Lake Mound A Sub-mound Midden Complicated Stamped Sherds

Stamp Type	Count	Percent
Curvilinear Designs	63	56.76
Rectilinear Designs	48	43.24
Total	111	100.00
Motif		
Savannah Filfot Scroll	1	0.90
Savannah Figure 9 or Filfot Scroll	1	0.90
Savannah Concentric Circles & Curves	44	39.64
UID Curvilinear	16	14.41
Etowah Nested Diamonds- 1-bar cross	13	11.71
Etowah Nested Diamonds- 2-bar cross	4	3.60
UID Rectilinear	30	27.03

Table 5.28 Red Lake Mound A Sub-mound Midden Rims

Rim Mode	Count	Percent
Rounded	65	33.33
Squared	99	50.77
Check Stamped	24	12.31
Incised	1	0.51
Outflaring Notched	4	2.05
Rolled	5	2.56
Total	198	100.00

Table 5.29 Red Lake Mound A Flank Unit (Cook) Pottery

All Pottery	**Count**	**Percent**
Savannah Plain	104	28.49
Savannah Burnished Plain	48	13.15
Savannah Check Stamped	133	36.44
Complicated Stamped	10	2.74
Cob Marked	3	0.82
Savannah Cord Marked	3	0.82
Brushed	1	0.27
UID Decorated	17	4.66
UID Eroded	42	11.51
<1/2 inch	4	1.10
Totals	365	100.00

Identifiable Pottery	**Count**	**Percent**
Savannah Plain	104	34.44
Savannah Burnished Plain	48	15.89
Savannah Check Stamped	133	44.04
Complicated Stamped	10	3.31
Cob Marked	3	0.99
Savannah Cord Marked	3	0.99
Brushed	1	0.33
Totals	302	100.00

Table 5.30 Red Lake Mound B Sub-mound Midden Pottery

All Pottery	**Count**	**Percent**
Savannah Plain	42	1.35
Savannah Burnished Plain	235	7.54
Savannah Check Stamped	578	18.54
Savannah Check Stamped w/ Punctates	6	0.19
Complicated Stamped	43	1.38
Cob Marked	11	0.35
Savannah Cord Marked	1	0.03
UID Decorated	43	1.38
UID Eroded	19	0.61
<1/2 inch	2140	68.63
Totals	3118	100.00

Identifiable Pottery	**Count**	**Percent**
Savannah Plain	42	4.59
Savannah Burnished Plain	235	25.66
Savannah Check Stamped	578	63.10
Savannah Check Stamped w/ Punctates	6	0.66
Complicated Stamped	43	4.69
Cob Marked	11	1.20
Savannah Cord Marked	1	0.11
Totals	916	100.00

Table 5.31 Red Lake Mound B Sub-mound Midden Complicated Stamped Sherds

Stamp Type	**Count**	**Percent**
Curvilinear Designs	38	88.37
Rectilinear Designs	5	11.63
Total	43	100.00
Motif		
Savannah Figure 8, Figure 9, or Filfot Scroll	4	9.30
Savannah Concentric Circles & Curves	30	69.77
UID Curvilinear	4	9.30
UID Rectilinear	5	11.63

Table 5.32 Red Lake Mound B Sub-mound Midden Rims

Rim Mode	**Count**	**Percent**
Rounded	24	30.00
Squared	46	57.50
Check Stamped	9	11.25
Folded and Squared with Node	1	1.25
Total	80	100.00

Table 5.33 Red Lake Mound C Sub-mound Midden Pottery

All Pottery	**Count**	**Percent**
Savannah Plain	65	8.80
Savannah Burnished Plain	103	13.94
Savannah Check Stamped	221	29.91
Complicated Stamped	28	3.79
Savannah Cord Marked	7	0.95
UID Eroded	3	0.41
<1/2 inch	312	42.22
Totals	739	100.00

Identifiable Pottery	**Count**	**Percent**
Savannah Plain	65	15.33
Savannah Burnished Plain	103	24.29
Savannah Check Stamped	221	52.12
Complicated Stamped	28	6.60
Savannah Cord Marked	7	1.65
Totals	424	100.00

Table 5.34 Red Lake Mound C Sub-mound Midden Complicated Stamped Sherds

Stamp Type	**Count**	**Percent**
Curvilinear	27	96.43
Rectilinear	1	3.57
Total	28	100.00

Table 5.35 Red Lake SCIAA Test Unit 2 Pottery

All Pottery	**Count**	**Percent**
Savannah Plain	40	14.87
Savannah Check Stamped	27	10.04
Savannah Cord Marked	2	0.74
<1/2 inch	200	74.35
Totals	269	100.00

Identifiable Pottery	**Count**	**Percent**
Savannah Plain	40	57.97
Savannah Check Stamped	27	39.13
Savannah Cord Marked	2	2.90
Totals	69	100.00

Table 5.36 Red Lake SCIAA Test Unit 3 Pottery

All Pottery	**Count**	**Percent**
Savannah Plain	136	17.57
Savannah Burnished Plain	16	2.07
Savannah Burnished Plain w/ Punctates	2	0.26
Savannah Check Stamped	129	16.67
Savannah Check Stamped w/ Punctates	3	0.39
Complicated Stamped	10	1.29
Cob Marked	2	0.26
Savannah Cord Marked	1	0.13
UID Eroded	8	1.03
<1/2 inch	467	60.34
Totals	774	100.00

Identifiable Pottery	**Count**	**Percent**
Savannah Plain	136	45.48
Savannah Burnished Plain	16	5.35
Savannah Burnished Plain w/ Punctates	2	0.67
Savannah Check Stamped	129	43.14
Savannah Check Stamped w/ Punctates	3	1.00
Complicated Stamped	10	3.34
Cob Marked	2	0.67
Savannah Cord Marked	1	0.33
Totals	299	100.00

Table 5.37 Red Lake SCIAA Test Unit 3 Complicated Stamped Sherds

Stamp Type or Motif	**Count**	**Percent**
Curvilinear	6	60.00
Savannah Filfot Cross, or Filfot Scroll	1	10.00
UID Complicated Stamped	3	30.00
Total	10	100.00

Table 5.38 Red Lake Unit between Mounds A & B (Cook) Pottery

All Pottery	**Count**	**Percent**
Savannah Plain	741	34.82
Savannah Burnished Plain	179	8.41
Savannah Check Stamped	873	41.02
Complicated Stamped	49	2.30
Cob Marked	21	0.99
Savannah Cord Marked	5	0.23
Simple Stamped	1	0.05
Brushed	1	0.05
UID Decorated	90	4.23
UID Eroded	135	6.34
<1/2 inch	33	1.55
Totals	2128	100.00

Identifiable Pottery	**Count**	**Percent**
Savannah Plain	741	39.63
Savannah Burnished Plain	179	9.57
Savannah Check Stamped	873	46.68
Complicated Stamped	49	2.62
Cob Marked	21	1.12
Savannah Cord Marked	5	0.27
Simple Stamped	1	0.05
Brushed	1	0.05
Totals	1870	100.00

Table 5.39 Red Lake Shovel Tests Pottery

All Pottery	**Count**	**Percent**
Savannah Plain	916	17.46
Savannah Burnished Plain	474	9.04
Savannah Burnished Plain w/ Punctates	6	0.11
Savannah Check Stamped	946	18.03
Savannah Check Stamped w/ Punctates	9	0.17
Linear Check Stamped	8	0.15
Complicated Stamped	107	2.04
Complicated Stamped with Punctates	6	0.11
Cob Marked	1	0.02
Savannah Cord Marked	60	1.14
Simple Stamped	2	0.04
Incised	1	0.02
UID Decorated	174	3.32
UID Eroded	1363	25.98
<1/2 inch	1173	22.36
Totals	5246	100.00

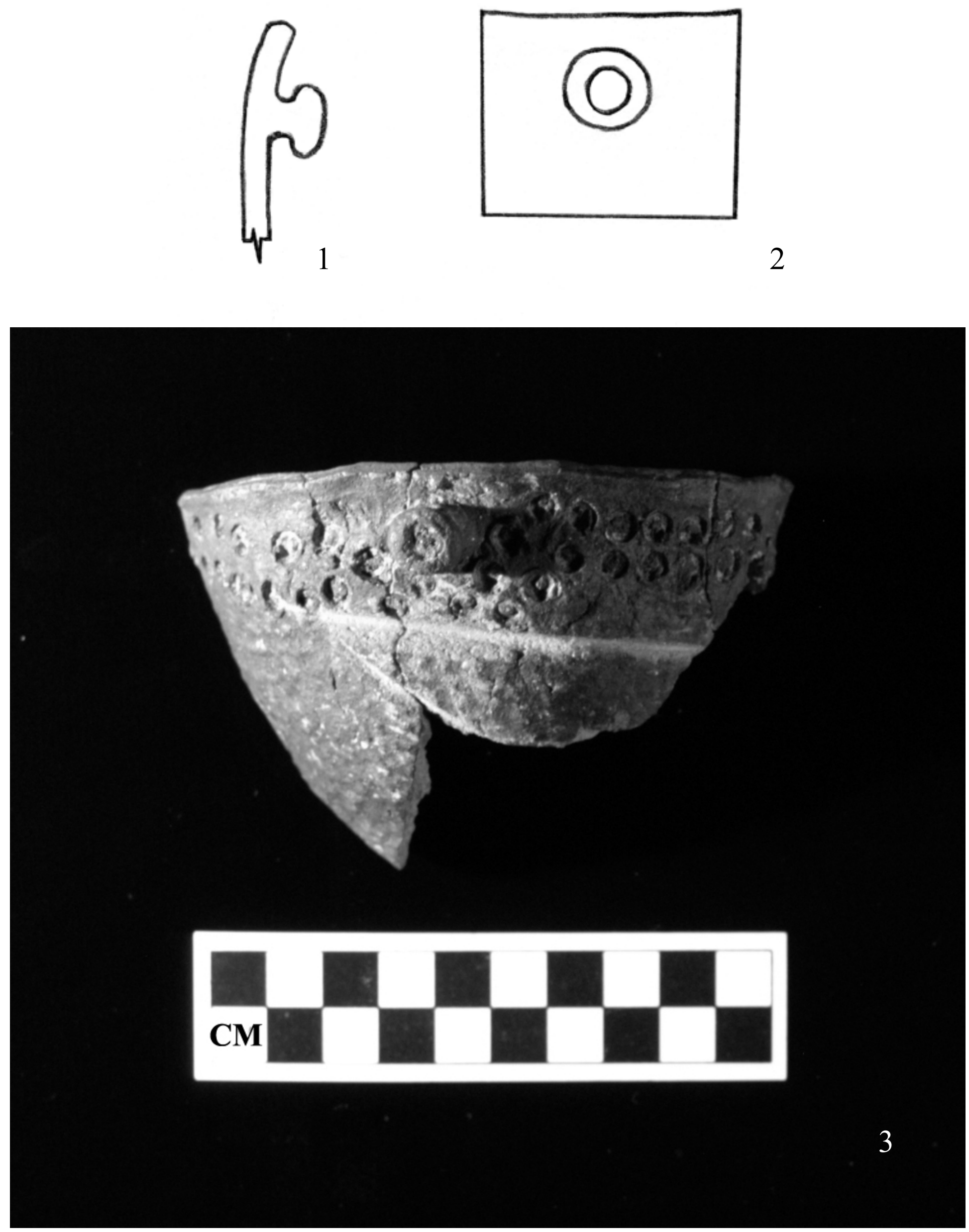
Identifiable Pottery	**Count**	**Percent**
Savannah Plain	916	36.12
Savannah Burnished Plain	474	18.69
Savannah Burnished Plain w/ Punctates	6	0.24
Savannah Check Stamped	946	37.30
Savannah Check Stamped w/ Punctates	9	0.35
Linear Check Stamped	8	0.32
Complicated Stamped	107	4.22
Complicated Stamped with Punctates	6	0.24
Cob Marked	1	0.04
Savannah Cord Marked	60	2.37
Simple Stamped	2	0.08
Incised	1	0.04
Totals	2536	100.00

Table 5.40 Red Lake Shovel Tests Complicated Stamped Sherds

Stamp Type or Motif	**Count**	**Percent**
Curvilinear	88	82.24
Rectilinear	7	6.54
Savannah Filfot Cross, or Filfot Scroll	1	0.93
UID Complicated Stamped	11	10.28
Total	107	100.00

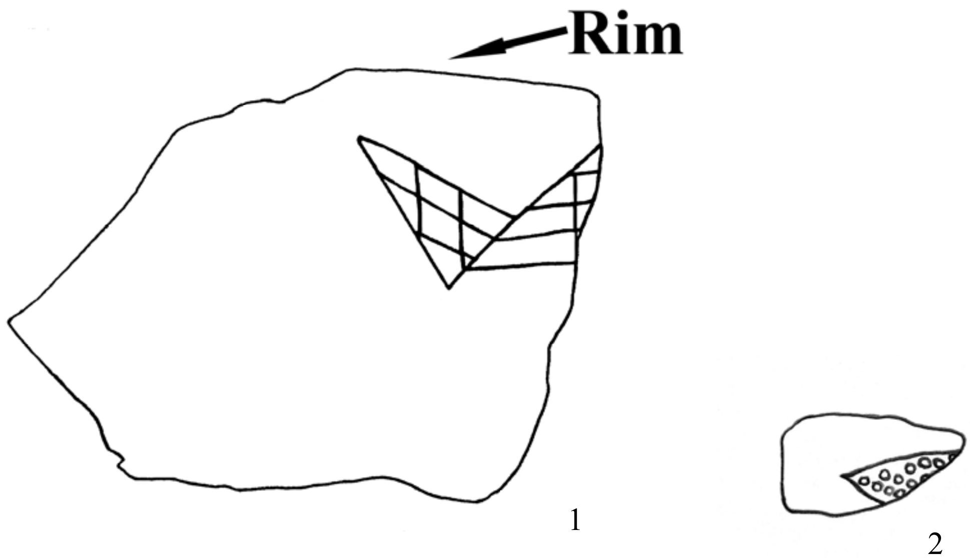
Table 5.41 Red Lake Pottery, Combined Proveniences

Identifiable Pottery	**Count**	**Percent**
Savannah Plain	2081	25.48
Savannah Burnished Plain	1735	21.24
Savannah Burnished Plain w/ Punctates	10	0.12
Savannah Burnished Plain & Fluted	4	0.05
Savannah Check Stamped	3757	46.00
Savannah Check Stamped w/ Punctates	21	0.26
Savannah Check Stamped w/ Cob Marking	3	0.04
Savannah Zoned Check Stamped	17	0.21
Linear Check Stamped	8	0.10
Complicated Stamped	359	4.40
Complicated Stamped with Punctates	6	0.07
Cob Marked	67	0.82
Savannah Cord Marked	82	1.00
Simple Stamped	3	0.04
Brushed	8	0.10
Red Filmed	6	0.07
Incised	1	0.01
Totals	8168	100.00



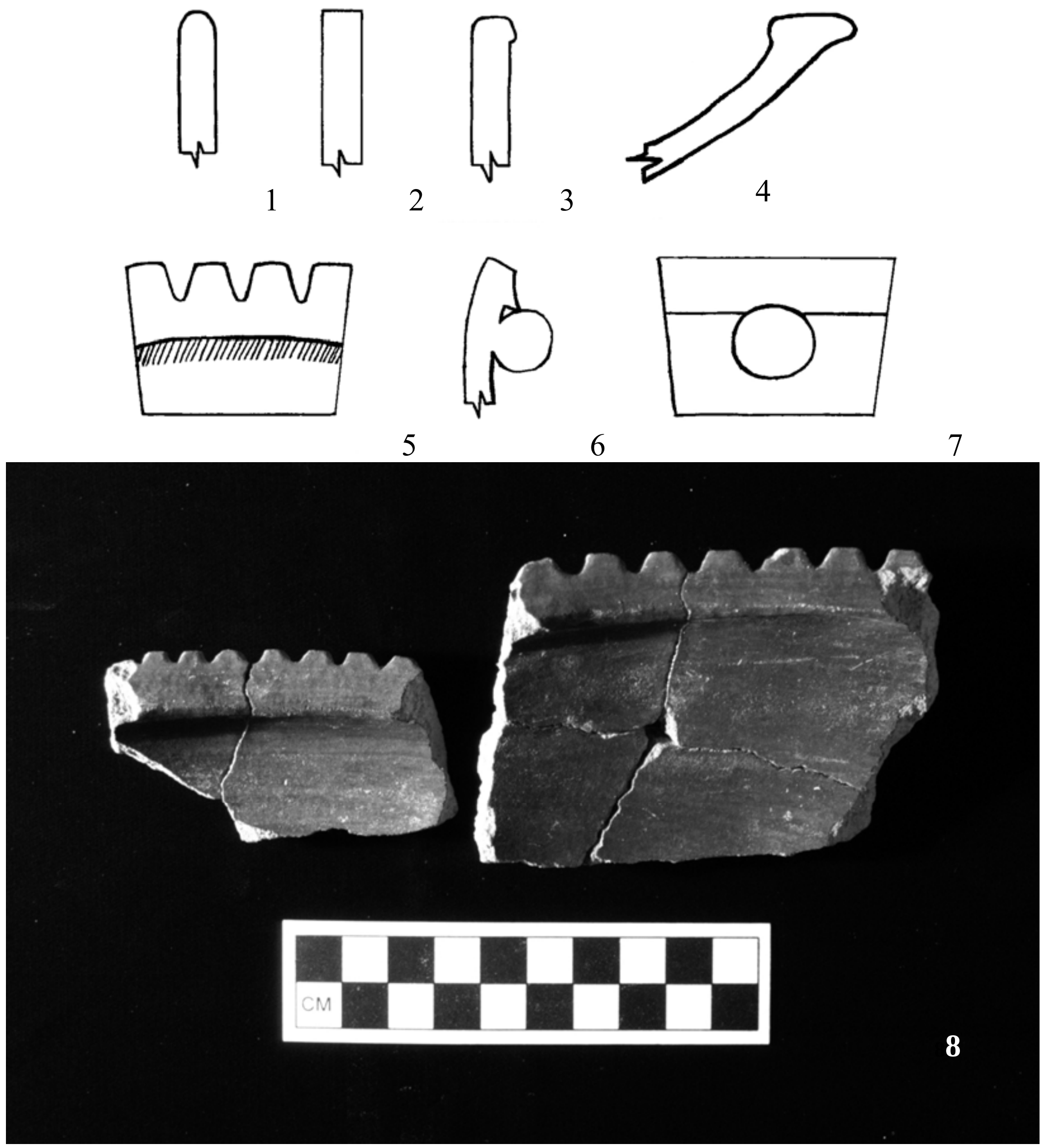
1 Node (profile)
2 Node (front view)
3 Node and Double Row Punctates
(vessel fragment from Red Lake)

Figure 5.1 Node Sketches and Photograph



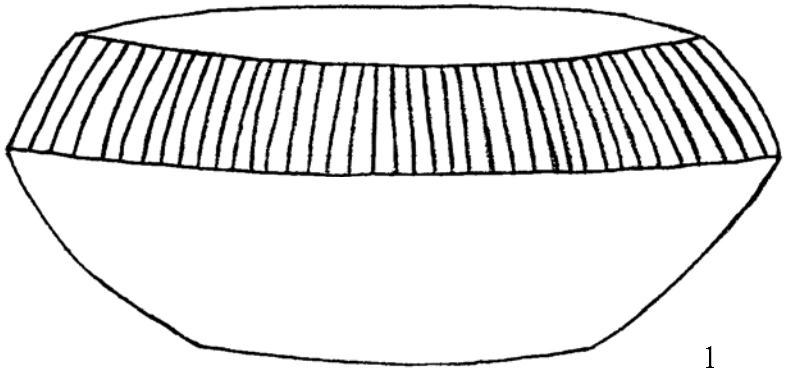
1 Savannah Burnished Plain & Fine Incised
2 Fine Incised and Punctated

Figure 5.2 Incised Body Sherds
(sketches made to scale)



1 Rounded (profile)
2 Squared (profile)
3 Rolled (profile)
4 Outflaring Notched (profile)
5 Outflaring Notched (top view)
6 Folded and Squared (profile)
7 Folded and Squared (front view)
8 Outflaring Notched (photograph)

Figure 5.3 Rim Modes



1

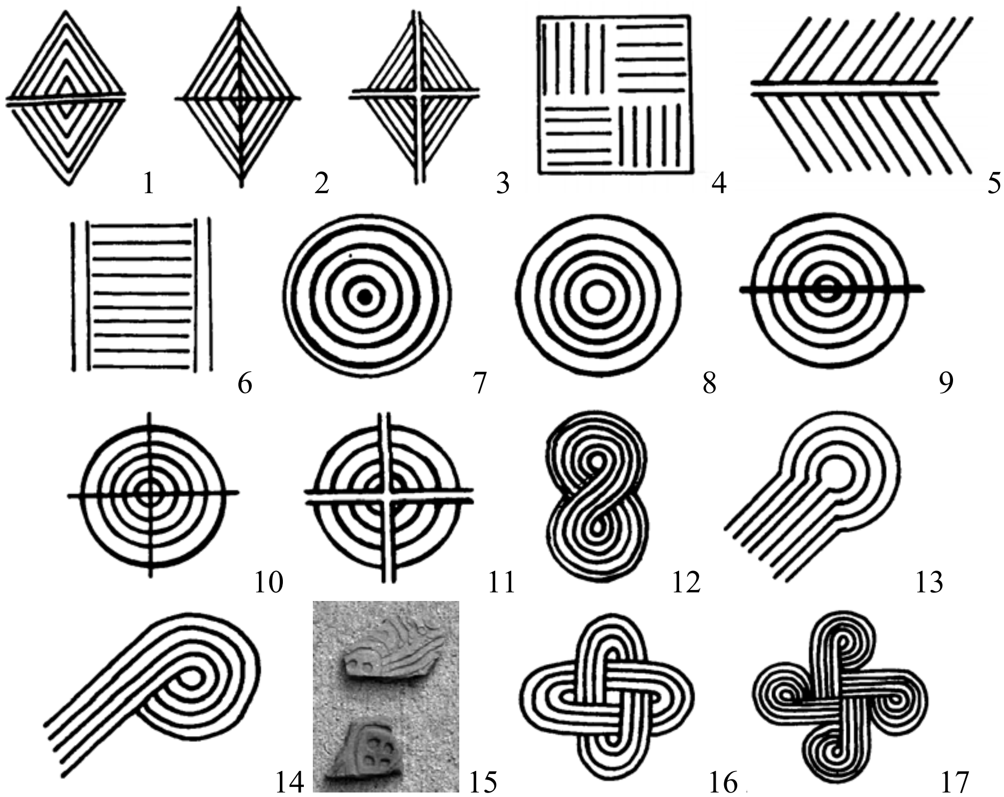
1 Savannah Burnished Plain and Fluted (vessel sketch)
2 Savannah Burnished Plain and Fluted (photograph)

Figure 5.4 Savannah Burnished Plain and Fluted

1

1 Savannah Zoned Check Stamped (sketch)
2 Savannah Zoned Check Stamped (photograph)

Figure 5.5 Savannah Zoned Check Stamped



Rectilinear Stamped Motifs
1 Etowah nested diamonds- 2-bar
2 Etowah nested diamonds- 1-bar cross
3 Etowah nested diamonds- 2-bar cross
4 line block
5 herring bone, bisected
6 Pisgah ladder

Curvilinear Stamped Motifs
7 Savannah concentric circles- bulls eye
8 Savannah concentric circles- hollow center
9 Savannah concentric circles- 1 bar
10 Savannah concentric circles- 1-bar cross
11 Savannah concentric circles- 2-bar cross
12 Savannah figure 8
13 Savannah keyhole
14 Savannah figure 9
15 Savannah unnamed cross & circle with curves
16 Savannah filfot cross
17 Savannah filfot scroll

Figure 5.6 Complicated Stamped Motifs Discussed in Text
Adapted from Anderson (1994:362-365)

CHAPTER 6

SITE CHRONOLOGIES

6.1 The Hollywood Phase Ceramic Complex

Recent authors investigating the Lawton, Spring Lake, and Red Lake sites have assigned their occupation to the Hollywood phase (A.D. 1250-1350) of the Savannah River valley ceramic sequence (Dale 2007; Nelson 2005; Stephenson and King 2001; Wood 2006). Anderson (1994:187-189) proposed that Lawton dates to the early Mississippian period and belongs in a provisional Lawton phase (A.D. 1100-1250), but this view is not widely accepted. Given that we now possess large, stratigraphically isolated ceramic collections from these three sites, and that they have been subjected to more detailed analyses than before, we are now in the position to resolve the question of each site's placement within the Savannah River valley ceramic sequence. In order to determine the chronological relationships among these sites, certain questions must be asked; specifically, what is the Hollywood phase? Is the Hollywood phase ceramic complex useful for describing ceramic collections at Lawton, Spring Lake, and Red Lake? If so, were these sites occupied contemporaneously?

To address these questions, I will first describe what is known of the Hollywood phase and what its pottery characteristics are. The Hollywood site (9RI1), as described earlier, is a two-mound site located near the Fall Line in present-day Richmond County, Georgia. Hollywood was first investigated by Henry Reynolds in 1891. Reynolds recovered several burials from Mound B, some of which had elaborate mortuary offerings (Thomas 1985:317-326). In 1965, Clemens DeBaillou excavated two test squares in Mound B and a 70 foot long, 10 foot wide, northeast-southwest oriented trench into the flank of Mound A. DeBaillou's subsequent publication presents the results of those excavations, including tabulated pottery types recovered from the Mound A test trench (DeBaillou 1965:6-8) (Table 6.1). No identification of types from the Mound B excavations has been published.

Although DeBaillou's sorting of the trench collection is relatively straightforward, some types are noteworthy and deserve further discussion to aid in comparison with types recovered in the present study (Table 6.1). The types listed as "Savannah Checked", "Plain", "Savannah Complicated Stamped" and "Cordmarked" are probably comparable to those types that have been identified at Lawton, Spring Lake, and Red Lake. DeBaillou's other categories, however, are not as obviously comparable. What he refers to as "roughened" pottery is not described beyond the name, and likely represents badly or lightly stamped pottery that was not correctly identified. "Reed Decorated" is the decorative mode I term cane punctated. DeBaillou did not distinguish what the primary surface treatment was on these sherds (such as "Check Stamped with punctates"). "Scratched Line" may indicate incised pottery, and may be comparable to the decorative mode I have designated "incising". The type labeled simply as "Fingernail," implies pottery bearing small, curved indentions or impressions similar to fingernail marks. It is probable, however, that "Fingernail" is actually cob marked, and that DeBaillou mistook small corncob impressions for fingernail impressions. "Lineblock" and "Etowah" probably refer to complicated stamped motifs, but DeBaillou does not describe them. The former may actually be the central element of filfot crosses and filfot scrolls, while the latter likely refers to nested diamond motifs. As for "Fabric Impressed," "Simple Stamped," and "Linear Checked," DeBaillou noted that these types "occurred primarily in the lower levels" (DeBaillou 1965:7). The stratigraphic placement of these types, combined with the fact that these surface treatments are common on Woodland period pottery, indicates that they may not belong to the

Mississippian assemblage at Hollywood. No mention is made of artifact recovery methods (use of screen, size of mesh, etc.) or the presence of unidentified types, so I am assuming the counts reported by DeBaillou include relatively large sherds with recognizable surface treatments. His counts, then, may be comparable with my tables including identifiable types of sherds larger than ½-inch.

DeBaillou's tabulations and his written description of the collection are useful as a starting point for understanding the Hollywood site Mississippian ceramics. It is important to note, however, that the data presented in Table 6.1 include all sherds from the Mound A trench without regard to stratigraphic context. If there was ceramic change during the time the site was occupied, it would be difficult or impossible to identify in this simple tabulation. This may be a non-issue, considering that Hollywood may not have been occupied for an extended period of time. Mound A at Hollywood had only two or three construction stages, which may indicate a relatively short duration of use. It may also be the case that the Hollywood Mound A construction stages contained few sherds and that most of them came from the sub-mound midden. In this case, tabulation of pottery by strata would lend no useful information regarding ceramic change through time. This was certainly the case at Lawton, Spring Lake, and Red Lake. There, the mound construction stages contained very few sherds, with most of the pottery coming from sub-mound middens.

If we accept DeBaillou's lumped Mound A Trench totals (Table 6.1) as accurately representing the site's middle Mississippian period ceramic component, several characteristics of this collection are clear. Savannah Check Stamped and Plain pottery types dominate the Mound A collection (41.11% and 38.15%, respectively). Savannah Complicated Stamped is also relatively common at 13.92%, while the other known Mississippian period surface treatments and stamped designs (Reed Decorated, Cordmarked, Scratched Line, Lineblock, Etowah, and Fingernail) are present in very small numbers. DeBaillou makes no mention of the particular stamped motifs present in the category of Savannah Complicated Stamped. He also makes the important statement that "complicated stamped pieces with decorations or with rosettes along the rims are definitely characteristic of this area," yet he gives no detailed description of these rim treatments nor tabulates their frequency in the collection (DeBaillou 1965:7-8).

Additional information regarding Hollywood ceramics can be found in Jefferson Reid's comparison of Hollywood ceramics to those from the Town Creek mound site in North Carolina (Reid 1965). Although he examined only 43 sherds from DeBaillou's Mound A trench collection, Reid made some valuable observations. First, he noted and gave a detailed description of the rim treatment with rosettes mentioned by DeBaillou. These characteristic rims are described as having "nodes riveted to the vessel with a reed impression in the center" along with "one or two rows of punctations [which] circle the node and continue along the rim below the lip linking all nodes in a decorative band" (Reid 1965:12) (Figure 6.1). He further notes that these rim treatments occur on complicated stamped vessels of the filfot cross motif as well as check stamped vessels. Reid illustrates a burial urn from Mound B at Hollywood, recovered by Reynolds in 1891, that exhibits both filfot cross stamping and the aforementioned node and punctations rim treatment (Figure 6.2) (Reid 1965:20). In addition to the filfot cross motif, Reid recorded the presence of a figure 8 complicated stamped motif from the Hollywood Mound A sample that included crosses in the terminal circles of the figure 8. This may be the same motif I have termed "Savannah Cross and Circle with Curves," found in the Lawton North Mound sub-mound midden. Plain vessel rims from this sample had either rounded or squared lips, except for one sherd that bore parallel lines (likely incising) on the lip of the vessel.

More recently, the Hollywood site ceramics were studied by David Hally in 1985. Hally examined collections from five proveniences in DeBaillou's Mound A trench. These collections are currently curated by SCIAA. These combined proveniences contained 526 sherds, 452 of which were identifiable to type (Table 6.2). The identifiable sherds in this sample are dominated by Savannah Plain and Burnished Plain[6] (24.33%), Savannah Check Stamped (53.98%), and complicated stamped (21.02%). The only other surface treatment identified is cob marked (0.66%). Hally's notes contain additional information on this sample from Hollywood Mound A. Rim treatments include well-formed square lips on burnished plain bowls, slight outward rolling of lips on plain jar rims, 17 rim sherds that had cane punctations (five of which were identifiable as double-row cane punctations), rims with both cane punctations and punctated nodes, and two plain rim sherds with notched lips. In addition, Hally noted a rim from that included four peaks with a large node centered in each and a row of cane punctations below the rim. Similar vessels with peaked rims were reported from the Allatoona and Richard B. Russell Reservoirs (Caldwell 1971; Wood et al. 1986:113-114). Among the complicated stamped designs, Hally recorded the filfot cross motif, lineblock motif, and what is likely the figure eight with crosses motif recorded previously by Reid (1965).

The pottery found in test excavations at Hollywood was sufficiently distinct in presence/absence, frequency of types, and rim treatments, to prompt Anderson, Hally, and Rudolph (1986) to assign it to a new ceramic phase in their sequence for the upper Savannah River valley. The resulting Hollywood phase (A.D. 1250-1350), which partially overlaps the Beaverdam phase (A.D. 1200-1300) in the upper valley sequence, was based both on the pottery attributes described above and radiocarbon dates reported from the presumably contemporaneous

[6] Since the distinction between Savannah Plain and Savannah Burnished Plain is subjective, I will combine them for the following discussions.

Town Creek mound site in North Carolina, which has a similar pottery assemblage. As described by Anderson et al. (1986:40-41), Hollywood phase ceramics include majority frequencies of Savannah Check Stamped (41%), Savannah Plain and Burnished Plain (38%), and Savannah Complicated Stamped types (14%). Minority types include Etowah Complicated Stamped (<1%) and cob marked (<1%). Savannah Complicated Stamped motifs include filfot cross and related motifs. Decorative modes include cane punctations and large, riveted and punctated nodes on unthickened jar rims.

I agree with Anderson, Hally, and Rudolph's assessment that the Hollywood pottery collection is distinct enough to warrant its own phase designation. As the authors point out, the distinction of Hollywood ceramics from other ceramic complexes in the Savannah River valley is likely due to both spatial and temporal factors. The Hollywood site is 90 to 100 km south of other major Mississippian sites in the upper valley at which distinct ceramic complexes have been identified, and nearly 150 km upstream from the Irene site at the river mouth. In addition, occupation of the Hollywood site probably partially overlaps the Beaverdam phase (A.D. 1200-1300), whose ceramic assemblage shares some attributes with Hollywood and appears to have been its precedent in the upper Savannah River valley. The apparent lack of ceramic variability in the existing collections from the Hollywood site may indicate a relatively short-term Mississippian occupation.

If we are to use the Hollywood ceramic phase as a chronological and material culture concept, it is important to question whether the Hollywood site pottery collection is representative of pottery throughout the Hollywood site. All of the pottery used to define the Hollywood phase came from a single test trench in the flank of Mound A at the Hollywood site. The argument could be made that this collection is biased towards pottery with surface treatments and decorative attributes that were reserved for or over-represented in activities that only occurred on or near the mounds. Several burial urns and pottery grave goods were discovered in the Hollywood site Mound B excavations conducted by Reynolds in 1891. The latter include a painted bottle, a bottle supported by three feet in the shape of human heads, and a pot incised with the image of a plumed serpent; these likely represent decorations and designs reserved for burial with a special subset of the population at Hollywood. Granted, these are not forms that are included in the Hollywood phase ceramic type collection used by Anderson et al. (1986), but they indicate that pottery collections from mounds may differ from those in general village contexts. Savannah Complicated Stamped jars with noded and punctated rims, however, were recovered in both Mound A and Mound B and are considered a defining characteristic of the phase.

Village deposits are conspicuously absent from the collections used to define the Hollywood phase. No testing has been conducted away from the mounds, so the nature of non-mound cultural deposits at the site remains a mystery. The only Hollywood ceramics that may not have come directly from mound fill or sub-mound middens would be those from the southwestern end of DeBaillou's Mound A trench.[7] DeBaillou does not list all ceramic types by location within the trench, and the proveniences Hally examined were not from the non-mound portion of the trench. It is possible, of course, that pottery from the non-mound portion of the trench were related to mound activities, given their proximity to Mound A.

DeBaillou himself was cautious in drawing conclusions from a single test trench, yet was confident enough to state his "surprise" if the proportions of the types he identified were not typical of the entire site (DeBaillou 1965:7). His test trench was rather large, as was the sherd

[7] Only the northeastern 50 feet of this trench are illustrated in the published profile; any non-mound ceramics recovered would presumably be from the proveniences in the remaining 20 feet of trench that are not illustrated (Figure 2).

count published in his report (5,381). The points raised above regarding mound versus non-mound pottery may be moot if there is no significant variation in collections from those particular contexts. A comparison of mound versus non-mound pottery collections from Lawton, Spring Lake, and Red Lake used in the current study, however, does reveal some differences. At Lawton, Savannah Burnished Plain and Fluted, and the single Savannah Burnished Plain and fine incised sherd were found only in mound contexts. At Spring Lake, seven of eight Savannah Burnished Plain and Fluted sherds and the sole fine incised and punctated sherd were found in the sub-mound midden. At Red Lake, Savannah Burnished Plain and Fluted, Savannah Zoned Check Stamped, red filmed pottery, and the burnished plain bowls with outflaring notched rims were found exclusively in mound contexts.

The significance of these differences is debatable. The pottery types and modes in question (Savannah Burnished Plain and Fluted; Savannah Burnished Plain with incising; Savannah Zoned Check Stamped; red filmed; and the Savannah Burnished Plain bowls with outflaring, notched rims) all occur with very low frequency and are thus likely to reflect sampling error. Nevertheless, these types of vessels are characterized by fine craftsmanship and rare surface treatments, and are more likely to be limited in their distribution across the sites. Perhaps they represent finely made serving wares. Their low frequency, combined with their almost exclusive recovery from mound and sub-mound excavations, does raise the possibility that their use was restricted to mound contexts.

Aside from the few types exclusive to either mound or non-mound contexts, the majority of types, and those which represent the bulk of these collections, are found across the sites. There are differences in frequencies of particular types by context, but this only poses a problem if small differences in type frequencies are considered indicative of significant chronological variation. This issue is currently impossible to address without investigations of the non-mound portions of the Hollywood site. Pottery collections from those contexts would provide material for comparison with that from the mounds. These investigations would also provide valuable information on site size, site shape, and distribution of artifacts and features across the site. If these excavations and collections are made possible in the future, it may benefit researchers to include these results in a further refined definition of the Hollywood phase ceramic complex.

As the Hollywood phase ceramic complex is currently defined, there are a few critical shortcomings that need to be addressed. First, no complete analysis of complicated stamped motifs has been conducted for the Hollywood site pottery collections. Second, no complete analysis of decorative modes and vessel shape modes has been completed. This information may be important for an accurate definition of the Hollywood phase. This becomes especially pertinent when using low frequency attributes such as nodes and punctations as diagnostic markers of the phase. Illustrations or photographs of vessels with this particular rim treatment indicate that nodes were not closely spaced; a large burial urn from Hollywood Mound B can be inferred to have only four punctated nodes that are evenly spaced around the vessel rim (Figure 6.2). If this is the norm, then rim sherds bearing punctated nodes may be uncommon in collections from Hollywood phase sites. Third, identification and tabulation of all minority pottery types from the Hollywood site has not been completed. Hally's examination of five proveniences from DeBaillou's Mound A trench is the closest approximation we have to a detailed study of Hollywood phase pottery, but it does not include all Mound A trench pottery or any of the Mound B material.

6.2 The Hollywood Phase in the Interior Coastal Plain of the Savannah River Valley

Using the Hollywood phase ceramic complex as defined by Anderson et al. (1986:40-41), I turn to the question of its application in the south-central portion of the Savannah River valley. More specifically, can Lawton, Spring Lake, and Red Lake be characterized as Hollywood phase sites based on the pottery found at each site? The majority types in the Hollywood phase type collection are Savannah Plain and Burnished Plain, Savannah Check Stamped, and complicated stamped. These are the majority types found at Lawton, Spring Lake, and Red Lake. Hollywood phase complicated stamped pottery includes the filfot cross motif, concentric circle-based Savannah Complicated Stamped motifs, and a minority percentage with Etowah Complicated Stamped motifs. Cob marked pottery is also present in low frequency. Again, the pottery collections obtained from Lawton, Spring Lake, and Red Lake meet these criteria. Finally, Hollywood phase pottery includes jar rims decorated with cane punctations and riveted nodes. These are found at both Lawton and Red Lake. No nodes were recovered from Spring Lake excavations, however, and only one sherd with cane punctations was found among the sample of 4,322 identifiable sherds from that site. If the regular presence of punctations and nodes is necessary to define an assemblage as belonging to the Hollywood phase, then the Spring Lake assemblage fails to meet this criterion.

In addition to the presence or absence of the diagnostic surface treatments described above, there should also be comparability in type frequencies between the type site and Lawton, Spring Lake, and Red Lake. A comparison of frequencies of identifiable types among the four sites does show variation in type frequencies. Savannah Plain and Burnished Plain combined account for 24.33% of identifiable pottery in the Hollywood site collection. These types amount to 46.87% at Red Lake; 54.86% at Spring Lake; and 63.34% at Lawton, with a mean of 55.02%

for the three sites. Savannah Check Stamped accounts for 41.11% of the Hollywood pottery. This type ranges from 20.85% at Lawton, 31.63% at Spring Lake, to 46.04% at Red Lake, with a mean value of 32.84% for the three sites. Complicated Stamped pottery accounts for 14.16% of the Hollywood site collection. Complicated Stamped ranges from 4.25% at Red Lake, 6.36% at Spring Lake, to 12.63% at Lawton, with a mean value of 7.75% for the three sites. Hally did not identify any Etowah Complicated Stamped sherds in the ceramic collection from Hollywood that he analyzed. DeBaillou, however, identified 0.11% of the Hollywood Mound A sherds as Etowah Complicated Stamped. This compares with 0.03% at Lawton, 0.05% at Spring Lake, and 0.21% at Red Lake. Cob marked occurs with a frequency of <1% in Hollywood phase pottery, ranging from 0.66% at Hollywood, 0.81% at Red Lake, 1.26% at Lawton, to 6.15% at Spring Lake.

There are some minority pottery types and modes not reported from Hollywood that occur at Lawton, Spring Lake, and Red Lake. These include Savannah Burnished Plain and Fluted; Savannah Burnished Plain with outflaring notched rim; Savannah Zoned Check Stamped; brushed; and red filmed. The temporal or spatial significance of these minority types and modes is not currently known, although I propose that Savannah Burnished Plain and Fluted is likely a temporally-sensitive, diagnostic type found in the mid- to lower Savannah River valley during the Hollywood phase.

The differences in pottery type frequencies found between the Hollywood type collection and the three sites may be the result of sampling error at Hollywood (i.e. no non-mound pottery collections). It is also possible that the chronological equivalent of the Hollywood phase ceramic complex in the south-central portion of the Savannah River valley, where Lawton, Spring Lake, and Red Lake are located, is slightly different that that identified by Anderson et al (1986) from the Hollywood site at the Fall Line. The lack of nodes and punctations at Spring Lake is also problematic, but, as I have discussed above, no actual quantification of the frequency of this rim treatment has been conducted for the Hollywood phase ceramic complex. It is also possible that Lawton, Spring Lake, and Red Lake have slightly different ranges of occupation, which may account for both the lack of these rim features at Spring Lake and the variability in type frequencies for each site. Summarizing the above information, it is clear that Hollywood, Lawton, Spring Lake, and Red Lake share the same major pottery types, but those types occur in different frequencies. They also share some minority pottery types, and three of the four sites have nodes as a vessel shape mode. Despite the differences found among the sites' pottery assemblages, I feel their similarities are strong enough to assign them to the Hollywood ceramic phase. I now turn to the question of site contemporaneity for Lawton, Spring Lake, and Red Lake during the Hollywood phase based on ceramic evidence.

6.3 Contemporaneity of Sites

The determination of sub-phase chronologies and site contemporaneity are central issues in the current study. Accepting that Lawton, Spring Lake, and Red Lake were occupied during the Hollywood phase (A.D. 1250-1350) does not necessarily mean that their occupations span the entire phase, or that their dates of inception and abandonment were identical. Five distinct scenarios for the occupation of Lawton, Spring Lake, and Red Lake are possible: 1) all three sites were occupied contemporaneously for the duration of the Hollywood phase, 2) all three sites were occupied contemporaneously, but only for a portion of the phase, 3) all three sites' occupations partially overlap, with the sites being established and abandoned at different times, 4) each site was occupied at a different time within the Hollywood phase, 5) one of the sites was occupied at a completely different time than the other two.

Up until this point, no concerted effort has been made to identify chronologically-sensitive pottery attributes or trends in the presence/absence or frequencies of these attributes that would indicate changes in pottery during the Hollywood phase. Such chronological markers, if they exist, would be ideal for determining the occupation of sites at the sub-phase level. Such fine chronological resolution is necessarily difficult to obtain, and has only been achieved in a few instances in the southeastern United States. This study serves as the first attempt to identify such attributes among Savannah period sites within the Savannah River valley, and benefits from detailed typological analyses of large and stratigraphically isolated pottery collections from Lawton, Spring Lake, and Red Lake.

General trends in the frequencies of Hollywood phase types- Savannah Plain and Burnished Plain, Savannah Check Stamped, identifiable complicated stamped, and cob marked- are discernable in the upper Savannah River valley ceramic sequence provided by Anderson et al. (1986). Comparison of the Beaverdam phase (A.D. 1200-1300) ceramic complex with the Hollywood phase (A.D. 1250-1350) ceramic complex types illustrates these trends (Table 6.3). There is evidence to suggest that Beaverdam phase pottery is closely related to and is in some ways the precedent of later Hollywood phase pottery. Although the two type sites' reported occupation spans overlap, Beaverdam Creek appears to have been established first. There is also some ceramic continuity from the Beaverdam phase to the Hollywood phase. The two ceramic complexes share the same main pottery types- Savannah Plain, Savannah Burnished Plain, Savannah Check Stamped, Savannah Complicated Stamped, Etowah Complicated Stamped, and cob marked. There is also general continuity of complicated stamped motifs; in each phase, Savannah Complicated Stamped includes concentric circle based motifs and filfot motifs, and Etowah Complicated Stamped includes nested diamond motifs.

There are differences between the two ceramic complexes, however. Although they share the same main pottery types, these occur in different frequencies. Also, the suite of complicated stamped motifs varies between the sites; the herring-bone motif and keyhole motif occur in the Beaverdam phase type collection, but not in the Hollywood phase type collection (Anderson et al. 1986, Rudolph and Hally 1985:266) (Figure 6.3). Conversely, the lineblock motif and the figure eight motif occur in the Hollywood phase, but not in the Beaverdam phase type collection. Rim modes also vary; the Beaverdam phase ceramic complex includes collared rims, but there are none in the Hollywood phase. Additionally, rims bearing punctations and punctated nodes occur in the Hollywood phase but not in the Beaverdam phase.

Although Anderson et al. (1986) attribute some of the differences between these two complexes to spatial separation (the type sites are 100 kilometers apart), the Beaverdam-to-Hollywood phase shifts in frequencies of diagnostic pottery types should also have chronological significance. The combined frequencies of Savannah Plain and Burnished Plain types decrease dramatically from Beaverdam phase sites to Hollywood phase sites (from roughly 78% to 38%); frequencies of Savannah Check Stamped increase markedly over this interval (from approximately 8% to 41%); there is an increase in identifiable complicated stamped pottery (~2% to ~15%); and there is a decline in cob marked pottery (3% to <1%).

I investigated the possibility of using statistical measures to determine whether the differences in each of these pottery type frequencies are significant. Unfortunately, no appropriate statistical test was found. In most cases pottery samples were either too large or too small to be used with tests such as chi-square, the two-sample difference of proportions test, and Wilcoxon's rank sum test (McGrew and Monroe 2000). In the case of very large samples, every difference observed leads to a statistically significant result. Samples that are too small are either incompatible with the tests or the results are unreliable. In addition, these pottery collections do not provide true, random samples, thus violating critical test requirements. These findings were confirmed in consultation with John Chamblee, Information Manager for the Coweeta Long-Term Ecological Research Project, who applied the Wilcoxon's rank sum test on clay artifacts from northwestern Georgia (Chamblee and Neumann 1999).

Trends in complicated stamped designs and motifs may ultimately be more sensitive as chronological markers than general trends in the frequencies of pottery types. As previously noted, the early to middle Mississippian period transition in Georgia and South Carolina is often reflected in a shift from predominance of rectilinear Etowah Complicated Stamped motifs to curvilinear Savannah Complicated Stamped motifs. This chronological trend is reflected in the Beaverdam phase to Hollywood phase transition (Anderson et al. 1986:38-41). Complicated stamping in Beaverdam phase assemblages accounts for 11% of total sherds; 9% UID complicated stamped, 1% Etowah Complicated Stamped (primarily cross-bar nested diamonds and some herring-bone motifs), and 1% Savannah Complicated Stamped (concentric circle motifs). Forty-seven percent of the UID complicated stamped is curvilinear in design. Complicated stamping in Hollywood phase assemblages accounts for roughly 15% of total sherds, and nearly all of this is curvilinear in design; 14% is Savannah Complicated Stamped (concentric circle motifs and filfot motifs), and <1% is Etowah Complicated Stamped (likely nested diamond motifs).

Therefore, we may expect an increase in curvilinear complicated stamping and a decrease in rectilinear complicated stamping throughout the duration of the Hollywood phase. To facilitate comparison of rectilinear versus curvilinear complicated stamping frequencies in the following discussions, I removed the category "UID Complicated Stamped" from the Lawton site Nelson Block 1 tabulations and the Red Lake site SCIAA Test Unit 3 tabulations. Within the Hollywood phase, we may expect an increase through time in Savannah Complicated Stamped with concentric-circle based motifs and filfot motifs, and a decrease in Etowah Complicated Stamped with nested diamond or herring-bone motifs. Pottery collections from Hollywood phase sites that include higher frequencies of rectilinear designs or more sherds with Etowah diamond motifs may date earlier than those containing fewer rectilinear designs or Etowah diamond motifs.

Rim modes are often used as temporally-sensitive vessel attributes. Unfortunately, no clear transition or trends in rim modes is reported from the Beaverdam phase to the Hollywood phase. Collared rims are present in very low frequency (<1%) in the Beaverdam phase, but Hally found none in the Hollywood site pottery he analyzed. Conversely, there are no cane punctations or punctated, riveted nodes on Beaverdam phase vessels, but they do appear during the Hollywood phase. As shown earlier, it is clear that punctated nodes and rows of cane punctations near the rims of jars are a diagnostic attribute of Hollywood phase pottery, but they have not been quantified at any Hollywood phase site. Considering that they first appear during the Hollywood phase, it is reasonable to expect that they may increase in frequency throughout duration of the phase.

These observed Beaverdam phase to Hollywood phase pottery trends, and proposed trends within the Hollywood phase itself, may provide a starting point for determining sub-phase pottery trends among Hollywood phase sites (Table 6.4). Here I will discuss both intra-site and inter-site relative chronologies based on type frequencies, complicated stamping motifs, and rim modes from particular contexts at Lawton, Spring Lake, and Red Lake.

Intra-site Chronologies

Lawton

The most stratigraphically secure pottery collections from Lawton used in this study are the sub-mound deposits from the North and South Mounds. They were sealed by later mound construction stages, and likely date to the early occupation of the site. The Nelson Block 1 excavated collection does not have the same stratigraphic integrity. It likely accumulated over a longer period of time and thus should have a greater proportion of ceramics dating through the later occupation of the site. Despite this drawback, it is included in this analysis since it is a large collection of analyzed sherds. Comparison of the pottery collections from these contexts should indicate if they were deposited at different times in the site's history, and may indicate relative ages for the site's different architectural features. For instance, if the North Mound sub-mound pottery pre-dates that found under the South Mound, and mound building commenced soon after the sub-mound pottery was deposited, initial construction of the North Mound may have pre-dated construction of the South Mound at Lawton.

Using the Beaverdam phase to Hollywood phase trends in frequency of pottery types mentioned above (decrease in Savannah Plain and Burnished Plain, increase in Savannah Check Stamped, increase in complicated stamped, decrease in cob marked), the sub-mound deposits and the Nelson Block 1 deposit can be compared (Table 6.5). In doing so, certain assumptions must be stated. First, I assume that the relative frequencies of types and modes vary through time and not among functionally different architectural contexts at the site. Second, I assume that each pottery collection represents a relatively short interval of time. In the case of sub-mound deposits, I feel that this is plausible, but for Nelson's Block 1 excavation, it is much less so.

Third, I assume that the portions of the North Mound sub-mound midden excavated by SCIAA and myself are contemporaneous, and I have lumped their counts and percentages together.

Unfortunately, this is not an effective method of determining the order in which these collections were deposited. If the four pottery types discussed above increased or decreased together in lock-step fashion, the different collections would reflect this pattern if they were deposited at different times. Through time, I would expect a decrease in Savannah Plain and Burnished Plain, an increase in Savannah Check Stamped, an increase in identifiable complicated stamped, and a decrease in cob marked. They do not vary in this manner, even when the admittedly small South Mound sub-mound collection is removed from the sample (Table 6.5). The North Mound sub-mound collection has a lower percentage of complicated stamped pottery and a higher percentage of cob marked pottery than the Nelson Block 1 collection. By these measures, the North Mound sub-mound collection would appear to have been deposited first. The Nelson Block 1 collection, however, has a higher percentage of Savannah Plain and Burnished Plain pottery and a lower percentage of Savannah Check Stamped pottery. By these measures, the Nelson Block 1 collection would appear to have been deposited first. It is possible that one or more of these pottery types is more sensitive to chronological change, and they do not vary together through time. The most dramatic shifts in Beaverdam phase to Hollywood phase pottery are found in frequencies of Savannah Plain and Burnished Plain as well as Savannah Check Stamped. If the frequencies of these types are compared among the proveniences in Table 6.5, then the Nelson Block 1 collection would appear to be older, while the North Mound sub-mound collection would appear to be slightly younger. This seems counter-intuitive, considering that the North Mound sub-mound collection likely was deposited early in the occupation of the site and sealed by mound construction, whereas the Nelson Block 1 collection likely accumulated throughout the site's occupation.

When the complicated stamped pottery found in the North and South Mound sub-mound deposits and those found in the Nelson Block 1 excavation are compared, there are some potentially significant differences (Table 6.6). The North Mound sub-mound midden complicated stamped sherds (45 total) are dominated by curvilinear designs (93.33%), with a minority of rectilinear designs (6.67%). Two of the rectilinear stamped sherds are UID, while the third is either a line block motif or the center of a filfot scroll motif. Several Savannah motifs were identified among the curvilinear designs. The South Mound sub-mound collection, althought included here, is not reliable due to its small size. This collection contained twelve complicated stamped sherds, and is more evenly split with a slightly higher occurrence of rectilinear designs (58.33%) than curvilinear designs (41.67%). The rectilinear designs included one Etowah nested diamond or a portion of a bisected herring bone, as well as six UID rectilinear sherds. The only identifiable curvilinear motif was the filfot scroll (two sherds). The Nelson Block 1 excavation recovered a large number of complicated stamped sherds, 1,135 of which were identifiable as having either curvilinear or rectilinear design. As discussed earlier, Nelson's sorting criteria may have varied from my own, so direct comparison of these percentages may be unreliable. His tabulations reveal a lower occurrence of curvilinear stamped designs (55.42%) relative to rectilinear designs (44.58%) than was found in the North Mound sub-mound collection. Nelson identified the filfot scroll motif among the curvilinear designs, and the Etowah series nested diamond and Pisgah series ladder motif among the rectilinear designs. King and Stephenson recently confirmed the filfot motif and Etowah nested diamonds reported by Nelson, but found no sherds bearing what they would identify as a Pisgah ladder motif (Keith

Stephenson, personal communication 2008). As discussed earlier, Nelson's sorting criteria may have varied from my own, so comparison of these percentages may be unreliable.

If the expected decline in complicated stamped rectilinear designs combined with a rise in curvilinear designs is indeed an indicator of progression through the Hollywood phase, it would appear that the South Mound sub-mound collection and that recovered from the Nelson Block 1 excavation represent slightly earlier use of the site than the activities that created the North Mound sub-mound deposit. The South Mound and Nelson Block 1 collections each have a relatively high occurrence of rectilinear designs and the confirmed presence of Etowah series motifs. The North Mound sub-mound collection of complicated stamped sherds is composed of nearly all curvilinear designs, and no definitive rectilinear motifs could be identified. I would argue, however, that the South Mound sub-mound collection should be dropped from the comparison due to its small size. Regarding the seemingly earlier deposition of the Nelson Block 1 collection than the North Mound sub-mound collection, I would again argue that this is illogical. The Nelson Block 1 collection was likely the result of deposition over a longer period of time throughout Lawton's occupation.

The rim modes from the North Mound sub-mound collection include rounded rims (40.74%), squared rims (48.15%), check stamped rims (3.7%), cord marked rims (3.7%), and rolled rims (3.7%) (Table 6.7). This collection included only 27 rims, a number that may be too small for accurate assessment of chronologically-sensitive attributes, if they exist. Unfortunately, the North Mound sub-mound midden collection is the only one in this study for which I currently have rim data, so intra-site comparison of rims from different contexts is not possible at this time.

A summary of these intra-site comparisons of the sub-mound and Nelson Block 1 pottery collections reveals both weaknesses and strengths in chronology building at the Lawton site. First, there is potential bias in sample size. As previously stated, the South Mound sub-mound collection of sherds is relatively small and its usefulness is questionable. Second, these collections were analyzed by different people. I believe that Stephenson and King, and those they trained, used sorting criteria similar to mine, but there is no guarantee that they are fully comparable. Nelson may have identified complicated stamped designs (curvilinear versus rectilinear) and motifs in a manner not consistent with my own identifications. Third, there are inconsistent trends in the frequencies of the four Hollywood phase pottery types among the collections. It may be that frequencies of some pottery types or combinations of types are more chronologically sensitive than others, but these four do not vary together in the same fashion. As for strengths, there does seem to be significant variation in the frequencies of rectilinear versus curvilinear complicated stamping among the collections. This should indicate relative age of deposition, with greater frequency of rectilinear stamping representing an earlier deposit. The results of this comparison, however, run contrary to expectations. It seems highly unlikely that the Nelson Block 1 collection, located in the presumed village area and likely accumulating over a longer period of time, would have been deposited earlier than the collection of sherds found under the North Mound. The only scenario in which this would make sense is if the village predated mound construction and was then abandoned prior to deposition of the sub-mound midden and construction of the North Mound. Even this scenario is highly improbable. Individual complicated stamped motifs would likely be more sensitive than general comparison of rectilinear versus curvilinear stamp frequencies. Unfortunately, the number of identified motifs is few, which would bias any comparison of motif frequencies. No comparison of rim modes for intra-site chronology building at Lawton is possible at this time.

Spring Lake

Three pottery collections from Spring Lake stand out as appropriate for use in chronology building for the site; that from the sub-mound midden and the village midden collections from XU A and XU B. I am most confident of the sub-mound midden collection; it is stratigraphically secure and did not accumulate over the entire occupation span of the site. The midden deposits from XU A and XU B may also be useful, but the activities that led to their creation probably occurred over a longer span of time.

Applying the first test used above for Lawton intra-site chronologies, it is clear that the Spring Lake collections do vary in frequencies of critical Hollywood phase types; Savannah Plain and Burnished Plain, Savannah Check Stamped, complicated stamped, and cob marked (Table 6.8). Just as in the Lawton collections, however, the relative frequencies of these types do not increase or decrease in a consistent fashion or according to expectations derived from comparison of the Beaverdam and Hollywood phases. To reiterate, I would expect the following shifts in percentages of types through time: a decrease in Savannah Plain and Burnished Plain, an increase in Savannah Check Stamped, an increase in complicated stamped, and a decrease in cob marked. Using these expectations, the sub-mound collection appears to be older than the XU A village collection when measured by percentage of Savannah Check Stamped and cob marked, but younger when measured by Savannah Plain and Burnished Plain and complicated stamped. A similar comparison of the sub-mound collection to the XU B village collection again reveals inconsistency; the sub-mound collection appears older than the village collection when measured by complicated stamped and cob marked, but younger when measured by Savannah Plain and

Burnished Plain and Savannah Check Stamped. A final comparison of the XU A village collection to the XU B village collection is also disappointing. According to expected shifts in type percentages, the XU A collection appears older than the XU B collection when measured by Savannah Plain and Burnished Plain and complicated stamped, but younger when measured by Savannah Check Stamped and cob marked. These results seem to indicate the measure of these four types together is ineffective for intra-site chronology building at the sub-phase level at Spring Lake. Comparison of only Savannah Plain and Burnished Plain and Savannah Check Stamped, types which exhibit the greatest shifts in frequency between the Beaverdam and Hollywood phases, does not reveal a clear pattern either. This may be due to the fact that Savannah Plain and Burnished Plain frequencies are so similar between the sub-mound and XU B collections, and that Savannah Check Stamped frequencies are extremely similar among the three collections.

The complicated stamped sherd counts from the three contexts at Spring Lake are presented in Table 6.9. The sub-mound midden contained the highest number of complicated stamped sherds at 148. This collection was dominated by curvilinear designs (84.46%), but also contained some rectilinear design sherds (15.54%). The curvilinear designs included known Savannah motifs, and the rectilinear designs include Etowah nested diamonds and/or bisected herring bone motifs. It may be of interest that the Spring Lake sub-mound midden is the only context from the present study that yielded definitive concentric circle (bulls eye) motifs, though the chronological implications of this are unclear. The XU A midden collection of complicated stamped sherds includes only curvilinear designs, none of which were identifiable to motif. This collection of complicated stamped sherds is relatively small (thirteen sherds), however, and may not be useful for comparison. The XU B midden complicated stamped sherds (sixty-eight total) are almost all curvilinear (98.53%), with only one rectilinear design (1.47%). The curvilinear designs include known Savannah motifs, and the single rectilinear design sherd is UID. These counts and frequencies, particularly the higher incidence of rectilinear designs and the presence of Etowah motifs in the sub-mound midden, contrasted with the near absence of rectilinear designs in the village middens, seem to indicate that the sub-mound deposit pre-dates the deposition of the XU A and XU B village middens. This is logical given that the village deposits likely accumulated over a greater span of time than the sub-mound midden.

A comparison of the rims from the Spring Lake sub-mound midden and the village middens from XU A and XU B reveals general consistency in the modes present and their frequencies (Table 6.10). In all three cases, plain rims with rounded lips and plain rims with squared lips are the dominant modes present. These two rim modes occur in fairly similar frequencies in each of the three collections. Rolled rims and check stamped rims are present in the Spring Lake collections, but these occur in low frequencies. The rim collections from these three contexts are relatively large, so they should be reliable indicators of variety in rim treatments at Spring Lake. Analysis of these collections reveals no apparent chronologically-sensitive rim modes to differentiate individual contexts at the Spring Lake site.

To summarize, a comparison of these three pottery collections at Spring Lake produces mixed results. I excavated and analyzed all three collections, so there should be no bias introduced by sorting of types and modes. As with the Lawton collections, the four Hollywood phase pottery types used to identify chronological trends from the Beaverdam phase to the Hollywood phase do not vary together in a consistent fashion or in the expected directions. A comparison of rectilinear versus curvilinear complicated stamping among the three collections is promising as an intra-site chronological indicator; the sub-mound midden appears to have been deposited first according to this measure. Comparison of complicated stamped motifs is preferable, and likely more chronologically sensitive, but not enough sherds bore identifiable motifs for adequate comparison. It is noteworthy, however, that the only Etowah motifs found were in the sub-mound midden. Comparison of rim modes among these three collections reveals no significant variation.

Red Lake

The most stratigraphically secure pottery collections from Red Lake that are potentially useful for intra-site chronology building include the three sub-mound middens and the village midden collection recovered from SCIAA Test Unit 3. Of these four collections, the sub-mound middens stand out as the most reliable; they contain relatively large numbers of sherds, including complicated stamped types, and are stratigraphically sealed beneath the mounds. The village midden may have accumulated over a greater span of time.

Once again, comparison of the relative frequencies of the four identified Hollywood phase types (Savannah Plain and Burnished Plain, Savannah Check Stamped, complicated stamped, and cob marked) from these contexts do not show any consistent trends (Table 6.11). Based on the Beaverdam phase to Hollywood phase shifts in percentages of these types through time, I would expect a decrease in Savannah Plain and Burnished Plain, an increase in Savannah Check Stamped, an increase in complicated stamped, and a decrease in cob marked. When the relative percentages of these types are compared among the proveniences at Red Lake, it becomes apparent that they do not consistently vary together as a group of surface treatments. They do vary together in two cases: the Mound A sub-mound collection appears older than the Mound C sub-mound collection when measured against all four types, and the SCIAA Test Unit 3 collection appears older than the Mound C sub-mound collection when measured by the same four types. In the former case, the percentages of the types compared vary only minimally, and I would argue that the results may not be significant. In the latter case, the differences of type percentages are greater, and they may possibly reflect relative order of deposition. As with previous discussions of sub-mound versus village midden collections, however, I would argue that village collections likely accumulated over time, and are not as reliable chronological indicators as sub-mound collections. It is also counter-intuitive that such an accumulated collection from the village would predate a sub-mound deposit, unless Mound C was a late addition in the architectural history of the site. These two cases where the four Hollywood phase types co-vary in a consistent fashion do not argue strongly for this measure as a reliable indicator of relative deposition. This conclusion is further reinforced by the fact that the other four comparisons of collections among the proveniences do not reflect this same pattern of expected shifts in types through time.

Savannah Plain and Burnished Plain and Savannah Check Stamped frequencies do vary inversely together, as expected in the Beaverdam phase to Hollywood phase trends. If these are true indicators of relative deposition, then the SCIAA Test Unit 3 collection was deposited first, followed by those from the Mound A sub-mound midden, the Mound C sub-mound midden, and the Mound B sub-mound midden. Again, the fact that the village collection appears oldest is troublesome, given the likelihood that it accumulated over a greater span of time than those found under the mounds, which were sealed and thus not mixed with pottery from the site's later occupation.

There is variation in the relative frequencies of complicated stamped designs among the four collections (Table 6.12). The Mound A sub-mound midden contained 111 complicated stamped sherds; a greater percentage of these were curvilinear designs (56.76%), but a relatively high percentage were rectilinear (43.24%). Several Savannah Complicated Stamped motifs were identified among the curvilinear stamped sherds, and Etowah nested diamonds were present in the collection of rectilinear designs. The Mound B sub-mound midden collection of complicated stamped sherds (43 total) was dominated by curvilinear designs (88.37%), though there was a noticeable presence of rectilinear designs (11.63%). The curvilinear designs included Savannah motifs, and all of the rectilinear designs were UID. The Mound C sub-mound midden contained 28 complicated stamped sherds, 96.43% of which were curvilinear, and one sherd (3.57%) that was of rectilinear design. No identifiable motifs were recorded for this collection. The final collection considered here is from the SCIAA Test Unit 3 village midden. This collection contained only 10 complicated stamped sherds. Seven of these were identifiable as curvilinear motifs; the other three were UID complicated stamped. The curvilinear sherds included one filfot motif. The relative frequencies of rectilinear versus curvilinear complicated stamped designs, and the presence of identifiable motifs, suggest that the Mound A sub-mound midden was deposited first, followed by the Mound B sub-mound midden, then the SCIAA Test Unit 3 village midden, and lastly, the Mound C sub-mound midden. The SCIAA Test Unit 3 collection and the Mound C sub-mound collection of complicated stamped sherds are relatively small, however, so comparisons involving them are less reliable.

I have analyzed the rims from the Mound A and Mound B sub-mound midden collections (Table 6.13). The Mound C and Test Unit 3 village midden rims excavated by SCIAA have not been analyzed. Just as with Lawton and Spring Lake, plain rims with rounded lips and plain rims with squared lips dominate the rim modes from these contexts. Plain rims with rounded lips represent 33.33% of the Mound A sub-mound midden rim collection and 30% of that from the Mound B sub-mound midden. Plain rims with squared lips comprise 49.23% of the Mound A sub-mound midden rim collection, and 57.5% of that from Mound B. Check Stamped rims are present in relatively high percentages in these collections (12.31% for Mound A, 11.25% from Mound B). This may be a result of large sample sizes and an abundance of check stamping in general. Other rim treatments that occur in low frequencies include rolled rims; incised lips; thickened, flattened, notched rims; and folded, squared with node. Unfortunately, these rim collections are not large enough to provide statistically significant numbers of minority rim modes. No clear trends in rim modes are present in these two collections to indicate deposition at different times in the site's history.

A summary of these intra-site comparisons reveals mixed results. There are some potential biases in identification of pottery types and modes, considering that I analyzed the Mound A and Mound B collections, while SCIAA archaeologists analyzed those from Mound C and Test Unit 3 in the proposed village area. As shown above, the four Hollywood phase pottery types do not co-vary consistently to reveal chronological trends among the collections. Savannah Plain and Burnished Plain and Savannah Check Stamped do vary inversely together, however, and may indicate relative order of deposition. Complicated stamping may be the most indicative chronological measure applied to these collections, although the Mound C and SCIAA Test Unit 3 collections of complicated stamped sherds are likely too small to be reliable. Frequencies of curvilinear versus rectilinear complicated stamping do vary among the collections, also possibly indicating relative order of deposition. Individual stamp motifs are likely more sensitive chronological markers, but relatively few motifs were identifiable among the collections. No apparent chronological markers were identified among the rim modes present in the collections.

Inter-Site Chronologies

As illustrated above, it is difficult to identify chronologically-sensitive pottery attributes and trends that allow for division of the Hollywood phase into smaller intervals and relative dating of individual collections from each site. It may be the case that no pottery attributes exist that would exhibit this sensitivity. It is also possible that Lawton, Spring Lake, and Red Lake were simply not occupied long enough for changes in pottery to occur. While no consistent patterns in the frequencies of Hollywood phase pottery types has been identified, there do seem to be trends present in the frequencies of complicated stamped designs and motifs in these collections.

A comparison of the complicated stamped design frequencies from individual proveniences reveals some interesting results with possible inter-site chronological implications (Table 6.14). To reiterate, the assumption here is that the frequency of rectilinear complicated stamped sherds should decrease over time during the Hollywood phase, while the frequency of curvilinear complicated stamping should increase. When the proveniences are sorted in descending order by percent of rectilinear designs present in the identifiable complicated stamped category, several trends emerge. First, the order in which the collections are sorted indicates that the Lawton site was established first, followed by Red Lake, then Spring Lake. Second, no site's proveniences cluster together, indicating that the sites' histories overlap. Third, some proveniences pair well according to their frequencies of rectilinear sherds (Lawton Nelson Block 1 and Red Lake Mound A sub-mound midden; Spring Lake sub-mound midden and Red Lake Mound B Sub-sub-mound midden; Lawton North Mound sub-mound midden and Red Lake Mound C sub-mound midden). This could indicate contemporaneity of deposition. Lastly, the presence of Etowah motifs coincides with the first four proveniences listed, which tends to support the presence of both Etowah motifs and higher frequencies of rectilinear designs as being chronologically sensitive markers. It is of course possible that the likelihood of identifying Etowah motifs increases with larger collections of rectilinear stamped sherds.

Some caution should be exercised when evaluating these results. The Lawton South Mound sub-mound midden collection, the Spring Lake XU A village midden collection, and the Red Lake SCIAA Test Unit 3 village midden collection all contain too few complicated stamped sherds to be reliable for comparison. These should likely be ignored. The Lawton Nelson Block 1 collection of sherds may have been sorted using criteria different from my own, and likely accumulated over a greater period of time. Likewise, the Spring Lake village midden collections and the Red Lake village midden collection likely accumulated over the span of those sites' occupations. The most reliable collections for comparison are the sub-mound midden collections. They have the most stratigraphic integrity, being sealed by later mound strata. Also, with the exception of the Red Lake Mound C sub-mound midden collection, these collections of sherds were sorted by me, which should lend comparable results.

A comparison of only the sub-mound midden collections reveals slightly different results (Table 6.15). These collections have the most stratigraphic integrity; being covered by subsequent mound construction, they were not mixed with later pottery. If we may assume that these middens were deposited shortly before their respective mounds were constructed, then they should indicate the relative order of initial mound construction at the three sites. Applying the above assumptions regarding frequency shifts in rectilinear and curvilinear designs, the sub-mound middens appear to have been deposited in the following order: Lawton South Mound, Red Lake Mound A, Spring Lake Mound, Red Lake Mound B, Lawton North Mound, Red Lake Mound C. Again, the Lawton South Mound sub-mound midden collection of identifiable complicated stamped sherds (12 total) is too small to be reliable, and should not be included. This may also be true of the Red Lake Mound C collection, which contained only 28 identifiable complicated stamped sherds.

It may also be useful to examine the sites' combined collections according to the measures applied to the individual proveniences. By lumping together the counts and frequencies of pottery types from all of the contexts considered in this study, there may be some overall trends that indicate contemporaneity or lack thereof. As an exercise, I will apply the expected trends used above for frequencies of Hollywood phase pottery types (Savannah Plain and Burnished Plain, Savannah Check Stamped, complicated stamped, and cob marked) to the collective assemblages for Lawton, Spring Lake, and Red Lake.

Once again, this measure appears to be faulty (Table 6.16). The types do not vary consistently among the three sites as expected. Using the criteria of decreasing Savannah Plain and Burnished Plain and increasing Savannah Check Stamped, it would appear that Lawton was established first, followed by Spring Lake, then Red Lake. When comparing frequency of complicated stamped and cob marked types, however, this chronological ordering of sites is not replicated. Again, it is possible that only some changes in type frequencies between the Beaverdam phase and Hollywood phase continue throughout the latter phase. As a result, some types may change during the Hollywood phase in the predicted directions while others do not. Additionally, some types may be more sensitive chronological markers than others.

There is some indication of chronological trends in the frequencies of complicated stamped designs and motifs among the sites (Tables 6.17 through 6.19). Over time, I would expect there to be a decrease in the frequency of rectilinear designs accompanied by an increase in the frequency of curvilinear designs. Among particular motifs, I would expect there to be a decrease in the occurrence of Etowah motifs over time and an increase in Savannah motifs as the Hollywood phase progressed. These appear to be the most reliable sub-phase chronological indicators identified in the present study. Of the two measures, comparison of complicated stamped motif frequencies is likely the most chronologically sensitive; unfortunately, the number of sherds with identifiable motifs in these collections is relatively low. If the trend of decrease in rectilinear stamping and increase in curvilinear stamping is accurate, then the Lawton site appears to have been established first, followed by Red Lake, then Spring Lake. If the trend of decrease in Etowah motif frequencies over time is accurate, then the Red Lake site appears to have been established first, followed by Spring Lake, then Lawton.

I believe the first measure, frequency of rectilinear versus curvilinear designs, may hold more weight in present arguments of relative chronology. Frequency of identifiable Etowah motifs might actually be a more sensitive chronological indicator, but I believe equally detailed studies of all pottery collections from these sites are necessary to determine the suite of complicated stamped motifs present and in what frequencies they occur. This is especially relevant when considering that Etowah motifs have been found at all three sites, and that the total number of identifiable Etowah motif sherds is only 24 (five from Lawton, two from Spring Lake, and 17 from Red Lake).

A comparison of the rim modes from each site reveals more similarities than differences (Table 6.20). The two dominant rim modes present at all three sites are rounded rims and squared rims, and they occur in comparable frequencies. Check stamped rims and rolled rims are the two minority modes that all three sites share. Check stamped rims form a considerably larger minority percentage of the rim collection from Red Lake, but it is not clear whether this difference holds any weight in discussions of chronology. Other minority rim modes recorded include one cord marked rim found at Lawton, and three types found only in the Red Lake collections examined: one incised rim; four thickened, flattened, and notched rims; and one folded, squared rim with a node attached. Given the modes identified at each site, it appears that the Red Lake rim collections exhibit slightly more variety than those from Lawton and Spring Lake. In terms of inter-site chronological comparisons, it does not appear that any chronologically-sensitive rim modes are available to differentiate the occupation of the sites.

6.4 Pottery Chronology Conclusions

According to the evidence provided here, I make four tentative conclusions regarding Lawton, Spring Lake and Red Lake. First, the sites' pottery collections may be characterized as belonging to the Hollywood phase of the Savannah ceramic complex. Second, comparison of pottery type frequencies, especially complicated stamped designs and motifs, indicates that the sites were established at different times, and possibly in the following order: Lawton, Red Lake, Spring Lake. Third, each site grew over time, and this growth is reflected in variation among pottery collections from different contexts. Fourth, and most importantly, the sites' occupations overlapped, at least for part of their histories.

6.5 Absolute Dates

Several absolute dates have been obtained for the Lawton, Spring Lake, Red Lake, and Hollywood sites from samples submitted by myself and SCIAA archaeologists Adam King and Keith Stephenson. These include 23 radiocarbon dates and three thermoluminescence dates (Tables 6.21, 6.22). Most of the radiocarbon dates were taken from samples of charcoal or soot from potsherds. Two dates are from freshwater mussel shell. Twenty of the radiocarbon dates were determined by accelerator mass spectrometry, while the remaining three were determined using the liquid scintillation method. All carbon dates were calibrated and plotted using OxCal v3.10 software (Figures 6.4-6.27). The three thermoluminescence (TL) dates were generated from samples of daub from Lawton.

Although these dates are useful for chronological placement of the four sites within the greater prehistoric time scale of the Savannah River valley, there are some limitations to the usefulness of absolute dates and potential sources of error that must be addressed. First, radiocarbon and thermoluminescence dates are not especially useful for constructing fine-grained chronologies. They each provide likely ages for given samples, but these are estimates within a standard deviation. The result is a range of dates which likely encompass the year of the actual event (i.e., the death of the organism that is being dated, or in the case of TL, the date when clay was fired). The age range obtained from a single late prehistoric sample can vary from tens of years to over 100 years. Since Lawton, Spring Lake, Red Lake, and Hollywood are all presumed to be occupied within a 100 year time span (A.D. 1250-1350, the Hollywood phase), it is unlikely that absolute dates from these sites would not overlap.

It is also important to consider sampling procedures in the field. Each of the samples collected during my fieldwork was wrapped in aluminum foil as quickly as possible after removal from the ground to minimize contamination from modern carbon sources. The samples remained tightly wrapped in foil until they were processed by the UGA Center for Applied Isotope Studies (CAIS). SCIAA archaeologists have similar techniques for collection of their samples, so field methodology should not introduce significant bias or error among the samples taken.

Processing and analysis of the samples, however, may be problematic. In this study, samples were submitted to two different laboratories; the above mentioned UGA CAIS and Beta

Analytic, Inc. Although their procedures are very similar, preparation of the samples by different lab technicians at the two facilities may introduce some error in the results.

A seemingly unavoidable outcome of running a series of radiocarbon samples is the generation of outliers in the reported results. These can usually be attributed to contamination of the sample, whether by poor collection, storage, and processing methods, contamination of the sample in situ from carbon deposits of differing ages, or similar causes that would contribute to the sample in question being compromised. Outliers may also be the result of bad sample selection; for instance, a recent feature may be misinterpreted in the field and the resulting date does not correspond to the expected prehistoric range. The material itself from which the date is generated can also be problematic; freshwater mussel shells, for instance, are known to absorb old carbon from stream deposits, thus yielding a date older than expected from their true age. Several carbon dates from the current study are not included for the above reasons, as they noticeably fall outside of the expected ranges for the Hollywood phase. Lawton02 (Beta-131100) likely was a modern tree root, which explains its recent date. RedLake02 (Beta-144168) and RedLake03 (Beta-144169), both samples obtained from freshwater mussel shell, gave older dates than expected, likely due to the absorption of old carbon from the water in which they lived. Lawton08 (UGA-R01263), RedLake04 (UGA-R01264), RedLake07 (UGA-R01653) and RedLake08 (UGA-R01653-b repeat) each yielded dates much older than expected, likely due to contamination of the samples or insufficient material to yield a reliable date.

Another difficulty involved in interpretation of these dates is the fact that the radiocarbon ages (aside from Hollywood02 / Beta-144165) have multiple intercepts along the calibration curve. This results in double ranges for many dates at the 68.2% confidence interval and most dates at the 95% confidence interval. For the most part, the earlier of these two ranges has the higher probability of being correct, so the earlier of the two may be the appropriate range to use when assigning calendar age ranges to each sample.

Once the outliers were removed from consideration, the remaining dates were further scrutinized to determine whether they were reliable chronological indicators for each site. To glean as much information from these dates as possible, I used two common procedures employed when multiple dates are available from individual sites. First, all individual dates are presented to indicate the age ranges determined for each site. When viewed with their accompanying provenience information, these dates may be useful for determining intra-site chronologies related to establishment, growth, and abandonment of the sites. Second, dates from each site were combined to provide likely average age ranges for each site's occupation. This was accomplished in two different ways: 1) using the RCombine function present in the OxCal v3.10 software, which combines the radiocarbon dates before calibration and subjects them to a chi squared test to check consistency of the dates, and 2) using the Combine function present in OxCal v3.10, which combines the probability distributions of the radiocarbon dates after they have been calibrated and then calculates how well the combined distribution agrees with the individual distributions. Those executed RCombine functions that failed the chi square tests are indicated by the phrase "X-Test fails at 5%," meaning that the combination of the dates failed with less than 5% chance of this being a good combination. Those executed Combine functions that failed the agreement test of probability distributions had an agreement value of 60% or less. All combinations are presented whether or not they passed the chi squared or agreement tests, since I believe the individual dates fall within the reasonable range of dates expected for the Hollywood phase.

Absolute Date Results

Lawton

Seven samples from the Lawton site yielded acceptable radiocarbon dates (Table 6.23, Figure 6.28). There is considerable overlap of the resulting calendrical date ranges, and each falls within or significantly overlaps the date range proposed for Hollywood phase sites. The earliest date was obtained from a sooted sherd in the North Mound sub-mound midden (Lawton06 / UGA-R01262), whose date range at the 1-sigma interval is A.D. 1225-1290. None of the dates at the 1- or 2-sigma intervals extends beyond A.D. 1410. The OxCal RCombine of the acceptable Lawton samples likewise results in combined date ranges that fall well within the expected Hollywood phase, both at the 1- and 2-sigma intervals (Table 6.24, Figure 6.29). The OxCal Combine of the acceptable Lawton samples results are nearly identical to the RCombine results, and also fall within the Hollywood phase (Table 6.25, Figure 6.30).

Two of the three thermoluminescence dates reported for Lawton fall well within the expected range for the Hollywood phase (LawtonTL01, LawtonTL03). LawtonTL02, however, returned a date much later than expected, and may represent a later, second burning of the palisade due to natural causes such as forest fire (Keith Stephenson, personal communication 2007).

Spring Lake

Four samples from Spring Lake yielded acceptable radiocarbon dates (Table 6.26, Figure 6.31). SpringLake02 (UGA-01572) is slightly suspicious in that it does fall within the later end of the expected age range for Hollywood phase, but does not agree well with the other two Spring Lake dates that came from the same sub-mound midden (and which agree almost exactly with each other). The earliest date at the 1-sigma interval was obtained from SpringLake03;

A.D. 1250-1300. None of the samples' date ranges extends beyond A.D. 1430. The OxCal RCombine (Table 6.27, Figure 6.32) and Combine (Table 6.28, Figure 6.33) results for the four dates are identical and fall well within the expected date ranges for the Hollywood phase.

Red Lake

Three samples from Red Lake yielded acceptable radiocarbon dates (Table 6.29, Figure 6.34). Each of these was recovered from Mound A; RedLake01 from a mound flank context and RedLake05 and 06 from the sub-mound midden. The earliest date range at the 1-sigma interval was obtained from RedLake01 at A.D. 1265-1290. None of the date ranges at the 1- or 2-sigma intervals extend later than A.D. 1410. The OxCal RCombine (Table 6.30, Figure 6.35) and Combine (Table 6.31, Figure 6.36) functions provide nearly identical results with these three dates, all of which fall within reasonable expectations for the Hollywood phase.

Hollywood

Three radiocarbon dates have been obtained from Mound A samples at the Hollywood site (Table 6.32, Figure 6.37). The Hollywood02 sample yielded the earliest date range at the 1-sigma interval- A.D. 1220-1275. None of the date ranges at the 1- or 2-sigma intervals extend beyond A.D. 1440. The OxCal RCombine (Table 6.33, Figure 6.38) and Combine (Table 6.34, Figure 6.39) functions returned identical date ranges for these three samples, and all of the dates reported overlap well with those expected for the Hollywood phase.

6.6 Absolute Dates Conclusions

The most striking aspect of the radiocarbon dates obtained from Lawton, Spring Lake, Red Lake, and Hollywood are their consistency. Although there is slight variation among individual sample dates, and a few samples stand out as slightly earlier or later, there is considerable overlap of dates from the four sites (Figure 6.40). This is further reinforced when the RCombine dates from each of the sites is compared; they are virtually indistinguishable (Table 6.35, Figure 6.41).

When the 1-sigma, probability-favored calendrical date ranges of the individual samples are compared, and the medians of these ranges are calculated, Lawton dates range from A.D. 1257.5-1370, Spring Lake dates range from A.D. 1275-1335, Red Lake dates range from A.D. 1277.5-1370, and Hollywood dates range from A.D. 1247.5-1335 (Table 6.36). It is tempting to point out that, by this method, Hollywood has the earliest date of occupation, followed by Lawton, Spring Lake, and Red Lake. Also by this method, Hollywood and Spring Lake have the earliest "ending" dates, while Lawton and Red Lake have the latest.

I argue that the implications of these results are tenuous at best and may be misleading. In order to identify true trends in absolute dates among the sites, more samples are necessary, and the contexts from which those samples are gathered must be more varied. According to the results of absolute dating at the sites, the only defendable conclusions at this time are as follows. First, the sites were occupied during the Hollywood phase. Second, no site's absolute dates stand out as significantly earlier or later than any of the others. Third, the sites' occupations likely overlapped, at least for part of their histories.

Table 6.1 Hollywood Mound A Trench Pottery (DeBaillou)

All Pottery	**Count**	**Percent**
Savannah Checked	2212	41.11
Plain	2053	38.15
Savannah Complicated Stamped	749	13.92
Roughened	193	3.59
Fabric Impressed	66	1.23
Reed Decorated	55	1.02
Cordmarked	21	0.39
Scratched Line	8	0.15
Lineblock	7	0.13
Etowah	6	0.11
Fingernail	5	0.09
Simple Stamped	4	0.07
Linear Checked	2	0.04
Totals	5381	100.00

Table 6.2 Hollywood Mound A Trench Pottery (Hally)

All Pottery	**Count**	**Percent**
Savannah Plain	28	5.32
Savannah Burnished Plain	82	15.59
Savannah Check Stamped	244	46.39
Complicated Stamped	95	18.06
Cob Marked	3	0.57
UID Stamped	28	5.32
UID	46	8.75
Totals	526	100.00

Identifiable Pottery	**Count**	**Percent**
Savannah Plain	28	6.19
Savannah Burnished Plain	82	18.14
Savannah Check Stamped	244	53.98
Complicated Stamped	95	21.02
Cob Marked	3	0.66
Totals	452	100.00

Table 6.3 Beaverdam Phase and Hollywood Phase Pottery Type Frequencies

	Beaverdam Phase	Hollywood Phase
Identifiable Pottery	**Percent**	**Percent**
Savannah Plain & Burnished Plain	78	38
Savannah Check Stamped	8	41
Savannah Complicated Stamped	~1	14
Etowah Complicated Stamped	~1	<1
Cob Marked	3	<1

Table 6.4 Expected Trends in Pottery Types and Modes through Time

Pottery Type or Mode	Expected Trend
Savannah Plain & Burnished Plain	Decrease
Savannah Check Stamped	Increase
Identifiable Complicated Stamped	Increase
Rectilinear Complicated Stamped	Decrease
Etowah Complicated Stamped	Decrease
Curvilinear Complicated Stamped	Increase
Savannah Complicated Stamped	Increase
Cob Marked	Decrease
Cane Punctations and Punctated Nodes	Increase

Table 6.5 Lawton Site Hollywood Phase Pottery Types

	Expected Trend	North Mound Sub-Mound	South Mound Sub-Mound	Nelson Block 1
Hollywood Phase Type		**Percent**	**Percent**	**Percent**
Savannah Plain & Burnished Plain	Decrease	43.90	25.00	60.72
Savannah Check Stamped	Increase	28.78	12.50	23.00
Complicated Stamped	Increase	13.08	50.00	13.45
Savannah Cob Marked	Decrease	2.33	8.33	1.22
Total Identifiable Sherds from Context		345	24	11399

Table 6.6 Lawton Site Complicated Stamped Types

Provenience	**Stamp Type**	**Count**	**Percent**
North Mound Sub-Mound Midden	Curvilinear Designs	43	95.56
	Rectilinear Designs	2	4.44
	Total	45	100.00
	Motif		
	Savannah Filfot Cross	2	4.44
	Savannah Filfot Scroll or Line Block center	1	2.22
	Savannah Figure 8, Figure 9, or Filfot Scroll	1	2.22
	Savannah Figure 8, Figure 9, Filfot Cross, or Filfot Scroll	1	2.22
	Savannah Cross & Circle with Curves	4	8.89
	Savannah Concentric Circles & Curves	25	55.56
	UID Curvilinear	9	20.00
	UID Rectilinear	2	4.44

Provenience	**Stamp Type**	**Count**	**Percent**
South Mound Sub-Mound Deposit	Curvilinear Designs	5	41.67
	Rectilinear Designs	7	58.33
	Total	12	100.00
	Motif		
	Savannah Filfot Scroll	2	16.67
	Savannah Concentric Circles & Curves	2	16.67
	UID Curvilinear	1	8.33
	Etowah Nested Diamonds or Herring Bone, Bisected	1	8.33
	UID Rectilinear	6	50.00

Provenience	**Stamp Type**	**Count**	**Percent**
Nelson Block 1	Curvilinear	629	55.42
	Rectilinear	506	44.58
	Total	1135	100.00
	Motif		
	Savannah Filfot Scroll	3	0.26
	UID Curvilinear	626	55.15
	Etowah Nested Diamonds	4	0.35
	Pisgah Ladder	1	0.09
	UID Rectilinear	501	44.14

Table 6.7 Lawton Site Rims

Provenience	Rim Mode	Count	Percent
North Mound Sub-Mound Midden	Rounded	11	40.74
	Squared	13	48.15
	Check Stamped	1	3.70
	Cord Marked	1	3.70
	Rolled	1	3.70
	Total	27	100.00

Table 6.8 Spring Lake Site Hollywood Phase Pottery Types

	Expected Trend	Sub-Mound	XU A Village	XU B Village
Hollywood Phase Type		**Percent**	**Percent**	**Percent**
Savannah Plain & Burnished Plain	Decrease	52.27	62.74	52.75
Savannah Check Stamped	Increase	32.94	33.96	29.54
Complicated Stamped	Increase	5.89	1.87	9.56
Savannah Cob Marked	Decrease	8.23	0.58	7.03
Total Identifiable Sherds from Context		2514	695	711

Table 6.9 Spring Lake Site Complicated Stamp Types

Provenience	Stamp Type	Count	Percent
Mound Sub-Mound Midden	Curvilinear Designs	125	84.46
	Rectilinear Designs	23	15.54
	Total	148	100.00
	Motif		
	Savannah Concentric Circle- bulls eye	2	1.35
	Savannah Concentric Circle- hollow center	1	0.68
	Savannah Concentric Circle- bulls eye or hollow center	3	2.03
	Savannah Concentric Circle- 2-bar cross	1	0.68
	Savannah Figure 8, Figure 9, or Filfot Scroll	8	5.41
	Savannah Concentric Circles & Curves	83	56.08
	UID Curvilinear	27	18.24
	Etowah Nested Diamonds- 2-bar, 2-bar cross, or Herring Bone, bisected	2	1.35
	Herring Bone, bisected	6	4.05
	UID Rectilinear	15	10.14

Provenience	Stamp Type	Count	Percent
XU A Village Midden	Curvilinear Designs	13	100.00
	Rectilinear Designs		
	Total	13	100.00
	Motif		
	Savannah Concentric Circles & Curves	13	100.00

Provenience	Stamp Type	Count	Percent
XU B Village Midden	Curvilinear Designs	67	98.53
	Rectilinear Designs	1	1.47
	Total	68	100.00
	Motif		
	Savannah Figure 8	1	1.47
	Savannah Figure 8, Figure 9, or Filfot Scroll	1	1.47
	Savannah Concentric Circles & Curves	58	85.29
	UID Curvilinear	7	10.29
	UID Rectilinear	1	1.47

Table 6.10 Spring Lake Site Rims

Provenience	Rim Mode	Count	Percent
Sub-Mound Midden	Rounded	111	45.12
	Squared	130	52.85
	Rolled	3	1.22
	Total	246	100.00

Provenience	Rim Mode	Count	Percent
XU A Village Midden	Rounded	23	50.00
	Squared	21	45.65
	Check Stamped	1	2.17
	Rolled	1	2.17
	Total	46	100.00

Provenience	Rim Mode	Count	Percent
XU B Village Midden	Rounded	32	47.76
	Squared	31	46.27
	Check Stamped	1	1.49
	Rolled	3	4.48
	Total	67	100.00

Table 6.11 Red Lake Site Hollywood Phase Pottery Types

	Expected Trend	Mound A Sub-Mound	Mound B Sub-Mound	Mound C Sub-Mound	SCIAA Test Unit 3
Hollywood Phase Type		**Percent**	**Percent**	**Percent**	**Percent**
Savannah Plain & Burnished Plain	Decrease	40.92	30.25	39.62	50.83
Savannah Check Stamped	Increase	48.52	63.10	52.12	43.14
Complicated Stamped	Increase	6.39	4.69	6.60	3.34
Savannah Cob Marked	Decrease	1.66	1.20		0.67
Total Identifiable Sherds from Context		1752	916	424	299

Table 6.12 Red Lake Site Complicated Stamped Types

Provenience	**Stamp Type**	**Count**	**Percent**
Mound A Sub-Mound Midden	Curvilinear Designs	63	56.76
	Rectilinear Designs	48	43.24
	Total	111	100.00
	Motif		
	Savannah Filfot Scroll	1	0.90
	Savannah Figure 9 or Filfot Scroll	1	0.90
	Savannah Concentric Circles & Curves	44	39.64
	UID Curvilinear	16	14.41
	Etowah Nested Diamonds- 1-bar cross	13	11.71
	Etowah Nested Diamonds- 2-bar cross	4	3.60
	UID Rectilinear	30	27.03

Provenience	**Stamp Type**	**Count**	**Percent**
Mound B Sub-Mound Midden	Curvilinear Designs	38	88.37
	Rectilinear Designs	5	11.63
	Total	43	100.00
	Motif		
	Savannah Figure 8, Figure 9, or Filfot Scroll	4	9.30
	Savannah Concentric Circles & Curves	30	69.77
	UID Curvilinear	4	9.30
	UID Rectilinear	5	11.63

Provenience	**Stamp Type**	**Count**	**Percent**
Mound C Sub-Mound Midden	Curvilinear	27	96.43
	Rectilinear	1	3.57
	Total	28	100.00

Provenience	**Stamp Type**	**Count**	**Percent**
SCIAA Test Unit 3	Curvilinear	7	100.00
	Total	7	100.00
	Motif		
	Savannah Filfot Cross, or Filfot Scroll	1	14.29
	UID Curvilinear	6	85.71
	Total	7	100.00

Table 6.13 Red Lake Site Rims

Provenience	**Rim Mode**	**Count**	**Percent**
Mound A Sub-Mound Midden	Rounded	65	33.33
	Squared	96	49.23
	Check Stamped	24	12.31
	Incised	1	0.51
	Outflaring Notched	4	2.05
	Rolled	5	2.56
	Total	195	100.00

Provenience	**Rim Mode**	**Count**	**Percent**
Mound B Sub-Mound Midden	Rounded	24	30.00
	Squared	46	57.50
	Check Stamped	9	11.25
	Folded and Squared	1	1.25
	Total	80	100.00

Table 6.14 Complicated Stamped Design Frequencies from Selected Proveniences

Provenience	**Percent Curvilinear**	**Percent Rectilinear**	**Etowah Motifs**	**ID Comp Stamp Sherd Count**
Lawton South Mound Sub-Mound Midden	41.67	58.33	1	12
Lawton Nelson Block 1	55.42	44.58	4	1135
Red Lake Mound A Sub-Mound Midden	56.76	43.24	17	111
Spring Lake Sub-Mound Midden	84.46	15.54	2	148
Red Lake Mound B Sub-Mound Midden	88.37	11.63		43
Lawton North Mound Sub-Mound Midden	95.56	4.44		45
Red Lake Mound C Sub-Mound Midden	96.43	3.57		28
Spring Lake XU B Village Midden	98.53	1.47		68
Spring Lake XU A Village Midden	100			13
Red Lake SCIAA Test Unit 3 Village Midden	100			7

Table 6.15 Complicated Stamped Designs from Sub-Mound Middens

Provenience	Percent Curvilinear	Percent Rectilinear	Etowah Motifs	ID Comp Stamp Sherd Count
Lawton South Mound	41.67	58.33	1	12
Red Lake Mound A	56.76	43.24	17	111
Spring Lake Mound	84.46	15.54	2	148
Red Lake Mound B	88.37	11.63		43
Lawton North Mound	95.56	4.44		45
Red Lake Mound C	96.43	3.57		28

Table 6.16 Hollywood Phase Pottery Types from Combined Contexts

	Expected Trend	Lawton	Spring Lake	Red Lake
Hollywood Phase Type		**Percent**	**Percent**	**Percent**
Savannah Plain & Burnished Plain	Decrease	59.51	54.86	46.72
Savannah Check Stamped	Increase	22.41	31.63	46.00
Complicated Stamped	Increase	14.87	6.36	4.40
Savannah Cob Marked	Decrease	1.21	6.15	0.82
Total Identifiable Sherds from Context		14037	4322	8168

Table 6.17 Lawton Site Complicated Stamped Types from all Contexts

Provenience	Stamp Type	Count	Percent
Lawton Combined	Curvilinear Designs	677	56.80
	Rectilinear Designs	515	43.20
	Total	1192	100.00
	Motif		
	Savannah Filfot Cross	2	0.17
	Savannah Filfot Scroll	5	0.42
	Savannah Filfot Scroll central element or Line Block	1	0.08
	Savannah Figure 8, Figure 9, or Filfot Scroll	1	0.08
	Savannah Figure 8, Figure 9, Filfot Cross, or Filfot Scroll	1	0.08
	Savannah Cross & Circle with Curves	4	0.34
	Savannah Concentric Circles & Curves	27	2.27
	UID Curvilinear	636	53.36
	Etowah Nested Diamonds	4	0.34
	Etowah Nested Diamonds or Herring Bone, Bisected	1	0.08
	Pisgah Ladder	1	0.08
	UID Rectilinear	509	42.70
	Total	1192	100.00

Table 6.18 Spring Lake Site Complicated Stamped Types from all Contexts

Provenience	Stamp Type	Count	Percent
Spring Lake Combined	Curvilinear Designs	205	89.52
	Rectilinear Designs	24	10.48
	Total	229	100.00
	Motif		
	Savannah Concentric Circle- bulls eye	2	0.87
	Savannah Concentric Circle- hollow center	1	0.44
	Savannah Concentric Circle- bulls eye or hollow center	3	1.31
	Savannah Concentric Circle- 2-bar cross	1	0.44
	Savannah Figure 8	1	0.44
	Savannah Figure 8, Figure 9, or Filfot Scroll	9	3.93
	Savannah Concentric Circles & Curves	154	67.25
	UID Curvilinear	34	14.85
	Etowah Nested Diamonds- 2-bar, 2-bar cross, or Herring Bone, bisected	2	0.87
	Herring Bone, bisected	6	2.62
	UID Rectilinear	16	6.99
	Total	229	100.00

Table 6.19 Red Lake Site Complicated Stamped Types from all Contexts

Provenience	Stamp Type	Count	Percent
Red Lake Combined	Curvilinear Designs	224	78.60
	Rectilinear Designs	61	21.40
	Total	285	100.00
	Motif		
	Savannah Filfot Scroll	1	0.35
	Savannah Filfot Cross, or Filfot Scroll	2	0.70
	Savannah Figure 9 or Filfot Scroll	1	0.35
	Savannah Figure 8, Figure 9, or Filfot Scroll	4	1.40
	Savannah Concentric Circles & Curves	74	25.96
	UID Curvilinear	142	49.82
	Etowah Nested Diamonds- 1-bar cross	13	4.56
	Etowah Nested Diamonds- 2-bar cross	4	1.40
	UID Rectilinear	44	15.44
	Total	285	100.00

Table 6.20 Rims from Combined Contexts

Provenience	Rim Mode	Count	Percent
Lawton Combined	Rounded	11	40.74
	Squared	13	48.15
	Check Stamped	1	3.70
	Cord Marked	1	3.70
	Rolled	1	3.70
	Total	27	100.00

Spring Lake Combined	Rounded	166	46.50
	Squared	182	50.98
	Check Stamped	2	0.56
	Rolled	7	1.96
	Total	357	100.00

Red Lake Combined	Rounded	89	32.36
	Squared	142	51.64
	Check Stamped	33	12.00
	Incised	1	0.36
	Outflaring Notched	4	1.45
	Folded and Squared	1	0.36
	Rolled	5	1.82
	Total	275	100.00

Table 6.21 All Radiocarbon Dates

Site	Name	Sample ID	Sample Reference	Abbreviated Context & Provenience	Method	Material	Conventional Age RCY BP	13C/12C
38AL11	Lawton	Beta-131099	Lawton01	General midden, STP Prov 34 (SCIAA)	AMS	Soot	640+/-50	-25.5
38AL11	Lawton	Beta-131100	Lawton02	General midden, STP Prov 60 (SCIAA)	Radiometric	Charcoal	101.6+/-0.7 %	-27.1
38AL11	Lawton	Beta-132944	Lawton03	General midden, STP Prov 63 (SCIAA)	AMS	Soot	660+/-40	-26.4
38AL11	Lawton	Beta-145500	Lawton04	General midden, STP Prov 8 (SCIAA)	AMS	Soot	700+/-40	-25.4
38AL11	Lawton	Beta-145502	Lawton05	South Mound, Sub-mound deposit (SCIAA)	AMS	Soot	660+/-40	-24.6
38AL11	Lawton	UGA-R01261	Lawton06	North Mound, Sub-mound midden (Wood)	AMS	Soot	741+/-45	-26.12
38AL11	Lawton	UGA-R01262	Lawton07	North Mound, Sub-mound midden (Wood)	AMS	Soot	691+/-43	-26.28
38AL11	Lawton	UGA-R01263	Lawton08	North Mound, Sub-mound midden (Wood)	AMS	Soot	903+/-57	-24.74
38AL11	Lawton	UGA-R01282	Lawton09	North Mound, charred layer (Wood)	AMS	Charcoal	666+/-43	-26.84
9SN215	Spring Lake	UGA-R01571	SpringLake01	Mound, XU C1, Sub-mound midden (Wood)	AMS	Soot	707+/-40	-26.20
9SN215	Spring Lake	UGA-R01572	SpringLake02	Mound, XU C1, Sub-mound midden (Wood)	AMS	Soot	574+/-37	-26.01
9SN215	Spring Lake	UGA-R01573	SpringLake03	Mound, XU C2, Sub-mound midden (Wood)	AMS	Soot	725+/-40	-26.40
9SN215	Spring Lake	UGA-R03026	SpringLake04	Village, XU A4, Village midden (Wood)	AMS	Charcoal	580+-40	-27.03
9SN4	Red Lake	Beta-144167	RedLake01	Mound A, 1m X 2m unit (Cook)	AMS	Soot	720+/-30	-24.2
9SN4	Red Lake	Beta-144168	RedLake02	Mound A, Feature 1 (Cook)	Radiometric	Shell	1080+/-60	-10.6
9SN4	Red Lake	Beta-144169	RedLake03	Between Mounds A & B, 2m X 2m unit (Cook)	Radiometric	Shell	900+/-60	-11.2
9SN4	Red Lake	UGA-R01264	RedLake04	Mound A, XU B2, Sub-mound midden (Wood)	AMS	Soot	911+/-49	-26.05
9SN4	Red Lake	UGA-R01265	RedLake05	Mound A, XU C3, Sub-mound midden (Wood)	AMS	Soot	627+/-42	-24.69
9SN4	Red Lake	UGA-R01266	RedLake06	Mound A, XU C3, Sub-mound midden (Wood)	AMS	Soot	624+/-42	-27.40
9SN4	Red Lake	UGA-R01653	RedLake07	Mound B, XU F2, Sub-mound midden (Wood)	AMS	Soot	1033+/-60	-27.57
9SN4	Red Lake	UGA-R01653-b repeat	RedLake08	Mound B, XU F2, Sub-mound midden (Wood)	AMS	Soot	1674+/-58	-27.44
9RI1	Hollywood	Beta-134794	Hollywood01	Mound A, 980R1000	AMS	Soot	580+/-60	-23.1
9RI1	Hollywood	Beta-144165	Hollywood02	Mound A, 950R1000, 70-76"	AMS	Soot	770+/-40	-25.0
9RI1	Hollywood	Beta-145333	Hollywood03	Mound A, 980R1000	AMS	Soot	690+/-40	-25.0

Table 6.22 All Thermoluminescence Dates

Site	Name	Sample ID	Sample Reference	Abbreviated Context & Provenience	Method	Material	Age (years AD)	Calendar Date (1 sigma)
38AL11	Lawton	UW564	LawtonTL01	XU Prov 133 Level B, Collapsed palisade wall	TL	Daub	1316+/-66	AD 1250 (1316) 1382
38AL11	Lawton	UW564	LawtonTL02	XU Prov 133 Level B, Collapsed palisade wall	TL	Daub	1471+/-59	AD 1412 (1471) 1530
38AL11	Lawton	UW565	LatwonTL03	XU Prov 135 Level C, Mound summit structure wall	TL	Daub	1273+/-70	AD 1203 (1273) 1343

Table 6.23 Lawton Good Dates, Calibrated and Converted

Sample Reference	68.2% probability	95.4% probability
Lawton01 : 640±50BP	1280AD (29.3%) 1320AD	1270AD (95.4%) 1410AD
	1340AD (38.9%) 1400AD	
Lawton03 : 660±40BP	1280AD (34.3%) 1320AD	1270AD (95.4%) 1400AD
	1350AD (33.9%) 1390AD	
Lawton04 : 700±40BP	1260AD (54.0%) 1300AD	1240AD (68.9%) 1330AD
	1360AD (14.2%) 1390AD	1340AD (26.5%) 1400AD
Lawton05 : 660±40BP	1280AD (34.3%) 1320AD	1270AD (95.4%) 1400AD
	1350AD (33.9%) 1390AD	
Lawton06 : 741±45BP	1225AD (68.2%) 1290AD	1200AD (90.2%) 1310AD
		1360AD (5.2%) 1390AD
Lawton07 : 691±43BP	1270AD (46.1%) 1310AD	1250AD (61.7%) 1330AD
	1360AD (22.1%) 1390AD	1340AD (33.7%) 1400AD
Lawton09 : 666±43BP	1280AD (36.1%) 1320AD	1260AD (95.4%) 1400AD
	1350AD (32.1%) 1390AD	

Table 6.24 Lawton Good Dates, RCombine

Sample Reference	68.2% probability	95.4% probability
R_Combine: 680±16BP	1280AD (58.1%) 1300AD	1270AD (71.4%) 1310AD
X2-Test: df=6 T=3.4(5% 12.6)	1370AD (10.1%) 1380AD	1360AD (24.0%) 1390AD

Table 6.25 Lawton Good Dates, Combine

Sample Reference	**68.2% probability**	**95.4% probability**
X2-Test		
df=6 T=3.243(5% 12.592)		
Sampled Lawton01 : 640±50	1280AD (68.2%) 1300AD	1270AD (78.8%) 1300AD
Agreement 100.2%		1360AD (16.6%) 1390AD
Sampled Lawton03 : 660±40	1280AD (68.2%) 1300AD	1270AD (78.8%) 1300AD
Agreement 124.4%		1360AD (16.6%) 1390AD
Sampled Lawton04 : 700±40	1280AD (68.2%) 1300AD	1270AD (78.8%) 1300AD
Agreement 138.7%		1360AD (16.6%) 1390AD
Sampled Lawton05 : 660±40	1280AD (68.2%) 1300AD	1270AD (78.8%) 1300AD
Agreement 124.4%		1360AD (16.6%) 1390AD
Sampled Lawton06 : 741±45	1280AD (68.2%) 1300AD	1270AD (78.8%) 1300AD
Agreement 63.0%		1360AD (16.6%) 1390AD
Sampled Lawton07 : 691±43	1280AD (68.2%) 1300AD	1270AD (78.8%) 1300AD
Agreement 149.1%		1360AD (16.6%) 1390AD
Sampled Lawton09 : 666±43	1280AD (68.2%) 1300AD	1270AD (78.8%) 1300AD
Agreement 133.7%		1360AD (16.6%) 1390AD
Combine Lawton Good Dates	1280AD (68.2%) 1300AD	1270AD (78.8%) 1300AD
Agreement 145.6%		1360AD (16.6%) 1390AD

Table 6.26 Spring Lake Good Dates, Calibrated and Converted

Sample ID	68.2% probability	95.4% probability
SpringLake01 : 707±40BP	1260AD (58.6%) 1300AD	1220AD (75.1%) 1320AD
	1360AD (9.6%) 1380AD	1350AD (20.3%) 1390AD
SpringLake02 : 574±37BP	1315AD (42.9%) 1355AD	1290AD (95.4%) 1430AD
	1385AD (25.3%) 1415AD	
SpringLake03 : 725±40BP	1250AD (68.2%) 1300AD	1210AD (86.8%) 1310AD
		1360AD (8.6%) 1390AD
SpringLake04 : 580±40BP	1310AD (45.6%) 1360AD	1290AD (95.4%) 1430AD
	1385AD (22.6%) 1410AD	

Table 6.27 Spring Lake Good Dates, RCombine

Sample ID	68.2% probability	95.4% probability
R_Combine: 644±20BP	1290AD (25.5%) 1310AD	1280AD (40.1%) 1320AD
X-Test fails at 5%	1360AD (42.7%) 1390AD	1340AD (55.3%) 1400AD
df=3 T=12.7(5% 7.8)		

Table 6.28 Spring Lake Good Dates, Combine

Sample ID	68.2% probability	95.4% probability
X-Test fails at 5%		
df=3 T=11.523(5% 7.8)		
Sampled SpringLake01 : 707±40	1290AD (22.5%) 1305AD	1280AD (39.2%) 1320AD
Poor agreement 53.6%	1360AD (45.7%) 1385AD	1350AD (56.2%) 1400AD
Sampled SpringLake02 : 574±37	1290AD (22.5%) 1305AD	1280AD (39.2%) 1320AD
Poor agreement 39.8%	1360AD (45.7%) 1385AD	1350AD (56.2%) 1400AD
Sampled SpringLake03 : 725±40	1290AD (22.5%) 1305AD	1280AD (39.2%) 1320AD
Poor agreement 26.6%	1360AD (45.7%) 1385AD	1350AD (56.2%) 1400AD
Sampled SpringLake04 : 580±40	1290AD (22.5%) 1305AD	1280AD (39.2%) 1320AD
Poor agreement 52.9%	1360AD (45.7%) 1385AD	1350AD (56.2%) 1400AD
Combine Spring Lake All Dates	1290AD (22.5%) 1305AD	1280AD (39.2%) 1320AD
Poor agreement 17.3%	1360AD (45.7%) 1385AD	1350AD (56.2%) 1400AD

Table 6.29 Red Lake Good Dates, Calibrated and Converted

Sample Reference	68.2% probability	95.4% probability
RedLake01 : 720±30BP	1265AD (68.2%) 1290AD	1220AD (90.0%) 1310AD
		1360AD (5.4%) 1390AD
RedLake05 : 627±42BP	1290AD (26.2%) 1325AD	1280AD (95.4%) 1410AD
	1345AD (42.0%) 1395AD	
RedLake06 : 624±42BP	1295AD (26.0%) 1325AD	1280AD (95.4%) 1410AD
	1340AD (42.2%) 1395AD	

Table 6.30 Red Lake Good Dates, RCombine

Sample Reference	68.2% probability	95.4% probability
R_Combine: 673±21BP	1280AD (44.6%) 1300AD	1270AD (57.6%) 1310AD
X2-Test: df=2 T=5.0(5% 6.0)	1365AD (23.6%) 1380AD	1350AD (37.8%) 1390AD

Table 6.31 Red Lake Good Dates, Combine

Sample Reference	68.2% probability	95.4% probability
X2-Test		
df=2 T=4.411(5% 5.991)		
Sampled RedLake01 : 720±30	1280AD (43.9%) 1300AD	1270AD (56.6%) 1310AD
Poor agreement 38.8%	1365AD (24.3%) 1380AD	1360AD (38.8%) 1390AD
Sampled RedLake05 : 627±42	1280AD (43.9%) 1300AD	1270AD (56.6%) 1310AD
Agreement 92.8%	1365AD (24.3%) 1380AD	1360AD (38.8%) 1390AD
Sampled RedLake06 : 624±42	1280AD (43.9%) 1300AD	1270AD (56.6%) 1310AD
Agreement 88.7%	1365AD (24.3%) 1380AD	1360AD (38.8%) 1390AD
Combine Red Lake Good Dates	1280AD (43.9%) 1300AD	1270AD (56.6%) 1310AD
Agreement 51.8%	1365AD (24.3%) 1380AD	1360AD (38.8%) 1390AD

Table 6.32 Hollywood Good Dates, Calibrated and Converted

Sample Reference	**68.2% probability**	**95.4% probability**
Hollywood01 : 580±60BP	1300AD (45.6%) 1370AD	1280AD (95.4%) 1440AD
	1380AD (22.6%) 1420AD	
Hollywood02 : 770±40BP	1220AD (68.2%) 1275AD	1180AD (95.4%) 1290AD
Hollywood03 : 690±40BP	1270AD (46.6%) 1310AD	1250AD (62.1%) 1330AD
	1360AD (21.6%) 1390AD	1340AD (33.3%) 1400AD

Table 6.33 Hollywood Good Dates, RCombine

Sample Reference	**68.2% probability**	**95.4% probability**
R_Combine: 704±26BP	1270AD (68.2%) 1295AD	1260AD (84.1%) 1310AD
X2-Test fails at 5%		1360AD (11.3%) 1390AD
df=2 T=7.1(5% 6.0)		

Table 6.34 Hollywood Good Dates, Combine

Sample Reference	**68.2% probability**	**95.4% probability**
X-Test fails at 5%		
df=2 T=6.860(5% 6.0)		
Sampled Hollywood01 : 580±60	1270AD (68.2%) 1295AD	1260AD (84.8%) 1310AD
Poor agreement 29.7%		1360AD (10.6%) 1390AD
Sampled Hollywood02 : 770±40	1270AD (68.2%) 1295AD	1260AD (84.8%) 1310AD
Poor agreement 39.8%		1360AD (10.6%) 1390AD
Sampled Hollywood03 : 690±40	1270AD (68.2%) 1295AD	1260AD (84.8%) 1310AD
Agreement 135.3%		1360AD (10.6%) 1390AD
Combine Hollywood All Dates	1270AD (68.2%) 1295AD	1260AD (84.8%) 1310AD
Poor agreement 34.7%		1360AD (10.6%) 1390AD

Table 6.35 Four Sites Good Dates, RCombine

Sample ID	**68.2% probability**	**95.4% probability**
Lawton RCombine : 680±16BP	1280AD (58.0%) 1300AD	1270AD (71.3%) 1310AD
	1370AD (10.2%) 1380AD	1360AD (24.1%) 1390AD
Spring Lake RCombine : 644±20BP	1290AD (25.4%) 1310AD	1280AD (40.1%) 1320AD
	1360AD (42.8%) 1390AD	1340AD (55.3%) 1400AD
Red Lake RCombine : 673±21BP	1280AD (44.8%) 1300AD	1270AD (57.9%) 1310AD
	1365AD (23.4%) 1380AD	1350AD (37.5%) 1390AD
Hollywood RCombine : 704±26BP	1270AD (68.2%) 1295AD	1260AD (83.8%) 1310AD
		1360AD (11.6%) 1390AD

Table 6.36 1-Sigma Probability-Favored Calendar Dates and Medians

Sample Reference	**Upper Date**	**Lower Date**	**Median Calendar Date**
Lawton01	1340	1400	1370
Lawton03	1280	1320	1300
Lawton04	1260	1300	1280
Lawton05	1280	1320	1300
Lawton06	1225	1290	1257.5
Lawton07	1270	1310	1290
Lawton09	1280	1320	1300
SpringLake01	1260	1300	1280
SpringLake02	1315	1355	1335
SpringLake03	1250	1300	1275
SpringLake04	1310	1360	1335
RedLake01	1265	1290	1277.5
RedLake05	1345	1395	1370
RedLake06	1340	1395	1367.5
Hollywood01	1300	1370	1335
Hollywood02	1220	1275	1247.5
Hollywood03	1270	1310	1290

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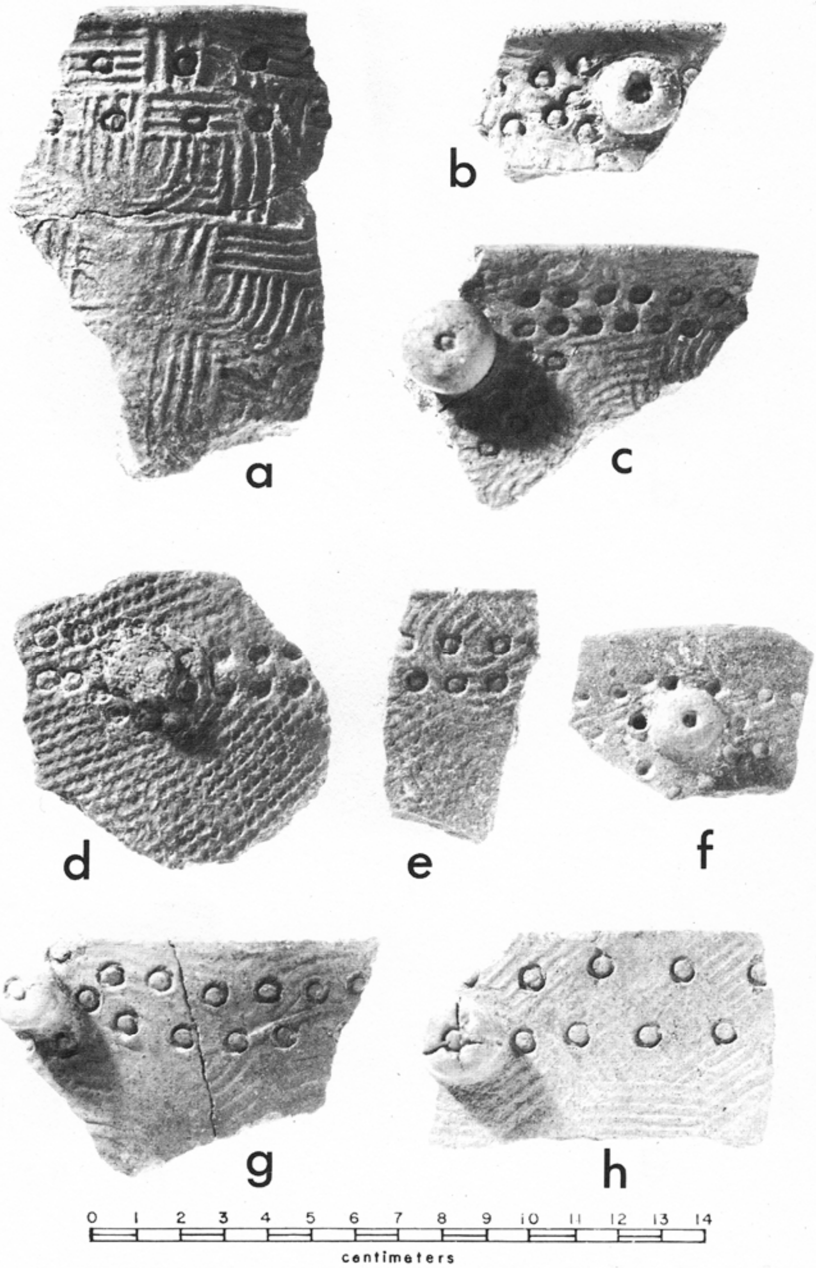

PLATE IV

Pottery from Hollywood, Fort Watson, and Town Creek, *a, b, c.* Hollywood Mound "A"; *d, e, f.* Town Creek Mound; *g, h.* Fort Watson Mound.

Figure 6.1 Noded and Punctated Rims
(Reid 1965:16)

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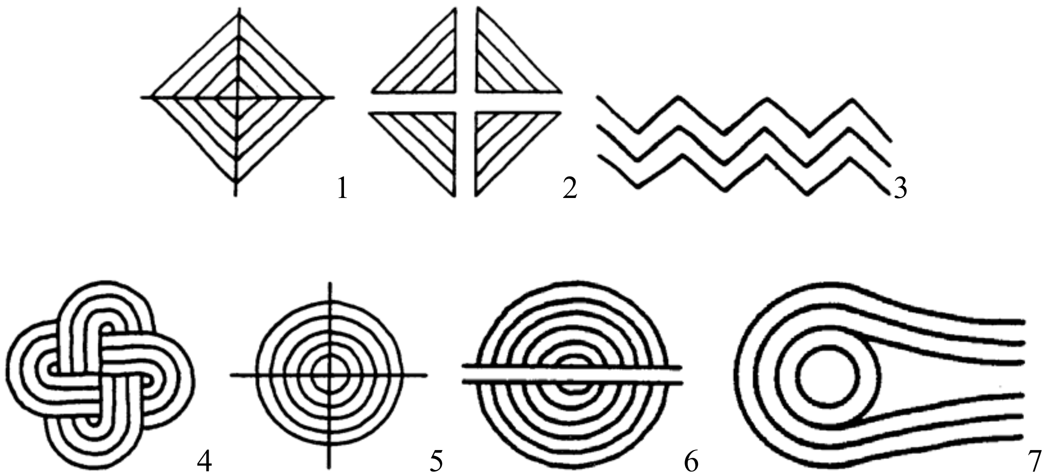
POT FROM HOLLYWOOD MOUND, GEORGIA.

Figure 6.2 Hollywood Mound B Burial Urn
(Thomas 1985 Plate XIX)



Rectilinear Stamped Motifs
1 Etowah nested diamonds- 1-bar cross
2 Etowah nested diamonds- 2-bar cross
3 Herring bone

Curvilinear Stamped Motifs
4 Savannah filfot cross
5 Savannah concentric circles- 1-bar cross
6 Savannah concentric circles- 2-bar
7 Keyhole

Figure 6.3 Beaverdam Creek Complicated Stamped Motifs
Adapted from Rudolph & Hally (1985:266)

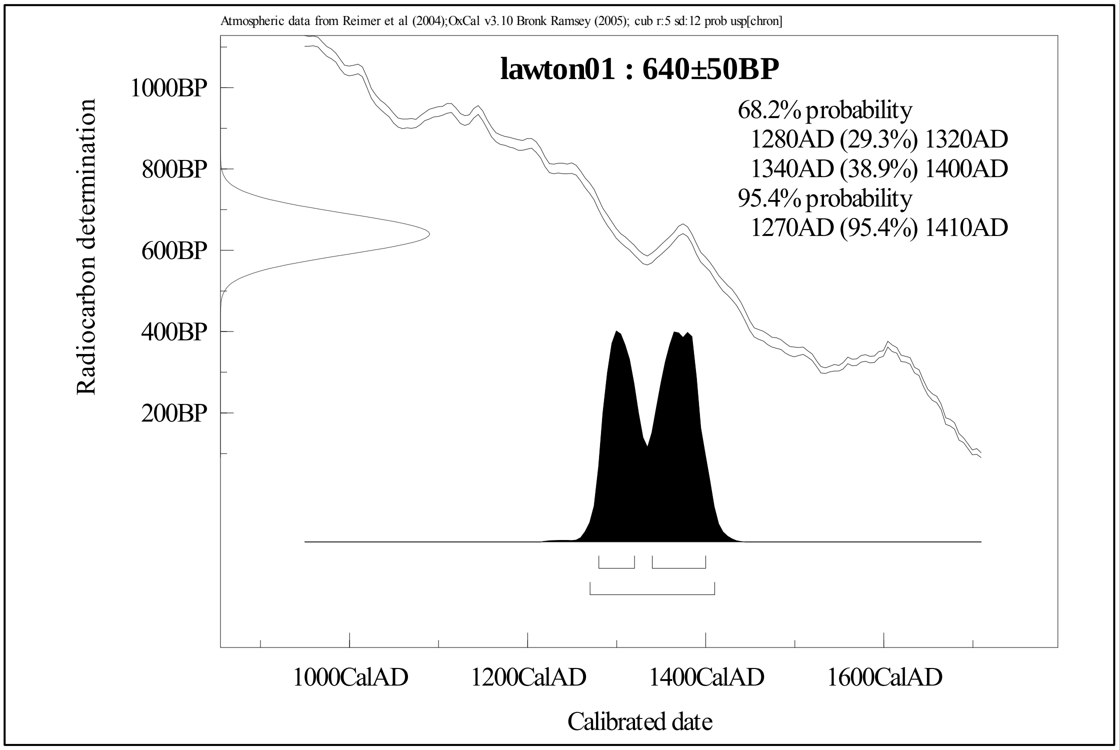


Figure 6.4 Lawton01 Plot

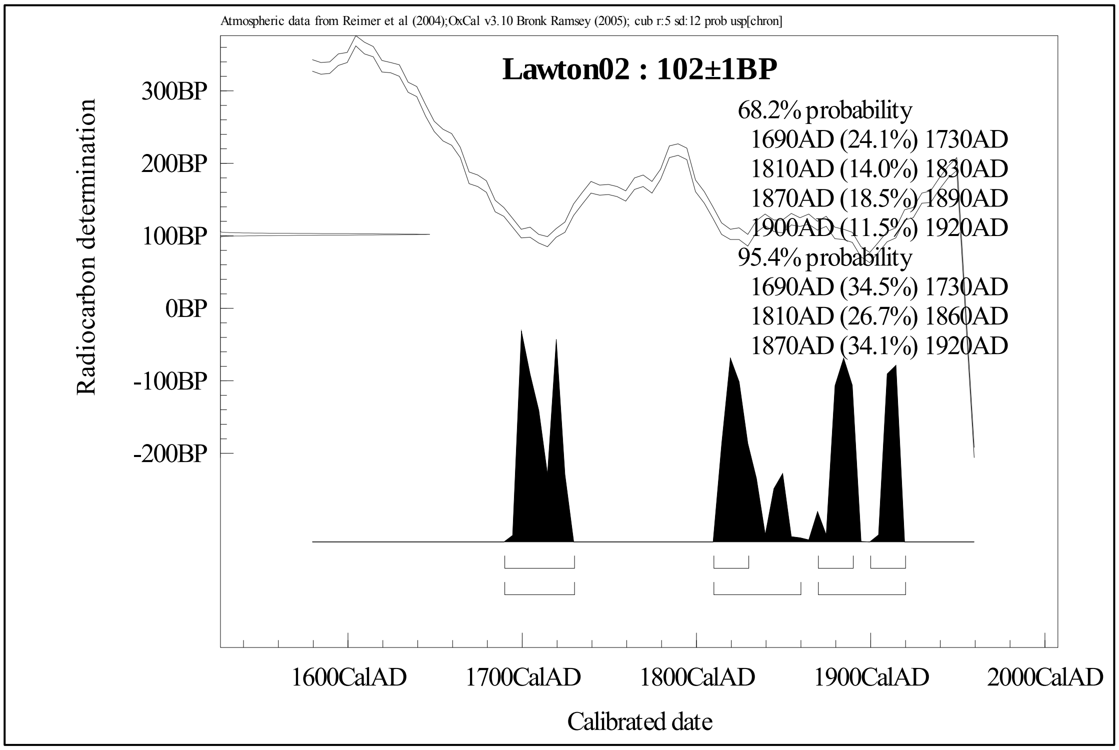


Figure 6.5 Lawton02 Plot

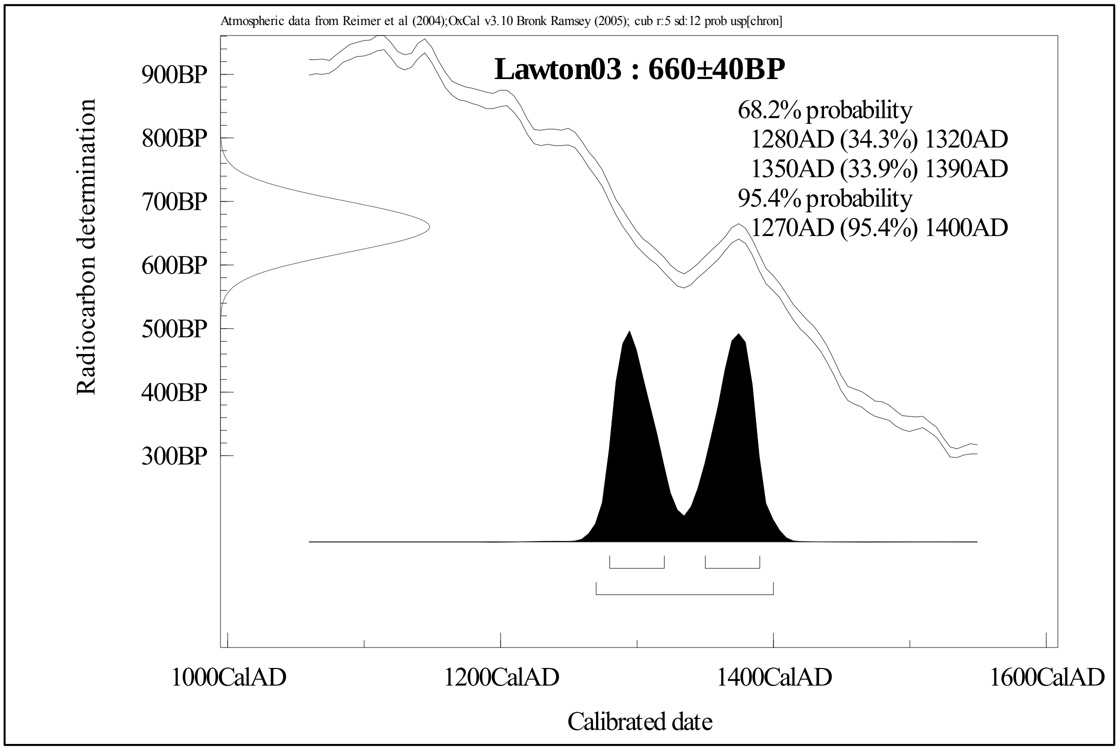
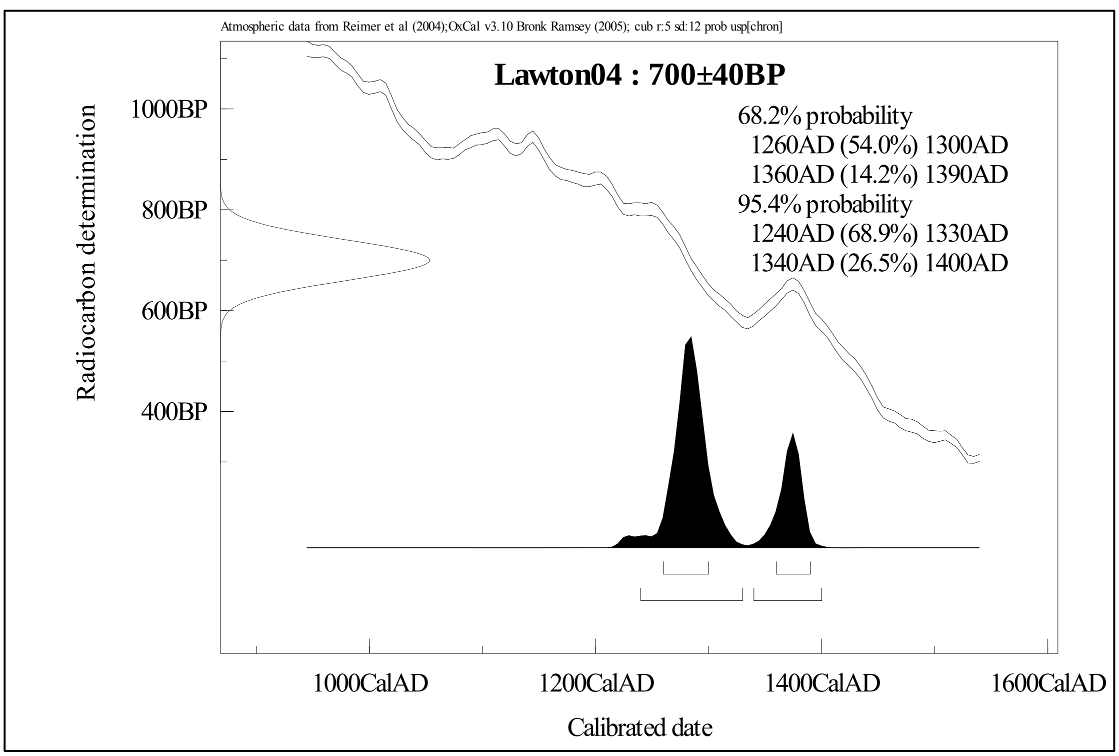


Figure 6.6 Lawton03 Plot



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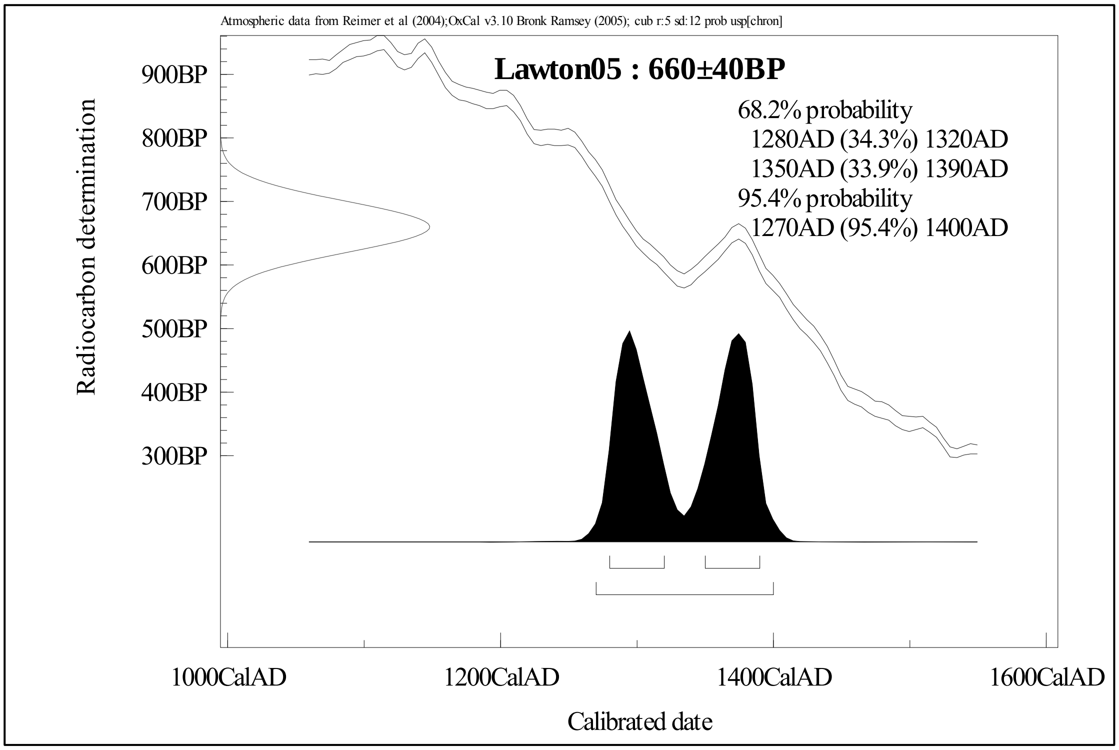
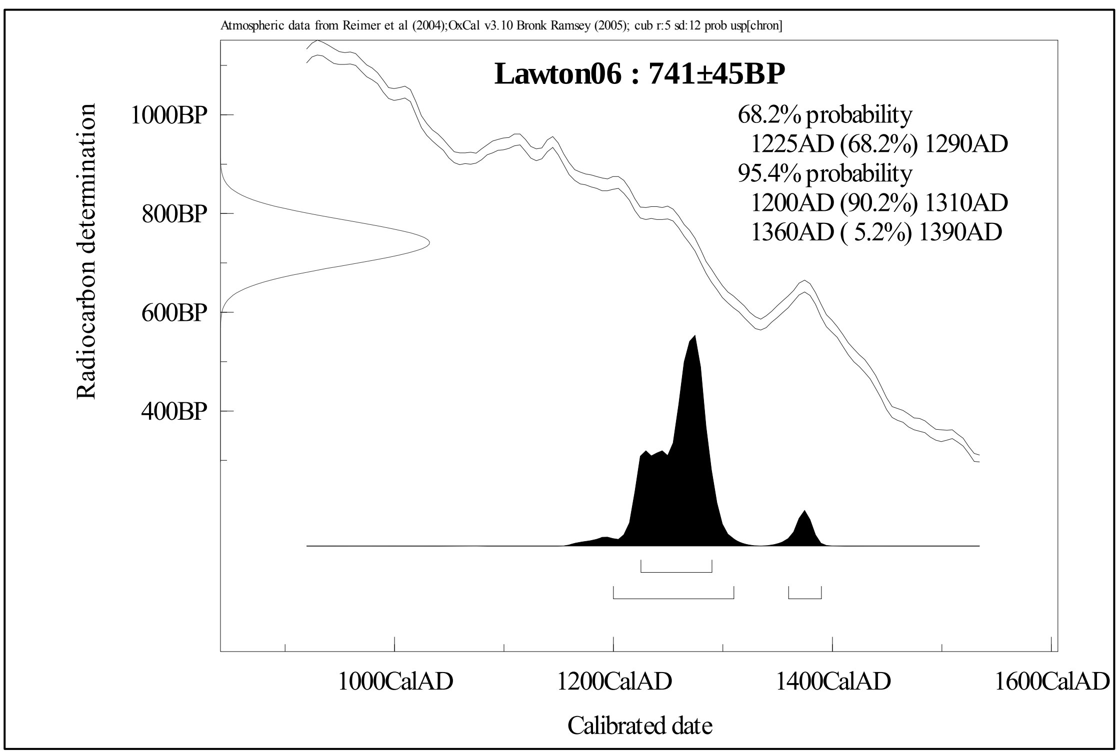


Figure 6.8 Lawton05 Plot



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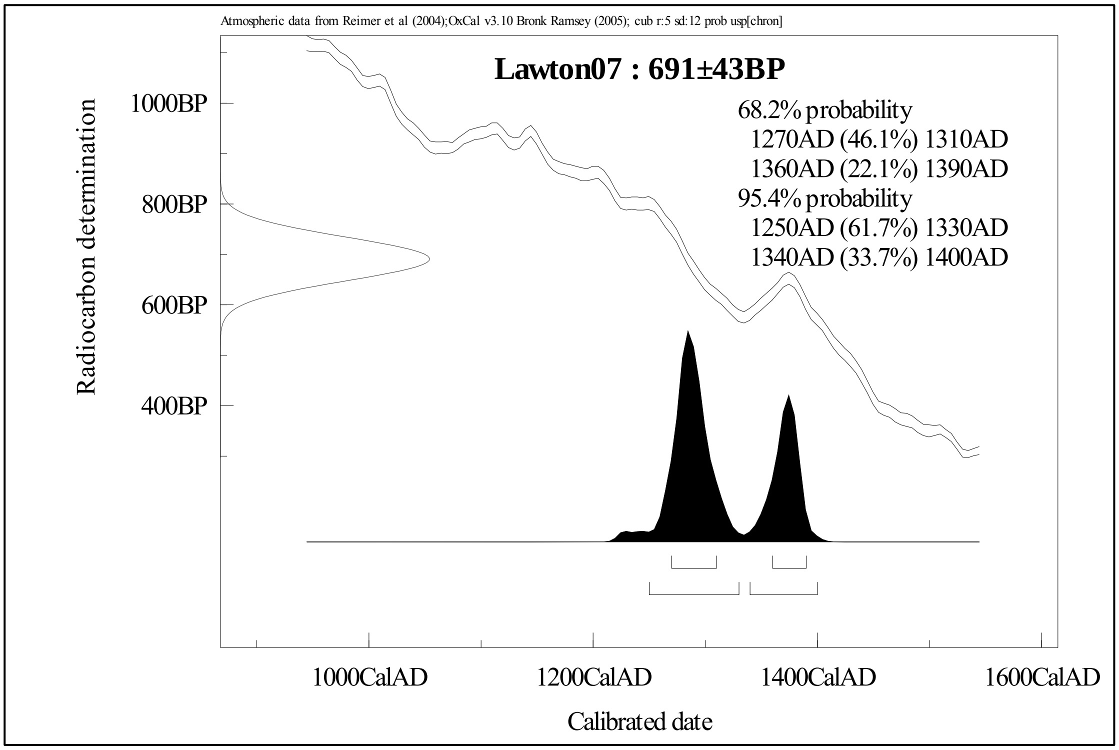

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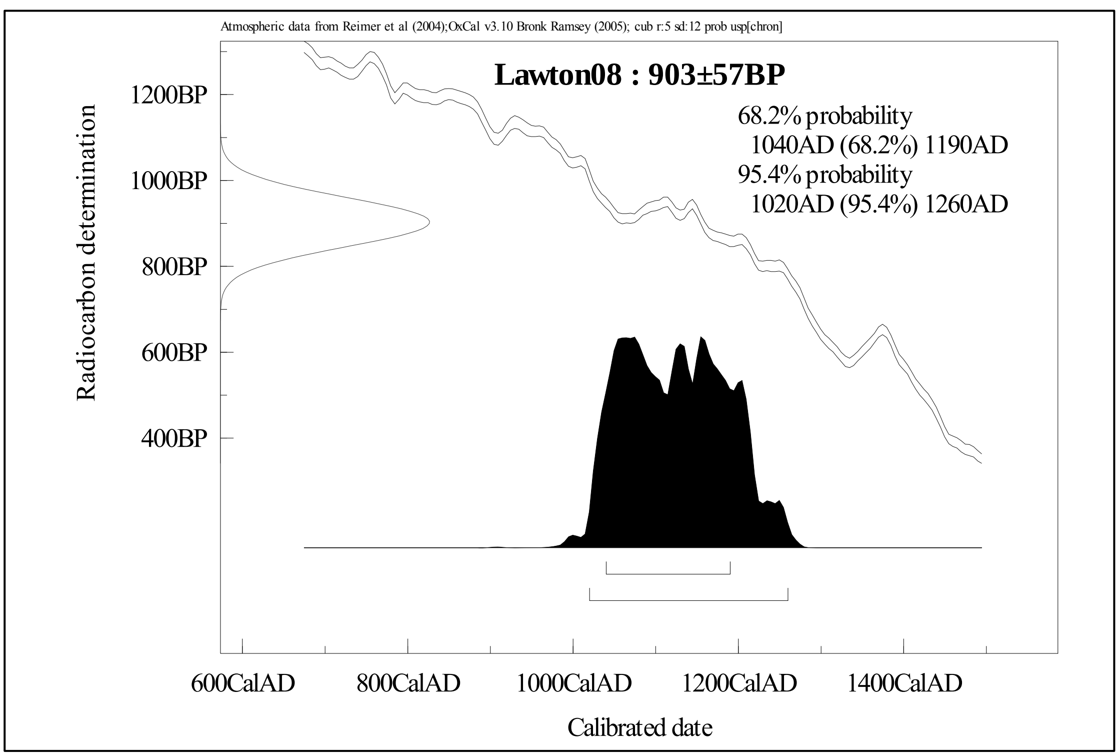

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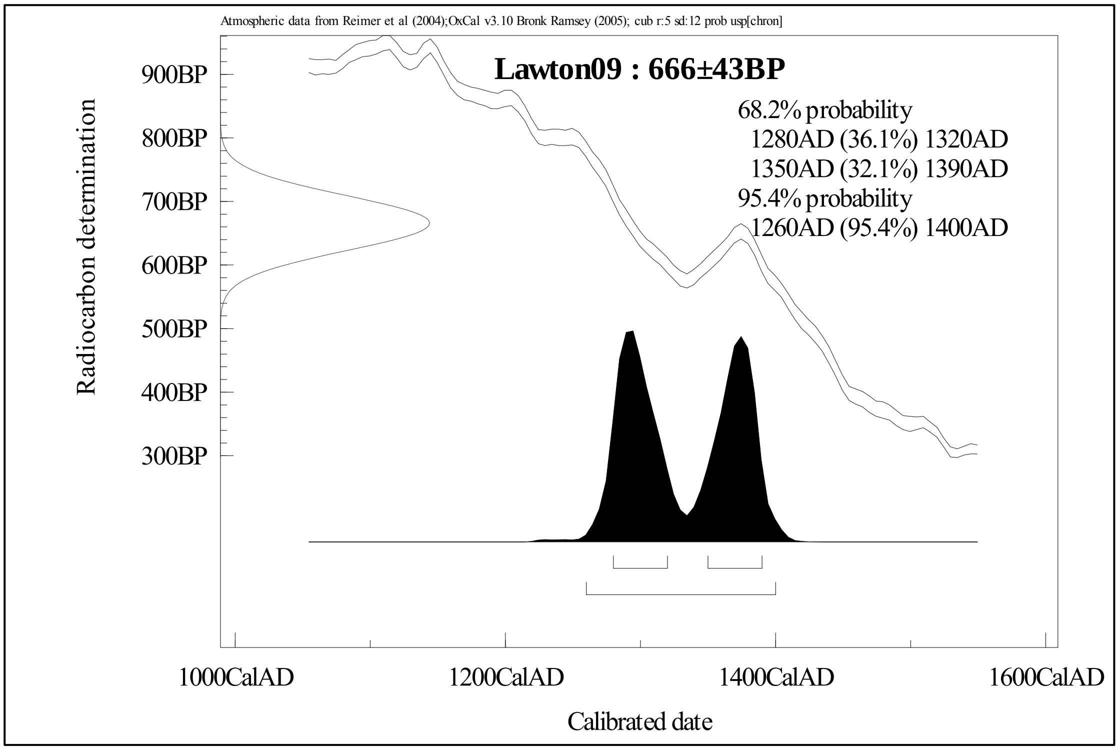

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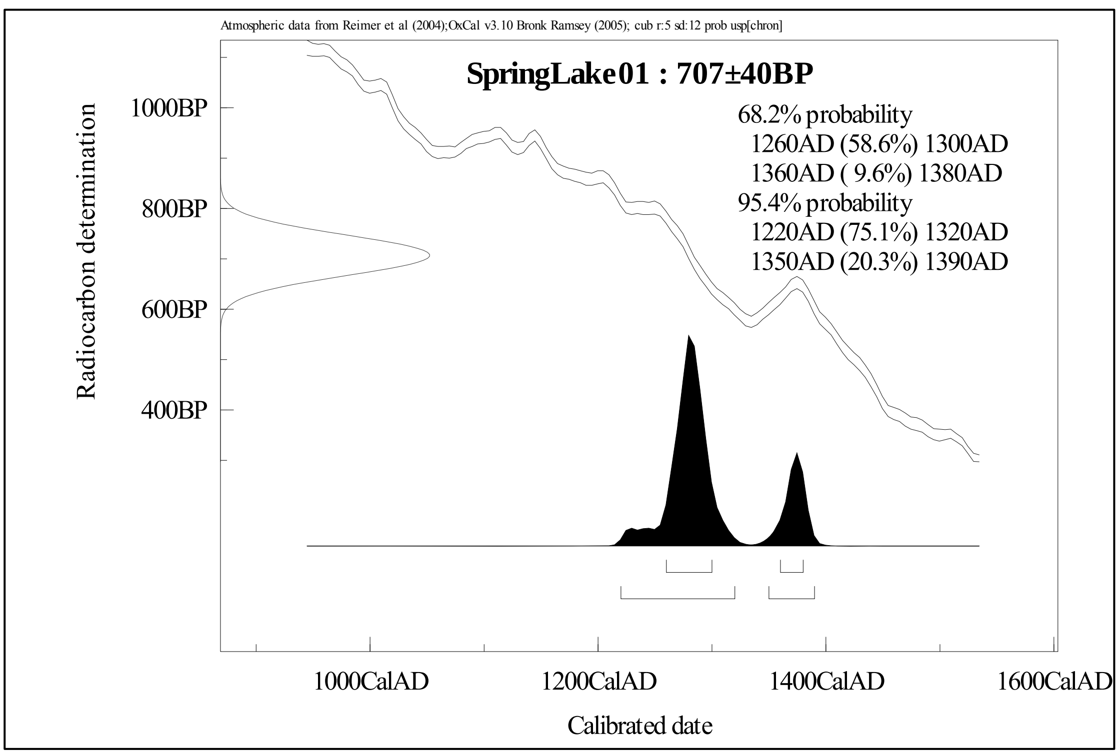
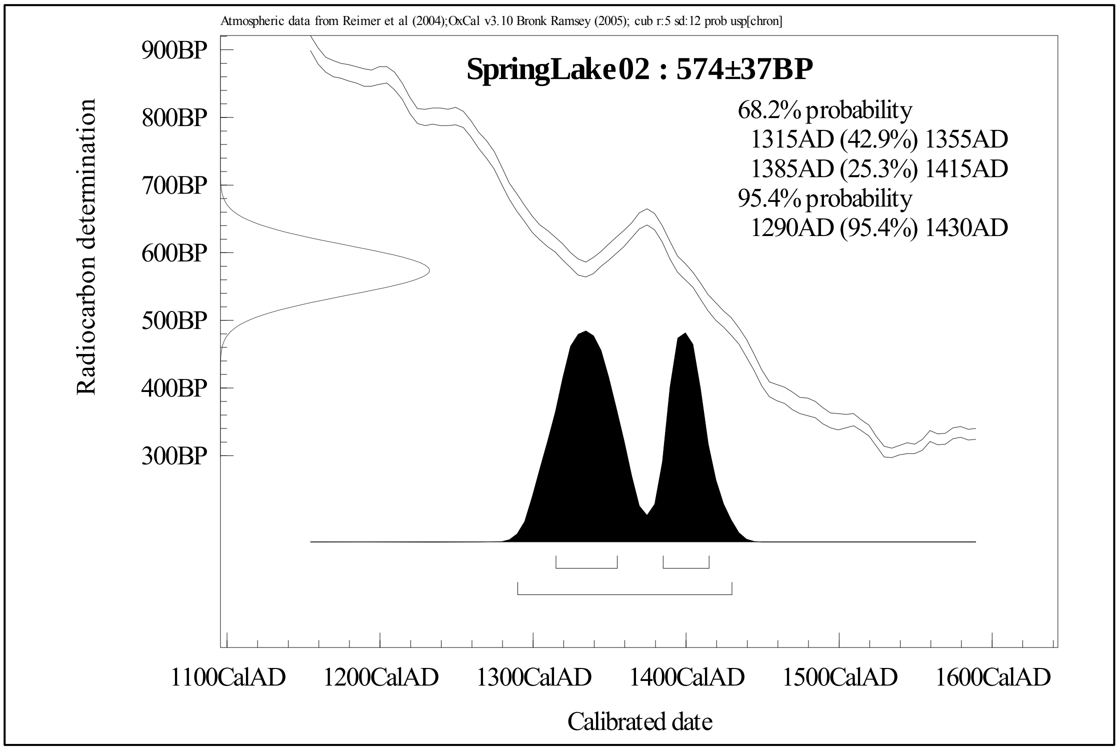


Figure 6.13 SpringLake01 Plot



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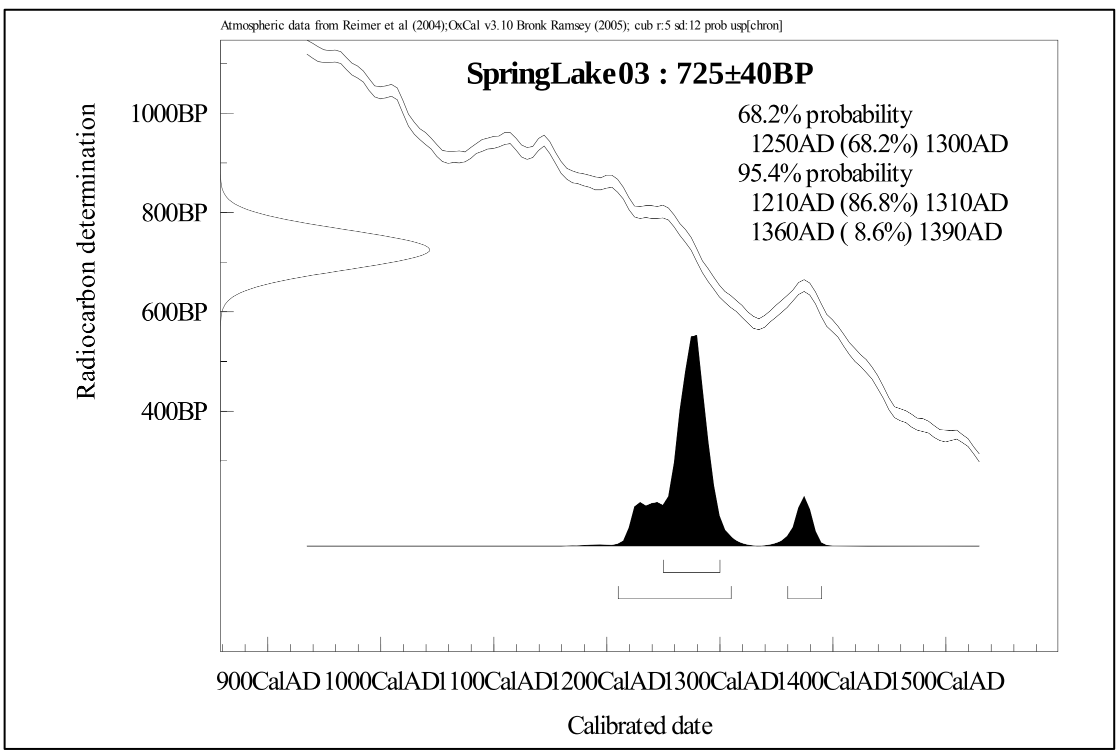

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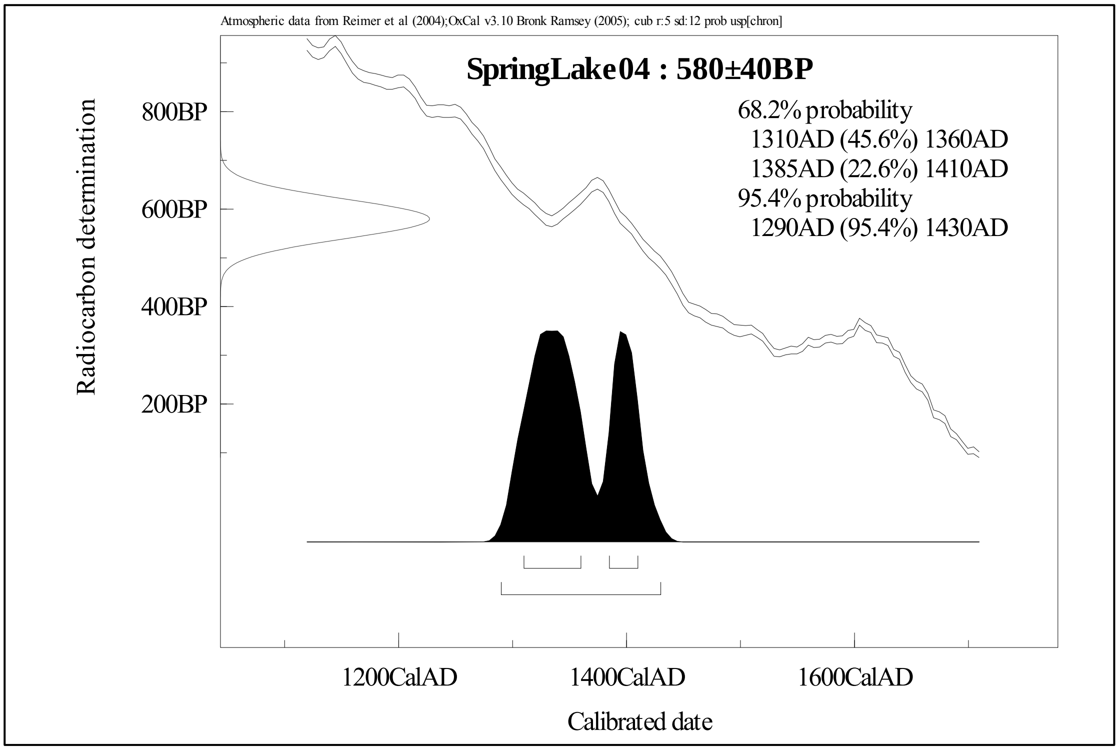

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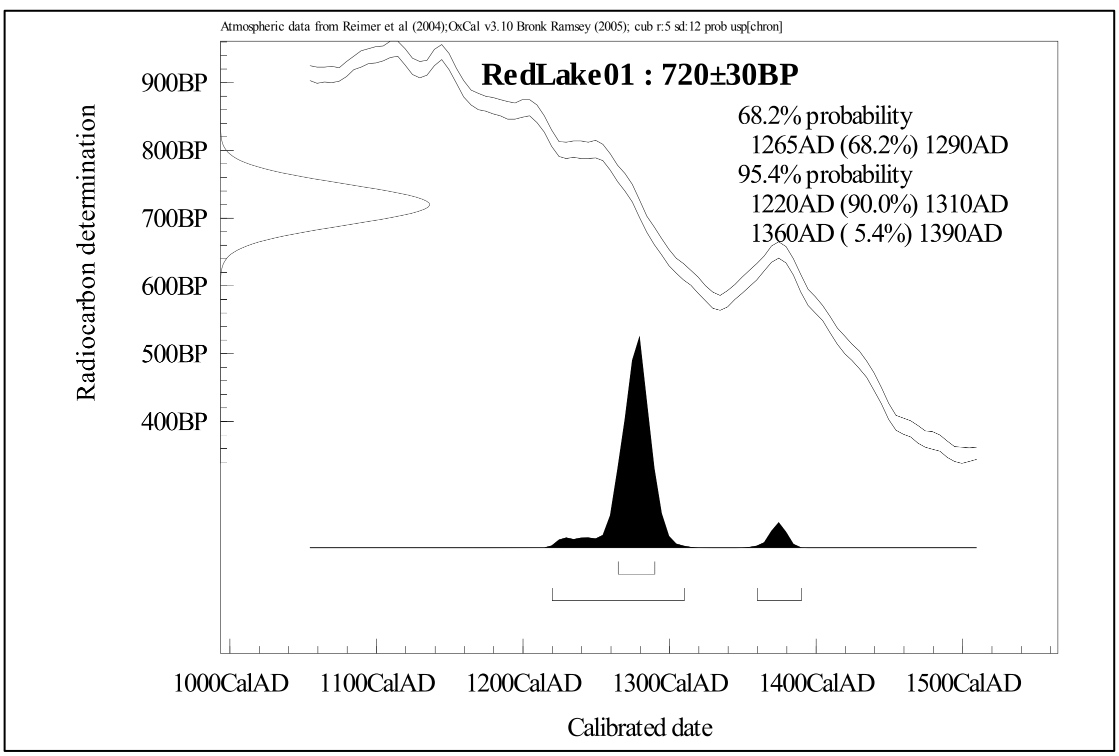

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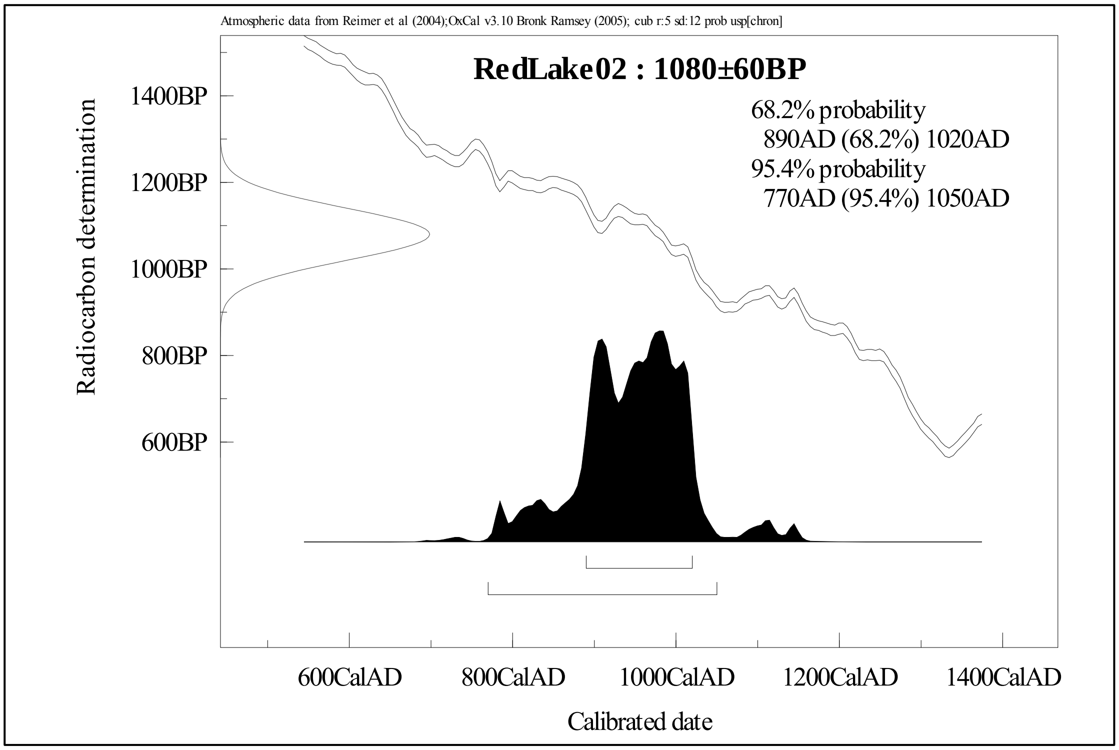

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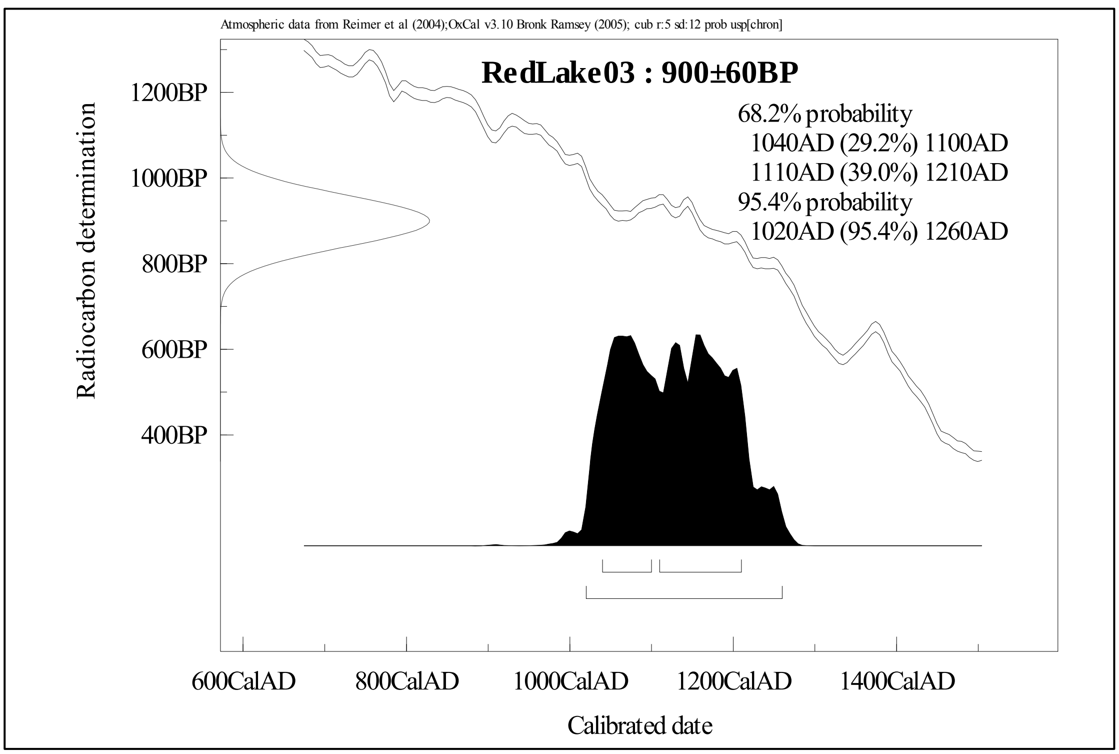

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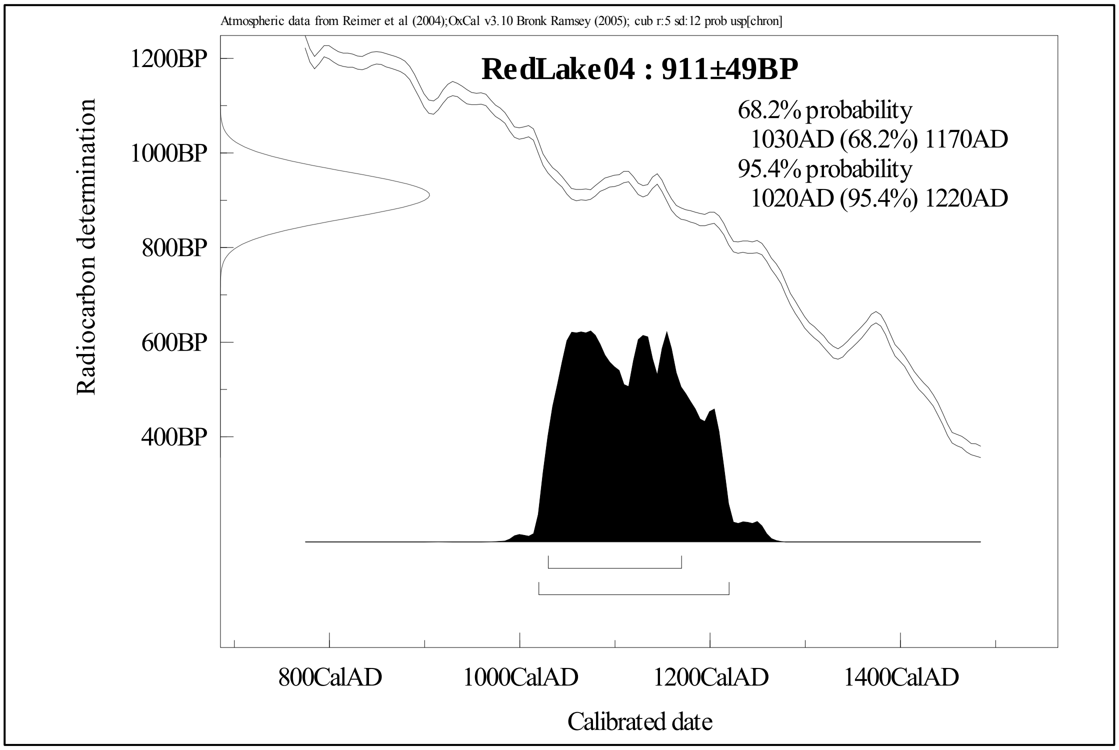

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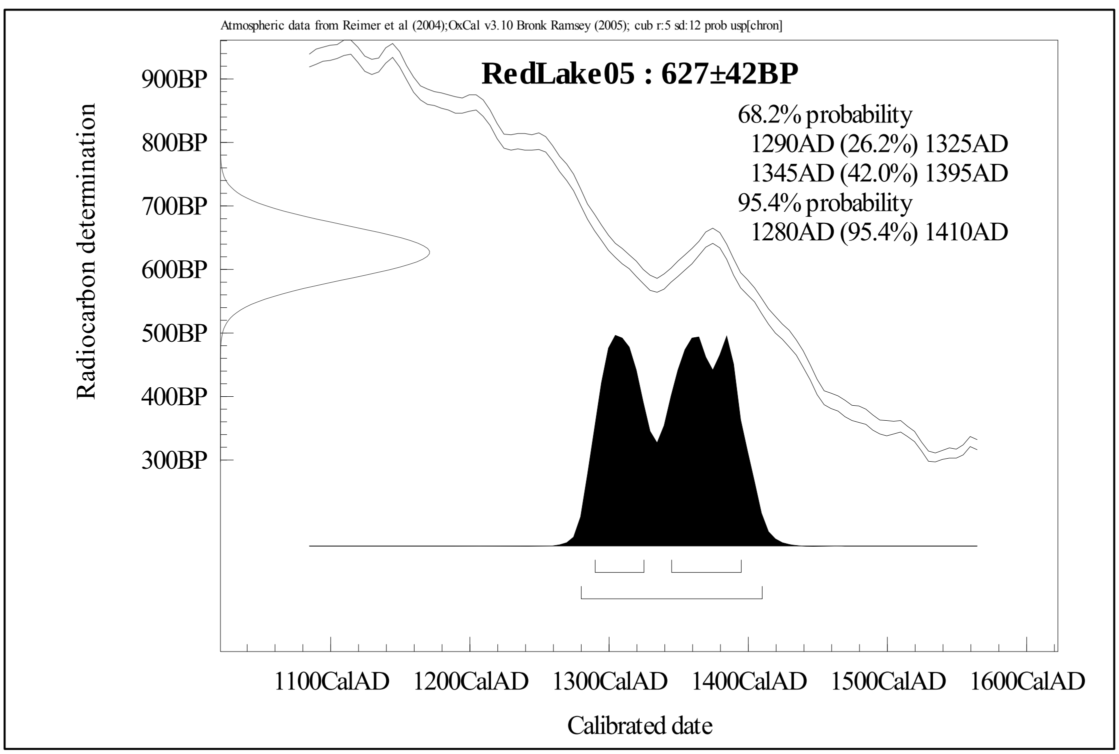
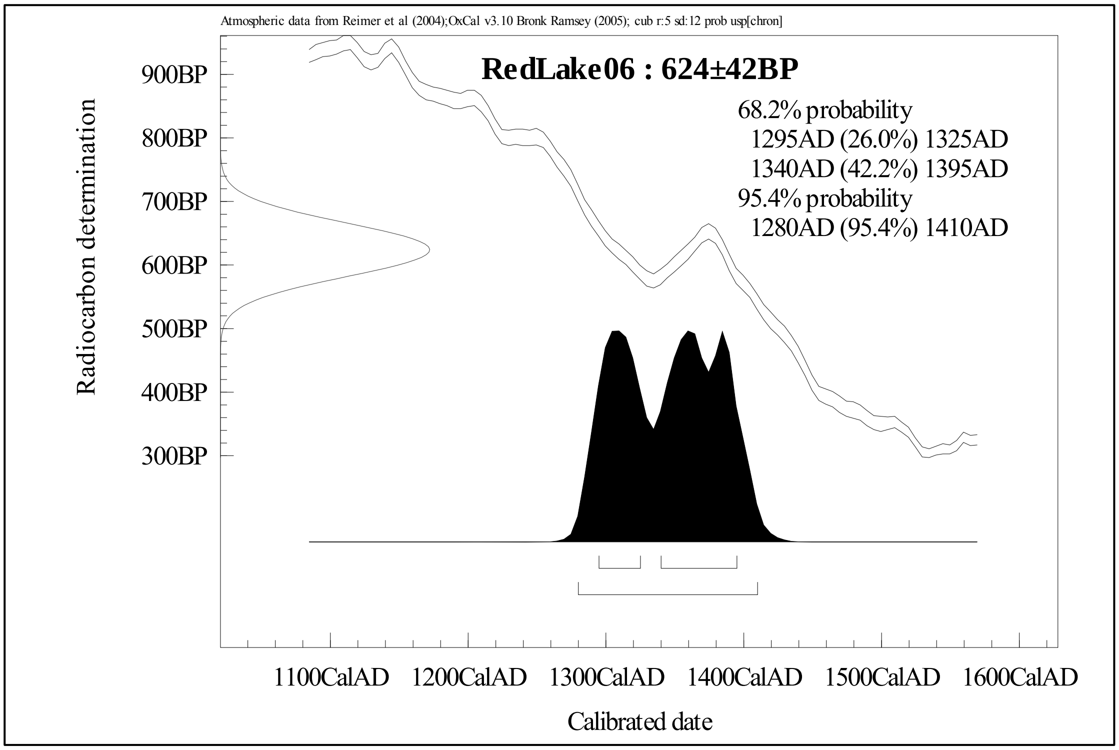


Figure 6.21 RedLake05 Plot



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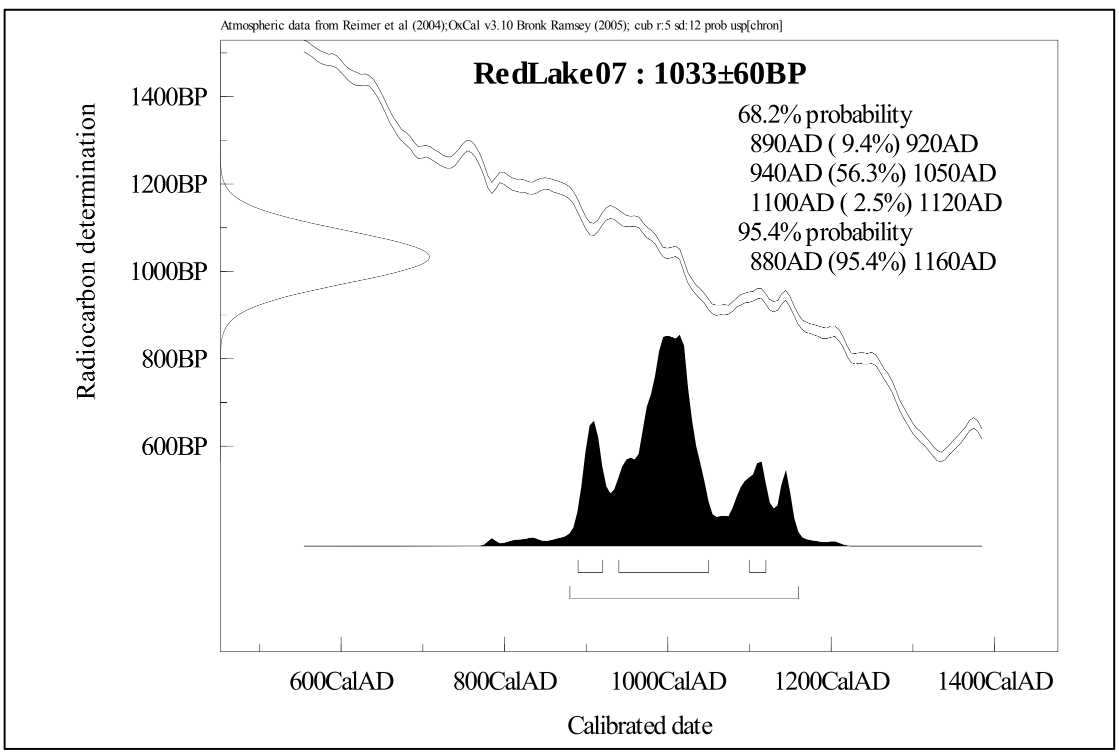

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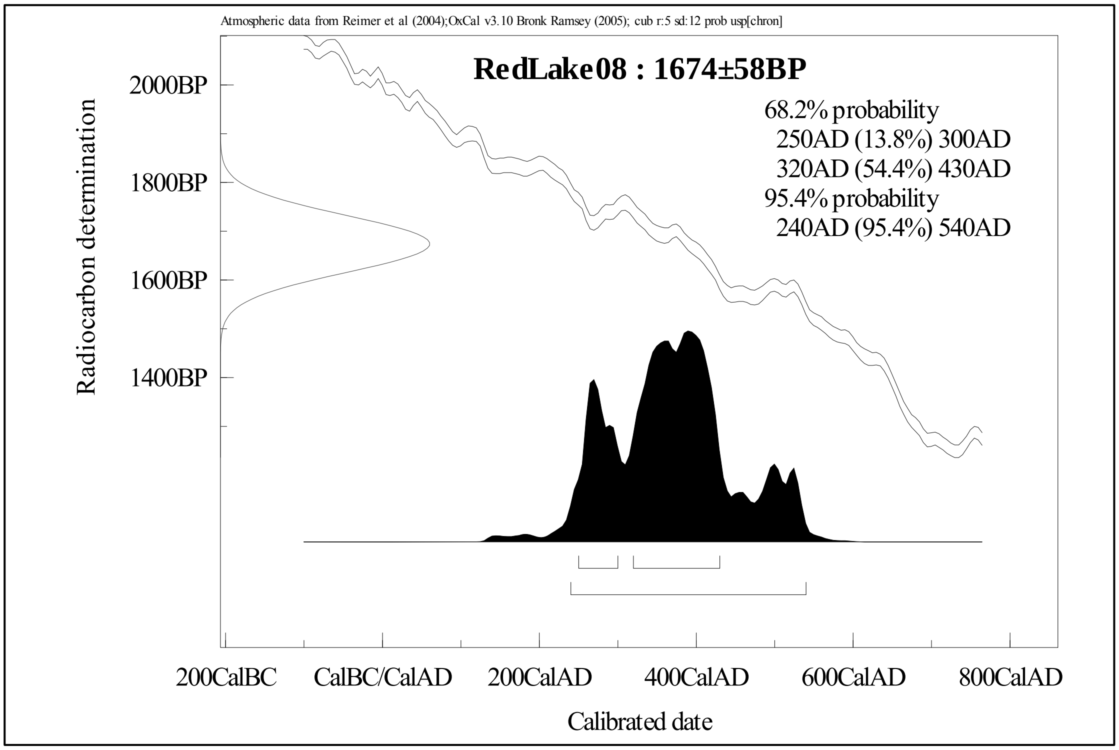


Figure 6.24 RedLake08 Plot

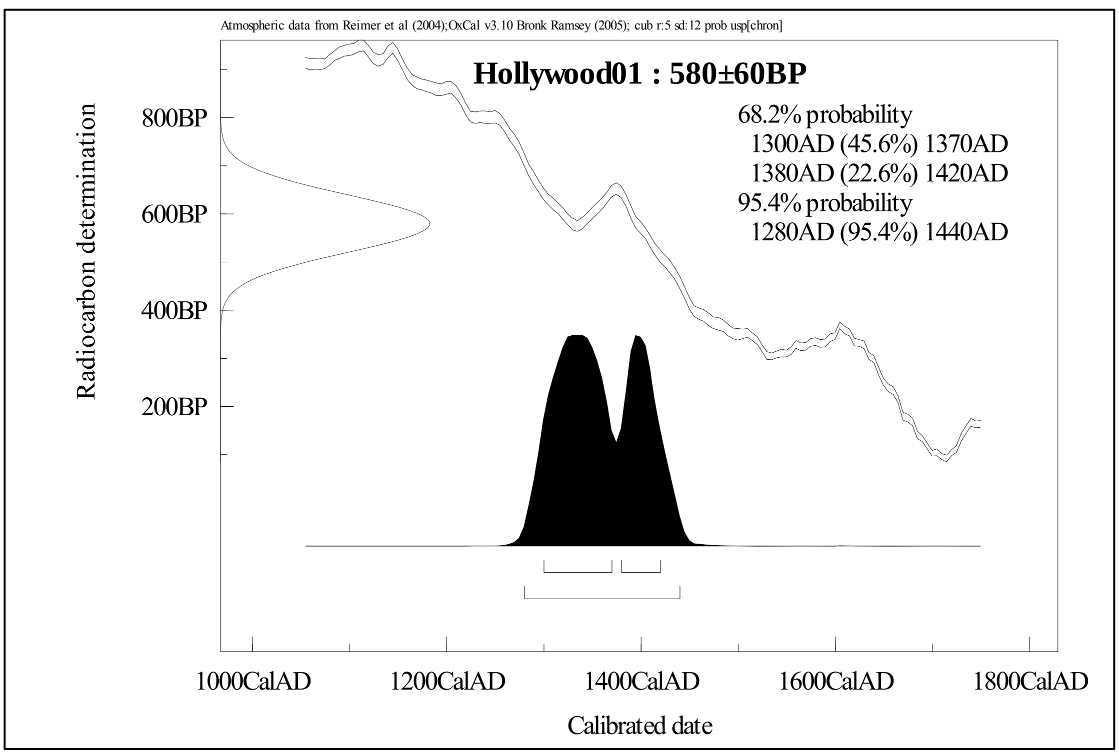
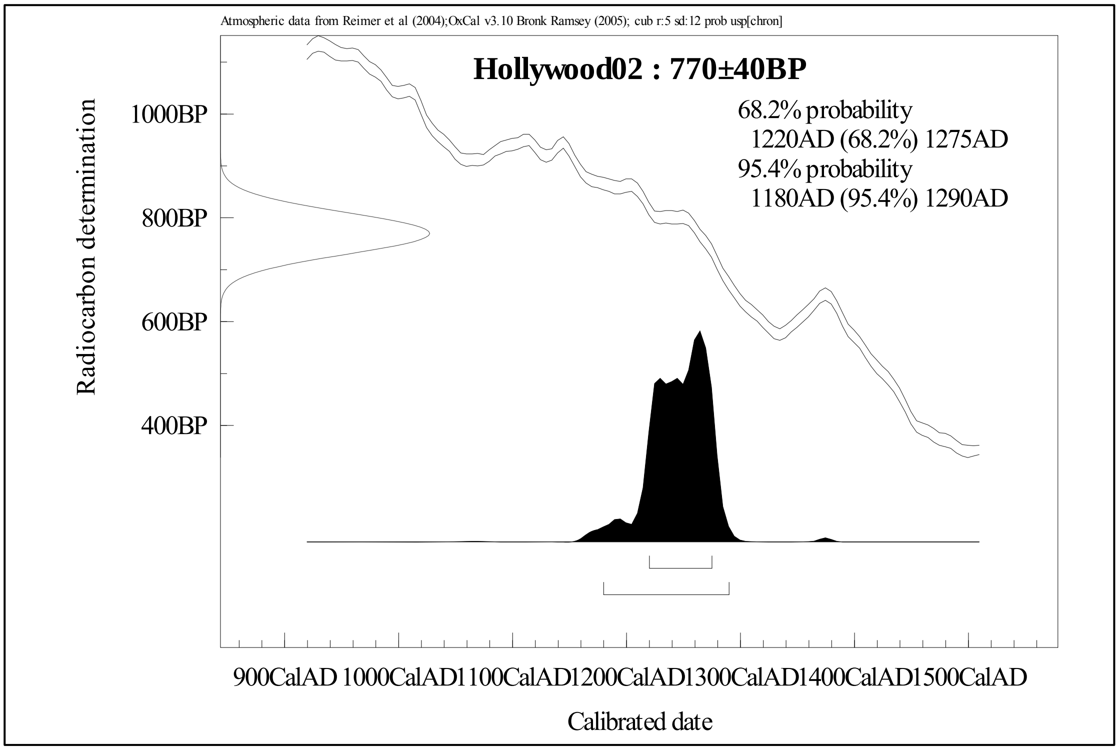


Figure 6.25 Hollywood01 Plot



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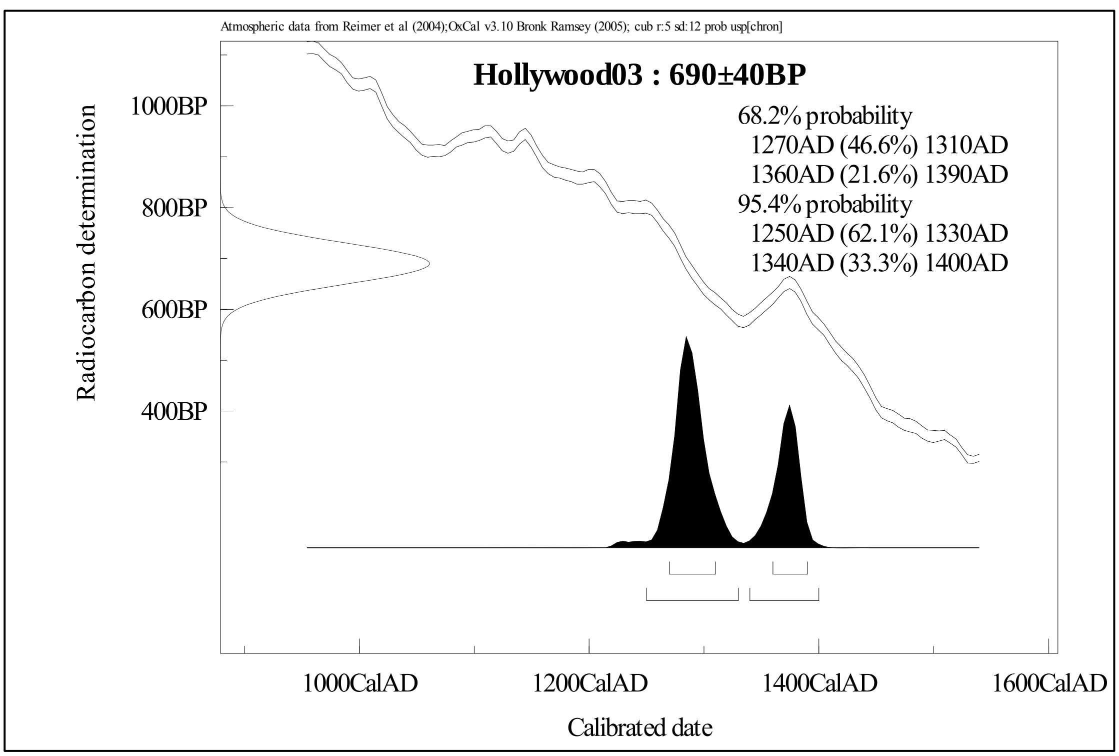

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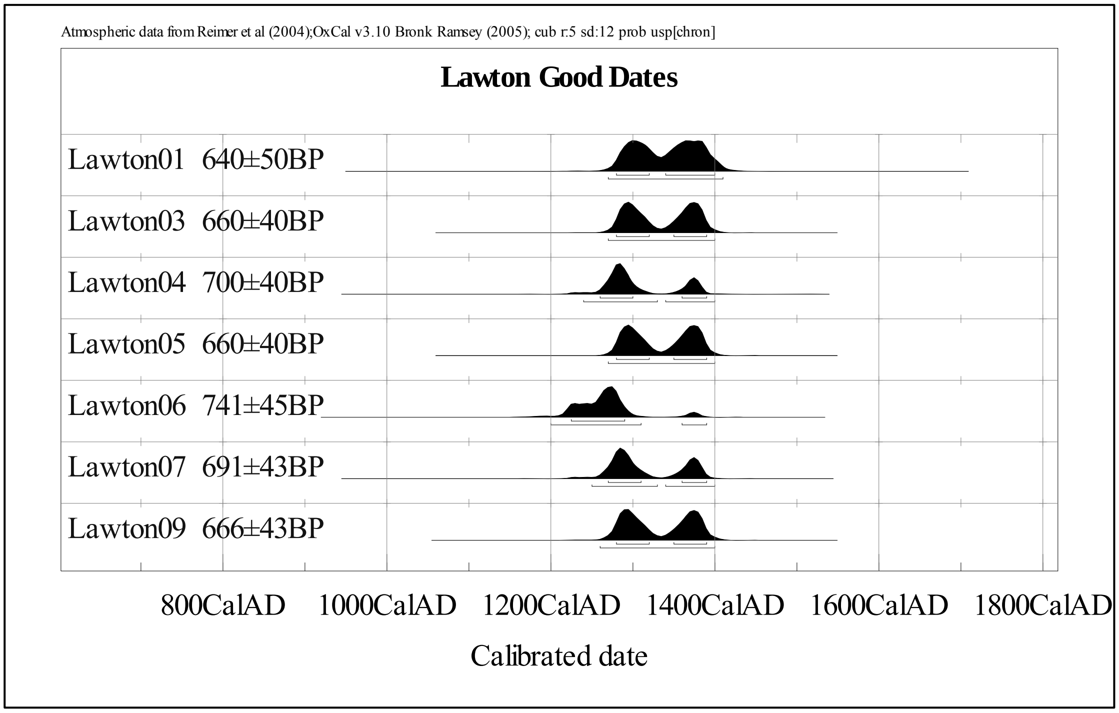

Figure 6.28 Lawton Good Dates Plot

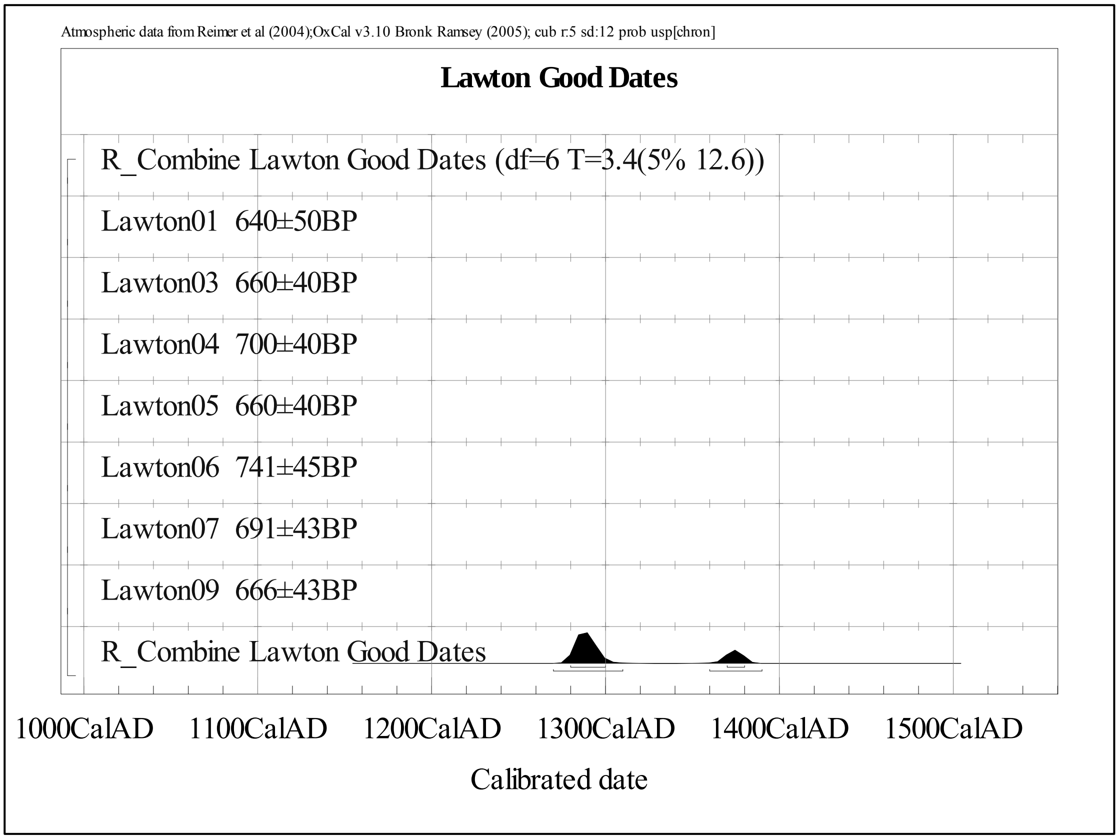

Figure 6.29 Lawton Good Dates RCombine Plot

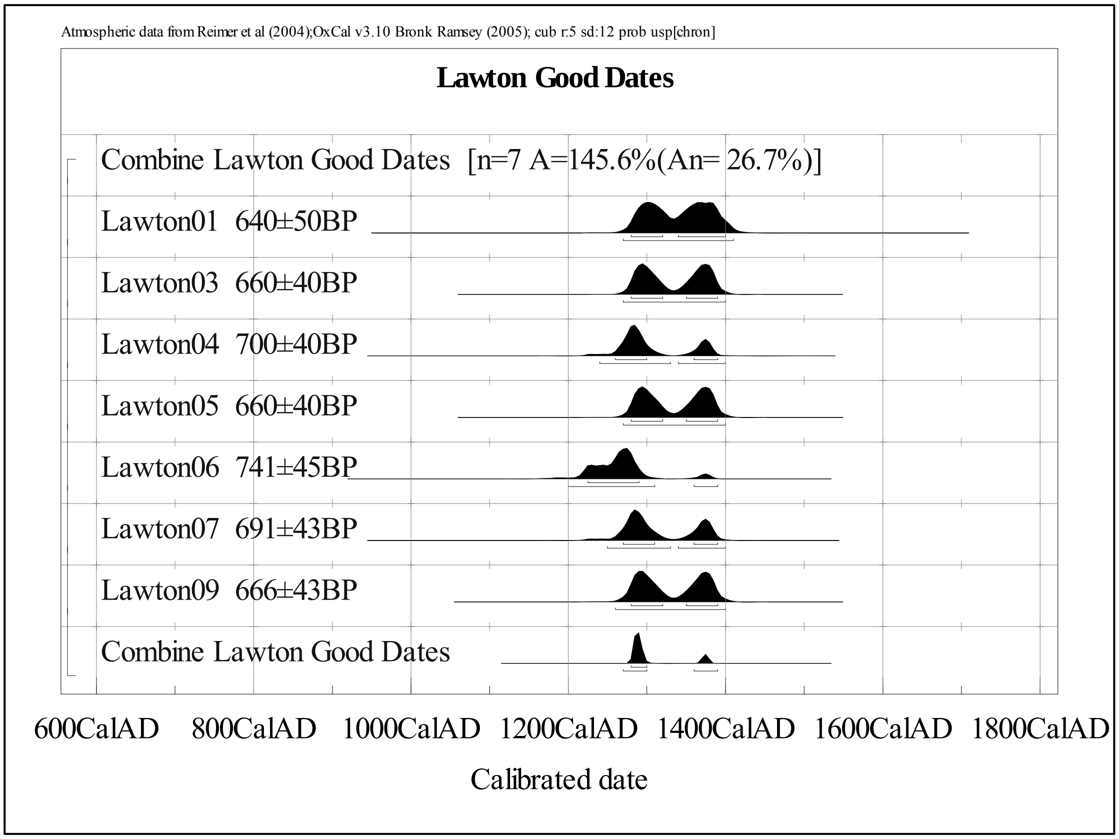

Figure 6.30 Lawton Good Dates Combine Plot

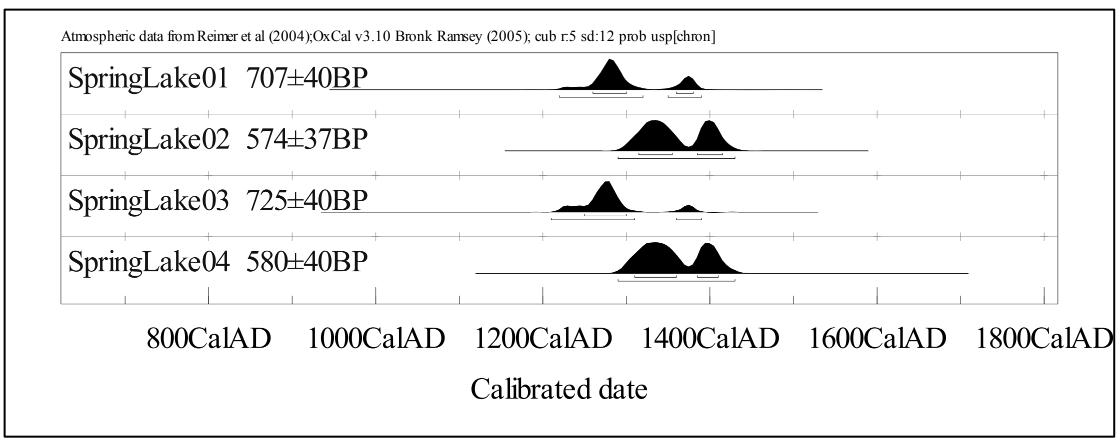

Figure 6.31 Spring Lake Good Dates Plot

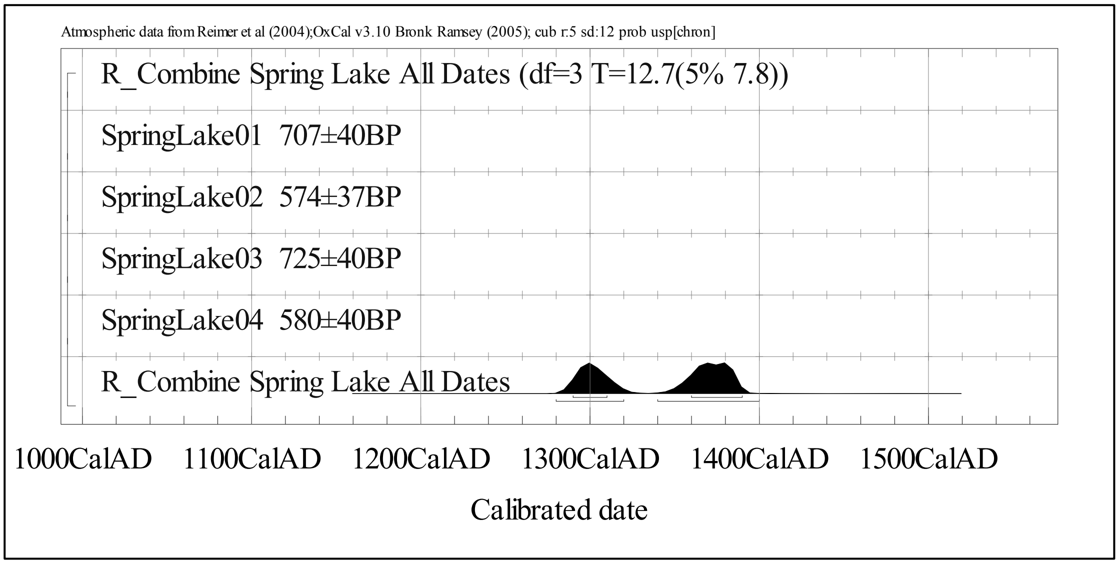

Figure 6.32 Spring Lake Good Dates RCombine Plot

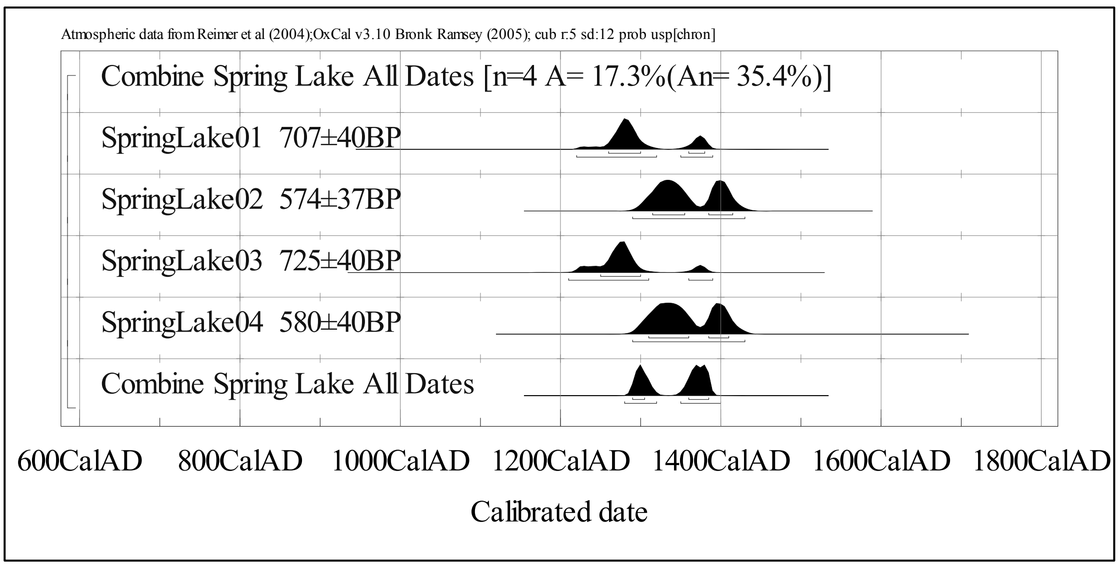

Figure 6.33 Spring Lake Good Dates Combine Plot

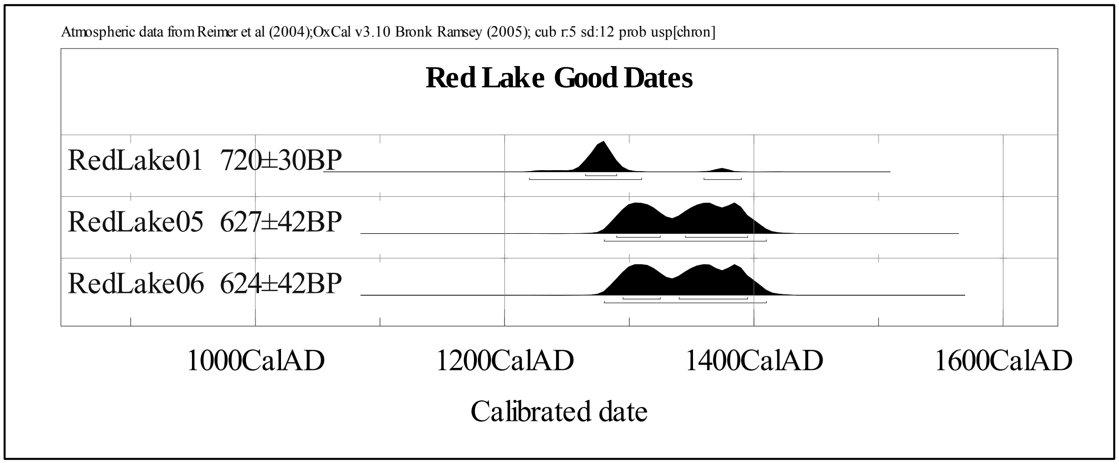

Figure 6.34 Red Lake Good Dates Plot

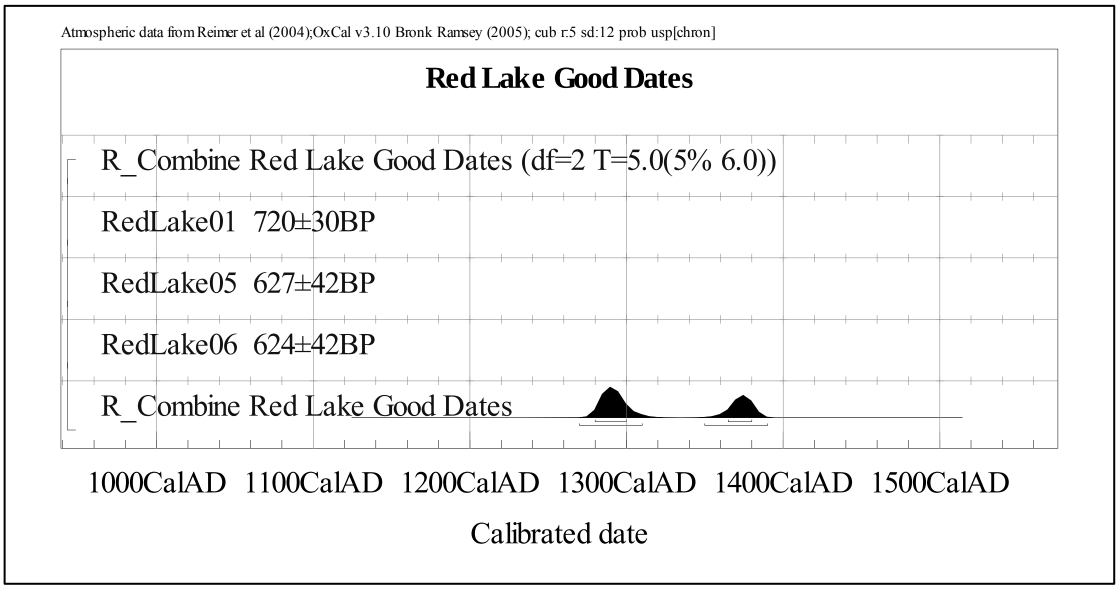

Figure 6.35 Red Lake Good Dates RCombine Plot

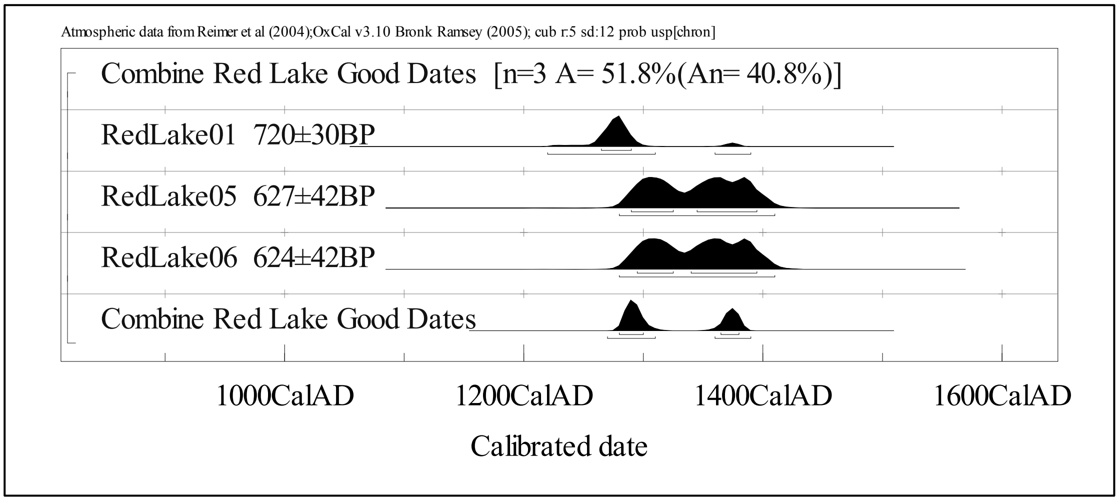

Figure 6.36 Red Lake Good Dates Combine Plot

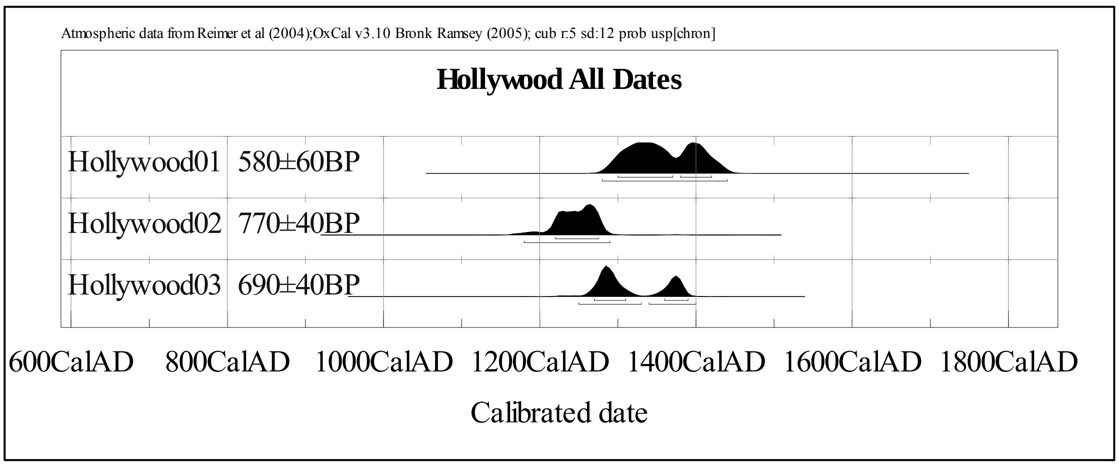

Figure 6.37 Hollywood Good Dates Plot

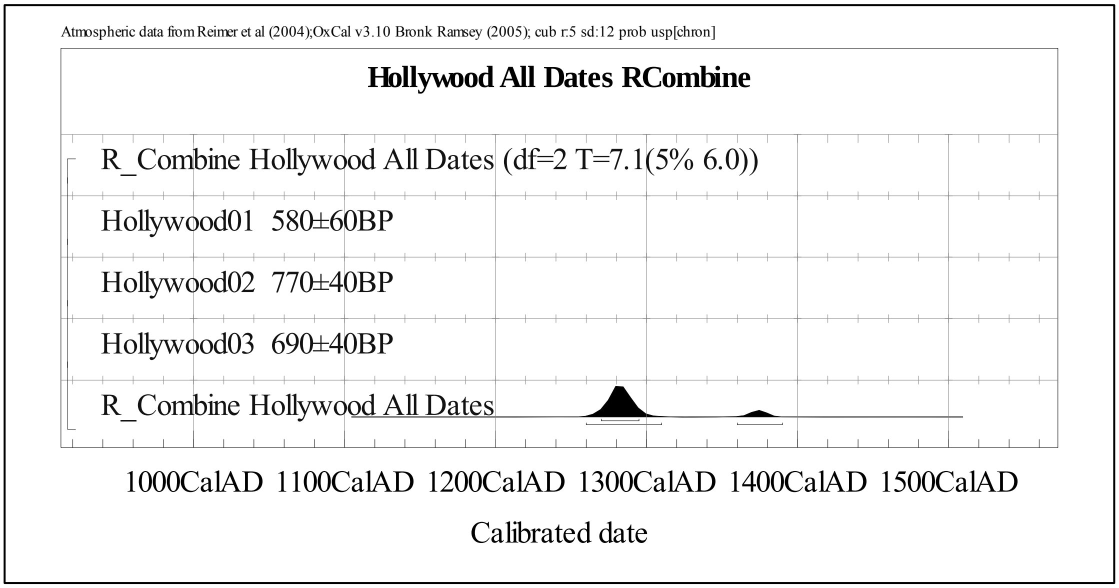

Figure 6.38 Hollywood Good Dates RCombine Plot

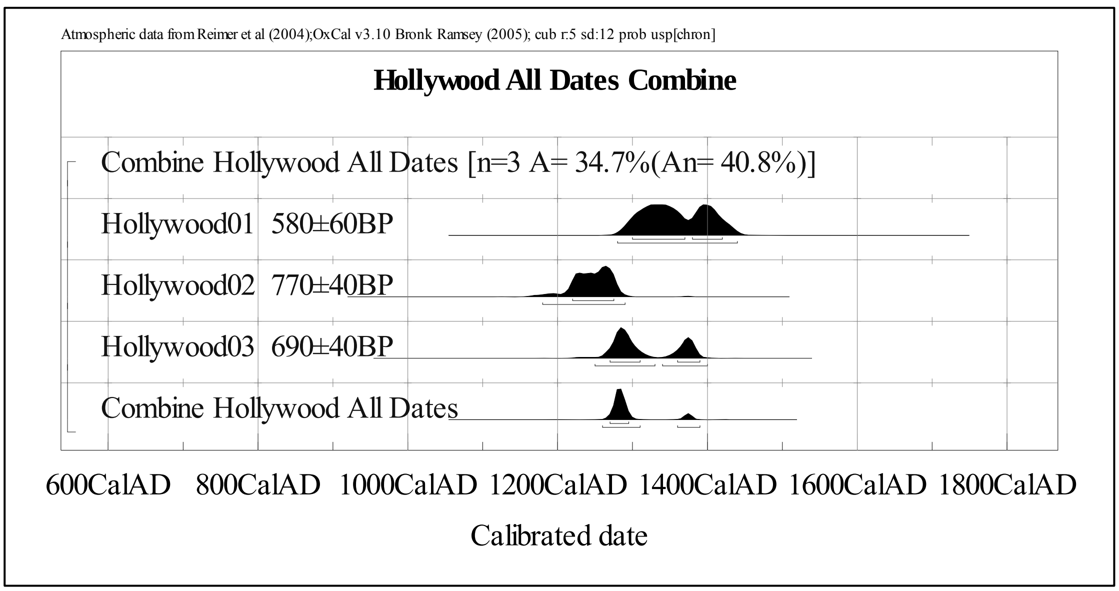

Figure 6.39 Hollywood Good Dates Combine Plot

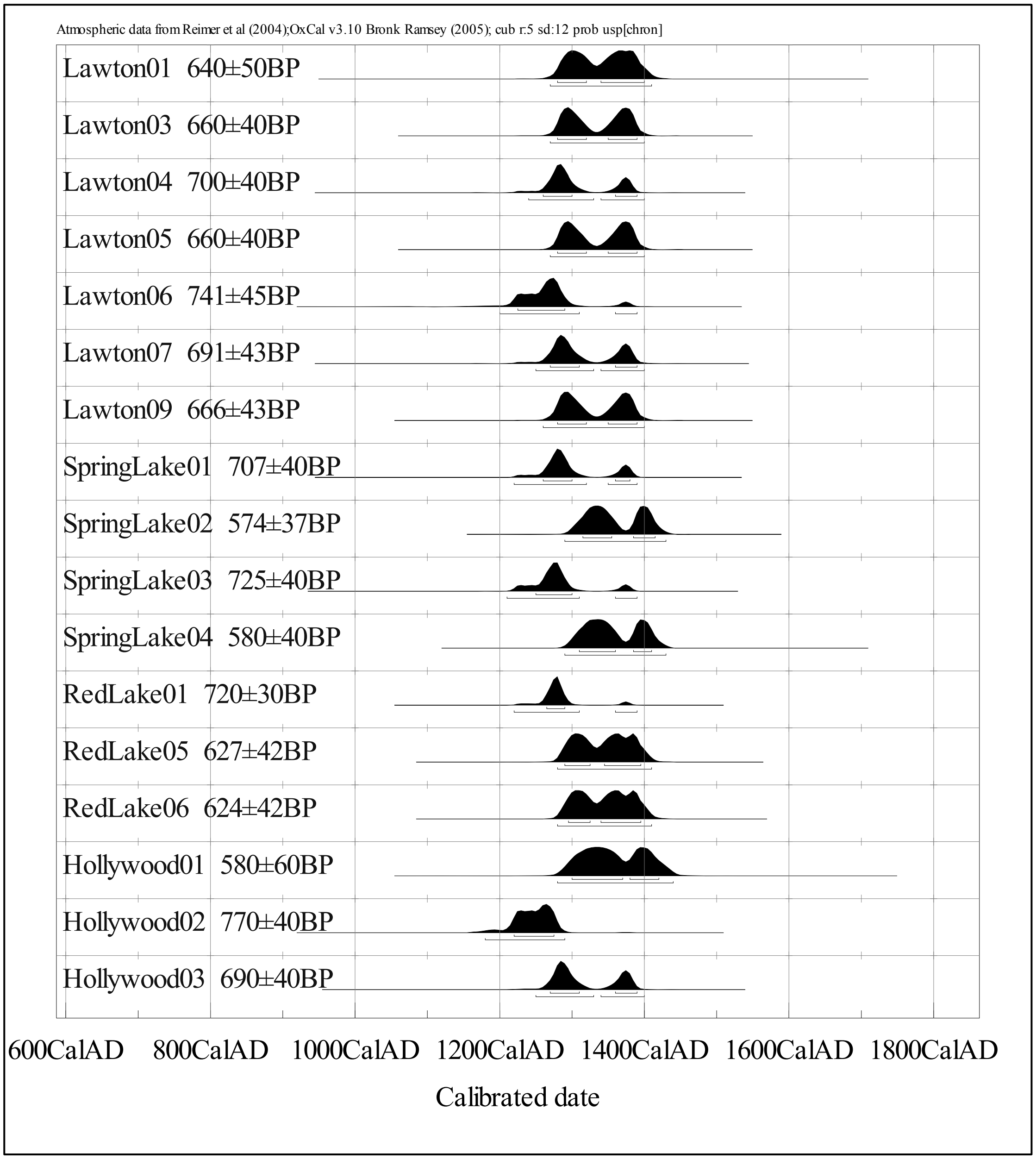

Figure 6.40 Four Sites Good Dates Plot

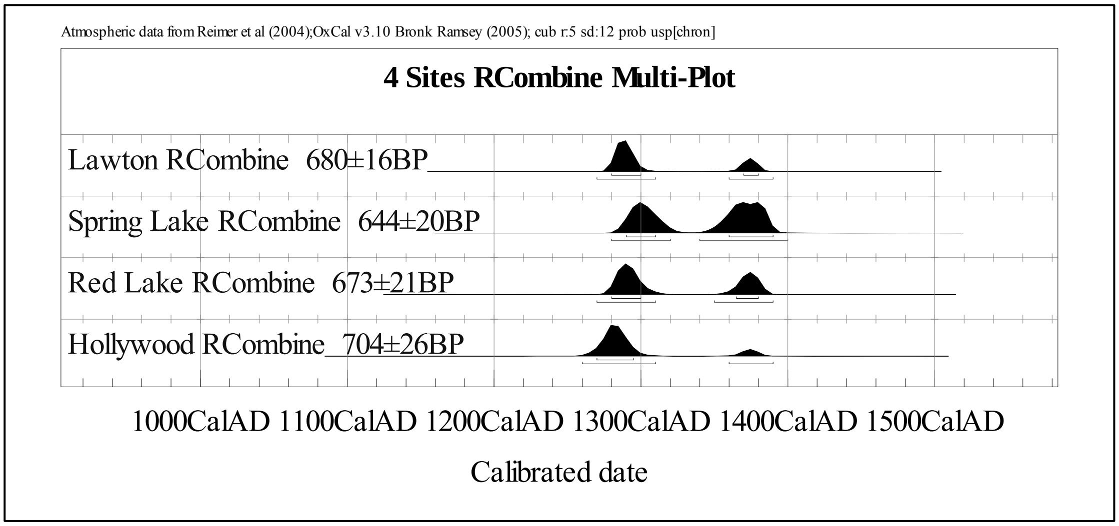

Figure 6.41 Four Sites Good Dates RCombine Plot

CHAPTER 7

SITE LAYOUT AND ARCHITECTURE

7.1 Introduction

Ceramic analysis and absolute dates recovered from Lawton, Spring Lake, and Red Lake strongly indicate the sites were contemporaneously occupied, at least for part of their histories. They also indicate that the sites were occupied for a relatively short amount of time during the Hollywood phase of the Savannah period (A.D. 1220-1350), perhaps one hundred years or less. Given these findings, it is necessary to characterize and compare the three sites' spatial organization and architecture to determine how similar or different they are and whether they served similar or different roles as administrative centers. If the sites were organized in a hierarchical arrangement as primary and secondary centers within a complex chiefdom, I would expect them to exhibit significant differences. The primary center in such an arrangement should be larger and more architecturally complex or have public architecture of a greater scale than the secondary centers. This could include larger site size, more mounds, larger mounds, and a larger plaza. If the sites reflected a less hierarchical sociopolitical arrangement, as in fused chiefdoms, I would expect their site layout and architecture to be generally similar. They may differ slightly in terms of scale, such as site size, but they should exhibit similarities in the number and types of public architecture.

To address these issues, I will first review some basic information on Mississippian period site architecture. Next, the architecture and spatial layout of Lawton, Spring Lake, Red Lake, and related sites will be described in detail. I will then place the three administrative centers within the greater context of Mississippian mound sites in general, regionally within the

Savannah River valley, and specifically in relation to each other. Both archaeological and ethnohistoric evidence[8] will be included to better understand the functions that architecture may have served among Mississippian period administrative centers.

7.2 Mississippian Period Architecture and Site Organization

Thousands of Mississippian period sites have been tested throughout the southeastern and midwestern United States. The most extensive of these excavations provide a useful dataset from which we can draw conclusions about the nature of Mississippian period architecture and the spatial organization of architectural elements within Mississippian sites. Based on the available literature, Steponaitis (1986:390) concludes that there are four basic types of Mississippian period settlements: 1) large mound-and-village complexes, 2) nucleated villages without mounds, 3) civic-ceremonial centers with small resident populations, and 4) small farmsteads with one to three houses. Williams (1995) defines another category, similar to Steponaitis' third type. This is the "chiefly compound," a settlement "generally under 2 ha in size" whose resident population consists mainly of the chief, his wives, their children, additional kin, and attendants or servants (Williams 1995:133). The chiefly compound, then, is not considered a typical town or village where numerous family groups resided in the same location. Of these proposed settlement types, Lawton, Spring Lake, and Red Lake generally fall into Steponaitis' first or third categories. According to Williams' (1995) definition, Lawton and Spring Lake might also be considered as chiefly compounds.

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[8] Sources from the de Soto expedition and accounts of the Natchez from the lower Mississippi valley will be included. These accounts arguably provide the most extensive descriptions of intact Mississippian societies and historic chiefdoms in the Southeast. No historic account is completely accurate, however. In addition, certain accounts are considered to be less reliable in their details (e.g., Garcilaso on de Soto; Crowley 1993:22-24). Nevertheless, there is much general agreement on Mississippian and early historic lifeways to be found among the ethnohistoric accounts, and much of this has archaeological support (Milner and Schroeder 1999:95-96).

Large mound-and-village complexes, as characterized by Steponaitis (1986:390), range from 1 to 10 ha in extent, were usually occupied by hundreds of inhabitants, and were often surrounded by fortification walls and ditches. Each of these administrative centers has one or more earthen platform mounds (Lindauer and Blitz 1997; Steponaitis 1986:390), at least one open plaza (Holley 1999:24; Kidder 2004; Lewis and Stout 1998:228), and a resident community (Holley 1999:30; Lewis and Stout 1998:240-241; Steponaitis 1986:390).

Of the above defining characteristics, platform mounds and plazas appear to be the most integral components of Mississippian administrative centers. These architectural elements are almost always found adjacent to each other; in the case of single-mound sites, the mound is located on one side of the plaza, and in multiple-mound sites, the mounds surround the plaza, usually in an ordered configuration (Holley 1999:30; Stout and Lewis 1998). This arrangement, often referred to as a sacred precinct, can be found across the great extent of the Mississippian world, and is a characteristic that is retained throughout the entire Mississippian period (Holley 1999:37). As such, the mound-and-plaza combination is viewed by many as central to an architectural design that reflects widely shared social, political, and religious beliefs (Knight 1986; Lewis et al. 1998; Payne and Scarry 1998:23-24; Polhemus 1990:125). Although not occurring at every Mississippian administrative center, extensive fences and palisade walls are relatively common architectural elements that segregated special areas and served defensive purposes.

Mississippian Platform Mounds

Mississippian platform mounds range in height from less than 1 m to approximately 30 m (Lindauer and Blitz 1997:171). The most commonly recognized form is the rectangular truncated pyramid, though other shapes may exist (Caldwell 1955; Payne 1994; Wood and

Williams 2008). They exhibit level summits, and in some cases, tiered summits of differential height. The majority of Mississippian platform mound summits likely supported one or two structures (Hally 1996:93; Lindauer and Blitz 1997), although as many as four have been recorded on a single summit (Kelly 1972; Polhemus 1987; Smith 1994).

Mississippian platform mounds have antecedents in the Woodland period, where earthen platforms were erected at large villages and ceremonial centers since at least 100 B.C. (Lindauer and Blitz 1997:172-173). The proliferation of platform mounds and new, culturally prescribed functions are what separate Mississippian period platforms from their predecessors. In their survey of literature regarding Mississippian platforms, Lindauer and Blitz (1997:175) identify four basic functions that these mounds served: 1) elite / chief's residence, 2) temple / mortuary or ancestor shrine, 3) platforms that served as group meeting places with large summit structures (e.g. council houses), and 4) open-summit, unroofed platform mounds that served as ceremonial stages. The latter function is based on excavations at a single site in Georgia, and appears to be quite rare (Schnell et al. 1981).

The individual construction histories of Mississippian platform mounds vary, but some architectural practices and characteristics of design are relatively widespread. The first is the selection of established locations of social importance within Mississippian sites for the construction of platform mounds. In many cases, the locations chosen for platform mound construction have architectural histories exhibiting complexity beyond that of the usual domestic sphere (Lindauer and Blitz 1997:192). Sub-mound excavations at Mississippian sites commonly reveal the presence of elaborate pre-mound structures bordering central town plazas. These structures are often larger than houses from the associated villages, their interiors contain special seating and internal partitions, and exotic materials and finished goods are sometimes found in or around them (Lindauer and Blitz 1997:192). These are usually ground-level constructions, though some are slightly elevated. In many cases in the Southeast, pre-mound structures had earthen embankments along their exterior walls (Rudolph 1984). Pre-mound structures are usually interpreted as private elite residences or public buildings that served as council houses. They were eventually dismantled or destroyed then covered with mounds, or in the case of earth-embanked structures, the basins filled in to create level platforms (Lindauer and Blitz 1997:192; Rudolph 1984).

The second architectural design characteristic shared by many Mississippian platform mounds is the periodic addition of construction stages, or new earthen mantles, through time (Hally 1996:94; Lindauer and Blitz 1997:173; Steponaitis 1986:390). Buildings on the existing mound summit are dismantled or burned, followed by the addition of a layer of earth (Hally 1996:94; Lindauer and Blitz 1997:173). With few exceptions, this new mound construction stage covers both the mound summit and the mound flanks, resulting in a platform mound of greater height and areal extent (Lindauer and Blitz 1997:174). Larger Mississippian platform mounds often have evidence of many construction stages (Hally 1996:94).

Two interrelated hypotheses have been advanced to explain the addition of new construction stages to Mississippian platform mounds. The first is historic analogy based on the account of the Jesuit priest Le Petit, who lived among the Natchez in the early eighteenth century in Mississippi. As Le Petit noted, "When the great Chief dies, they demolish his cabin, and then raise a new mound, on which they build the cabin of him who is to replace him in this dignity, for he never lodges in that of his predecessor" (Swanton [Le Petit] 1911:103). If this practice occurred in the Mississippian period and was accurately described by Le Petit, several important conclusions can be made regarding platform mounds with multiple stages. First, succession of the office of chief may explain the dismantling of platform mound summit structures, the addition of new earthen mantles, and the construction of new buildings on the enlarged mounds' summits (Hally 1996:95). Second, each mound stage may represent the rule of an individual chief. Anderson (1994:127) estimates that construction stages were added to Mississippian platform mounds in the South Appalachian area every thirty years or so. This is not an implausible span of time for a chief to have held office. Third, Mississippian mound sites that contain several multi-stage mounds may indicate the presence of different descent groups, who added mantles to their respective mounds as their leaders died and were replaced (Hally 1996:95-96; Knight and Steponaitis 1998). Lastly, in Mississippian sites containing one multi-stage mound and one or more single-stage mounds, the mound with multiple stages may represent the mound where the chief resided.

The second hypothesis for the periodic addition of earthen mantles focuses more on symbolism than succession, though it is not incompatible with the latter. Knight (1986:678) views platform mounds as iconic sacred objects, intimately related to an earth/fertility cult institution. In Knight's opinion, it is neither the death of an individual chief nor the ultimate use of the platform mound summits themselves that is important. Rather, the addition of new earthen mantles to Mississippian platform mounds is ultimately tied to a deep cosmological symbolism in which the mounds themselves represent the earth (Knight 1986, 1989). The periodic dismantling of platform mound summit structures, followed by the addition of a new layer of soil over the remains, symbolizes periodic cycles of destruction/pollution followed by renewal/purification that are fundamental and prevalent concepts in Southeastern Native American belief systems. Mississippian elites were able to legitimize and promote sacred chiefly authority through their use of mounds, control of access to them, and by directing the addition of new earthen mantles. Commoners laboring to build or add to the mounds ritually provided for the continuation of the world, while simultaneously reinforcing the chiefly institution tied to mound use.

Determining the function(s) that individual Mississippian platform mounds served is no easy task. Historic looting, mining of soil, and agricultural practices have destroyed structural and artifactual evidence of prehistoric mound-summit activities in the centuries following their abandonment. This is especially true for the final mound stage summits, and for mounds having only one construction stage. Poor excavation techniques have almost certainly masked or destroyed evidence of mound use, and large-scale modern excavation of mound summits is rarely done. Mississippian peoples' practices may also contribute to the lack of evidence for summit activities; periodic cleaning, dismantling of summit structures, and removal of sacred objects and furnishings all diminish available clues to mound use.

Historic accounts of platform mound use and the nature of summit structures are invaluable sources for comparison with the archaeological record. Structures atop platform mounds generally fell into two categories: chief's residence or temple (Robertson [Elvas] 1993; Shelby [Garcilaso] 1993; Swanton 1911; Worth [Biedma] 1993a, [Rangel] 1993b). In addition to serving as a domestic structure, the chief's residence was a place of reception for visiting dignitaries and possibly local leaders who held council with the chief. Descriptions of temples atop platform mounds include their use as mortuaries for the elite, storage of carved statues that represented the chief's ancestors, storage of wealth such as pearls, storage of weaponry, and the location of a sacred fire, which was kept always burning (Robertson [Elvas] 1993; Shelby [Garcilaso] 1993; Swanton 1911; Worth [Biedma] 1993a, [Rangel] 1993b). These two kinds of structures, chief's residence and temple, appear to have been explicitly separate, their functions clearly defined, and their locations atop different mounds.

Both a chief's residence and a temple seem to have been critical elements in the architecture of southeastern chiefdom societies. These culturally prescribed functions for mound-summit structures were necessary for the legitimization and continuation of the system of ascribed social inequality found in the Mississippian world (Wesson 1998:99). The segregation of chiefs' residences atop mounds was an important and powerful cultural statement, both a physical representation of their elevated social status, and a symbolic representation of their position in the cosmos as intermediary between the earth and the heavens (Hally 1996:94-95; Lindauer and Blitz 1997:181; Swanton 1911:103). The temple likewise communicated several powerful messages. The chiefs' divine authority was symbolized in temple statuary, the bones of their ancestors testament to their elite lineage, and accumulated wealth a physical manifestation of the tribute their offices demanded (Hally 1996:94). The sacred fire was sent from the divine Sun, and symbolized the health of the chiefdom (Hally 1996:94; Swanton 1911:170-172). If it were extinguished, death and demise of the society would surely follow.

Other suggested uses of mound summits include locations for council houses in which local leaders met, and in the case of multiple mound sites, residences and temples for subordinate elites or descent groups, and open platforms that served as stages for ceremony (Knight and Steponaitis 1998; Lindauer and Blitz 1997:175). It is also possible that various combinations of the above activities and functions were performed on individual mound summits, but in these cases there were likely multiple summit structures to house them. It is unlikely, for instance, that a chief would reside in the mortuary temple.

Mississippian Plazas

Unlike platform mounds, the main architectural component of plazas is space rather than mass. Plazas consist primarily of open ground, and have a low density of structural evidence, features, and debris. They are found at nearly every Mississippian period administrative center or large village (Holley 1999:24; Lewis et al. 1998:11; Stout and Lewis 1998:151). Although they vary in size and shape, plazas are usually central architectural elements of the sites in which they are found (Holley 1999:24; Kidder 2004:515; Lewis et al. 1998:15; Pauketat 2007:93; Stout and Lewis 1998:159). Plazas are most often bordered by mounds and special-use community buildings (Holley 1999:28-30; Kidder 2004:528; Schroedl 1998:70-71). Whereas mounds and mound summit structures are considered areas of restricted access, plazas are generally viewed as communal areas with relatively open access (Holley 1999:29; Lewis et al. 1998:11).

Plazas have great antiquity in the Southeast, extending back at least 5,000 years (Kidder 2004:516). The use of communal spaces and their place within the greater architectural organization of sites is what separates Mississippian plazas from their antecedent forms. They are part of the seemingly institutionalized mound-and-plaza complex, or sacred precinct, found throughout the Mississippian world (Holley 1999:24; Payne and Scarry 1998:23-24; Stout and Lewis 1998:152). Plazas may have been the first established architectural elements of large villages and mound centers, with the remainder of these settlements surrounding and extending away from them (Stout and Lewis 1998:159). Their ubiquity, central location, and demarcation by special use structures and monumental architecture all testify to their importance in Mississippian community organization.

Archaeological evidence from plazas indicates widely-shared behavior and architectural design (Kidder 2004; Stout and Lewis 1998). Sub-surface testing confirms that plazas were routinely or periodically cleaned of debris; they often exhibit the lowest artifact and feature densities within their respective sites (Hally 2008:123; Payne and Scarry 1998:40). A common architectural element that many plazas share is the presence of one or more large postholes located near their center (Anderson and Schuldenrein 1985:485-490; Boudreaux 2005:195; Hally 2008:122-126). These often supported posts of inordinate size, and the features that remain show evidence of loading and removal ramps, supportive crossmembers, and large rocks used for shoring. These central posts may have served several purposes, as benchmarks from which the remainder of the site was measured or laid out, or as markers or goals around which games or ceremonies were conducted (Hally 2008:125; Stout and Lewis 1998:159). They may also represent the axis mundi, or center of the world, and a link between physical (earth) and spiritual (sky) realms (Knight 1985:107). Though less common, plazas sometimes contained large, covered structures that are interpreted as council houses or public buildings (Hally 2008:123; Kidder 2004:516). In some cases, plazas were actually constructed, being filled and leveled with significant amounts of soil (Kidder 2004; Rodning 2004).

Historic accounts of contact period administrative centers reveal important facts regarding plaza use and the arrangement of architecture in relation to plazas. Members of the de Soto entrada recorded that enemy soldiers were executed in the town plaza during a festival (Shelby [Garcilaso] 1993:102), and a captive who displeased the chief was repeatedly tortured there (Shelby [Garcilaso] 1993:103). These accounts imply that the plaza was a public arena. Events held there increased both the visibility of the event itself and the power of the chief who oversaw them. Eighteenth century accounts of the Natchez in Mississippi describe the use of the plaza as an arena for annual ceremonies conducted by the chief and his subordinate leaders (Swanton [Du Pratz] 1911:112). The plaza also figured prominently as a conspicuous gathering place for sacrificial attendants involved in the funerary rites of the Natchez chief (Swanton [Pénicaut] 1911:140-141). The plaza in one fortified Natchez town held a large, central post, which still bore the proximal ends of its limbs and served as a lookout post (Swanton [Du Pratz] 1911:133). Bartram (1998:330) recorded the use of open yards, perhaps plazas, which were adjacent to mounds among the Creek in the late eighteenth century. These were called "chunk yards" by Euro-American traders, a reference to the Southeastern game of chunkey (Bartram 1998:330). Each of these yards had a central "obelisk," as well as posts in the corners furthest from the mound, to which captives were bound and burnt alive (Bartram 1998:330). Historic Muskogee and Seminole in Oklahoma swept their square grounds, modern equivalents of the plaza, in annual rites of purification (Knight 1989:283). The debris from these sweepings was used in the construction of small mounds used in annual ceremonies (Knight 1989:283).

Historic accounts also describe the placement of the plaza and its relationship to other architecture. These accounts are generally validated in the archaeological record. A plaza and earthen mound were recorded as the initial architectural elements of a newly formed administrative center in sixteenth century la Florida (Shelby [Garcilaso] 1993:185-186). The de Soto narratives further note that some plazas were square (Shelby [Garcilaso] 1993:186) and were centrally located at administrative centers they visited (Shelby [Garcilaso] 1993:331). The areas adjacent to the plazas were reserved for the construction of mounds which supported chiefs' residences and temples (Shelby [Garcilaso] 1993:185-186, 397; Worth [Rangel] 1993b:290), and larger domestic structures that housed nobles and other elites (Shelby [Garcilaso] 1993:186, 331). This same architectural design and segregation of space was seen among the Natchez, where the temple mound and chief's mound were found across from each other, separated by a plaza (Swanton 1911:140, 142, 148, 159, 163), and elite residences were located adjacent to the plaza (Swanton 1911:148).

The cultural importance of plazas as elements of the Mississippian architectural landscape has received attention only recently (Hally 2008; Kidder 2004; Lewis et al. 1998; Pauketat 2007, etc.). Plazas were highly visible, centrally-located arenas often established at the founding of an administrative center or large village, and likely served a multitude of functions (Hally 2008:515; Holley 1999:29; Kidder 2004:515; Lewis et al. 1998:12). Although elites used them from time to time for public address or display, they are generally seen as communal areas of unrestricted access, in essence, “places of the people” (Holley 1999:29; Lewis et al. 1998:11). Plazas provided an institutionalized space for daily interaction, communal ritual, and possibly protest among the members of Mississippian communities (Lewis et al. 1998:15).

These powerful social arenas were certainly not dominated by the common population, however. The design and construction of plazas was likely prescribed and directed by some sort of community leadership (Pauketat 2007:95). Some plazas were the result of intensive labor projects that included transportation and leveling of considerable amounts of soil (Kidder 2004:520; Schroedl 1998:70-71). They provided convenient auditoriums where chiefs and various leaders could address the community from atop their mounds. Some even speculate that the construction of additional mounds adjacent to plazas bounded them further, suggesting increased restriction of access (Kidder 2004:527). Large earthen mounds directly bordering a plaza were certainly powerful, ever-present reminders of social distance at Mississippian mound centers.

Mississippian Walls

Walls are another major category of Mississippian period architecture. In addition to the walls that compose domestic structures, public buildings, and temples, many Mississippian sites yield evidence of free-standing walls (Milner 2000; Schroeder 2006). These free-standing walls segregate unroofed areas within Mississippian sites, or entire sites themselves. Walls of this nature may be divided into two functional categories: palisades, which serve as defensive perimeters, and fences, which demarcate, separate, or connect other architectural elements or activity areas within sites (Milner 2000:51). Just as with platform mounds and plazas, enclosing walls are not a Mississippian period invention. The functions they served within late prehistoric Mississippian period mound centers and villages, however, are perhaps better understood than those of earlier forms. This is due in part to descriptions of enclosures in early historic accounts and large scale excavations that illustrate their relationships with other Mississippian architectural elements.

Palisade walls were substantial constructions consisting of large upright wooden posts, averaging 15 to 25 cm in diameter, and material to fill the gaps between them (likely saplings, river cane, daub, etc.) (Milner 2000:56-57). Some palisades were embellished with guard towers or bastions, and some were constructed on the interior sides of ditches which provided an additional line of defense (Anderson and Schuldenrein 1985:529-531; Hally 2008:167, 122, 181; Robertson [Elvas] 1993:117; Worth [Biedma] 1993a:237, [Rangel] 1993b:301). A small number of Mississippian palisades exhibit actual gates, most of which are parallel, overlapping sections of palisade wall that form narrow entryways (Hally 2008:169-170; Lafferty 1993). A number of other Mississippian palisades include gaps that are likely entryways, but lack evidence of gates or screening walls (Anderson and Schuldenrein 1985:223; Hally 2008:171-172). The presence of gaps in a palisade wall, with or without gates, does not mean these palisades did not serve defensive purposes. Some defensive measures used in palisade openings would leave no archaeological trace, such as that observed among the Natchez: "…if they are in great fear, this opening or passage is filled with brambles and thorns" (Swanton [Du Pratz] 1911:133). Regardless of individual style or design, the construction of palisades was likely a product of coordinated communal labor under the direction of local leadership, and they represent significant investments of labor and resources (Milner 2000:61; Schroeder 2006:117).

The locations of palisades at Mississippian sites varied. In some cases, the palisade wall enclosed the entire site, including both the public and domestic structures of its inhabitants (Hally 2008; Milner 2000:53-54). In other cases, the palisade enclosed a smaller area that included only the plaza, public buildings, and a few domestic structures (Holley 1999:30; Milner 2000:53-54). In a few instances, multiple palisades were present that protected increasingly larger portions of sites (Lewis and Stout 1998:237), or the palisade was expanded as a settlement grew (Schroeder 2006). In all of these cases, the sacred precinct (i.e., the plaza, public buildings, and platform mounds, where they occur) was enclosed by the palisade. Archaeological and ethnohistoric evidence shows clearly that the sacred precinct was specifically targeted during military attacks (Milner 2000:63). This is no surprise given the cultural importance the sacred precinct held in the Mississippian world view; it was the architectural embodiment of "heaven on earth" (Pauketat 2007:100). Physical protection of the chief, the ancestral temple with its sacred fire, and associated important public buildings were necessary in the Mississippian world view.

Not all Mississippian mound centers and villages had palisades (Steponaitis 1986:390). In a survey of 132 Mississippian mound centers, Payne and Scarry (1998:40) report that 47, or 35.6% had palisades. Payne and Scarry (1998:40) caution that this figure may be lower than the actual frequency of palisades among Mississippian mound centers, as large-scale excavations necessary for their exposure are not common. The inconsistent occurrence of palisades indicates they may have been a localized response to stimuli, instead of institutionalized architecture (Lewis and Stout 1998:234-235). Their construction and maintenance was likely driven by real or perceived threats from neighboring polities, which invariably fluctuated through time and by location. This is not to say that the only purpose of palisades was to defend against outside attack. They provided a means of controlling access to a town, and may have been used to monitor commerce (Schroeder 2006:118). Their construction, likely directed by elites and conducted by communal labor, also would have served to reinforce the concept of institutionalized social inequality and the social roles it entailed (Milner 2000:62-67; Schroeder 2006:118). Walls around the sacred precincts certainly reaffirmed the symbolic importance of those areas (Milner 2000:63). I am suggesting, however, that physical defense against military attack was the primary purpose of palisade construction.

Early historic accounts document that many sites in the Southeast included defensive palisades. The de Soto entrada encountered numerous such places during their travels (Robertson [Elvas] 1993:117; Shelby [Garcilaso] 1993:211-212; Worth [Rangel] 1993b:301). A detailed description of one such palisade is found in the de Soto account of the town of Mauvila:

> "The pueblo was situated on a very beautiful plain and had an enclosure three estados high, which was made of logs as thick as oxen. They were driven into the ground so close together that they touched one another. Other beams, longer and not so thick, were placed crosswise on the outside and inside and attached with split canes and strong cords. On top they were daubed with a great deal of mud and packed down with long straw, a mixture that filled all the cracks and open spaces between the logs and their fastenings in such a manner that it really looked like a wall finished with a mason's trowel. At intervals of fifty paces around this enclosure were towers capable of holding seven or eight men who could fight in them. The lower part of the enclosure, to the height of an estado, was full of loopholes for shooting arrows at those on the outside" (Shelby [Garcilaso] 1993:331)

While the height and circumference of the posts described above are certainly exaggerations, the composition and design of the palisade are worthy of note. Palisade design strikingly similar to that of Mauvila was recorded among the Natchez, nearly two hundred years later:

> "When a nation is too weak to sustain the war, it endeavors to build a fort in order to protect itself…This circle is of a size proportioned to the number of warriors and the remainder of the nation which retires there when the enemy are advancing. There are, however, some cabins outside where, in moments of tranquility, are done the things most needful to life, such as cooking meat and corn. These cabins also relieve the fort, which is always very contracted when the entire nation is obliged to retire there. The wall of these forts is composed of great posts, which are made of the trunks of trees a span in circumference, buried 5 to 6 feet in the earth and extending 10 above it, and pointed above. The lines of contact of these posts, however round, are covered inside with other posts a foot in diameter. This wall is provided outside with half towers 40 paces apart. They make them doubtless to prevent scaling. The lower ends of the posts are supported inside by a banquette 3 feet wide by as much in height…The best instructed of these people, as were the Natchez by our soldiers, make about 5 feet above this banquette a kind of penthouse (auvent) with fragments of trees in order to cover themselves from grenades. They also have loopholes which have only one opening outside and two within which correspond to the one. These loopholes are immediately above the banquette" (Swanton [Du Pratz] 1911:133)

The second functional category of Mississippian walls is the fence. These were likely not built for defensive purposes, but for segregating important spaces and possibly obstructing the activities within from public view (Pauketat 2007:99-100). They are less substantial constructions than palisades, being made from smaller diameter posts (Schroeder 2006:118). Fences are often found in direct association with the sacred precincts of Mississippian administrative centers; they enclose mound summits and bases as well as areas adjacent to mounds (Caldwell and McCann 1941; Kelly and Neitzel 1961; Milner 2000:51; Schroeder 2006:118). Unfortunately, early historic accounts of the Southeast make little mention of screening walls, likely because defensive palisades were considerably more important to European plans of conquest or colonization. There are, however, descriptions of mound use by elites that was considered sacred and/or private (Swanton 1911:159). Screening walls here likely served to shield activities from public view or to demarcate sacred architecture or space (Milner 2000:51). One interesting historic example of this comes from the de Soto account of the capital town of Casqui, where de Soto commanded the natives to construct a wooden cross on the summit of the mound. After showing devotion to the cross, the Indians "brought a great quantity of canes and made a wall around it" (Worth [Biedma] 1993a:239). The placement of screening walls on, around, and near platform mounds suggests that they served to reinforce the segregation of sacred and secular space, as well as to enhance the social distance between elites and the general population.

7.3 The Architecture of Lawton, Spring Lake, and Red Lake

Lawton

The known architectural and spatial features of the Lawton site include two earthen rectangular platform mounds, a plaza, and an occupational zone surrounded by a ditch and palisade. The site occupies what appears to be a terrace adjacent to a relict channel of the Savannah River (Figure 7.1). The mounds were constructed very near the old channel, and the site extends to the east, away from the water. The portion of the site enclosed by the ditch is 1.3 to 1.5 ha in extent. Shovel testing indicates that the site continues for at least 80 m to the north and 60 m to the south outside of the ditch, but total site size is not known.

The North Mound at Lawton is the smaller of the two mounds (Figure 7.2). Its base measures approximately 20 m long by 18 m wide, the summit is approximately 10 m long by 9 m wide, and the mound rises approximately 1.7 m above the modern ground surface. These measurements yield a mound volume of roughly 297 m^3. The North Mound is located approximately 3 m from the old river channel. It is apparent that some historic erosion of the bank at this location has occurred, so the distance between the North Mound and the channel was likely greater during site occupation. The long axis of the mound is oriented 12° East of North. The mound has two or three construction stages, confirmed by excavations in both the central portion of the mound and the western mound flank. Stephenson and King recorded an organized arrangement of postmolds under the central portion of the North Mound, evidence that at least one structure occupied this location prior to mound construction (Stephenson and King 2001). Associated with this pre-mound structure was a single human cremation burial with no associated artifacts. My excavations revealed an extensive sub-mound midden that underlay the northwestern portion of the mound and extended beyond its footprint. This midden was densely packed with freshwater mussel shells and artifacts.

The South Mound is slightly larger than the North Mound (Figure 7.3). It has approximate basal measurements of 22.5 m long and 20 m wide, a summit that is 15 m long by 12 m wide, and a height of roughly 2.2 m above modern ground surface. The South Mound has an estimated volume of 525 m^3 of soil. The long axis of the mound is oriented 43° East of grid North. The South Mound is located approximately 30 m to the south of the North Mound, and is roughly 15 m from the edge of the old river channel. Stephenson and King's excavations into the central portion of the mound revealed mottled fill they interpret as a single mound stage, structural remains located on the mound summit, and no sub-mound midden or pre-mound structures.

Another conspicuous architectural feature at Lawton is the ditch surrounding the mounds. The ditch is approximately 310 m in length, 6 to 8 m wide, 1 to 2 m deep, and encloses an area of 1.3 to 1.5 ha. Approximately 768 m^3 of soil were removed to create the ditch. Given that historic alluvium was recorded on the North Mound flank at the site, it is likely that the ditch has also experienced historic sedimentation. The aboriginal depths and volume estimates, therefore, would be somewhat greater than those recorded here. The ditch connects at both ends to the relict river channel; whether the ditch contained water during the site's occupation is unknown, but is unlikely given the elevation of the terrace on which the site resides. It is unclear whether the ditch was constructed in one episode or in multiple episodes. Located along its outside perimeter are several low ridges of earth. This is slightly odd in that most Mississippian sites with enclosing ditches exhibit low ridges along their inner perimeters, presumably to raise the height of palisade walls or to support their bases. It is possible that the soil outside of Lawton's ditch is fill from the ditch's creation, or perhaps from dredging sediment or slump during the use of the site. While most investigators consider the ditch to be an aboriginal feature, it has been suggested that it may be historic (Chester DePratter, personal communication 2009). Strategic excavations across the ditch, within its interior, and along its perimeter should confirm its approximate age. Excavations by Keith Stephenson in summer 2008 confirmed that a daubed wall once stood near the western edge of the site, within the ditched area and adjacent to the old channel (Keith Stephenson, personal communication 2008). This was evidenced by large amounts of daub and a sequence of several postmolds. Whether this was a palisade and whether it continued around the inner perimeter of the ditch and enclosed the entire area is uncertain without additional excavations.

Just outside the ditch to the northeast are two apparent borrow pits (Figure 7.1). It is likely that these provided soil for mound construction. An estimated 873 m^3 of soil was removed from these locations, which is near the total estimated volume for the North and South Mounds combined.

Shovel testing within the ditched portion of Lawton revealed a differential distribution of artifacts (Stephenson and King 2001). Contour mapping of potsherd densities from these shovel tests provides several observations (Figure 7.4). First, this area has a nearly continuous distribution of sherds. Second, areas with relatively high densities of sherds lie to the north and northeast of the North Mound, and to the east of the South Mound. Third, there is an area of noticeably low sherd density between the two mounds. This area of low sherd density likely is a plaza or common area that was kept relatively clear of debris. A test unit excavated in the plaza further supports the low sherd densities found through shovel testing. The shape of the plaza is not clear, but it may be rectangular to ovoid, and approximately 30 m across.

It is worthy of note that the two mounds and the ditch all have different alignments. The alignment of the North Mound is most like that of the surrounding ditch and the area it encloses, while the South Mound diverges from this alignment. Considering the orientation of the mounds in relation to the adjacent plaza, one might expect an ascending ramp on the southern or eastern flanks of the North Mound, or at the corner where those flanks meet. The South Mound may have an ascending ramp on its northern flank, or on its northernmost corner.

Spring Lake

The known architectural and spatial features of the Spring Lake site include a single earthen mound, a plaza, and a habitation area. The site covers approximately 2.16 ha, based on the distribution of artifacts found through shovel testing. Spring Lake lies on a natural levee adjacent to a relict channel of the Savannah River, and the mound is located approximately 5 m to the north of the channel (Figure 7.5).

The Spring Lake mound is rounded, approximately 20 m in diameter, and rises 90 cm above the modern ground surface (Figure 7.6). The mound was likely damaged by historic use, Moore's excavation (1898), and historic erosion, so it is unclear whether the original shape of the mound was circular or square to rectangular. There is, however, a slight linearity suggesting that the mound may once have been square. Mound volume is estimated to be 123 m^3. Excavations revealed a single construction stage and a sub-mound midden. No evidence for summit structures or sub-mound structures was encountered.

Shovel testing revealed a differential distribution of artifacts across the site (Figure 7.7). Contour mapping of potsherd counts from the shovel tests shows a circular ring of higher sherd density with the mound at its southern perimeter. Within this circular distribution of sherds are several points of higher sherd density, most notably two on the northern side, which I have termed village midden deposits. The circular ring of midden surrounds an area just to the north of the mound which yielded either negative shovel tests or shovel tests with low sherd counts. I interpret this area as a plaza. The results of a test excavation in the center of this proposed plaza support the shovel test findings; a relatively low number of artifacts was found, and the sherds recovered were relatively small. The plaza is approximately 45 m across and appears to be circular, but this is based solely on the distribution of midden surrounding it. Given the proximity and location of the mound to this plaza, I would expect an ascending ramp on the northern mound flank that led to or from the plaza.

Red Lake

The known architectural and spatial features of the Red Lake site include three earthen mounds, a plaza, and a habitation area. Artifact distribution from shovel testing indicates that the site is approximately 3.8 ha in extent. The site occupies a natural river levee adjacent to a relict channel of the Savannah River (Figure 7.8). Mounds A and B were constructed near the old channel, and the site extends to the southeast, away from the water.

Mound A, the largest at Red Lake, is approximately 2.8 m in height, 28 to 30 m in diameter, and is rounded in profile. When mapped, the contour data recorded by Dale (2007) shows the mound to be square to rectangular in outline, but this is not apparent in person (Figure 7.9). Few elevation readings were taken on the mound flanks and portions of the summit; those that were give the mound a more rectangular shape than it actually has. Many additional readings will be necessary to define its true shape. The estimated volume for Mound A is 835 m^3. It is located approximately 20 m southeast of the old river channel. Excavations revealed three or four mound construction stages, the earliest of which may be a earth-embanked structure. Also recorded were a sub-mound midden and three postholes that indicate the presence of a sub-mound structure. The sub-mound midden is densely packed with freshwater mussel shell and artifacts and extends beyond the mound's footprint for some distance. This shell midden is very similar in composition and relative location to that found under the North Mound at Lawton. No evidence for summit structures was encountered while cleaning looter's pits on Mound A, but damage to the mound's summit through the years has likely destroyed or severely diminished any such evidence.

Mound B at Red Lake is much smaller than Mound A (Figure 7.10). It stands 58 cm above the present ground surface and is oval in shape, approximately 15 m by 20 m. It is possible that the mound was once rectangular in outline and has been degraded since site abandonment. Additional contour readings across the mound's surface may help further define its shape. An estimated volume for Mound B is 80 m^3. The mound is located north-northeast of Mound A, and is separated from the latter by a distance of roughly 13 m. Mound B has one construction stage and a sub-mound midden. No evidence of sub-mound structures was encountered, and no work on the summit has been conducted.

Mound C, the third mound at Red Lake, is also relatively small (Figure 7.11). It stands approximately 46 cm above the present ground surface. Mound C is oblong in shape, roughly 25 m by 24 m. As with Mounds A and B, it is possible that Mound C was once rectangular in outline, but its shape has been altered since the site was abandoned. Additional contour mapping may help define its shape. The mound is estimated to have a volume of 104 m^3. Mound C is located 38 m to the east-southeast of Mound A and 45 m to the southeast of Mound B. I interpret the Mound C strata reported by Dale (2007) as one construction stage and a sub-mound midden overlain by historic alluvium. No sub-mound structures were encountered. No mound summit excavations have been done.

Artifacts are differentially distributed across the Red Lake site. Contour mapping of sherd counts from shovel testing (Dale 2007) reveals some interesting patterns (Figure 7.12). First, there are numerous locations that exhibit higher sherd densities; these likely reflect areas of concentrated village midden. Second, there are two circular or ring-shaped concentrations within these areas of higher sherd density. The first ring is situated in such a fashion that it includes all three mounds. The second is located to the northeast of the mound area, and is also fairly circular in shape. Third, there are areas of low sherd density surrounded by each of these circular concentrations of higher sherd density. The first of these is surrounded by the mounds, and likely indicates a plaza. This finding was supported by the excavation of a test unit within the proposed plaza, which also showed a relatively low number of sherds, most of which were small in size (Dale 2007). This plaza is 35 to 40 m across and appears circular, but this may be a result of the circular shape of the midden surrounding it. The other area of low sherd density, surrounded by the second midden ring, has not been further tested.

Given the proximity and location of each mound in relation to the plaza, I would expect an ascending ramp on the northeastern or eastern flank of Mound A, on the southeastern flank of Mound B, and on the northwestern flank of Mound C.

7.4 The Architecture of Irene, Beaverdam Creek, and Rucker's Bottom

The architecture and site layout characteristics of additional Mississippian sites within the Savannah River valley may provide analogues to help us better understand Lawton, Spring Lake, and Red Lake. This information is also useful for documenting architectural tradition within the valley, and may give insight to activities and practices similar to or different from this tradition. Irene, Beaverdam Creek, and Rucker's Bottom are among the most extensively excavated and reported large Mississippian period sites in the valley, and they are similar in age to Lawton, Spring Lake, and Red Lake. The architectural characteristics of these sites will be described for both context and comparison.

Irene

Investigations at the Irene site revealed numerous architectural features, including two mounds and an associated complex of structures and enclosures (Caldwell and McCann 1941). The site covered approximately 1.5 ha on a triangular-shaped piece of land on the western bank of the Savannah River, just south of the river's junction with Pipemaker's Creek (Figure 7.13). The large mound at Irene was constructed near the river, and the site extends to the west.

Excavation of the large mound revealed a complex history of construction (Caldwell and McCann 1941:8-21). The first stage consisted of a relatively small earth-embanked structure with a central fire basin, an entryway on the southeastern side, and an entrance ramp (Figure 7.14). The structure was square, constructed in the wall-trench method on the original ground surface of the site, and measured approximately 7.6 m on a side. The earthen embankment surrounding the outer wall of the structure was roughly 38 cm in height. The embankment and ramp were composed primarily of oyster shell covered with sand. The embankments extended beyond the structure to cover an area approximately 12 m wide by 18 m long.

Stage two consisted of another square, earth-embanked structure, identical in orientation and comparable in size to that of stage one (Figure 7.14). The main differences between the stage one and stage two constructions are as follows: the stage two structure was constructed with single-set posts instead of the wall-trench method; the floor of structure two was approximately 5 cm higher than that of the previous stage; more sand was added to the embankments and ramp, bringing the height of the former to 51 cm above the original ground surface; a low, clay bench (2.5 cm in height) was added to the interior wall of the structure, on all sides except for the entranceway.

The third mound construction stage was ill defined, having been damaged by later construction of stage four (Figure 7.15). Stage three appears to have been yet another earth-embanked structure, however, and associated with this structure was a series of walls or enclosures that extended beyond the entryway to the southeast, encompassing a rectangular space in front of the mound that was nearly 21 m long and 18 m wide.

Mound stage 4 is interpreted as another earth-embanked structure, although the embankments were not much taller than the floor of the summit structure (Figure 7.16). The mound measured approximately 21.3 m on a side at the base and 13.1 m on a side at the summit. The embankments stood roughly 1.07 m high, and the central depression, or floor of the summit structure stood at 92 cm in height. Not much is known of the structure or structures occupying the central depression of mound stage 4, but daub, charred cane, and postmolds suggest that structures were present during its use.

Stage five of the large mound saw a shift in construction methods; at this time, the central depression of the previous earth-embanked structure was filled and the mound was shaped into a true platform with a level summit (Figure 7.17). The mound was enlarged, having basal measurements of 29.3 m by 18.3 m, summit measurements of 15.5 m by 14.9 m, and a height of 1.37 m. A structure measuring 6.1 m by 4.9 m occupied the summit, and included a central fire basin with a gutter that extended beyond the structure to the mound flank. Several screening walls were constructed at the mound base and summit, with openings at the ramp and corners of the mound. At some point during its use, a layer of shell was added to the exposed mound surface on every side except the southeastern side, where the ramp was located.

Mound stage six was slightly larger than stage five; the base measured 32.6 m by 25.9 m, the summit measured 18.9 m by 14.9 m, and mound height was increased to approximately 1.5 m (Figure 7.18). Stage six differed from stage five in several ways. Two structures were present on the summit, and the hearth in the southernmost structure was elaborated with a surrounding gutter very similar to the forked-eye motif common to many pots and shell ornaments often associated with the Southeastern Ceremonial Complex. In addition to these differences, the fence enclosing the summit of the mound became more extensive, with the only opening occurring at the entrance ramp. The southernmost summit structure measured approximately 6.7 m by 5.8 m, and had a floor of white sand. The second summit structure was located behind this one, to the northeast. It appears to have been somewhat smaller, and not necessarily rectangular, but much of it had been damaged by historic earth removal. Three small fragments of repoussé sheet copper were found on the summit of stage six.

During stage seven, mound size increases substantially to a height of 2.9 m and basal dimensions of 25.9 m by 19.8 m (Figure 7.19). The lengths of the mound base and summit were indeterminate due to erosion and historic removal of the northern portion of the mound for fill. Stage seven included two ramps leading to the summit, one each on the southeastern and southwestern sides. Portions of a summit wall and two summit structures were recorded, but these were impacted by erosion and historic damage. The southernmost of the two structures was located near where previous structures had stood on earlier mound stages, but was represented only by a single line of posts 10 m in length. The second summit structure lay behind this one, and appears to have been rounded or square with rounded corners, with an attached entryway to the south. The extensive erosion observed on the stage seven summit may indicate that the mound was abandoned for some time before the final stage was added (Caldwell and McCann 1941:18-19).

The eighth and final mound stage dates to the Irene phase (Figure 7.20). This stage differed significantly from all previous mound stages, and may indicate a change in mound use (Caldwell and McCann 1941:18-20). At the time of excavation it was circular in shape and rounded in profile, approximately 48.8 m in diameter and 4.7 m high. This stage consisted of a summit shell layer and two flank shell layers that were covered with sand, obliterating previous ramps and the earlier mound shape. This shell and sand layer was then capped by clay. This final stage contained six human burials, a feature not encountered in the previous seven stages. No evidence for summit structures was found, but the southern flank of the mound revealed fired daub and wall trenches, portions of large enclosures that connected the final mound with the rotunda, a large circular structure located to the southeast. Although Caldwell and McCann do not entertain the notion in their report, it is also possible that the true shape and extent of the final mound stage was altered by historic activity and erosion following site abandonment, resulting in its rounded appearance. It may have been a large, square to rectangular platform mound with summit architecture, similar in form to the previous mound stages.

The second mound at Irene was a low, circular burial mound composed of several layers of shell separated by fill layers of sand (Figure 7.21) (Caldwell and McCann 1941:22-24). This mound was located immediately to the west of the large mound. In its early stages, the burial mound was separated from the large mound by approximately 20 m, but the two were joined in the latter's final, eighth stage. The original portion of the mound consisted of a central shell deposit approximately 5.5 m in diameter and 61 cm deep. This central shell deposit overlay five cremation burials and contained two additional cremation burials. Similar mounds have been reported from St. Catherine's Island off the Georgia coast (Larsen and Thomas 1982) Four of the five cremations under the central shell deposit had associated grave goods; small Savannah period ceramic vessels, a ceramic pipe, and a conch shell bowl. One of the cremations found within the central shell deposit was contained within a Savannah Burnished Plain vessel. The remainder of the burial mound consisted of six additional shell layers overlying and/or adjoining the central shell deposit, each covered by sand, for a total mound size of approximately 16.8 m in diameter and 76 cm in height. The overlying/flanking shell layers contained an additional 99 burials, all primary or secondary interments, most of which were flexed, and none of which were cremations. Only eight of these 99 burials had associated grave goods, which included an Irene Complicated Stamped vessel, shell beads, a bone awl, and a conch shell bowl. The final stage of the large mound overlay the eastern portion of the burial mound, essentially connecting the two. Whether this was intentional or is the result of later erosion is unclear. Ceramics found in the burial mound indicate that it was used during both the Savannah II phase occupation of the site and the later Irene phase.

A third major feature of the Irene site was a mortuary located roughly 8 m south of the burial mound (Caldwell and McCann 1941:25-29) (Figure 7.22). The mortuary began as a relatively small square building with rounded corners and an entryway to the east, and measured approximately 7.3 m on a side. This structure contained four burials, several Irene period ceramic vessels, and evidence suggesting it was a place for processing of human remains for burial. This structure was burned, then covered by a low sand mound, the dimensions of which were obscured by historic plowing. Thirty-four burials were interred in this sand mound, along with numerous Irene phase ceramic vessels. One adult burial found near the center was interred with numerous stone celts, stone disks, polished pebbles, and an incised stone palate. Surrounding and post-dating the low mound was additional cemetery space within two concentric circular enclosures; the inner enclosure measured approximately 13.7 m in diameter, while the outer was 18.3 m in diameter. The enclosures contained a total of 64 burials, only 24 of which had accompanying grave goods, including low numbers of shell pins, gorgets, beads, bone awls, pipes, or red ochre. Four Irene Complicated Stamped vessels were located within the two enclosures.

Located approximately 30 m to the south of the large mound at Irene was a large, circular structure that Caldwell and McCann surmised was a rotunda or council house (Caldwell and McCann 1941:30-32) (Figure 7.23). This structure was composed of six concentric circles of wall trenches with posts, the outermost of which was approximately 36.6 m in diameter. The rotunda was connected to the final stage of the large mound by a series of fences, indicating that it was also constructed during the later Irene period occupation of the site. Evidence suggests that the rotunda was rebuilt over time as the walls that connected the rotunda and the large mound were rebuilt to accommodate the later, expanded rotunda. A ceramic dump adjacent to the southern wall of the rotunda, spilling into the natural draw on the southern side of the site, contained large fragments of many Irene phase ceramic vessels. Seven burials and 15 upright ceramic vessels (all Irene phase types) were found near the center of the rotunda.

In addition to the two mounds, the mortuary, and the rotunda, several houses, walls, and two borrow pits were recorded at the Irene site (Caldwell and McCann 1941:33-37). During the Savannah period, numerous walls were constructed. These include walls enclosing Stage 3 of the large mound and an open area to the southeast of the mound (Figure 7.15), a complex of poorly understood walls in the southwestern and eastern portions of the site, and a 150 m long wall that enclosed both mounds in a 0.74 ha parcel of land (Figure 7.24). Caldwell and McCann suggest that the latter wall enclosing both mounds may have been a defensive palisade (1941:33) The Irene period walls that connected the large mound with the rotunda enclosed an area approximately 0.37 ha in extent that included both the southern flank of the mound and the rotunda itself (Figure 7.25). Many isolated posts were encountered throughout the site, possibly indicating short-term use structures. Despite the large scale excavations and expansive horizontal exposure of the site's features, Caldwell and McCann identify only five structures that are classified as domestic buildings. Based on this, as well as the nature of the monumental architecture and special-use buildings, Caldwell and McCann suggested that Irene did not have a large residential population, but was a ceremonial center that served outlying communities in the lower Savannah River valley and the Georgia-South Carolina coast (1941:69-72).

Beaverdam Creek

The Beaverdam Creek site is also one of the most extensively investigated mound centers in the Savannah River valley (Rudolph and Hally 1985). Located near the confluence of the Savannah River and Beaverdam Creek, the site consists of a single earthen mound and an associated habitation area which covered approximately 1.5 ha (Figure 7.26). The mound was heavily damaged from historic looting, which limited the amount of evidence available from mound summits and associated structures. Despite this, intensive excavations of extant portions of the mound revealed six construction stages and an extensive sub-mound midden (Rudolph and Hally 1985:69-197).

The first stage of the Beaverdam Creek mound was an earth-embanked structure (Figure 7.27). Construction began by covering the underlying midden with a layer of sand to create a level surface. A square structure measuring 7.5 m on a side was built atop this sand floor. Earthen embankments composed of midden soil were piled against the outer walls; these embankments ranged from 40 to 70 cm in height, and 1.7 to 1.8 m in width at their base. No central hearth was located within the structure, but this area had been destroyed by looting. This structure was dismantled, after which several events occurred. First, a layer of dark brown sand was brought in and deposited just inside the embankments; this sand covered the postmolds from the previous structure, and was piled to a height even with that of the earth embankments. This piling of sand reduced the size of the central depression where the structure had stood. Next, a low sand mound with an ovoid central depression was constructed on the northern embankment and the newly deposited sand layer within the structure. An adult male was buried in the depression of this small mound, along with embossed copper artifacts, copper covered ear spools, over 7,000 shell beads, a shell gorget, and a shell button. This burial was then sealed under a 25 cm thick cap of yellow-gray clay.

Stage two of the mound was another square, earth-embanked structure. This second structure was smaller than the previous one, with 6.2 m long walls. Two floors were associated with this structure; the first was 1 to 12 cm higher than that of mound stage one (Figure 7.28).

The second was an additional 2 to 7 cm of soil, and may have been a restoration of the structure's floor (Figure 7.29). The earthen embankments were substantially increased to a height of 1.25 to 1.3 m and a width of 2.2 to 2.7 m. As with the previous stage, very little of the interior floor surface of this structure was intact due to historic looting.

The following construction stage was a shift to a true rectangular platform mound (Figure 7.30). The earth-embanked structure was filled with sand, and the mound was expanded. The base of the mound measured approximately 17 m by 14 m, the summit 14 m by 11 m, and the mound rose 90 cm to 1.5 m above the ground surface. Unfortunately, the summit was severely damaged by looting, with only a small possible portion of a structure floor as evidence of summit architecture (Rudolph and Hally 1985:111).

The second true mound stage at Beaverdam Creek was a square platform, with basal measurements of 18 m on a side (Figure 7.31). The summit of this mound was destroyed by historic looting, so summit measurements were impossible. The summit surface, however, appeared to be only slightly higher than that of the previous mound stage, perhaps by as much as 13 cm. The orientation of the mound shifted slightly, and a ramp was constructed on the northwestern corner. Due to looting damage, no evidence for a summit structure remained.

Mound stage three consisted of another square platform mound (Figure 7.32). Mound size was increased to include basal measurements of 21 m on a side, and an additional 12 cm in height. The summit was heavily disturbed, so the size and nature of the summit and its associated architecture were nearly impossible to determine. Two small portions of wall were located on the summit, however, indicating that some sort of summit structure existed during its use. An adult male burial with no associated grave goods was interred in the northwestern mound flank.

The fourth and final mound stage was also a true platform (Figure 7.33). It appeared to be only slightly larger than the previous construction stage, perhaps 2 cm taller and with similar basal measurements. This final stage was heavily disturbed by historic plowing and looting. A small section of wall was discovered on the badly damaged summit, evidence that a structure once stood there. Two burials were discovered in excavation of mound stage four; one on the northwestern flank that intruded into the burial found in mound stage three, and a deep, intrusive burial on the northern flank of the mound that went well into sterile subsoil. Each of these was an adult male with no associated grave goods.

Test squares, block excavations, and trenches away from the mound at Beaverdam Creek revealed extensive midden, numerous features and postmolds, and one definite structure (Rudolph and Hally 1985:92-110, 199-259). The structure was a 5 m diameter circular building with a wall trench entryway, located just north of the mound (Figure 7.34). Mound stage three overlays the southern portion of this structure, indicating that it predates construction of that stage. Exactly which mound construction stage, if any, this building was associated with was unclear. It was constructed directly atop village midden, its floor leveled with sand similar to that of the first earth-embanked structure. Artifacts located within the structure include stone debitage, potsherds, animal bones, and plant remains, the combination of which is consistent with domestic activities.

Despite the presence of numerous features and postmolds, no other definite structures were identified at Beaverdam Creek. This result brings into question the designation of the site surrounding the mound as a true village. The presence of extensive midden, pottery, stone tools, animal and plant remains, however, seems to indicate the regular occurrence of domestic activities at the site (Rudolph and Hally 1985:240).

Rucker's Bottom

Though not a mound site, Rucker's Bottom is one of the most extensively investigated Mississippian period sites in the Savannah River valley (Anderson and Schuldenrein 1985). This large, multi-component site occupied a river levee on the western bank of the Savannah River, just north of its confluence with Van Creek in Elbert County, Georgia (Figure 7.35). The Mississippian period component of the site covered at least 2.25 ha. Extensive excavations at the site revealed numerous architectural features, including thousands of postmolds and pits, two ditches, and portions of two palisade walls (Figure 7.36). The high number and density of features at the site made identification of individual structures difficult; over forty roughly circular or rectangular arrangements of postmolds were noted (Anderson and Schuldenrein 1985:515). Pottery analyses, absolute dates, and the mapping of features reveal the growth and architectural development of the Rucker's Bottom community through the Beaverdam (A.D. 1200-1300) and Rembert phases (A.D. 1350-1450).

The Beaverdam phase occupation of the site (left side of Figure 7.36) consists of a concentration of structures and features surrounding a plaza (Anderson and Schuldenrein 1985:468). Two possible circular domestic structures were identified in this arrangement; one was approximately 4 m in diameter, and the other was approximately 8 m in diameter. Two large, circular, possibly public structures were also identified; one was approximately 13 m in diameter and bordered the plaza to the south, while the other was approximately 14 m in diameter and was located roughly 20 m west of the plaza. The plaza was only partially excavated, and appears to have been at least 20 m across. Two large, rock-filled pits in the center of the plaza were identified as probable post supports. A possible line of posts, perhaps representing a fence, was identified just to the west of the plaza. Numerous human burials were interspersed throughout the Beaverdam phase village.

During the Rembert phase, occupation of the Rucker's Bottom site was shifted to the northwest (Anderson and Schuldenrein 1985:468-469). The first village arrangement in this location consisted of a group of structures surrounding a plaza, enclosed on the landward side of the site by a semi-circular ditch and palisade (A.D. 1350-1400). Three possible, circular domestic structures were identified in this area, with diameters of 3.5, 4, and 6 m. A square structure, 6 to 7 m on a side, was also identified. One large, circular structure, 14 m in diameter, was found on the southern edge of the plaza. The plaza appears to have been roughly 30 m across, and contained two large, rock-filled pits near the center, similar to those found in the Beaverdam phase plaza.

The semi-circular ditch surrounding the village was at least 150 m long, and ranged from 1 to 2.5 m wide and 0.5 to 1.2 m deep (Anderson and Schuldenrein 1985:523-531). It is possible that the ditch was somewhat deeper, considering the plowzone had been removed prior to its discovery. A palisade wall was erected approximately 2 to 3 m from the inside edge of the ditch, with at least three gaps, ranging from 1 to 2 m in width, allowing access to the main occupation area. This ditch and palisade combination enclosed an area at least 0.35 ha in extent. If the enclosure continued northeast and joined the river, it may have enclosed an area of approximately 1 ha. At some point during the Rembert phase, the site was expanded, and a second ditch and palisade arrangement replaced the first. At least two new structures were identified in the eastern portion of the site expansion; a circular structure roughly 6 to 7 m in diameter, and a square structure that was 6 to 7 m on a side. The second ditch was rectangular, at least 170 m long, and had similar width and depth ranges to the first ditch. A palisade was erected approximately 5 m from the inside edge of the ditch. At least one gap in this ditch and palisade allowed access to the main occupation area of the site. This second ditch and palisade enclosed an area at least 0.66 ha in extent. If the second ditch and palisade connected to the river, the enclosed area may have been 1.2 ha in extent.

7.5 Lawton, Spring Lake, and Red Lake in a Mississippian Architectural Context

Having described Lawton, Spring Lake, and Red Lake, it is worthwhile to place them in the context of Mississippian period sites in general and of those found in the Savannah River valley. First, their main architectural elements are typical of Mississippian period administrative centers. The earthen platforms, plazas, ditch and palisade, and probable habitation zones found among the three sites are decidedly Mississippian in design and likely in use. The organization of those architectural elements is also very characteristic of other Mississippian period mound centers. Each of the sites is home to a sacred precinct, or mound-and-plaza complex, consisting of a cleared area bordered on at least one side by an earthen mound. Artifact distributions at each of the three sites indicate the presence of domestic habitation zones that surround and extend away from the sacred precincts. This general form of site organization is characteristic of Mississippian administrative centers.

The architectural elements found at Lawton, Spring Lake, and Red Lake also seem to fit well within the Mississippian traditions of the Savannah River valley. Seventeen known mound sites are located throughout the valley: I.C. Few, Estatoe, Chauga, Tugalo, Tate, Beaverdam Creek, Rembert, Mason’s Plantation, Hollywood, Lawton, Spring Lake, Red Lake, Fitzner, Hudson’s Ferry 1 and 2, Irene, and Haven Home (Figure 7.37). Lawton is one of three sites in the valley having two mounds, Spring Lake is one of ten sites having single mounds, and Red Lake is one of two sites having three mounds (Table 7.1). Mounds with single construction stages and those with multiple construction stages are among the sites reported (Table 7.2). Of these, mounds with multiple construction stages are more common (13 confirmed) than are those with single stages (four confirmed). Seven mounds, including Lawton's South Mound, have shown conclusive or likely evidence of summit structures; this number would surely be higher if more summit excavations were undertaken (Table 7.3). Sub-mound middens, which occur under Lawton's North Mound, Spring Lake's mound, and all three of Red Lake's mounds, are also relatively common at Savannah River valley mound sites (Table 7.4). Including those from Lawton, Spring Lake, and Red Lake, sub-mound middens were recorded at nine different mound sites under 12 different mounds.

The majority of mound centers in the valley, 13, have confirmed or strongly suggested habitation areas or villages associated with them (Table 7.5). This list includes Lawton, Spring Lake, and Red Lake. Unfortunately, few of these sites have received systematic testing to determine how large their habitation areas are. At those sites that have been extensively tested, their habitation areas range from approximately 1 ha to 3.8 ha in extent.

Aside from those at Lawton, Spring Lake, and Red Lake, plazas have been confirmed only at the Rucker's Bottom village site. This is due in large part to inadequate archaeological testing of Savannah River valley Mississippian sites. Given that plazas appear to be architectural elements integral to most Mississippian administrative centers, I would expect many more sites in the Savannah River valley to have them.

Earth-embanked structures that preceded platform mounds were recorded at Tugalo, Beaverdam Creek, and Irene, and suspected at the Rembert large mound (Caldwell 1953; Caldwell and McCann 1941; Rudolph and Hally 1985; Williams and Branch 1978). As noted during the Red Lake Mound A excavations (Chapter 4), the initial mound stage exhibits a relatively steep slope, which could be the edge of an earthen embankment.

Fences were identified on mound summits and/or around mound bases at the Chauga mound and the large mound at Irene. In addition, a series of rectangular fences connected the Irene large mound with the Irene rotunda. Additional fences are likely to have occurred at other Mississippian sites within the valley.

Palisades have been identified at Rucker's Bottom and Irene, and possibly at Lawton. Of these, the Lawton palisade would have been the most extensive, enclosing 1.3 to 1.5 ha if it continued around the entire parcel of land surrounded by the ditch. The semi-circular palisade at Rucker's Bottom likely enclosed 1 ha, and the subsequent rectangular palisade at that site enclosed approximately 1.2 ha; both estimations assuming that the Rucker's palisades extended to the river. As with Lawton, ditches accompanied each of the Rucker's Bottom palisades. The Rucker's Bottom ditches were much smaller, however, and may have been dug to provide soil for palisade wall daubing or support for the palisades' bases. The potential palisade at Irene, which surrounded both Savannah period mounds, enclosed approximately 0.75 ha. Although these palisades differed in shape and extent, it is important to note that defensive works were present at a number of Mississippian sites in the Savannah River valley.

A number of Savannah River valley sites have similar arrangements of architectural features. In particular, there appear to be similarities between the Hollywood mound site and Lawton (Figure 7.38), and the Red Lake site and Irene. Hollywood Mounds A and B, two platform mounds, were located approximately 33 m apart. In this pair, the smaller mound (Mound B) contained human burials. The distance between Hollywood's mounds is nearly replicated at Lawton, whose pair of mounds is spaced approximately 32 m apart. At Lawton, the smaller mound (North Mound) contained evidence of two cremation burials. In addition, the two Hollywood mounds appear to have had slightly different orientations, which place them out of alignment with each other. This is similar to the different positioning of mounds found between Lawton's North and South Mounds. No off-mound testing has been conducted at Hollywood, but it is possible that a plaza existed between those mounds, just as at Lawton.

Similarities in the layout and organization of architecture may also be seen at Red Lake and Irene. Red Lake's Mound A and B are spaced approximately 12 to 13 m apart, which is nearly identical to the spacing between Irene's large mound and burial mound during the late Savannah period (Figure 7.39). There is no evidence, however, to indicate that Red Lake Mound B is a burial mound. Also, in these arrangements the smaller mounds are found on opposite sides of the larger mounds. The later Irene period layout of the Irene site also may have similarities to the organization of Red Lake's Mounds A, B, C, and plaza (Figure 7.39). At Irene, the large mound and burial mound are located beside each other, adjacent to an open area which may be considered a plaza, and across from a large public structure, the rotunda. At Red Lake, Mounds A and B are located beside each other, adjacent to a plaza, and across from Mound C, a form of public architecture.

The presence of shared architectural traits does not imply, however, that there are no significant differences among these Mississippian sites throughout the Savannah River valley. One characteristic that Lawton, Spring Lake, and Red Lake seem to share that is not seen elsewhere in the valley is their specific placement on the landscape. All three are situated adjacent to oxbow lakes. All other mound sites are located adjacent to the present river channel or near a creek that joins the river. If the location of the modern river channel location is not markedly different from that when the sites were occupied, this difference may indicate at least two different settlement patterns in the valley. Geoarchaeological testing and mapping of the river's course and history of migrations should resolve this issue.

Some Mississippian mound center characteristics occur elsewhere in the Savannah River valley, but not at Lawton, Spring Lake, or Red Lake. First, none of the mounds at these three sites may be characterized as "burial mounds," those mounds whose primary function was interment of human remains. True burial mounds include the Hudson's Ferry I and II sites, Irene's burial mound, and the Haven Home burial mound. Despite archaeological investigations and looting at the sites, the only documented human burials were a possible cremation encountered by Moore in the North Mound at Lawton (1998), and a cremation associated with a sub-mound structure at the same mound (Stephenson and King 2001). Even with these two burials, the North Mound at Lawton should be considered a platform mound with burials, not a burial mound. More extensive testing may reveal evidence for human burials in these mounds, if they exist.

Second, none of these three sites have yielded evidence of elaborate burials of any kind, or considerable participation in trade of exotic or nonlocal materials or finished goods. The clearest evidence of such activities was documented among the Hollywood site Mound B burials and the individual buried prior to the construction of the second earth-embanked structure at Beaverdam Creek. No such activities are indicated by Lawton, Spring Lake, or Red Lake excavations.

Lastly, Lawton, Spring Lake, and Red Lake are located very close to each other. This is an unusual clustering, both within the Savannah River valley and elsewhere in the Mississippian world. They represent a closely-spaced grouping of contemporaneous Mississippian mound centers whose sociopolitical relationships are unclear when measured against several commonly-used variables (site size, number of mounds, size of mounds, etc.).

7.6 An Architectural Comparison of Lawton, Spring Lake, and Red Lake

Having described each site's architecture and spatial layout, and having placed them within the context of Mississippian mound centers and those of the Savannah River valley, I now compare the architectural and spatial characteristics of the three sites. This comparison will help us to determine in what ways and to what degree they are similar or different. Several directly observable architectural and spatial features will be compared, including: site size, number of mounds, size and shape of mounds, mound location, number of mound construction stages, sub-mound middens, plaza size, and defensive works. Inferred mound functions, estimates of site population, and estimates of communal labor at each site will also be compared.

Site Size

Comparing the relative spatial sizes of sites has traditionally been one method of assessing their importance and ranking within local settlement systems (Anderson 1994:117-119; Peebles and Kus 1977:431-432, 440; Wright 1984:43-44). This method is based on the premise that more important sites would have attracted larger numbers of residents, and that larger residential populations would result in more extensive site areas. Naturally, only the areal extent of contemporary components should be compared, as the occupied areas of mound sites often expand or contract through time. Lawton, Spring Lake, and Red Lake are all contemporaneous, and occupied for a relatively short amount of time, so this comparison should be relatively straightforward. Each of the sites is relatively large, but they are not the same size (Figure 7.40). Lawton covers more than 1.5 ha; exactly how large it is remains to be seen with additional shovel testing. Spring Lake covers approximately 2.16 ha and Red Lake covers 3.8 ha. If site size is the primary indicator of relative importance, and the size of Lawton is not substantially underestimated, then the sites may be ranked in the following manner: Red Lake (largest), Spring Lake (middle), Lawton (smallest).

Number of Mounds and Mound Size

The relative number of platform mounds at Mississippian sites has been evoked as a variable indicating hierarchical ranking of administrative centers within a polity (Anderson 1994:324, 1999:216; Hally 1993:143-167, 1999:103-104; Hally et al. 1990:128-129; Lindauer and Blitz 1997:190; Smith and Kowalewski 1980:7). In settlements with more than one mound site, the multi-mound center is often viewed as the primary center, while those with fewer mounds are seen as secondary centers. It is possible that the number of platform mounds at Mississippian sites is a measure of sociopolitical complexity, if the mounds are all contemporaneous and each served a different function. The three sites do vary in number of mounds. Red Lake has the most, with three, followed by two at Lawton and one at Spring Lake. Mound use may is presumably contemporaneous at the three sites, but the exact dating of individual mound construction stages is currently impossible to determine. If having more platform mounds is a reliable indicator of relative prominence among contemporaneous centers, then the sites may be ranked in the following manner: Red Lake, Lawton, Spring Lake.

The relative size of Mississippian platform mounds is another measure commonly used to indicate hierarchical arrangement of the mound centers within a settlement system (Blitz and Livingood 2004). Two competing interpretations seek to explain variation in mound size. The first equates mound size with duration of mound use, proposing that additional construction stages are always added to Mississippian platform mounds through time (Blitz and Livingood 2004:292-293; Hally 1994:157; Williams and Shapiro 1996:147-148). Therefore, larger platform mounds reflect longer histories of use, while smaller platform mounds reflect shorter histories of use. This view assumes that all platform mounds would be enlarged given enough time, regardless of mound function, and that additional construction stages are relatively consistent in size. The implication for differentiation of mound sites based on mound duration is that the primary mound center will have the longest history of mound use.

If the mounds at Lawton, Spring Lake, and Red Lake are sorted according to their number of construction stages, Red Lake Mound A has the most (3-4), followed closely by the Lawton North Mound (2-3), then the remaining mounds, each of which has one construction stage. If duration of mound use is a reliable indicator of ranking among mound centers within a settlement system, Red Lake may be ranked first, followed by Lawton, then Spring Lake.

The second interpretation of variation in mound size equates the size of each mound with the relative power of the chiefs who ordered and directed their construction by communal labor. Therefore, a large platform mound is evidence of a powerful chief, while a small platform mound is evidence of a less powerful or subordinate chief (Blitz and Livingood 2004:292-293). This view ignores the effect of multiple construction stages, and also dismisses platform mound function as a possible factor that could influence mound size.

Without detailed stratigraphic evidence for individual construction stages, the relative importance of the two interpretations for evaluating the mounds at Lawton, Spring Lake, and Red Lake can not be determined (Blitz and Livingood 2004:299). I would argue that each interpretation suffers by ignoring the individual construction histories of each mound (i.e., single versus multiple construction stages), and mound function as critical factors to be considered.

Platform mound size is usually expressed as mound height or mound volume. Individual mound height is variable among the three sites (Table 7.6). Red Lake Mound A is the tallest at

2.8 m, followed by the South and North Mounds at Lawton. The remaining three mounds, one at Spring Lake and two at Red Lake, are relatively low, measuring less than 1 m in height. This measure is potentially faulty in that it presents the final height of Lawton's North Mound and Red Lake's Mound A, which are both multi-stage mounds. If the relative height of contemporaneous mound stages is a more accurate indicator of relative site importance, then the height of each individual mound stage and their ages must be determined. This is not possible with the current data.

Platform mound volume is another measure of mound size that could be used to rank the administrative centers, especially if mound volume correlates with individual leaders' abilities to mobilize the communal labor necessary for their construction (Blitz and Livingood 2004:292-293). The estimated volumes of the platform mounds at the three sites vary considerably (Table 7.7). Mound A at Red Lake is by far the largest individual mound by this measure, followed by the South Mound and North Mound at Lawton. The three remaining mounds have significantly lower volumes. Much like using mound height as an indicator of relative importance, individual mound volume estimates gloss over the presence of multiple construction stages. Two of the three platform mounds exhibiting the largest estimated volumes- Red Lake Mound A and Lawton North Mound- were built in this fashion, so the ranking of each mound by volume may have changed through time.

Total estimated mound volume for each administrative center is another potential indicator of their relative positions within the settlement system. According to this measure, Red Lake exhibits the highest estimated mound volume, followed by Lawton, then Spring Lake (Table 7.8). Unfortunately, these lumped mound volume estimates gloss over the fact that individual mounds may have been constructed at different times, and that two of the mounds were built in multiple construction stages. If the individual construction histories of each mound were known, the total estimated mound volume and ranking associated with this volume per site may have shifted through time. In spite of this problem, this is currently the most informative way to compare mound size among the three sites.

Mound Use

Knowing the actual uses of the Lawton, Spring Lake, and Red Lake mounds would be invaluable for determining the role each site played within the local settlement system. Unfortunately, the archaeological data provide relatively little evidence for the use of individual mounds. Comparing what is known of each mound may, however, provide some insights into mound use.

Mound Shape

The general shape and appearance of the three sites' mounds provides two relatively obvious but distinct categories: rectangular platform mounds and rounded platform mounds. The two mounds at Lawton are striking in that they are clearly well-made rectangular platforms, and have retained most of their original shape since site abandonment. This reflects relatively low impact by historic processes. The mounds at Spring Lake and Red Lake may all be categorized as rounded platforms, with a domed appearance and a footprint that ranges from near circular to oblong. The significance of and causes for these differences is unclear, and will be discussed in further detail below. At the present time, however, there seems to be no known correlation between mound shape at the sites and mound function.

Mound Location

The locations chosen for individual mound construction may reflect the relative importance of mounds within a site. With the exception of Red Lake Mound C, all platform mounds at the three sites were constructed near the water, presumably facing onto plazas. These mound locations were likely chosen to occupy the highest ground afforded by the natural levees at Spring Lake and Red Lake. In addition, this mound positioning at all three sites would allow the mounds and those who used them to command the most prominent positions bordering the plazas, while simultaneously providing platforms from which most of each site could be seen.

Sub-Mound Middens

The presence and nature of sub-mound deposits may also provide useful information to interpret the architectural history of each site and to establish the relative importance of each mound. Sub-mound deposits characterized as "midden" occur under each of the mounds except the Lawton South Mound. Logically, the presence of sub-mound midden indicates that those particular locations were moderately to heavily used by site inhabitants prior to mound construction. All sub-mound middens are not equal, however, and may reflect different activities or activity areas within each site. Some middens likely represent common daily garbage from domestic areas. Other middens may represent debris generated from activities within or around elite residences or public buildings that bordered the plazas. As previously noted, many Mississippian mounds were constructed at locations with special architectural histories reflecting activities beyond the usual domestic sphere. These special histories are reflected in larger or more elaborate pre-mound architecture and unusual artifacts or debris.

The only sub-mound middens that stand out as unusual are the extensive shell middens underlying Lawton's North Mound and Red Lake Mound A. Both of these were composed of thick strata including thousands of mussel shells, vertebrate remains, stone and bone tools, and pottery, covering dozens of square meters. Unusually decorated pottery was found in the Red Lake Mound A shell midden. I interpret these features as evidence of feasting that occurred at special-use areas of Lawton and Red Lake, prior to mound construction (Wood 2005a, 2005b). Each is possibly associated with pre-mound architecture, evidenced by intersecting post alignments under Lawton's North Mound and an arc of postmolds under Red Lake Mound A. Both middens were partially covered by the only two multi-stage mounds located among the three sites. Unfortunately, the sub-mound structures stratigraphically associated with these middens have not been characterized due to limited horizontal exposure. The locations and nature of these two sub-mound middens, as well as the nature of the mounds that postdate them, argue for their relative importance among the architectural elements of Lawton and Red Lake. In addition, the similar architectural histories of these two locations (pre-mound structure, addition of an extensive shell midden, then construction of a multi-stage mound) argue for similarity in the functions these locations and their associated architecture served at the two sites. Inferring through negative evidence, i.e. the lack of such pre-mound architecture, middens, and multi-stage mounds, I would also suggest that the Red Lake Mound B, Mound C, and Spring Lake sub-mound middens were not a product of the same activities that produced the Lawton North Mound and Red Lake Mound A middens. This raises the possibility that the mounds constructed at these locations differed in function from the Lawton North Mound and Red Lake Mound A.

Construction Stages

As noted above, the three sites' mounds may also be categorized by number of construction stages (Table 7.9). Lawton's North Mound and Red Lake Mound A are the only two mounds constructed in multiple stages. The former has two or three construction stages, while the latter has three or four. Though not confirmed, it is possible that the initial construction stage of Red Lake Mound A is an earth-embanked structure. This is suggested by the steep slope of its flank, which is very similar to the embankments found at sites such as

Beaverdam Creek and Irene. All other mounds at Lawton, Spring Lake, and Red Lake have single construction stages. It is possible that platform mounds with single construction stages varied in function from those with multiple construction stages, assuming they were constructed at the same time. It is also possible that the number of construction stages present in each mound indicates duration of mound use, which would place Red Lake Mound A as the longest-used mound, Lawton North Mound as the second longest-used, and the remainder of the mounds being used for shorter duration.

Summit Architecture

Only one mound among the three sites has confirmed evidence of summit architecture; the South Mound at Lawton. The exact nature and architectural characteristics of this structure are unknown. It is very likely that most if not all of the other platform mounds at Lawton, Spring Lake, and Red Lake supported structures of some type. This remains to be proven as archaeological testing of the mounds' summits has been very limited.

Individual summit dimensions of each mound should reveal the potential size and number of structures they could support. The most well-preserved summits are those from the North and South Mounds at Lawton. Their shape and high degree of preservation allows close approximation of their final summit dimensions: 10 m by 9 m for the North Mound, 15 m by 12 m for the South Mound. The rounded and irregular surfaces of the mounds at Spring Lake and Red Lake make summit dimension estimates more difficult, but reasonable approximations can be made. The summits of the Spring Lake Mound and Mounds B and C at Red Lake may be estimated at 8 to 10 m in diameter, while the Red Lake Mound A summit is approximately 12 m in diameter.

Other Mississippian structures and mound summit dimensions from the Savannah River valley may prove useful for comparison. At the Beaverdam Creek site, the successive earth-embanked structures preceding the mound were 7.5 m square and 6.2 m square (Rudolph and Hally 1985). At Irene, the two successive earth-embanked structures that preceded level platform construction of the large mound were approximately 7.6 m square (Caldwell and McCann 1941). The stage five summit of the large mound at Irene measured 15.5 m by 14.9 m, and supported one clearly defined structure that was 6.1 m by 4.9 m. The following stage six summit was larger at 18.9 m by 14.9 m, and supported two structures, one of which was 6.7 m by 5.8 m and another of indeterminate size.

Several Mississippian platform mounds in Georgia and eastern Tennessee are known to have supported multiple structures (Smith 1994:38-39). The Bell Field mound in northern Georgia supported a complex of four closely spaced summit structures, which covered an area approximately 18 m by 20 m in extent, on a tiered summit that was at least 30 m square or larger (Hally and Langford 1988:64; Kelly 1972). The Dyar mound, located in Georgia's Oconee River valley, supported a pair of square summit structures, each of which was approximately 8 m on a side, fronted by a long, rectangular shed-like structure, the size of which was not determined (Smith 1994:32-33). The pair of square structures occupied an area 19 m long and 10 m wide, on a summit that was approximately 20 by 25 m (Smith 1994:32). Similar summit arrangements were recorded at the Hiwassee Island and Toqua mound centers in eastern Tennessee. At Hiwassee Island, a pair of square summit structures measuring 9 m on a side occupied an area approximately 12 m by 25 m in extent, on a summit that was approximately 16 m by 30 m (Polhemus 1987:133). Each of these square structures was fronted by a porch-like structure measuring approximately 3 m by 5 m. A similar arrangement of primary summit structures and porch-like structures was recorded on Toqua Mound A. There, the primary summit structures were square, the measured 7 to 8 m on a side, and together occupied an area approximately 16 m by 9 m in extent (Polhemus 1987). A mound summit greater in size than any recorded at Lawton, Spring Lake, or Red Lake would be required to support such multiple structures, and provide additional summit space found around them.

Given the estimated sizes of the summits from each mound at Lawton, Spring Lake, and Red Lake and the above comparative data, it is likely that each platform mound supported only a single structure. This implies that each mound and its associated summit structure likely served a specific function, as there was not room for a variety of functionally distinct structures on their summits.

Historic Analogy for Mound Use

With such limited archaeological evidence for mound use at Lawton, Spring Lake, and Red Lake, assigning functions to individual platform mounds is largely a matter of speculation. Cautious application of historic analogy based on early accounts may help to differentiate the uses of their individual mounds, and at a larger scale, the role each administrative center occupied within the local settlement system.

Single-mound sites may have served fewer functions than multiple-mound sites. It is also possible that they served the same functions, but in separate structures atop the mound or practiced in a number of mound and non-mound structures. In comparing Lawton, Spring Lake, and Red Lake, it is important is to determine which platform mound function reported in historic accounts is most critical, and thus likely to have occurred at sites such as Spring Lake, which has a single mound that likely supported a single, functionally-specific structure.

Support of the chief's residence is clearly an important, documented use of mound summits, and may account for mound use at single-mound sites. This is based on the idea that living leaders were institutionally segregated from the remainder of the population, and that their rule was legitimized in part by occupation of mound summit structures. Ethnohistoric support for the occupation of the mound summit by a chief in a single-mound town is suggested in one of the de Soto accounts, which reports that such was reserved for the "dwellings of the lord and his family and the people in his service" (Shelby [Garcilaso] 1993:186). According to Swanton, all but one of the chiefs' residences mentioned in the de Soto accounts were built on mound summits (1932:588). Whether these were in towns with one mound or multiple mounds is uncertain

It is also possible that relatively small mound summits at single-mound sites supported only temples, another oft-referenced mound function from the historic accounts. This is based on the idea that living leaders' authority was in part legitimized by their divine lineage, a powerful concept clearly operating among early historic chiefdoms. Unfortunately, there are no accounts that describe a single-mound center whose platform supported a temple.

For sites having more than one contemporary platform mounds, each mound likely served a different function. This idea is supported at Lawton and Red Lake by the relatively small size of their mound summits, and the assumption that each could support only a single structure. Based on some of the de Soto and Natchez accounts, sites with two mounds provided one platform for the chief's residence and one for the temple (Shelby [Garcilaso] 1993:297; Swanton 1911:163; Worth [Rangel] 1993:280). Sites having three or more contemporary platform mounds were either not observed or described historically. Continuing the above line of reasoning, Lawton and Red Lake may have had one mound supporting a chief's residence, one mound supporting a temple, and at Red Lake, another function or activity assigned to the third mound. This third mound may have supported a residence or temple for subordinate elites, a council house for meetings, or may have been open for ceremonial display.

The above assumptions and speculations on individual mound use clearly focus on the scale of individual sites. The archaeological and ethnohistoric records indicate that individual mound centers were only parts of larger settlement systems in which many sites were socially, politically, and economically linked. Some polities included more than one administrative center; in these cases, each center appears to have served a slightly different function. Placing Lawton, Spring Lake, and Red Lake within their collective context may allow for more accurate inferences regarding the function of individual platform mounds at these sites.

Ethnohistoric accounts provide some clues for interpreting the architectural variability found among Mississippian mound centers within contemporary site groupings. One important concept found in both the de Soto accounts and in those for the Natchez is that of hierarchical organization, both of chiefs within a settlement system and of the towns in which they resided. A classic example from the de Soto accounts is the relationship between the leader of Cofa and his elder brother, leader of nearby Cofaqui: “The army having rested five days, it left Cofa to go to another province named Cofaqui, which belonged to an elder brother of the cacique Cofa, richer and more powerful than he” (Shelby [Garcilaso] 1993:265). These familial, hierarchical positions of leadership were also seen among the Natchez: “The chief of the entire nation is the great Sun and his relations little Suns, who are more or less respected according to their degree of proximity to the great chief,” and further, “This great chief commands all the chiefs of the eight other villages” (Swanton [Pénicaut] 1911:100).

These hierarchical relationships were expressed in many social customs, but also reflected in the architecture of towns. Differences in the scale, grandeur, and local use of architecture within a chiefdom is found in the account of the lady of Cofachiqui, a female chief or noble encountered in what is now South Carolina during the de Soto expedition:

> "As for precious stones, the lady said that in her country there were only pearls and that, if they wanted them, they might go to the upper part of the pueblo [the town where this interaction took place]; and, pointing with her finger, she showed them a temple that was there (within sight) of the size of ordinary ones that we have here, and said: 'That house is the burial place of the nobles of this pueblo, where you will find large and small pearls and many seed pearls. Take as many as you like, and if you still want more, one league from here is a pueblo that is the house and seat of my ancestors and the capital of our state [Talomeco]; in it is another temple larger than this one, which is the burial place of my predecessors. There you will find so many seed pearls and pearls that, although you should load all your horses and as many of yourselves as may go there with them, you could not exhaust all that are in the temple'" (Shelby [Garcilaso] 1993:295)

This temple at Talomeco was evidently atop a mound as described by Rangel:

> "In the temple or oratory of Talimeco, there were breastplates, as well as corselets and helmets, made from raw and hairless hides of cows, and from the same [hides] very good shields. This Talimeco was a town of great importance, with its very authoritative oratory on a high mound," (Worth [Rangel] 1993:280)

Upon reaching this capital town of Talomeco, it was described by the Spanish as follows:

> "It had five hundred houses all large and of better materials and workmanship than the ordinary ones. From its arrangement, it seemed to be the seat and court of a powerful ruler, having been constructed with more meticulousness and ornamentation than the other, ordinary pueblos. The houses of the ruler could be seen from a distance, because they were on the highest point and showed themselves to be his by their superiority to the others in size and construction. In the middle of the pueblo, facing the lord's houses, was the temple or charnel house the Spaniards were coming to see" (Shelby [Garcilaso] 1993:297)

This temple, its elaborate furnishings and treasures, funerary remains, and statuary are described in detail. Although the descriptions of Talomeco, the temple, and its riches were no doubt embellished, it appears to have been the most impressive temple recorded in their travels.

Several important points may be taken from these accounts. First, the architecture of the capital town was larger and more elaborate than that of subordinate towns in the chiefdom. This seems to have included special-use structures such as elite residences and temples, an assumption that is generally supported by archaeological evidence. The account also indicates that common domestic structures of the capital town were of better workmanship than "ordinary ones," but this would be difficult or impossible to prove archaeologically. It is important here to note the chief's residence at Talomeco was located on a promontory of some sort; whether natural or artificial is unclear (Shelby [Garcilaso] 1993:297).

Regarding temples, much can be drawn from these and similar accounts dealing with their distribution, elaboration of construction, and purpose. Temples seem to have been present at several of the towns that the de Soto entrada visited. A similar distribution of temples was also recorded among the Natchez. At the death of the great war chief Tattooed-serpent (brother of the great Sun) and the sacrifice of his attendants, the chief was buried in the temple of the capital town, while numerous attendants were "carried into the temples of their own villages in order to be interred there" (Swanton [Le Petit] 1911:149). Further, it was said that "all the peoples of Louisiana have temples, which are more or less well cared for according to the ability of the nation…" (Swanton [De Montigny] 1911:167). In fact, the construction of multiple temples within a chiefdom seems to have been ritually prescribed. This is revealed in the myth of the first descendents of the Sun, a man and woman who gave the Natchez their laws of religion and social governance (Swanton [Du Pratz] 1911:170-171). This man directed them to build a sacred temple, only accessible by the male and female Suns, in which a sacred fire should always burn. In addition, they were to build another temple at the opposite end of their country, in which a sacred fire lit from the first should be kept. This was to ensure that at least one sacred temple fire remained burning to sustain the chiefdom.

Another important aspect of Mississippian temples is revealed in the above Cofachiqui account and affirmed among the Natchez and some of their neighbors; the elaboration of temples corresponded to the rank of the towns in which they were found. Outside of the capital town of Cofachiqui, "ordinary" temples were found at the subordinate towns in the chiefdom (Shelby [Garcilaso] 1993:295). Likewise, in the smaller towns of the Lower Mississippi valley, there were "only very simple temples, which one would often take for private cabins" (Swanton [De Montigny] 1911:167). These less impressive temples were clearly architecturally different from the grand temple of Talomeco and the large temple described at the capital town of the Natchez.

The varied purposes temples served have already been discussed. The Natchez accounts cited above, however, lend an additional detail on the distribution and operation of individual temples. As recorded in the account of Tattooed-serpent's death, chiefs or nobles were buried in their own town temple, even in cases when they died elsewhere (Swanton [Le Petit] 1911:149). Expanding on this idea, it would not be unreasonable to expect that a temple would be constructed at any town that had resident nobility. This is an important architectural caveat if we ascribe to the commonly held view that some form of nobility or leadership was present at each Mississippian administrative center.

Whether a platform mound was required to support individual temples is not explicitly stated in the early historic accounts. In some of the larger towns, mounds with summit temples are clearly described. In the smaller, subordinate towns within a chiefdom, however, no record is made of such mounds supporting the "ordinary" temples that could be mistaken for cabins. Had they been raised on earthen platforms, it seems that this would have been mentioned.

What we can take from the above de Soto and Natchez accounts is as follows: 1) the chiefdoms described in these accounts exhibited sociopolitical hierarchies, 2) these hierarchies were reflected in their settlement systems, each polity having a capital town and subordinate towns, 3) the public architecture of the capital town, specifically elite residences and temples, were also present at subordinate towns, and 4) the chief's residences and temples at the capital towns were more elaborate than similar structures at subordinate towns. If these same practices occurred at Lawton, Spring Lake, and Red Lake, then we may expect each of the sites to have a chief's residence and a temple. If these sites were hierarchically organized, then the chief's residence and/or temple at the primary center may have been larger or been constructed on larger mounds than those at the subordinate centers.

Plaza Size

Plaza size has not traditionally been used to distinguish Mississippian administrative centers within clusters of sites. At centers where only one plaza was used, its size may have been commensurate with the spatial size of the village or the number of people who resided there. This is suggested by the de Soto account of the establishment of a single-mound town: "On the plain at the foot of the hill, natural or artificial, they make a square plaza corresponding to the size of the pueblo that is to be settled…" (Shelby [Garcilaso] 1993:186). Considering that the plaza was a gathering place and arena where ceremonies were presumably conducted for the entire town's observance, it is may be reasonable to assume that a primary administrative center would require a larger plaza than a secondary center. The estimated sizes of the plazas found at Lawton, Spring Lake, and Red Lake vary, but not by much (Table 7.10). They may tentatively be ranked as follows: Spring Lake, Red Lake, Lawton. It should be noted that these plazas are interpreted from areas of lower sherd density found through systematic shovel testing.

Therefore, size and shape estimates actually reflect the ‘cleanest’ portion of each plaza. Sites occupied for a longer time or by more people may contain more sherds, either within or at the borders of their plazas, making them appear smaller.

Walls and Ditches at Lawton, Spring Lake, and Red Lake

Of the three mound sites, Lawton is currently the only one with any evidence for a palisade wall. In addition, Lawton is the only site of the three with a confirmed ditch, a large and conspicuous architectural element. Assuming it was created in one construction episode, this ditch is the single largest earth-moving effort found among the three sites. The volume of soil removed during its creation (approximately 768 m^3) is more than that added in any single construction stage of the Lawton, Spring Lake, or Red Lake mounds. If a palisade enclosed the entire ditched portion of the site, its construction would have required a significant, additional amount of communal labor. As such, the ditch and palisade at Lawton may represent the greatest combined communal labor effort found at the three sites. This level of architectural complexity seems to place Lawton in a separate category from Spring Lake or Red Lake.

Determining the purpose of the Lawton ditch and palisade is important to understanding the site’s function and relationship to Spring Lake and Red Lake. Site defense, and separation of sacred and secular space, have both been invoked as reasons for their construction. The closest Savannah River valley archaeological correlates to these features at Lawton are the successive ditch and palisade combinations recorded at Rucker’s Bottom (Anderson and Schuldenrein 1985). Their design and dimensions may provide some additional perspective on this issue. While similar in form to the ditch at Lawton, the successive ditches at Rucker’s Bottom are somewhat shorter and shallower. The first was at least 150 m long, 1 to 2.5 m wide, and 0.5 to 1.2 m deep; if it extended to the river, it may have been 200 m long. The second was at least 170 m long, and had similar width and depth ranges to the first; if it continued to the river, it may have been 240 m long. In comparison, the Lawton ditch is approximately 310 m long, 6 to 8 m wide, and 1 to 2 m deep. Anderson and Schuldenrein (1985:529-531) are noncommittal in their interpretation of the Rucker's Bottom ditches and palisades for defense or demarcation of space. They do, however, refer to these features as fortifications and defensive systems, perhaps revealing their opinion on the matter. It may be reasonable to consider the palisades at Rucker's Bottom as defensive enclosures, while the relatively narrow and shallow ditches may have provided daubing or support material for the wall itself.

Another ditch and palisade combination similar to what may have existed at Lawton was recorded at the King site in northwestern Georgia (Hally 2008). The ditch at King was approximately 405 m long, 3.7 to 4.6 m wide, and 0.7 to 1.3 m deep, though Hally estimates original depth at 1.5 m (2008:175, 180). Comparing a sample of known Mississippian ditches, Hally suggested that only the larger ones, perhaps around 1.5 m deep and 3 m wide, were likely to be defensive in nature (2008:181). Ditches of this size would present a formidable obstacle to oncoming attackers. The ditch at King meets these criteria, leading Hally to conclude that it was "clearly a defensive feature" (Hally 2008:181). Aside from a few shallow spots in the ditch that may be the result of modern alluviation and erosion, the ditch at Lawton meets and exceeds these criteria, and, by similar argument, would likely be a defensive feature.

Support for some Mississippian ditches being defensive in nature is provided by the de Soto accounts from what is now northeastern Arkansas. These describe in detail the historic enmity and conflict between the two neighboring chiefdoms of Casqui and Pacaha. Of particular note here is the influence that conflict had on the architecture of their towns. The capital town of Pacaha, where the chief lived, was fortified in the following manner: "…the town where the cacique lived, which was very large, enclosed, and furnished with towers; and in the towers and stockade many loopholes…Where the governor was lodged, there was a large marsh which came near to the enclosure, and entered through a ditch round about the town so that but little of the town remained to enclose…" (Robertson [Elvas] 1993:117). A second account supports this description more simply: "and then we saw the town on a plain, well palisaded and with a moat of water around it, dug by hand" (Worth [Biedma] 1993a:239). A third is similarly supportive: "…and on Wednesday they arrived at the town of Pacaha, a town and lord of great renown and very esteemed in those parts. That town was very good and very well palisaded, with towers on the walls, and with a ditch roundabout, and most of it filled with water, which enters through an irrigation ditch that flows from the river" (Worth [Rangel] 1993b:301). Aside from the supposed "irrigation ditch," and the confirmed presence of water within the surrounding ditch, these descriptions of the defensive fortifications at Pacaha's capital town are similar to those of Lawton.

I am of the opinion that the ditch and palisade at Lawton were defensive in nature. If the intention of the occupants was to merely create a visual boundary of the sacred precinct, a simple, non-labor intensive fence would have sufficed. The actual excavation of a large ditch and the construction of a palisade wall, however, seems an excessive and unnecessary effort to merely illustrate a boundary between sacred and secular space. I would argue that Lawton's ditch and palisade were constructed with the intent of protecting the sacred precinct of that mound center from military attack.

If these features at Lawton did indeed serve a defensive purpose, it would seem odd if similar features were absent at nearby, apparently contemporaneous, Spring Lake and Red Lake. Due to their proximity, any real or perceived offensive threat to Lawton would in theory be shared by all three of the sites. No obvious ditches were found at Spring Lake or Red Lake, despite extensive field observations and detailed topographic mapping. If shallow ditches were present at these sites, there is a chance that they were filled with historic alluvium and are effectively invisible. It is possible, of course, that palisade walls alone were present at Spring Lake and Red Lake. Support for this idea is found in the accounts of Pacaha. These records clearly state that the province or chiefdom of Pacaha was composed of several towns besides the capital town. They were also fortified, but no ditches were noted: "Located at a league and half a league [from the capital] were large towns, all enclosed," and, "In Aquijo and Casqui and this Pacaha they saw the best towns that they had seen up to then, and better palisaded and fortified…" (Robertson [Elvas] 1993:117; Worth [Rangel] 1993b:301). It makes logical sense that an additional line of defense might have been added to the primary administrative center, as it was in Pacaha, to protect both the head chief, the main temple, and the most sacred of sacred precincts within the chiefdom. Enclosing palisades may have sufficed at subordinate towns or secondary administrative centers in a hierarchical arrangement. We know from the de Soto account of Mauvila that palisades occurred as far east as Alabama; it is likely that they were also constructed in Georgia and surrounding areas (Shelby [Garcilaso] 1993:331). If palisades were present at Spring Lake and Red Lake, a systematic stripping or trenching of village deposits, perhaps at the sites' borders, should reveal them.

Yet another viable explanation for the obvious presence of enclosures at Lawton and the lack of such at Spring Lake and Red Lake is chronological in nature. If Lawton was occupied at a slightly different time than the other two mound centers, it may have experienced a threat that the others did not.

We may take the following points from the above discussion: 1) enclosing walls and ditches were present at sites throughout the Mississippian world, including those of the Savannah River valley, 2) some walls and ditches were certainly defensive in nature, and 3) the capital town of a chiefdom may have been protected by multiple lines of defense, including both a ditch and palisade, while subordinate towns may have only had palisades. Comparing what is known of Lawton, I suggest that its ditch and palisade were defensive works, and that the presence of these extensive defenses indicates that mound center's relative prominence to Spring Lake and Red Lake. I also suggest that defensive palisades were present at Spring Lake and Lawton.

Population Estimates

The relative number of domestic structures at Lawton, Spring Lake, and Red Lake are another measure by which the sites can be compared. The best approximation of each site's population would rely on both the size and the number of contemporary domestic structures located there. Unfortunately, no domestic structures have been identified at the three sites, and no large scale village area excavations have been conducted there. Therefore, I must use comparable data for domestic structure size and distribution recorded at other Mississippian sites within the Savannah River valley and surrounding regions.

Relatively few complete domestic structures have been documented and reported among Savannah River valley Mississippian sites. Those that have are fortunately contemporaneous or nearly so with the occupations of Lawton, Spring Lake, and Red Lake. Six possible domestic structures were reported from the Rucker's Bottom site, five of which were circular and one that was square (Anderson and Schuldenrein 1985). These were constructed with single-set posts, and their interior floor areas ranged from 9.62 m^2 to 50.27 m^2, with a mean interior area of 25.93 m^2 (Table 7.11). Three possible domestic structures were reported from the Irene site (Caldwell and McCann 1941:34-36). Each of these was square to rectangular and constructed with single set posts. Two of the three had rounded corners and possible wall-trench entryways. The interior floor areas of these structures range from 9 m² to 36 m², with a mean interior area of 22.97 m² (Table 7.11).

Steere (2007) recently compiled a dataset of 230 domestic structures from a sample of twenty South Appalachian Mississippian sites in Georgia, North and South Carolina, and Tennessee. These include early Mississippian (n=52), late Mississippian (n=149), and general Mississippian (indeterminate Mississippian period age, n=29) structures. Steere observed that early Mississippian domestic structures included both rectangular and circular forms constructed with either wall trench or single-set post methods. These early Mississippian structures had a mean interior floor area of 46 m² (2007:6, 30). By the late Mississippian, house forms are more standardized with square, square with rounded corners, and circular floor plans being most common. Single-set post construction becomes the norm, and the mean interior floor area is 37.7 m² (Steere 2007:6, 30). General Mississippian domestic structures include the above forms and construction methods, with a mean of 52.7 m² interior floor space (Steere 2007:30).

Given the small sample of known Mississippian domestic structures from the Savannah River valley, it may be wise to produce a weighted mean from the interior areas of structures at Irene and Steere's early, late, and general Mississippian samples. The structures from Rucker's Bottom are already included in Steere's calculations, so they will not be repeated in this calculation. The weighted mean of the interior floor areas from these samples is 41.23 m². Given the architectural trends observed by Steere, and the structures recorded at Beaverdam Creek and Irene, I would expect the domestic structures at Lawton, Spring Lake, and Red Lake to be comparable in shape and method of construction to each other. They are likely square,

square with rounded corners, or circular in shape, and constructed with the single-set post method. Using the weighted mean interior area calculation above, square structures would have walls approximately 6.42 m in length, and circular structures would be 7.25 m in diameter. These seem like reasonable estimates. Domestic structures of this size fall well within the range observed at well documented Mississippian sites in northern Georgia and eastern Tennessee (Hally 2008; Sullivan 1995).

Hally et al (1990) divided the area excavated at the 16th century King, Ledford Island, North Mouse Creek, South Mouse Creek, Rymer, and Ledford Island sites by the number of domestic structures recorded at each, to arrive at an estimate of site area per house. They estimate one domestic structure per 470 m² of site area. This calculation allows us to estimate the number of domestic structures at other Mississippian sites where surface collecting or systematic shovel testing provides an idea of a site's areal extent. Applying this formula to Lawton, Spring Lake, and Red Lake results in an estimate of 32, 46, and 81 domestic structures per site, respectively (Table 7.12).

Interpretation of these estimates should be tempered by certain considerations. First, Lawton may include additional domestic structures outside of the ditched portion of the site, but the extent of occupation outside this area is unknown. Second, the formula of 470 m² area per domestic structure is based on mean house sizes larger than that estimated by my weighted mean approach; 61 m² of floor space versus my estimate of 41.23 m² (Hally et al. 1990:128). A smaller domestic structure and its share of public space may take up, on average, an area less than 470 m². This would allow for higher estimates of the number of domestic structures at Lawton, Spring Lake, and Red Lake. Third, only two of the five site areas used in Hally et al.'s calculation contained plazas or public buildings in their excavated areas. This means that in sites with plazas, mounds, and public buildings, the estimated site area per domestic structure would be even greater than 470 m^2. Altering the formula in this manner would result in a decrease of the projected number of domestic structures at Lawton, Spring Lake, and Red Lake, but not in their relative ranking of domestic structures per site.

Populations of prehistoric sites are normally estimated by multiplying the number of domestic structures by the number of people projected to live in each structure. Naroll (1962) projects that the number of occupants of a prehistoric structure will be equal to one tenth of the structure's interior floor area, measured in square meters. Caselberry (1974) provides a higher estimate, suggesting that one sixth of a structure's interior floor area is equal to the number of occupants. Using the weighted mean of 41.23 m^2 for domestic structures at Lawton, Spring Lake, and Red Lake, Naroll's formula predicts 4.1 people per structure while Caselberry's formula predicts 6.9 occupants per structure (Table 7.13). Multiplying these low and high estimates for people per domestic structure by the number of projected structures at each site, I estimate Lawton's population at 132 to 220 individuals, Spring Lake's at 189 to 316, and Red Lake's at 333 to 557 (Table 7.13). Clearly, with the given data, Red Lake's estimated population is the greatest, followed by Spring Lake, then Lawton.

Communal Labor Estimates

Lawton, Spring Lake, and Red Lake each have public architectural features that primarily served their communities, rather than individuals or households. These include mounds, plazas, a ditch, and a palisade. Hally argues that public architecture was "probably conceived and planned by community leaders, constructed and maintained by communal work parties, used by large segments of the community population, and in the long run served to benefit the entire community" (2008:121). Although Hally's example of public architecture is based on the King site, which lacks mounds, it is reasonable to include earthen mounds as public architecture. It is also reasonable to assume that communal labor was responsible for the construction of the public architecture present at Lawton, Spring Lake, and Red Lake. It is also reasonable to assume that the political leaders residing at each site were responsible for the mobilization and direction of such labor projects. We might therefore use the amount of communal labor required for such projects at each site as measures of the authority or power of each mound center's leader.

Various formulations for labor estimates required in earth moving projects have been outlined in the archaeological literature (Erasmus 1965; Hammerstedt 2005; Muller 1986,). Erasmus' (1965) classic example of soil excavation by Mexican laborers using digging sticks yielded an average of 0.52 m^3 per person-hour, or 2.6 m^3 per person for a five hour work day. Muller (1986:200-203) believes this estimate to be rather high. Using instead estimates of soil excavation in modern construction, he suggests a slower rate of 0.36 m^3 per person-hour in soils similar to those in Erasmus' experiments. Hammerstedt (2005) reports an even lower estimate of 0.29 m^3, based on experiments with student labor using a Mississippian replica chert hoe as a digging implement. Labor estimates for mound construction and ditch excavation should also include rates for transport and spreading/deposition of the soil once it is excavated. Erasmus (1965) provided such rates; 0.35 m^3 per person-hour for transportation of soil over a distance of 100 m from the source, and 3.4 m^3 per person-hour for spreading of the soil at its destination. Transportation rates per person-hour are significantly higher if the soil is moved shorter distances (Erasmus' rate was 0.86 m^3 for 50 m transport), but 100 m is the approximate distance from Lawton's mounds to its borrow pits, and also seems reasonable for Spring Lake and Red Lake.

The volume estimates for each mound and the Lawton ditch are shown in Tables 7.14 and 7.15, along with the estimated hours and days required for the excavation of the soil involved in their construction. A five hour work day per person is used, though longer work days are certainly possible. Estimations of time required for transportation and spreading/leveling of soil for each project are found in Tables 7.16 and 7.17, respectively. These estimates are combined to give total person-hours and person-days labor estimates for each work project (Table 7.18). These estimates admittedly overlook the multiple mound construction stages present in the Lawton North Mound and Red Lake Mound A. The size, volume, and labor requirement of each individual construction stage in these cases is not clear. Additionally, if soil removed by ditch excavation at Lawton was merely deposited (perhaps in the old channel), rather than used for mound construction or plaza leveling, the added labor for spreading this soil may be subtracted.

These labor estimates for earth moving may be viewed in a number of ways. Considered as individual work projects, they may be ranked according to the person-hours or person-days required for their construction. This arrangement places Red Lake Mound A as the highest communal labor demand, and Red Lake Mound B as the lowest. Red Lake Mound A is a multi-stage mound, however, and represents three to four construction episodes whose labor requirements likely varied. The same can be said of the Lawton North Mound. Removing them from consideration of single-episode work projects, the Lawton ditch represents the greatest single earth moving effort among the sites.

Considering each site's earth moving work projects in total is another way of ranking the person-hours and person-days of communal labor required at Lawton, Spring Lake, and Red Lake. When arranged this way, the communal labor demands of earth moving are clearly and significantly highest at Lawton, followed by those at Red Lake, and finally by that for the Spring Lake mound (Table 7.19).

Early, unfounded assumptions regarding monumental labor efforts at archaeological sites include inflated labor pool requirements and exaggerated timetables for work projects (Erasmus 1965; Muller 1986). Several modern estimations of earth-moving labor requirements clearly illustrate the fallacy of these ideas. The estimates provided here are no exceptions. The population estimates for each site are certainly large enough to have provided the labor pool necessary for each sites' work projects, especially if a given chief could conscript labor from settlements other than their own. Given the above calculations of person-days required for each earth moving work project, and assuming a communal labor pool of 50 people, no single construction effort would have lasted beyond three weeks (Table 7.20). If the available communal labor pool were increased to 100 or 200 people, the construction times required for each project decrease significantly. In these scenarios, the Lawton ditch could have been constructed in a maximum of five to 10 days, while the smallest mound could have easily been built in one or two days. Each sites' collection of earth moving projects may be compared in the same fashion (Table 7.21). According to these estimates, each sites' combined earth moving projects could be completed in six weeks or less with a labor force of 50 people.

The above comparisons are informative but inherently imprecise. First, the relative chronology of each work project is not known. If mobilization and direction of communal labor by each site's chief is an accurate measure of each site's position within a hierarchy of administrative centers, then it is critical to determine exactly which work projects are contemporaneous. It may be reasonable to assume that each site's work projects were begun when Lawton, Spring Lake, and Red Lake were established as mound centers. This is the situation at the King site, where Hally argues that all public architecture was likely constructed at the establishment of that town (2008:320). In a similar scenario for Lawton, I would expect the initial stage of the North Mound, the entire South Mound, and the ditch to have been constructed at the same time. Lacking accurate volume estimates for the first construction stage of the North Mound, I estimate it at one-third of the total mound volume, based on the observation of three construction stages, although it is unlikely that each construction stage is equal in volume. Following the same scenario for Spring Lake, I would expect the entire mound to have been constructed in one episode. At Red Lake, I would expect the initial stage of Mound A, and the whole of Mounds B and C to have been constructed at the same time. I estimate the initial construction stage of Mound A at one-fourth of the total mound volume, based on the observation of four construction stages.

The labor requirements and work force estimates for these initial communal work projects at Lawton, Spring Lake, and Red Lake are presented in Tables 7.22 and 7.23. According to these measures, the volume of earth moved at the establishment of Lawton as an administrative center, and the corresponding communal labor required for this effort, was approximately 3.5 times greater than that at Red Lake, and over 11 times greater than that at Spring Lake.

It is now well recognized that palisade construction was a labor intensive activity likely conducted using communal labor (Milner 2000; Schroeder 2006). As such, it should be included in labor estimates for Lawton. While the available archaeological evidence is not as strong as we might like, comparative evidence from other Mississippian sites suggests that there probably was a palisade inside the ditch at Lawton. For the following calculations I assume that the palisade follows both the entire channel bank and the interior of the ditch, with two 1.5 m entryways somewhere in its design. At Mississippian sites with ditch and palisade combinations, the palisade is usually offset from the inner bank of the ditch. At the King site, the palisade was spaced an average of 3.75 m from the inside edge of the ditch; at Rucker's Bottom, the palisade was offset an average of 2.5 m from the first ditch, and 5 m from the second. A combined average of the above three examples gives an offset measurement of 3.75 m to the inside of the ditch; this will be assumed for Lawton. These measurements provide for a palisade approximately 392 m in length. Spacing of palisade posts and post diameters vary (Milner 2000:56-57), and these measurements are not reported for Lawton. For my estimates, I used the post spacing reported for the King site palisade, which was 0.47 m from center to center. This provides a post count of 834 for the Lawton palisade.

To estimate the person-hours and person-days required to cut, transport, and install posts, I used examples provided by Coles (1973) and Hammerstedt (2005). Coles estimates 1.17 person-hours per post for these activities, while Hammerstedt estimates roughly 2 person-hours per post. Applying these figures to the projected palisade at Lawton, a low estimate of approximately 195 person-days and a high estimate of approximately 335 person-days were required for its construction (Table 7.24). With a communal labor pool of 50 people, the entire palisade could have been constructed in roughly four to seven work days; with an even larger labor pool, the project could be completed in one to two days (Table 7.25). Assuming the palisade was erected in conjunction with the ditch excavation, estimates for the initial communal labor projects at Lawton are even greater than those at Red Lake and Spring Lake (Table 7.26).

Site Layout and Organization

Comparison of each site's layout, as well as the types and organization of their public architectural elements, reveals both similarities and differences that may be important to understanding their positions within the local settlement system. First, it is of interest that the locations chosen to establish the sites are somewhat different. Lawton appears to occupy the most favorable landform of the three (Figures 4.1, 4.17). It is located at a higher elevation than Spring Lake and Red Lake, and occupies a terrace adjacent to a cutoff channel of the Savannah River. Its position on a slightly higher landform means it was less likely to be affected by seasonal flooding- an important consideration for occupants of the floodplain environment. Spring Lake and Red Lake both occupy natural levees adjacent to cutoff channels, but at elevations lower than that of Lawton. The terrain surrounding these two sites is, on average, much lower than that surrounding Lawton, and would have been subject to periodic flooding. Lawton's location seems preferable in this regard.

In general, the layout of each site appears to conform more to the landscape rather than to any alignment with cardinal directions or celestial observances. This conformity to local topography and bodies of water has been observed at numerous other Mississippian mound sites in the Southeastern and Midwestern U.S. (Payne and Scarry 1998:40). Lawton, Spring Lake, and Red Lake are somewhat linear in form and each parallels a cutoff channel of the Savannah River. The ditched portion of Lawton stretches for approximately 130 m along the channel edge, and extends 90 m inland. Shovel testing indicates the site continues to parallel the channel for at least 80 m to the north and 60 m to the south, but how much further is not known. Spring Lake stretches for 350 to 400 m along a noticeable levee, paralleling the adjacent cutoff channel. At its widest point, the site extends approximately 150 m inland. Red Lake, in a similar fashion, stretches for approximately 450 m on a levee paralleling an adjacent cutoff channel, and is roughly 200 m wide at its widest point. The selection of a river terrace at Lawton and river levees at Spring Lake and Red Lake, all adjacent to cutoff channels, seem to be strategic attempts at similar site placement in the river floodplain. These locations simultaneously reduced flooding, promoted better drainage, provided access to seasonally replenished resources, and made access to floodplain farmland and river backswamps relatively easy.

There are significant similarities in the architectural elements found at each site, as well as their organization. These similarities are testament to a formal site design that all three shared, despite their differences. Each has a sacred precinct composed of a plaza and one or more mounds (Figure 7.41). This sacred precinct is certainly the most obvious central focus of each site, and domestic habitation areas extend around and away from them. Nearly all the mounds are located adjacent to their respective cutoff channels, and occupy the highest ground at each site. This location was chosen for both mounds at Lawton, the single mound at Spring Lake, and Mounds A and B at Red Lake; Red Lake's Mound C is the only exception to this rule. All of the mounds presumably face inward onto their adjacent plazas.

The selection of high ground next to the cutoff channel as the preferred construction location for all but one of the mounds certainly indicates similarity in site planning. Earlier in this chapter, I drew architectural comparisons between the mounds at Lawton and those at Hollywood, as well as the mounds at Red Lake and those at Irene. Here I suggest a slightly different comparison, between the Lawton North and South Mound to Mounds A and B at Red Lake. I argue that these were the most important mounds at Lawton and Red Lake, and that they might be functional mirrors of each other. These pairs are located in similar positions at each site, although Lawton's pair appears to be on opposite sides of the plaza while Red Lake's border the plaza on the same side. Each of these mound pairs contains one multi-stage mound and one single stage mound. Each of the multi-stage mounds (Lawton North and Red Lake Mound A) was preceded by architecture of some sort and an extensive sub-mound shell midden that I have interpreted as evidence of feasting. If my earlier speculation is correct, these two mounds may have served as platforms for chief's residences. This is based on the presence of multiple construction stages and the presumption that the addition of a new mound stage occurred during succession to the office of chief.

The Lawton South Mound and Red Lake Mound B are single stage mounds located next to or across a plaza from a multi-stage mound. The Lawton South Mound is the larger of the two, and is located to the right of the North Mound, if one is facing inland. Red Lake Mound B is considerably smaller than the Lawton South Mound, and is located to the left of Mound A, if one is facing the plaza. Despite these differences in positioning and size, I suspect that the two mounds served the same or similar functions, that of temple platforms. This is based on the idea that temples were necessary architecture of Mississippian administrative centers, and the historic observations of two-mound administrative centers, at which one mound supported the chief's residence, while the other supported the mortuary temple. The disparity in mound size between Lawton's South Mound and Red Lake Mound B may indicate that the Lawton temple was more important than that located at Red Lake. Mound C at Red Lake, located opposite the plaza from Mounds A and B, may have been added slightly later in the site's development, or may have served another function altogether.

Despite similarity in the locations of mounds at the three sites, there are differences in mound shape. As noted above, Lawton is the only site having clearly rectangular platform mounds. All of the mounds at Spring Lake and Red Lake have slightly rounded summits, and their bases are either circular or oblong in appearance. This difference in mound shape could be due to post-abandonment processes such as erosion and the historic use of mound summits. No evidence for historic farming or plowing is evident at Spring Lake or Red Lake, either in excavations or in historic records. It was noted by Moore (1998) that Red Lake Mound A served as a refuge for cattle during flooding. Moore's tests on that mound may have altered its shape, and historic looting has clearly marred its summit. Moore also tested the mound at Spring Lake, and I recovered numerous historic nails from the summit, perhaps indicating its use for a small livestock pen in the nineteenth or early twentieth centuries. Despite these known mound disturbances, it is still surprising that none of the mounds at Spring Lake or Red Lake exhibit more clearly lines of right angle symmetry on their summits, flanks, or bases, as would be expected from rectangular platforms. Perhaps these evidences do not preserve well on smaller mounds such as Red Lake B and C, or the Spring Lake mound. If historic processes damaged and masked the original shapes of these mounds, then the same processes were not in play at Lawton, or were present to a lesser degree.

Another possibility worth consideration is that the mounds at Spring Lake and Red Lake were not rectangular platforms to begin with. Many Mississippian mounds are not recognizable as rectangular platforms, and while some of these have clearly been damaged through historic practices such as plowing, it is no proven fact that all were. Platform mounds clearly predate the Mississippian period; it is not unreasonable to imagine that some shapes or forms other than the rectangular platform were constructed at Mississippian sites. It is also reasonable that differently shaped mounds could have occurred at a single site. Among a sample of 101 Mississippian mound sites, Payne identifies that the great majority of mounds are rectangular platforms, but that truncated cones, conjoined cones, composite rectangular and conical platforms, and idiosyncratic forms also exist (1994:159-164). In a historic example, Bartram described and illustrated at a Creek ceremonial center with two earthen platform mounds, one of which was a truncated cone and one that was rectangular (Waselkov and Braund 1995:168). Although these mounds were in use by Creek Indians in the late eighteenth century, Bartram indicates that they were ancient earthworks predating the Creeks (Waselkov and Braund 1995:168). It is possible that the mounds at Spring Lake and Red Lake were intentionally circular or oblong platforms. In the case of Red Lake's Mound A, this may have been true for all stages, or perhaps the later stages masked the outline of the earlier platforms. A similar pattern can be seen with the large mound at Irene, whose rectangular outline was relatively consistent for seven of the eight mound stages. The final stage was circular and rounded, completely masking the mound's previous shape.

There also seem to be differences in plaza shape among the three sites. None of the plazas have been fully excavated, but higher sherd densities on their borders indicate a rectangular or oblong plaza at Lawton, and circular plazas at Spring Lake and Red Lake. While this variety in shapes remains to be tested further, it is not terribly surprising; just as with mounds, plazas have been documented in many shapes and sizes (Lewis et al. 1998:15). Rectangular plazas surrounded by mounds and later, public buildings, were observed by Bartram among numerous Creek settlements in Georgia, Florida, and the Carolinas (1853:53-57). While no circular plazas were described in historic accounts, it is possible that they too existed.

Lawton is the only site of the three with a confirmed enclosure bordered by a ditch and likely a palisade, which are rectangular in outline. No testing for these features, other than topographic mapping, has been conducted at Spring Lake or Red Lake. This allows for no comparison of enclosing walls or ditches among the sites. It is worthy of note, however, that enclosing palisade and ditch combinations of two different shapes, curved/semi-circular and rectangular, were recorded at the Rucker's Bottom site, while a curved palisade was recorded at Irene. In each of these cases, a Savannah period semi-circular wall was constructed that enclosed a large portion of the site. At Rucker's Bottom, this was replaced by a rectangular ditch and palisade system. At Irene, the palisade wall is not rebuilt, but fences enclosing a rectangular parcel of land were constructed, connecting the large mound with the so-called rotunda.

Differences in mound, plaza, and enclosure shapes could be expected among groupings of contemporaneous Mississippian mound sites. The specific design of monumental architecture and the formality of architectural elements' arrangement at these sites may reflect differences in the functions these administrative centers served within the settlement system. The presence of a mound and plaza complex at each of the three sites satisfies the presumed requirement for such architecture at Mississippian administrative centers. How these elements are constructed and arranged may have been somewhat flexible according to each sites' sociopolitical role. Lawton's rectangular platform mounds, possible rectangular plaza, and rectangular enclosure all seem to indicate an importance placed on right angles, symmetry, and four-sided design. The four-sided design of rectangular platform mounds has been suggested as a cosmogram reflecting southeastern Indians' belief that the world was flat, square, and held up by cords attached at the cardinal directions, or four world quarters (Hudson 1976:122; Knight 1981:46-47, 1989:287). The historic equivalent of square plazas may be seen in the Creek square ground. This open, communal ritual space was bordered by four rectangular buildings; its design and use was ordered and served different social groups (Bartram 1853:53-57; Knight 1986:683; Swanton 1928). It is possible that Lawton's emphasis on four-sided, rectangular design in monumental architecture and division of space reflects a particular formality based in the southeastern ceremonial belief system. This degree of formality in architecture might be expected at the administrative center of a simple chiefdom, or at the primary center of a complex chiefdom. Spring Lake and Red Lake do not seem to exhibit this emphasis on four-sided symmetry.

Rather, the rounded appearance of the mounds and the possible circular shape of their plazas may imply another form of architectural expression. This shared design may indicate that the two sites occupied different positions in the local settlement system in relation to Lawton.

7.7 Site Layout and Architecture Conclusions

Lawton, Spring Lake, and Red Lake provide an important case study of the sociopolitical relationships that existed among closely-spaced, contemporaneous Mississippian administrative centers. The above comparisons of their architecture and site design are informative in a number of ways. First, the sites' architecture and organization of their architectural elements are certainly Mississippian in design. Juxtaposed platform mounds and plazas with associated occupation zones are widely documented throughout the Mississippian world. Secondly, Lawton, Spring Lake, and Red Lake fit well within the known Mississippian architecture of the Savannah River valley. Similar mounds, plazas, villages, and enclosures can be found both upstream and downstream from their location in the interior Coastal Plain.

Despite some basic similarities, however, the sites vary in a number of ways. Differences in the type, number, and size of architectural elements, the organization and layout of those elements, and estimates of population and communal labor requirements are present among the sites (Table 7.27). No single site among the three stands as the clear primary center according to all of these criteria. Therefore, it is necessary to determine the relative strength of each individual criterion to differentiate the three sites.

Site location is a strong criterion. In the floodplain of the Savannah River valley, landforms of higher elevation are less susceptible to periodic, annual flooding. Considering this factor, Lawton's location on an elevated terrace adjacent to the floodplain is preferable to the levee locations of Red Lake and Spring Lake, while still providing Lawton's inhabitants easy access to floodplain resources.

Overall, site size is a weak criterion for comparing the three sites. While Red Lake is significantly larger in extent that Spring Lake, the total size of Lawton is not known. In order to accurately rank the three sites according to size, additional shovel testing at Lawton must be completed.

Number of mounds is a strong criterion for comparison. The number of platform mounds at Mississippian administrative centers is generally seen as a measure of their functional complexity. According to this measure, Red Lake ranks first, followed by Lawton, then Spring Lake.

Number of mound construction stages is also a strong criterion. More numerous mound construction stages are usually associated with greater duration of mound use, and longer occupation span of the administrative center. Red Lake Mound A is ranked first according to this criterion, followed by the Lawton North Mound.

Individual mound height is a criterion that yields mixed results. If each mound is ranked by its height, Red Lake Mound A is the tallest, followed by Lawton's South and North Mounds. Both Red Lake Mound A and Lawton North Mound are multi-stage mounds, however. Throughout much of the occupation span of these centers, the Lawton South Mound was likely the tallest platform mound. The fact that relative individual mound height varied through time makes the strength of this criterion uncertain.

Individual mound volume similarly yields mixed results. Red Lake Mound A is the largest mound by volume, followed by the Lawton South Mound and Lawton North Mound. Just as with mound height, though, individual mound volume measurements do not account for the effect of multiple construction stages. For much of the sites' occupation spans, the Lawton South Mound was likely the largest mound by volume, but was eventually surpassed by Red Lake Mound A. Therefore, the strength of this criterion for ranking of sites is uncertain.

The strength of total mound volume as a criterion for ranking the three sites is uncertain. While Red Lake exhibits the greatest total mound volume, followed by Lawton then Spring Lake, Red Lake likely held this ranking towards the end of the sites' occupation span due to the addition of construction stages to Mound A. For much of their occupation, Lawton was likely the leader in total mound volume.

The height and volume of individual construction stages, or of single-stage mounds might be argued as a strong criterion with which to compare the sites. Lawton's South Mound exhibits the greatest height and volume of any single-stage mound or single mound construction stage among the three sites, possibly followed by the initial mound construction stage of Red Lake Mound A.

A chief's residence and a temple are arguably the most important mound summit structures found at Mississippian administrative centers. Lawton and Red Lake each have enough mounds to have supported these structures, while Spring Lake does not. This is a strong criterion for comparing the sites, but leaves no clear primary center between Lawton and Red Lake.

If my assumptions are correct that the multi-stage Lawton North Mound and Red Lake Mound A supported chief's residences, and that the Lawton South Mound and Red Lake Mound B each supported a temple, then we may compare the sizes of these mounds and rank their occupants or the importance of their temples accordingly. Using these criteria, Red Lake Mound A is the larger of the two residential mounds, having at least one more construction stage than the Lawton North Mound. This could mean that the chief occupying Red Lake Mound A held a higher rank than the chief occupying Lawton's North Mound, or simply that Red Lake was occupied slightly longer. If a new construction stage was added to each of these mounds when their chiefly occupants died, however, it may simply mean that more chiefs died during the occupation of Red Lake. Lawton's proposed temple mound, the South Mound, is significantly larger than Mound B, the proposed temple mound at Red Lake. If the temple mound is largest at the primary administrative center in a hierarchical arrangement, as is suggested by ethnohistoric accounts, then Lawton is ranked higher by this criterion than Red Lake. Since the rank of chiefs and their lineages was reflected in the relative scale or grandeur of their temple architecture, it may also be reasonable to infer that Lawton's larger temple mound reflects a higher rank of Lawton's chief. Based on these observations, I conclude that the criterion of chief's mound size yields somewhat uncertain ranking, while relative temple mound size is a strong criterion for comparison.

Plaza size is a weak criterion for comparison of Lawton, Spring Lake, and Red Lake. While the sites' plazas may be ranked according to size indicated through shovel testing, the differences in size are not significant enough to yield confident results.

The presence, type, and dimensions of defensive works at the sites is a criterion of uncertain strength. Since this data is available only for Lawton, the three sites may not be compared. I have suggested, however, that Red Lake and Spring Lake likely had palisades without defensive ditches, if they had any defensive works at all. The extra level of defense provided by the ditch at Lawton implies higher rank of that site, its sacred precinct, and the elite occupants of that sacred precinct than those of Red Lake or Spring Lake.

Population is a weak criterion for comparison of the three sites. Red Lake likely had a significantly higher population than Spring Lake, but the population of Lawton cannot be accurately estimated until site dimensions are known.

Estimates of communal labor necessary for the construction of all public architecture at each site and that necessary for each site's initial work projects are strong criteria for comparison. According to each of these criteria, Lawton ranks significantly higher than Red Lake, and Spring Lake may be ranked the lowest of the three.

Site layout is a criterion of uncertain strength for comparison of the sites. While compelling similarities are present between the layout of Lawton and the Hollywood site, and Red Lake and Irene, it is not particularly clear what these similarities mean. It is clear that Hollywood was an important mound center during the Hollywood phase, evidenced by its elaborate mound burials with Southeastern Ceremonial Complex grave goods, and by its proximity to the large, but poorly-understood Mason's Plantation site. It is certainly possible that the similarities in site layout between Hollywood and Lawton reflect the transmission of ideology from Hollywood, either through mutual interaction of the two communities, or through the migration of nobility from Hollywood to Lawton. These ties could indicate that Lawton was a more important administrative center than Red Lake. A similar argument could be made between Red Lake and Irene, however. Irene was undoubtedly the most important Mississippian administrative center located near the mouth of the Savannah River, and may have directly influenced the establishment and architectural organization of Red Lake, through transmission of ideology or people. These are intriguing possibilities, but they do not allow for clear ranking of the sites based upon site layout characteristics.

Variations in the above criteria allow for several conclusions regarding Lawton, Spring Lake, and Red Lake. The first is that Spring Lake ranks consistently and significantly lowest according to most of the criteria. Based on this, we may remove it from consideration as a possible primary center in any hierarchical arrangement of the three administrative centers. The second conclusion is that either Lawton or Red Lake could stand alone as administrative centers in a chiefdom; each has enough mounds to support both a chief's residence and a temple. The third conclusion is that the sites do vary according to the above criteria, and that the relative importance of each criterion is somewhat subjective. Considering only those criteria I identify as strong for comparison and ranked among the sites- site location, number of mounds, number of mound construction stages, individual mound construction stage height and volume, communal labor estimates, and the size of temple mounds- Lawton may be ranked higher than Red Lake by a count of five to two. Given this, I suggest that the differences in architecture and site design found among the three sites outweigh their similarities, and that these differences indicate separate roles for each administrative center within the local settlement system.

Table 7.1 Savannah River valley Mississippian Mounds

Site	Mounds
Mason's Plantation	6
Rembert	5
I.C. Few	3
Red Lake	3
Hollywood	2
Lawton	2
Irene	2
Estatoe	1
Chauga	1
Tugalo	1
Tate	1
Beaverdam Creek	1
Spring Lake	1
Fitzner	1
Hudson's Ferry 1	1
Hudson's Ferry 2	1
Haven Home	1

Table 7.2 Savannah River valley Multi-Stage and Single-Stage Mounds

Multi-Stage Mounds	Single-Stage Mounds
Estatoe Mound	Lawton South Mound
Chauga Mound	Spring Lake Mound
Tugalo Mound	Red Lake Mound B
Tate Mound	Red Lake Mound C
Beaverdam Creek Mound	
Rembert Large Mound	
Hollywood Mound A	
Hollywood Mound B	
Lawton North Mound	
Red Lake Mound A	
Irene Large Mound	
Irene Burial Mound	
Haven Home Burial Mound	

Table 7.3 Mounds with Confirmed Summit Architecture

Mound
Estatoe Mound
Chauga Mound
Tugalo Mound
Beaverdam Creek Mound
Hollywood Mound A
Lawton South Mound
Irene Large Mound

Table 7.4 Mounds with Sub-mound Middens

Mound
Tate Mound
Beaverdam Creek Mound
Rembert Large Mound
Hollywood Mound A
Hollywood Mound B
Lawton North Mound
Spring Lake Mound
Red Lake Mound A
Red Lake Mound B
Red Lake Mound C
Irene Burial Mound
Haven Home Burial Mound

Table 7.5 Mound Sites with Habitation Zones

Site	Size
I.C. Few	
Estatoe	≥ 3 ha
Chauga	
Tugalo	> 1 ha
Tate	0.8 ha
Beaverdam Creek	1.5 ha
Rembert	
Mason's Plantation	
Hollywood	
Lawton	> 1.5 ha
Spring Lake	2.16 ha
Red Lake	3.8 ha
Irene	2.4 ha

Table 7.6 Mound Height

Mound	Mound Height (m)
Red Lake Mound A	2.8
Lawton South Mound	2.2
Lawton North Mound	1.7
Spring Lake Mound	0.9
Red Lake Mound C	0.46
Red Lake Mound B	0.58

Table 7.7 Mound Volume

Mound	Mound Volume (m^3)
Red Lake Mound A	835
Lawton South Mound	525
Lawton North Mound	297
Spring Lake Mound	123
Red Lake Mound C	104
Red Lake Mound B	80

Table 7.8 Total Mound Volume per Site

Site	Total Mound Volume (m^3)
Red Lake	1019
Lawton	822
Spring Lake	123

Table 7.9 Construction Stages per Mound

Mound	Construction Stages
Red Lake Mound A	3 to 4
Lawton North Mound	2 to 3
Lawton South Mound	1
Red Lake Mound B	1
Red Lake Mound C	1
Spring Lake Mound	1

Table 7.10 Plaza Shape and Size per Site

Site	Plaza Shape	Plaza Size
Spring Lake	Circular	45m diameter
Red Lake	Circular	35 to 40m diameter
Lawton	Rectangular to Ovoid	30 m across

Table 7.11 Rucker's Bottom and Irene Domestic Structures

Site	Phase/Period	Structure Shape	Structure Size	Interior area m^2
Rucker's Bottom	Beaverdam	Circular	8m diameter	50.27
		Circular	4m diameter	12.57
	Rembert	Square	6.5m X 6.5m	42.25
		Circular	6m diameter	28.27
		Circular	4m diameter	12.57
		Circular	3.5m diameter	9.62
Irene	Savannah	Square	6m X 6m	36
	Savannah	Rectangle	4.6m X 5.2m	23.92
	Savannah/Irene	Square	3m X 3m	9

Table 7.12 Estimated Number of Domestic Structures per Site

Site	Area (ha)	Domestic Structures
Lawton	1.5	32
Spring Lake	2.16	46
Red Lake	3.8	81

Table 7.13 Estimated Population per Site

Site	Domestic Structures	Interior Floor Space per Structure (m²)	People Per House (Naroll)	Population (Naroll)	People Per House (Casselberry)	Population (Casselberry)
Lawton	32	41.23	4.1	132	6.9	220
Spring Lake	46	41.23	4.1	189	6.9	316
Red Lake	81	41.23	4.1	333	6.9	557

Table 7.14 Estimated Excavation Hours per Work Project

Work Project	Volume (m³)	Excavation hours (Erasmus)	Excavation hours (Muller)	Excavation hours (Hammerstedt)
Red Lake Mound A	835	1605.8	2319.4	2879.3
Lawton Ditch	768	1476.9	2133.3	2648.3
Lawton South Mound	525	1009.6	1458.3	1810.3
Lawton North Mound	297	571.2	825.0	1024.1
Spring Lake Mound	123	236.5	341.7	424.1
Red Lake Mound C	104	200.0	288.9	358.6
Red Lake Mound B	80	153.8	222.2	275.9

Table 7.15 Estimated Excavation Days per Work Project

Work Project	Volume (m³)	Excavation days (Erasmus)	Excavation days (Muller)	Excavation days (Hammerstedt)
Red Lake Mound A	835	321.2	463.9	575.9
Lawton Ditch	768	295.4	426.7	529.7
Lawton South Mound	525	201.9	291.7	362.1
Lawton North Mound	297	114.2	165.0	204.8
Spring Lake Mound	123	47.3	68.3	84.8
Red Lake Mound C	104	40.0	57.8	71.7
Red Lake Mound B	80	30.8	44.4	55.2

Table 7.16 Estimated Transportation Hours and Days per Work Project

Project	Volume (m³)	Transport hours (Erasmus 100m)	Transport days (Erasmus 100m)
Red Lake Mound A	835	2385.7	477.1
Lawton Ditch	768	2194.3	438.9
Lawton South Mound	525	1500.0	300.0
Lawton North Mound	297	848.6	169.7
Spring Lake Mound	123	351.4	70.3
Red Lake Mound C	104	297.1	59.4
Red Lake Mound B	80	228.6	45.7

Table 7.17 Estimated Spreading/Leveling Hours and Days per Work Project

Project	Volume (m³)	Leveling Fill hours (Erasmus)	Leveling Fill days (Erasmus)
Red Lake Mound A	835	245.6	49.1
Lawton Ditch	768	225.9	45.2
Lawton South Mound	525	154.4	30.9
Lawton North Mound	297	87.4	17.5
Spring Lake Mound	123	36.2	7.2
Red Lake Mound C	104	30.6	6.1
Red Lake Mound B	80	23.5	4.7

Table 7.18 Estimated Total Earth Moving Hours and Days per Work Project

Work Project	Volume (m^3)	Total Earth Moving hours (Erasmus)	Total Earth Moving days (Erasmus)
Red Lake Mound A	835	4237.1	847.4
Lawton Ditch	768	3897.1	779.4
Lawton South Mound	525	2664.0	532.8
Lawton North Mound	297	1507.1	301.4
Spring Lake Mound	123	624.1	124.8
Red Lake Mound C	104	527.7	105.5
Red Lake Mound B	80	405.9	81.2

Work Project	Volume (m^3)	Total Earth Moving hours (Muller)	Total Earth Moving days (Muller)
Red Lake Mound A	835	4950.7	990.1
Lawton Ditch	768	4553.5	910.7
Lawton South Mound	525	3112.7	622.5
Lawton North Mound	297	1760.9	352.2
Spring Lake Mound	123	729.3	145.9
Red Lake Mound C	104	616.6	123.3
Red Lake Mound B	80	474.3	94.9

Work Project	Volume (m^3)	Total Earth Moving hours (Hammerstedt)	Total Earth Moving days (Hammerstedt)
Red Lake Mound A	835	5510.6	1102.1
Lawton Ditch	768	5068.4	1013.7
Lawton South Mound	525	3464.8	693.0
Lawton North Mound	297	1960.1	392.0
Spring Lake Mound	123	811.7	162.3
Red Lake Mound C	104	686.4	137.3
Red Lake Mound B	80	528.0	105.6

Table 7.19 Estimated Total Earth Moving Hours and Days per Site

Project	Volume (m^3)	Total Earth Moving hours	Total Earth Moving days
Lawton (Erasmus)	1590	8068.2	1613.6
Red Lake (Erasmus)	1019	5170.7	1034.1
Spring Lake (Erasmus)	123	624.1	124.8
Lawton (Milner)	1590	9427.2	1885.4
Red Lake (Milner)	1019	6041.7	1208.3
Spring Lake (Milner)	123	729.3	145.9
Lawton (Hammerstedt)	1590	10493.3	2098.7
Red Lake (Hammerstedt)	1019	6724.9	1345.0
Spring Lake (Hammerstedt)	123	811.7	162.3

Table 7.20 Earth Moving Labor Force Estimates per Work Project

Work Project	Volume (m^3)	Total Earth Moving days (Erasmus)	50 person workforce (days)	100 person workforce (days)	200 person workforce (days)
Red Lake Mound A	835	847.4	16.9	8.5	4.2
Lawton Ditch	768	779.4	15.6	7.8	3.9
Lawton South Mound	525	532.8	10.7	5.3	2.7
Lawton North Mound	297	301.4	6.0	3.0	1.5
Spring Lake Mound	123	124.8	2.5	1.2	0.6
Red Lake Mound C	104	105.5	2.1	1.1	0.5
Red Lake Mound B	80	81.2	1.6	0.8	0.4

Work Project	Volume (m^3)	Total Earth Moving days (Muller)	50 person workforce (days)	100 person workforce (days)	200 person workforce (days)
Red Lake Mound A	835	990.1	19.8	9.9	5.0
Lawton Ditch	768	910.7	18.2	9.1	4.6
Lawton South Mound	525	622.5	12.5	6.2	3.1
Lawton North Mound	297	352.2	7.0	3.5	1.8
Spring Lake Mound	123	145.9	2.9	1.5	0.7
Red Lake Mound C	104	123.3	2.5	1.2	0.6
Red Lake Mound B	80	94.9	1.9	0.9	0.5

Work Project	Volume (m^3)	Total Earth Moving days (Hammerstedt)	50 person workforce (days)	100 person workforce (days)	200 person workforce (days)
Red Lake Mound A	835	1102.1	22.0	11.0	5.5
Lawton Ditch	768	1013.7	20.3	10.1	5.1
Lawton South Mound	525	693.0	13.9	6.9	3.5
Lawton North Mound	297	392.0	7.8	3.9	2.0
Spring Lake Mound	123	162.3	3.2	1.6	0.8
Red Lake Mound C	104	137.3	2.7	1.4	0.7
Red Lake Mound B	80	105.6	2.1	1.1	0.5

Table 7.21 Earth Moving Labor Force Estimates per Site

Site	Volume (m³)	Total Earth Moving days	50 person workforce (days)	100 person workforce (days)	200 person workforce (days)
Lawton (Erasmus)	1590	1613.6	32.3	16.1	8.1
Red Lake (Erasmus)	1019	1034.1	20.7	10.3	5.2
Spring Lake (Erasmus)	123	124.8	2.5	1.2	0.6
Lawton (Milner)	1590	1885.4	37.7	18.9	9.4
Red Lake (Milner)	1019	1208.3	24.2	12.1	6.0
Spring Lake (Milner)	123	145.9	2.9	1.5	0.7
Lawton (Hammerstedt)	1590	2098.7	42.0	21.0	10.5
Red Lake (Hammerstedt)	1019	1345.0	26.9	13.4	6.7
Spring Lake (Hammerstedt)	123	162.3	3.2	1.6	0.8

Table 7.22 Estimated Earth Moving Hours and Days for each Site's Initial Work Projects

Site	Volume (m³)	Total Earth Moving hours	Total Earth Moving days
Lawton (Erasmus)	1392	7063.5	1412.7
Red Lake (Erasmus)	393	1994.2	398.8
Spring Lake (Erasmus)	123	624.1	124.8
Lawton (Muller)	1392	8253.2	1650.6
Red Lake (Muller)	393	2330.1	466.0
Spring Lake (Muller)	123	729.3	145.9
Lawton (Hammerstedt)	1392	9186.6	1837.3
Red Lake (Hammerstedt)	393	2593.6	518.7
Spring Lake (Hammerstedt)	123	811.7	162.3

Table 7.23 Earth Moving Labor Force Estimates for each Site's Initial Work Projects

Site	**Volume (m^3)**	**Total Earth Moving days**	**50 person workforce (days)**	**100 person workforce (days)**	**200 person workforce (days)**
Lawton (Erasmus)	1392	1412.7	28.3	14.1	7.1
Red Lake (Erasmus)	393	398.8	8.0	4.0	2.0
Spring Lake (Erasmus)	123	124.8	2.5	1.2	0.6
Lawton (Muller)	1392	1650.6	33.0	16.5	8.3
Red Lake (Muller)	393	466.0	9.3	4.7	2.3
Spring Lake (Muller)	123	145.9	2.9	1.5	0.7
Lawton (Hammerstedt)	1392	1837.3	36.7	18.4	9.2
Red Lake (Hammerstedt)	393	518.7	10.4	5.2	2.6
Spring Lake (Hammerstedt)	123	162.3	3.2	1.6	0.8

Table 7.24 Estimated Hours and Days for Lawton's Palisade Construction

Work Project	**Length (m)**	**Posts**	**Total hours (Coles)**	**Total days (Coles)**	**Total hours (Hammerstedt)**	**Total days (Hammerstedt)**
Lawton Palisade	392	834	975.8	195.2	1673.2	334.6

Table 7.25 Labor Force Estimates for Lawton's Palisade Construction

Work Project	**50 person workforce (days)**	**100 person workforce (days)**	**200 person workforce (days)**
Lawton Palisade (Coles)	3.9	2.0	1.0
Lawton Palisade (Hammerstedt)	6.7	3.3	1.7

Table 7.26 Total Labor Force Estimates for each Site's Initial Work Projects

Site	Total Work days	50 person workforce (days)	100 person workforce (days)	200 person workforce (days)
Lawton (Erasmus, Cole)	1607.9	32.2	16.1	8.0
Lawton (Erasmus, Hammerstedt)	1747.3	34.9	17.5	8.7
Red Lake (Erasmus)	398.8	8.0	4.0	2.0
Spring Lake (Erasmus)	124.8	2.5	1.2	0.6
Lawton (Muller, Cole)	1845.8	36.9	18.5	9.2
Lawton (Muller, Hammerstedt)	1985.2	39.7	19.9	9.9
Red Lake (Muller)	466.0	9.3	4.7	2.3
Spring Lake (Muller)	145.9	2.9	1.5	0.7
Lawton (Hammerstedt, Cole)	2032.5	40.7	20.3	10.2
Lawton (Hammerstedt)	2171.9	43.4	21.7	10.9
Red Lake (Hammerstedt)	518.7	10.4	5.2	2.6
Spring Lake (Hammerstedt)	162.3	3.2	1.6	0.8

Table 7.27 Architecture and Site Layout Criteria

Criterion	Lawton Rank	Red Lake Rank	Spring Lake Rank	Strength of Criterion
Site Location	1	2	2	Strong
Site Size	3?	1	2	Weak
Number of Mounds	2	1	3	Strong
Number of Mound Construction Stages	2	1	3	Strong
Individual Mound Height	2	1	3	Uncertain
Individual Mound Volume	2	1	3	Uncertain
Total Mound Volume	2	1	3	Uncertain
Individual Construction Stage Height and Volume	1	2	3	Strong
Mound Use	Chief's Residence	Chief's Residence	?	Strong
	Temple	Temple	?	Strong
Chief's Mound	2	1	?	Uncertain
Temple Mound	1	2	?	Strong
Plaza Size	3	2	1	Weak
Defensive Works	Ditch and Palisade	?	?	Uncertain
Population	3?	1	2	Weak
Communal Labor for All Public Works	1	2	3	Strong
Communal Labor for Initial Public Works	1	2	3	Strong
Site Layout	Hollywood Type	Irene Type	?	Uncertain

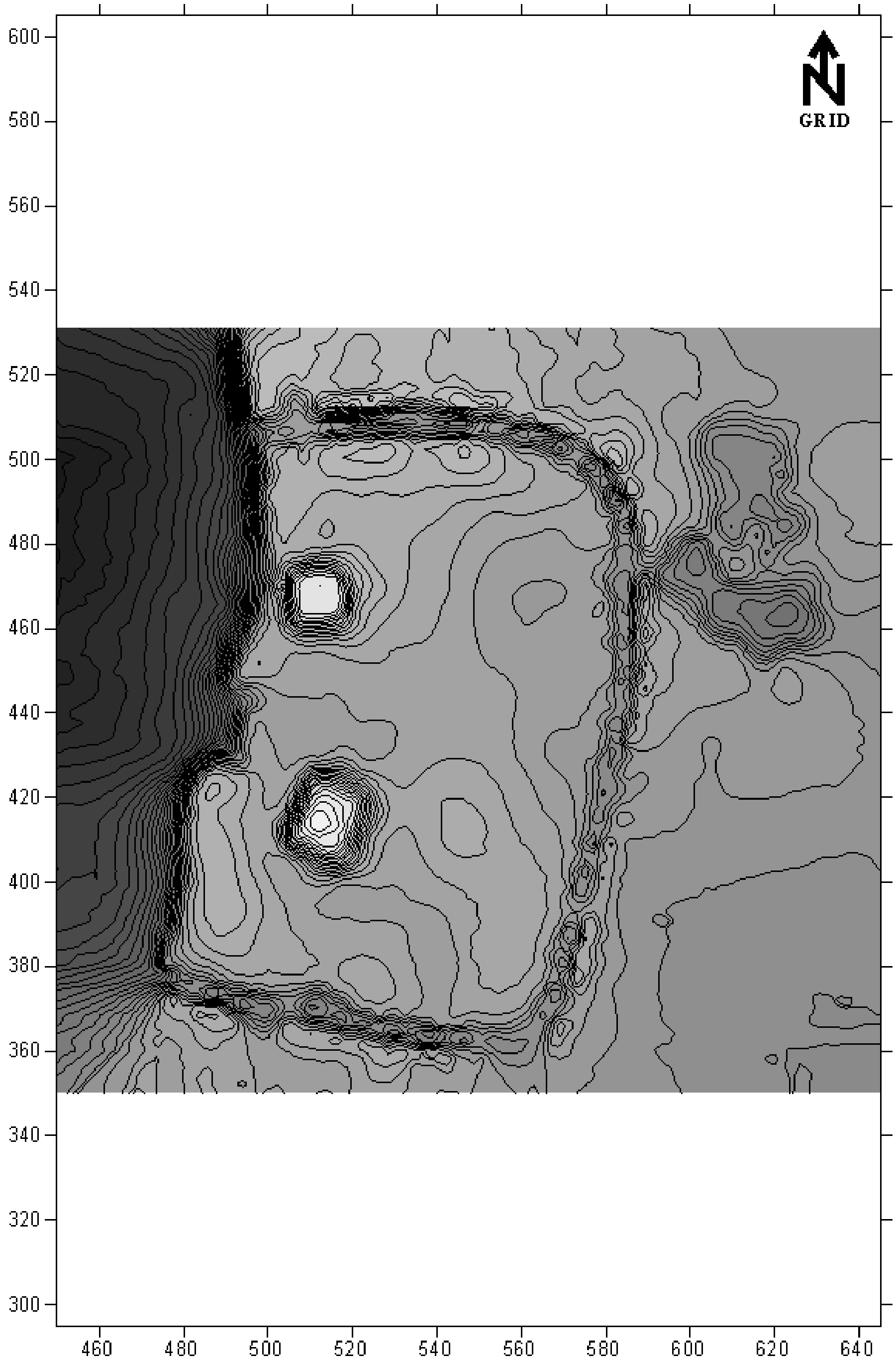

Figure 7.1 Lawton Site Map
(15 cm contour intervals, scale in meters)

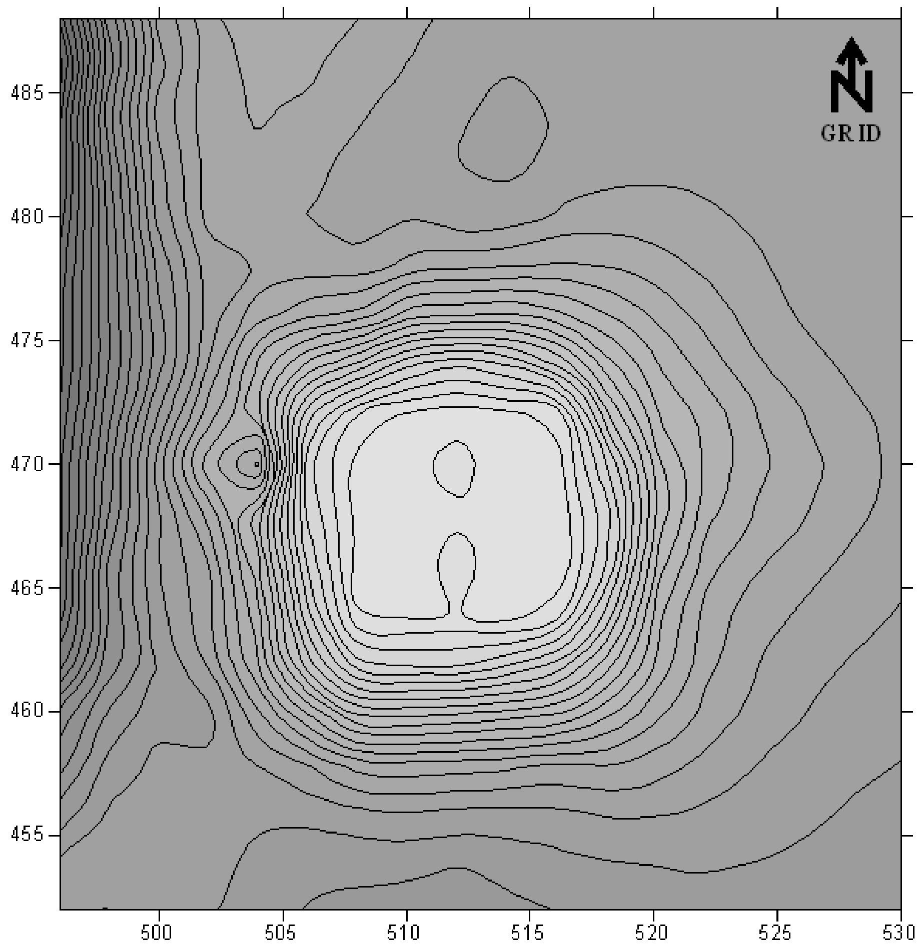

Figure 7.2 Lawton North Mound
(10 cm contour intervals, scale in meters)

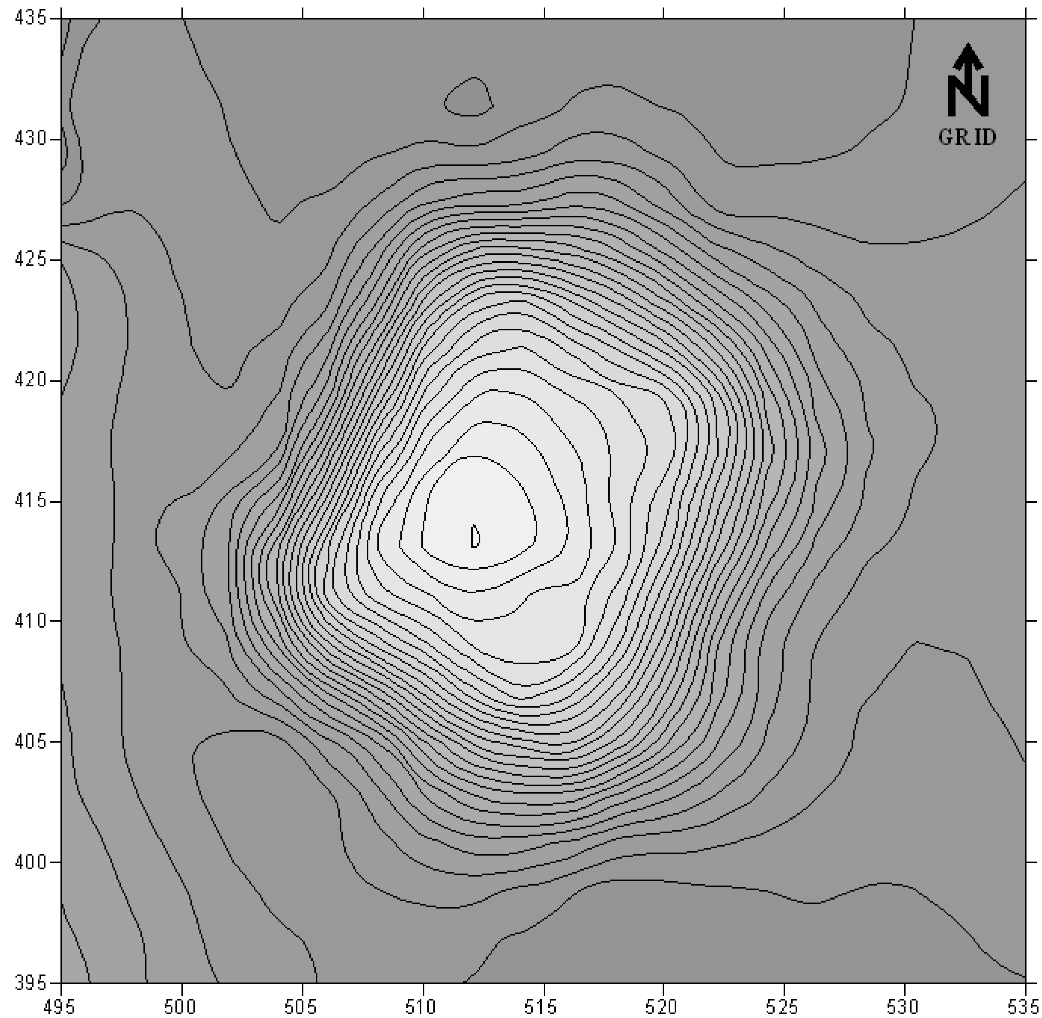

Figure 7.3 Lawton South Mound
(10 cm contour intervals, scale in meters)

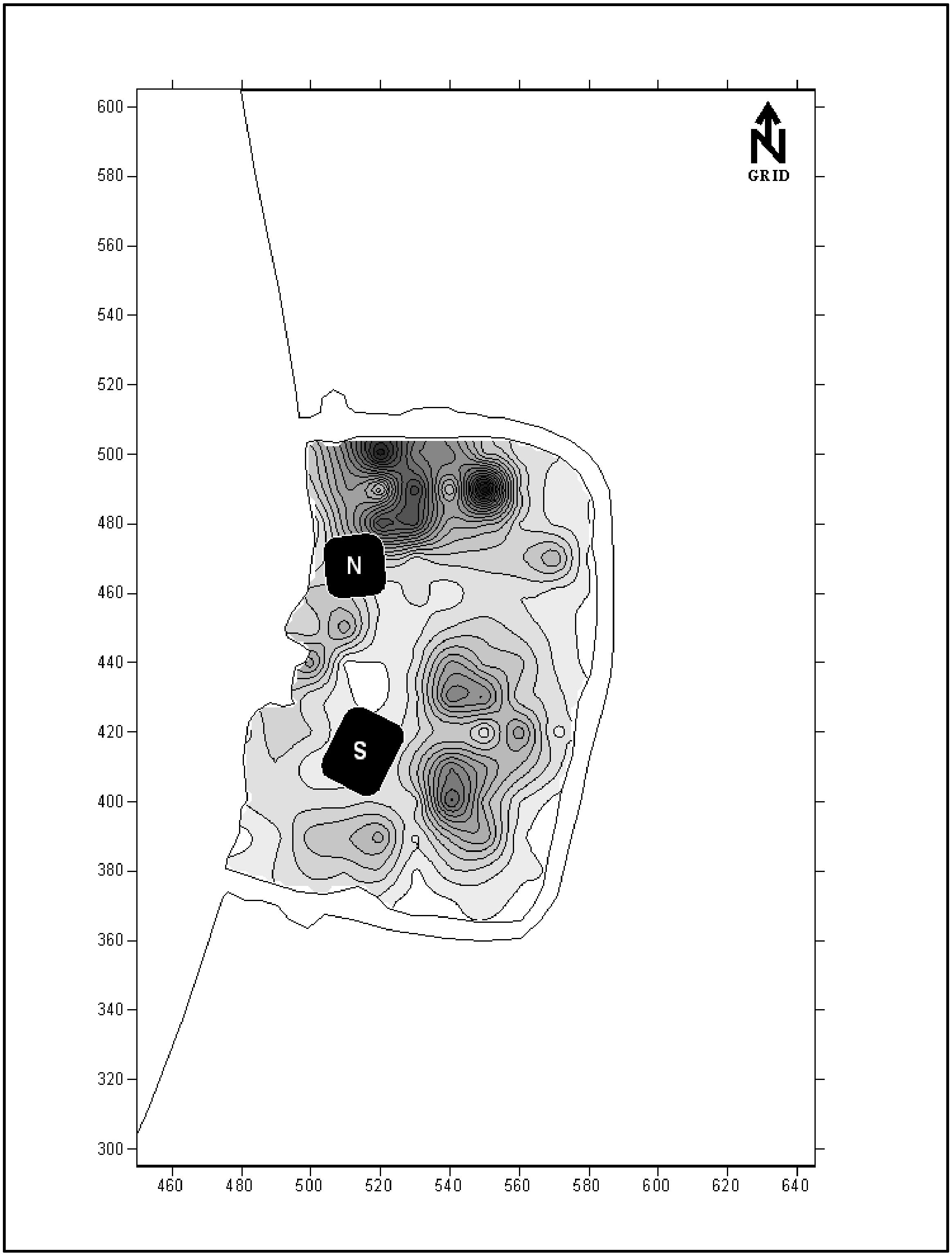

Figure 7.4 Lawton Sherd Density Contour Map
(≥ 5 Sherds, 10 Sherd Contour Intervals, Meter Scale)

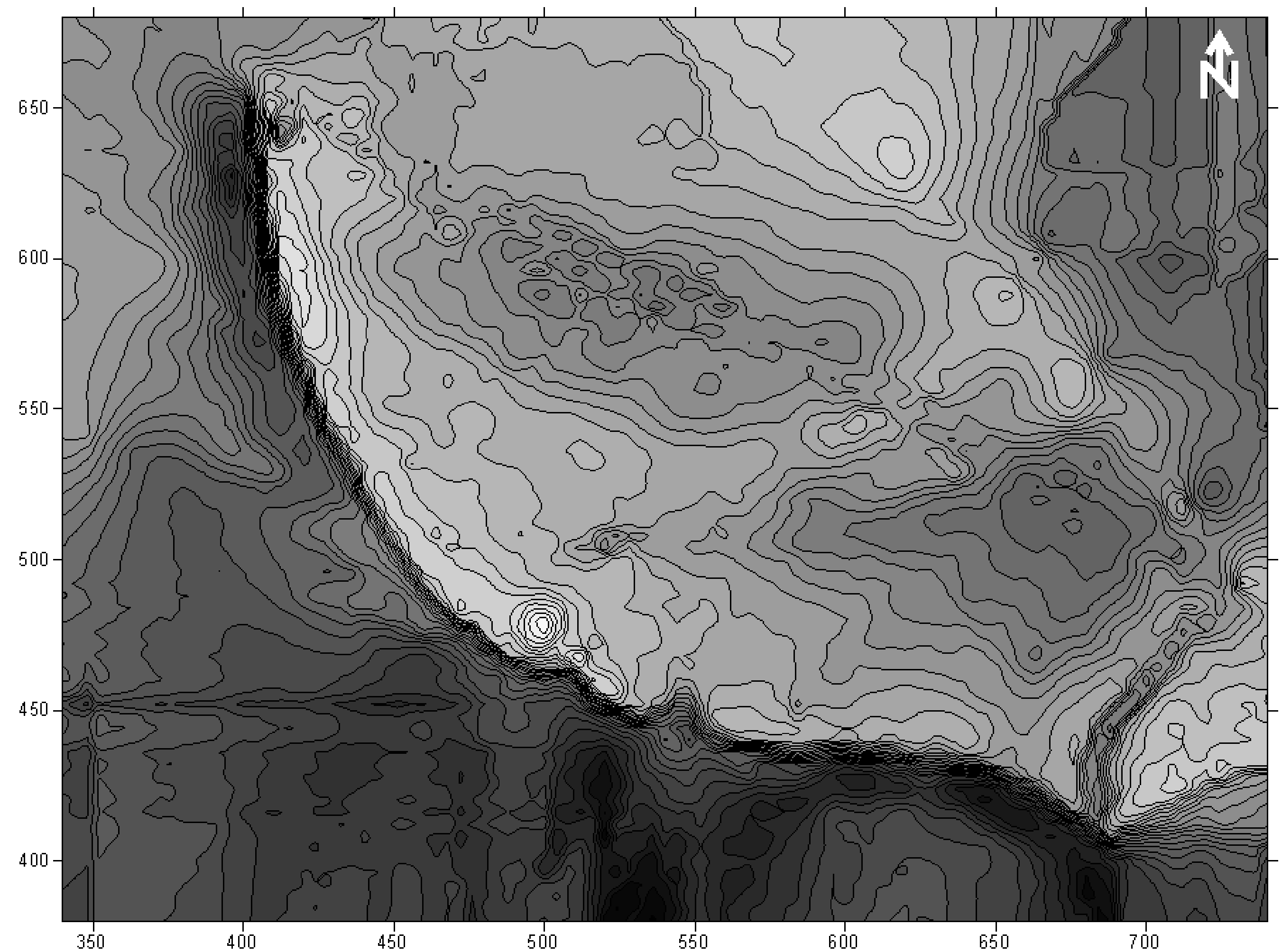

Figure 7.5 Spring Lake Site Map (15 cm contour intervals, scale in meters)

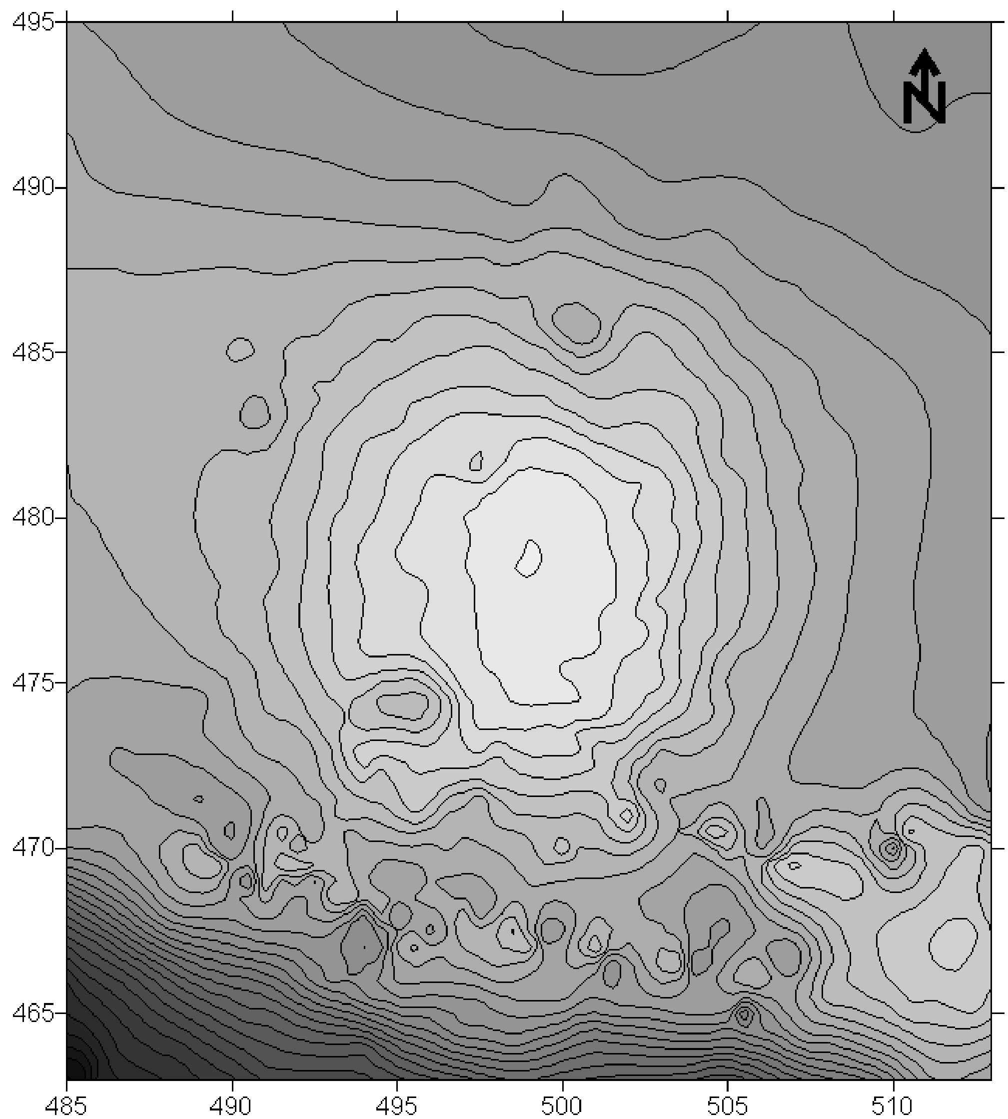

Figure 7.6 Spring Lake Mound
(10 cm contour intervals, scale in meters)

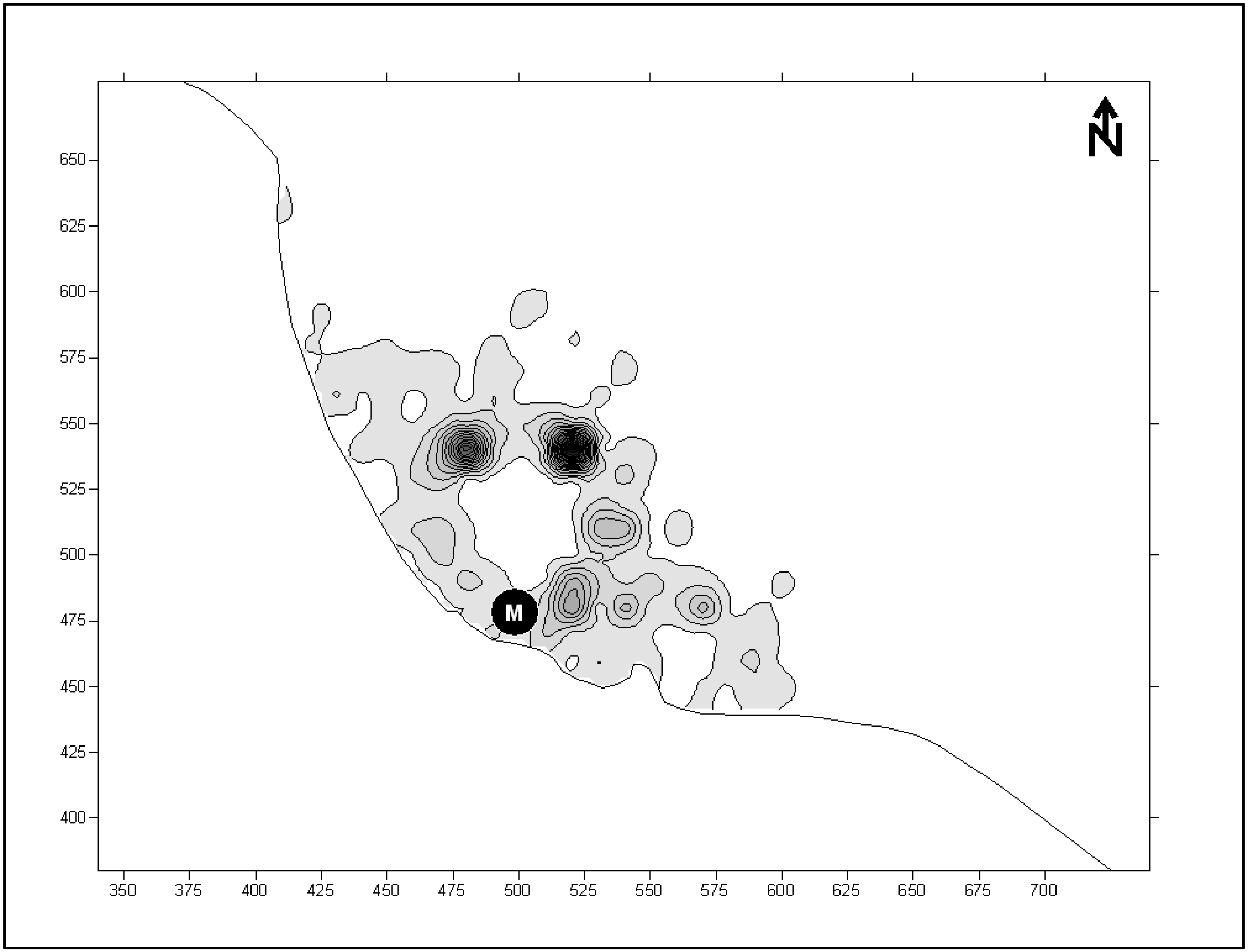

Figure 7.7 Spring Lake Sherd Density Contour Map (≥5 Sherds, 10 Sherd Contour Intervals, Meter Scale)

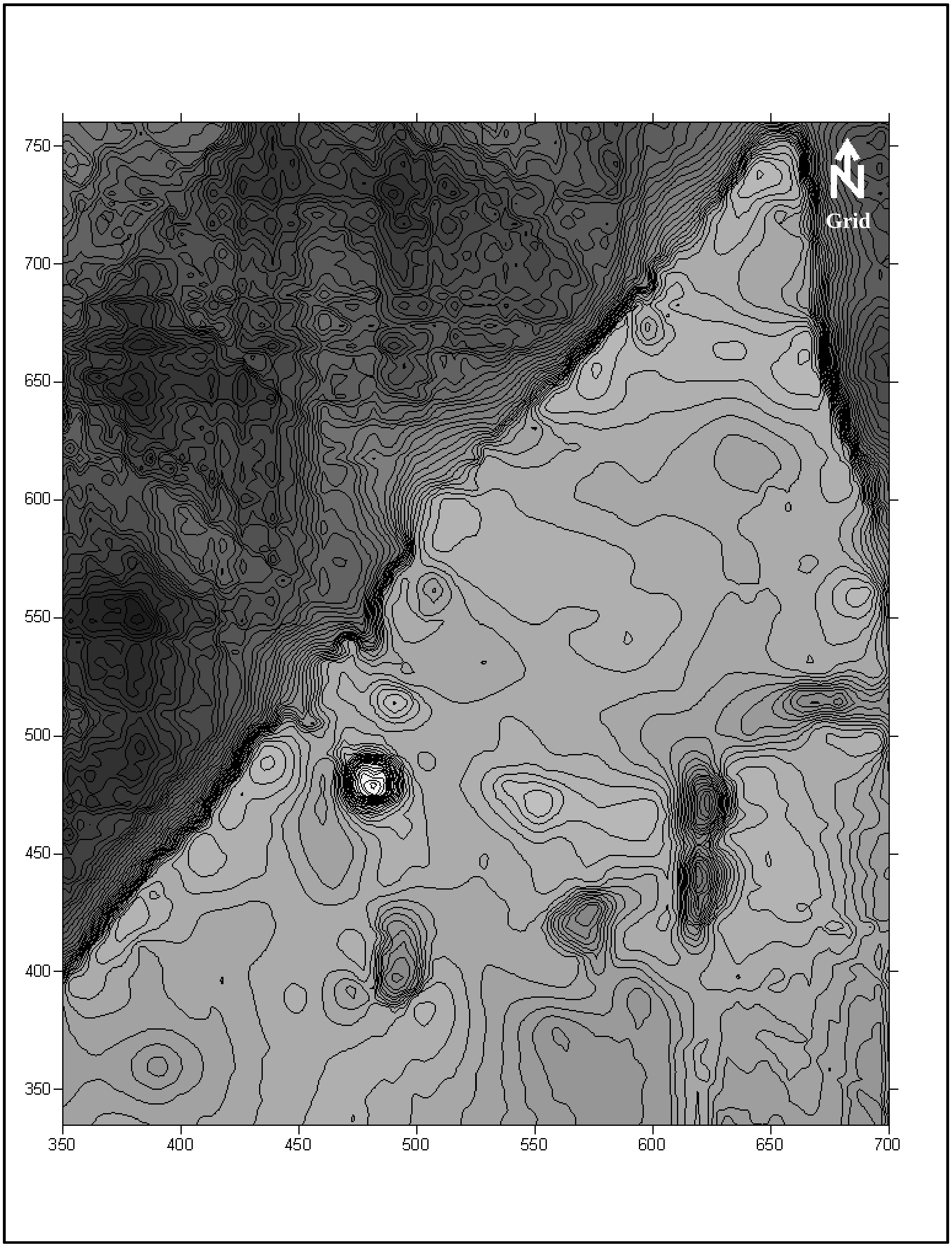

Figure 7.8 Red Lake Site Map
(15 cm contour intervals, scale in meters)

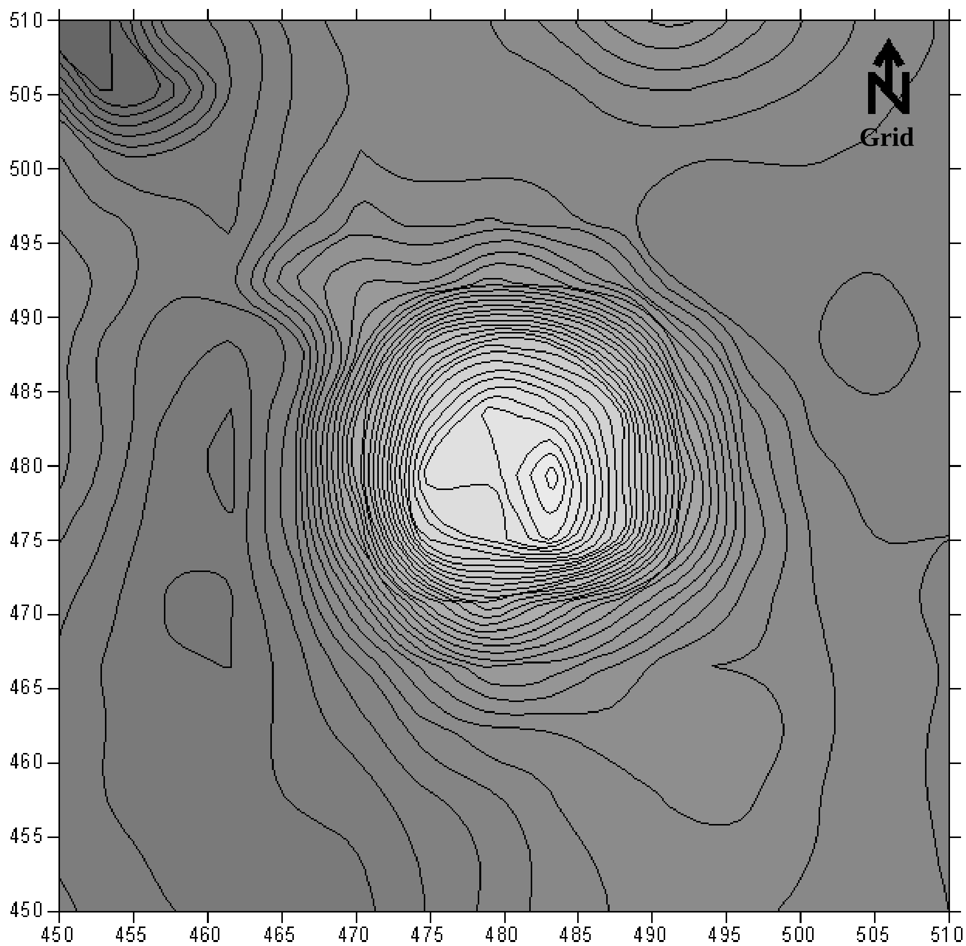

Figure 7.9 Red Lake Mound A
(10 cm contour intervals, scale in meters)

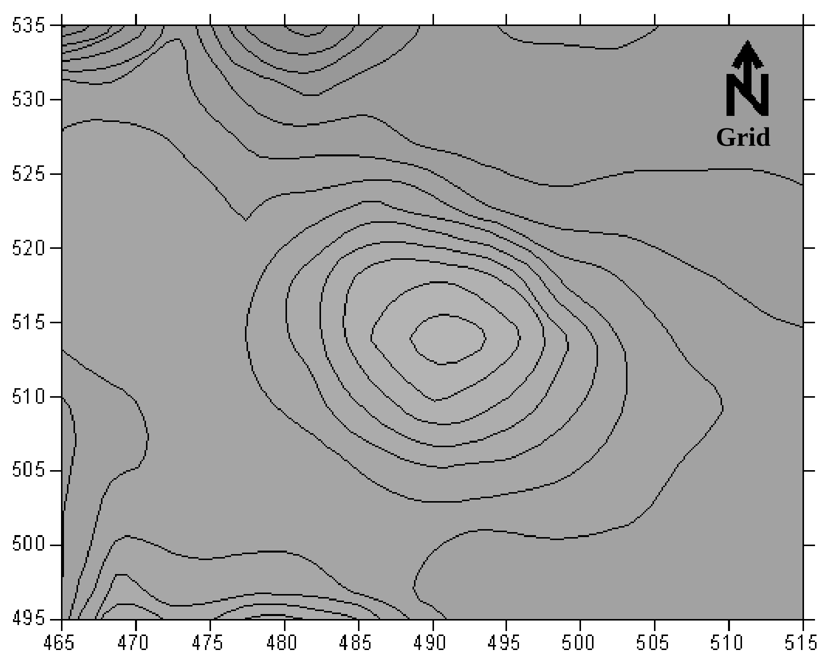

Figure 7.10 Red Lake Mound B
(10 cm contour intervals, scale in meters)

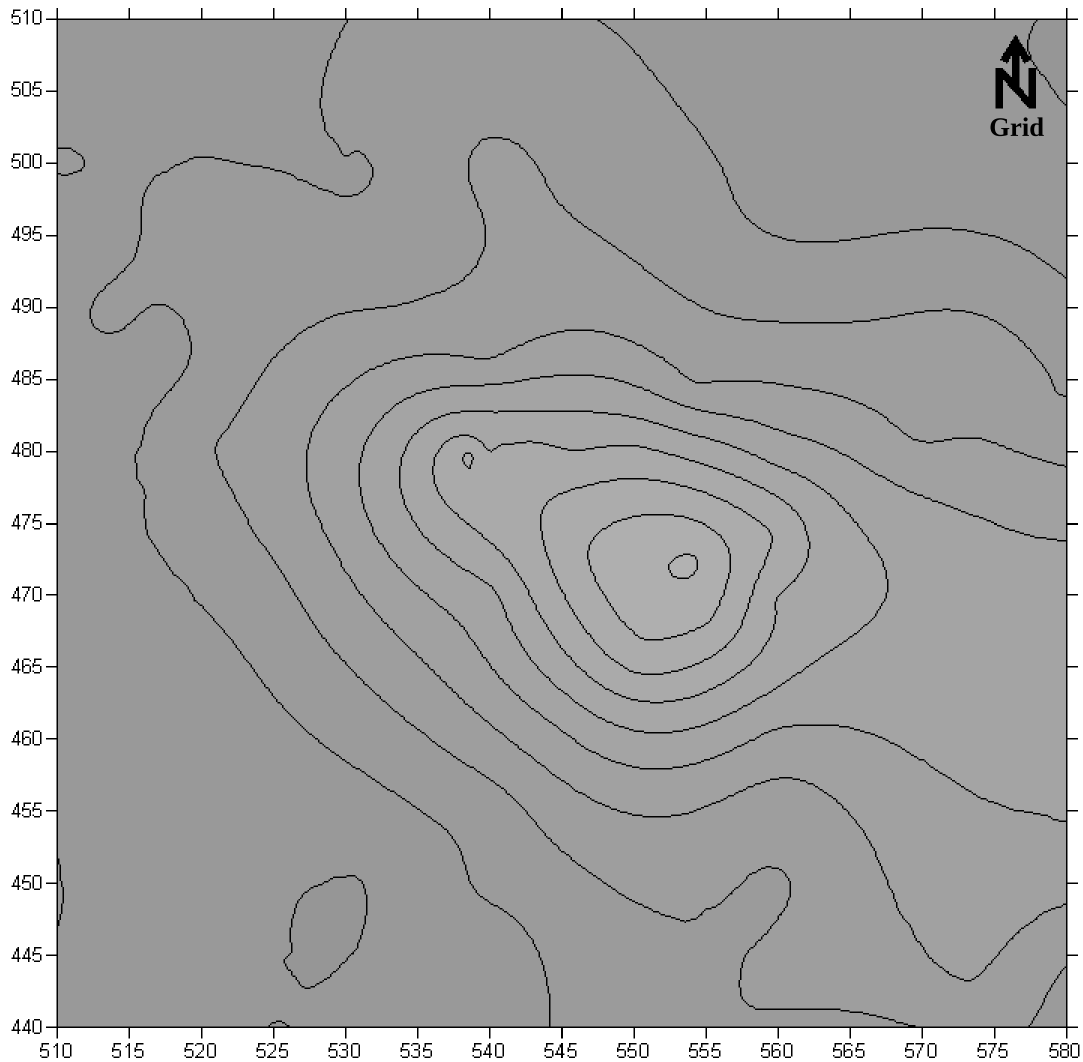

Figure 7.11 Red Lake Mound C
(10 cm contour intervals, scale in meters)

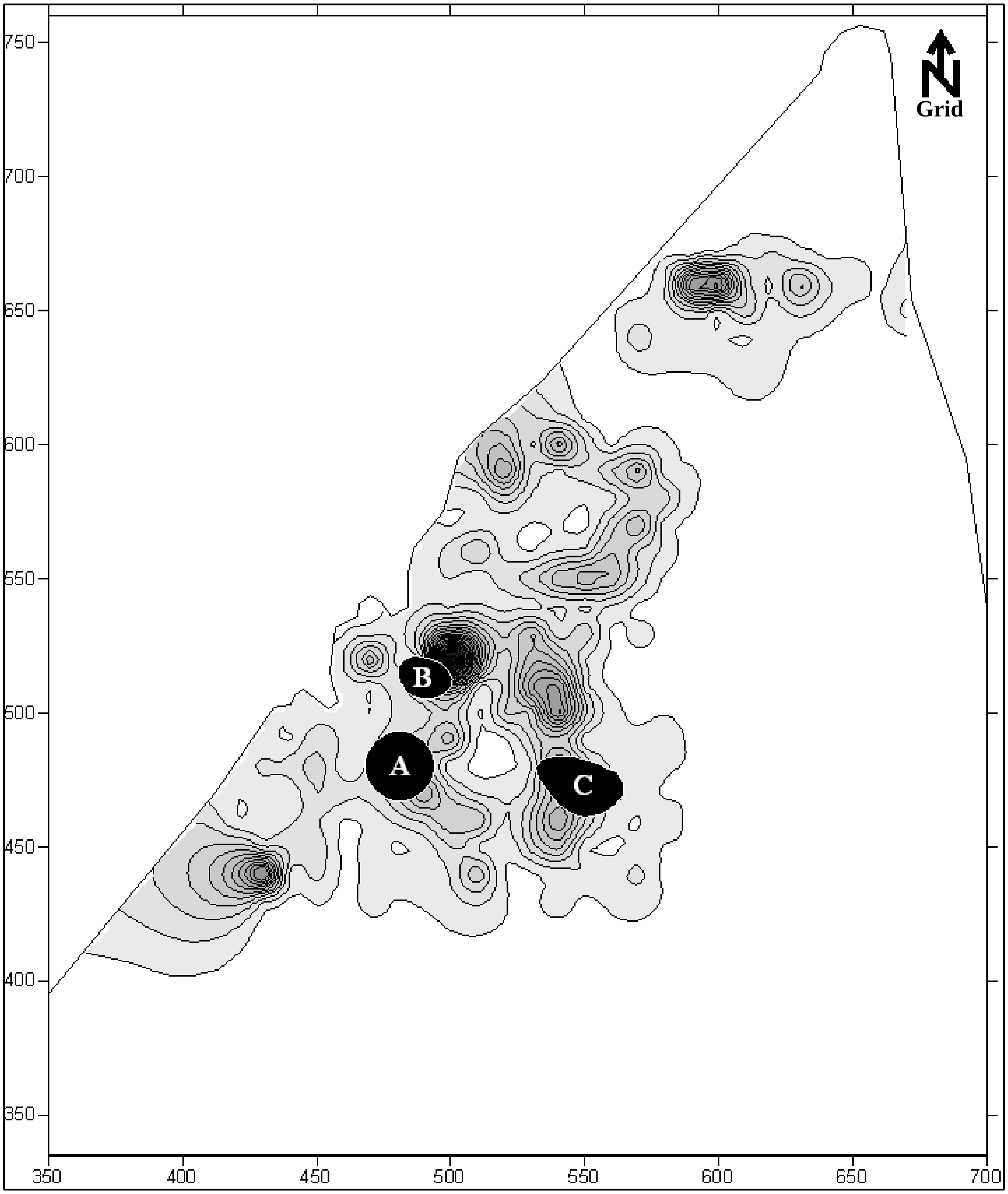

Figure 7.12 Red Lake Sherd Density Contour Map
(≥ 5 Sherds, 10 Sherd Contour Intervals, scale in meters)

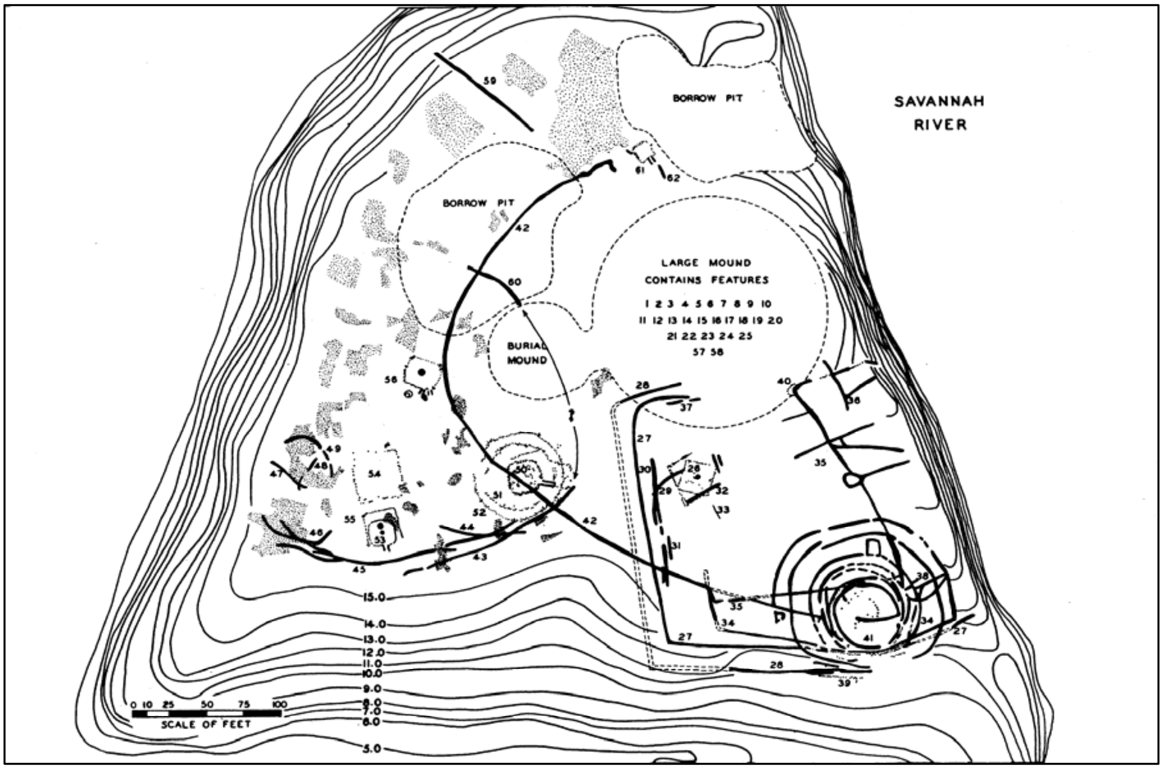

Figure 7.13 Irene Site Map
(Caldwell and McCann 1941:34)

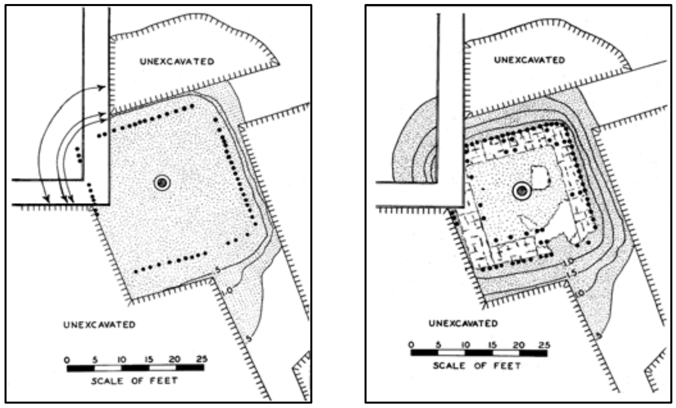

Figure 7.14 Irene Large Mound, Stages 1 and 2
(Caldwell and McCann 1941:8,9)

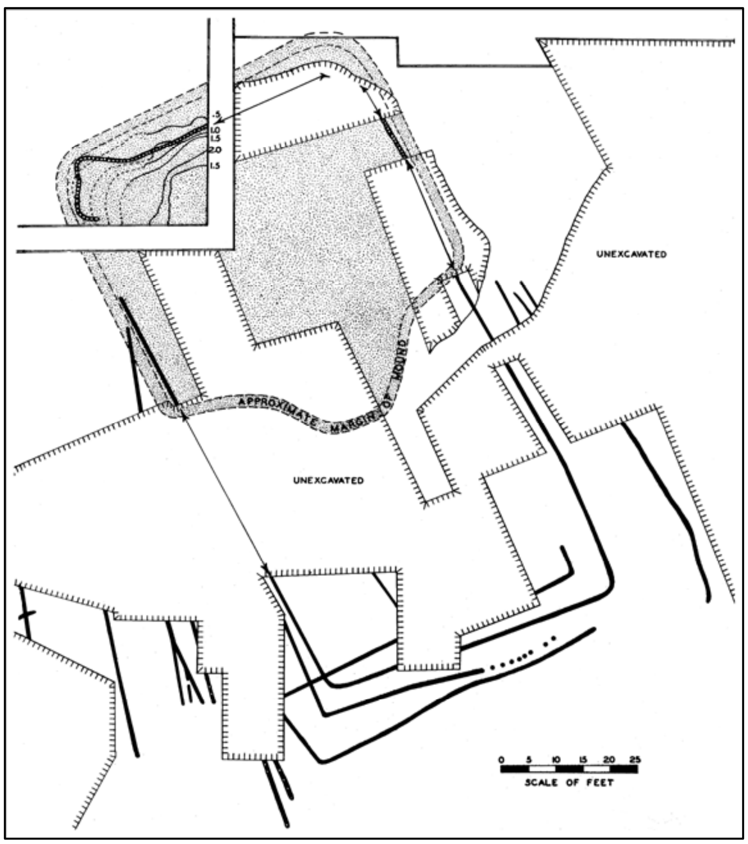

Figure 7.15 Irene Large Mound, Stage 3
(Caldwell and McCann 1941:10)

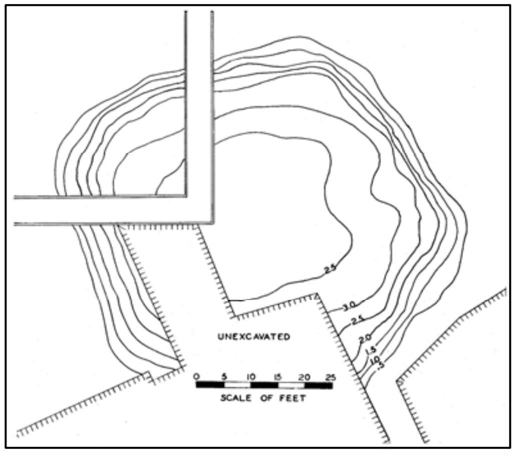

Figure 7.16 Irene Large Mound, Stage 4
(Caldwell and McCann 1941:12)

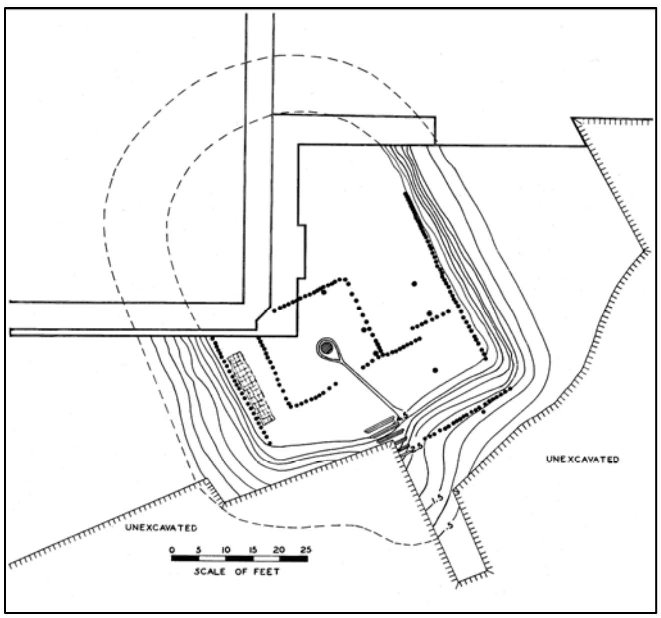

Figure 7.17 Irene Large Mound, Stage 5
(Caldwell and McCann 1941:13)

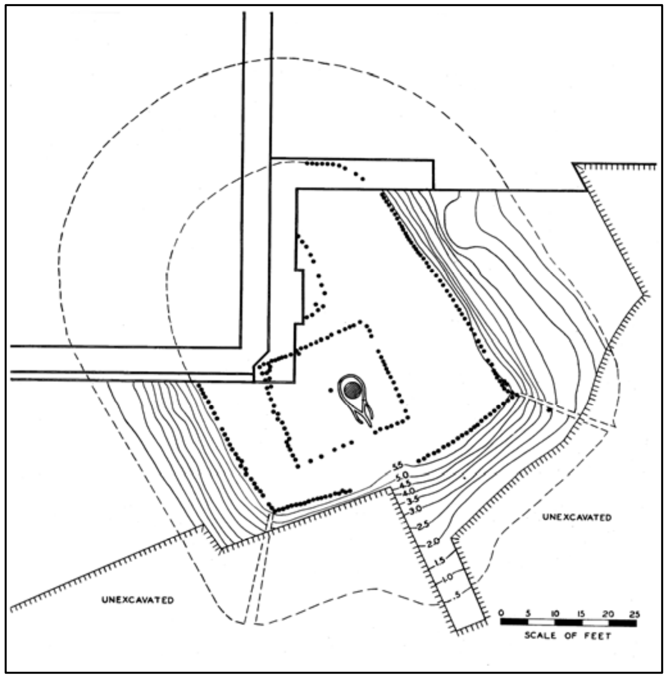

Figure 7.18 Irene Large Mound, Stage 6
(Caldwell and McCann 1941:15)

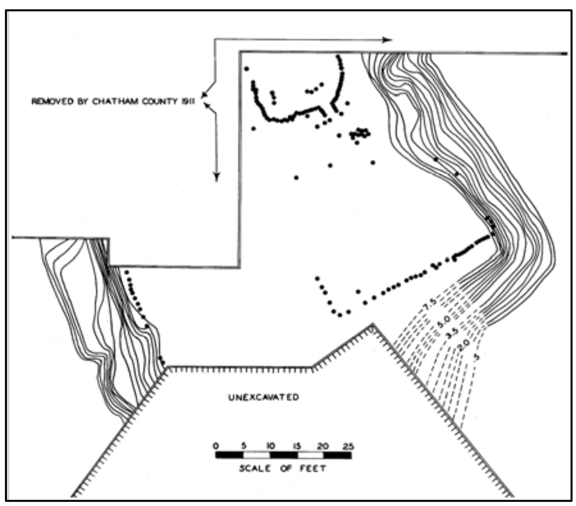

Figure 7.19 Irene Large Mound, Stage 7
(Caldwell and McCann 1941:17)

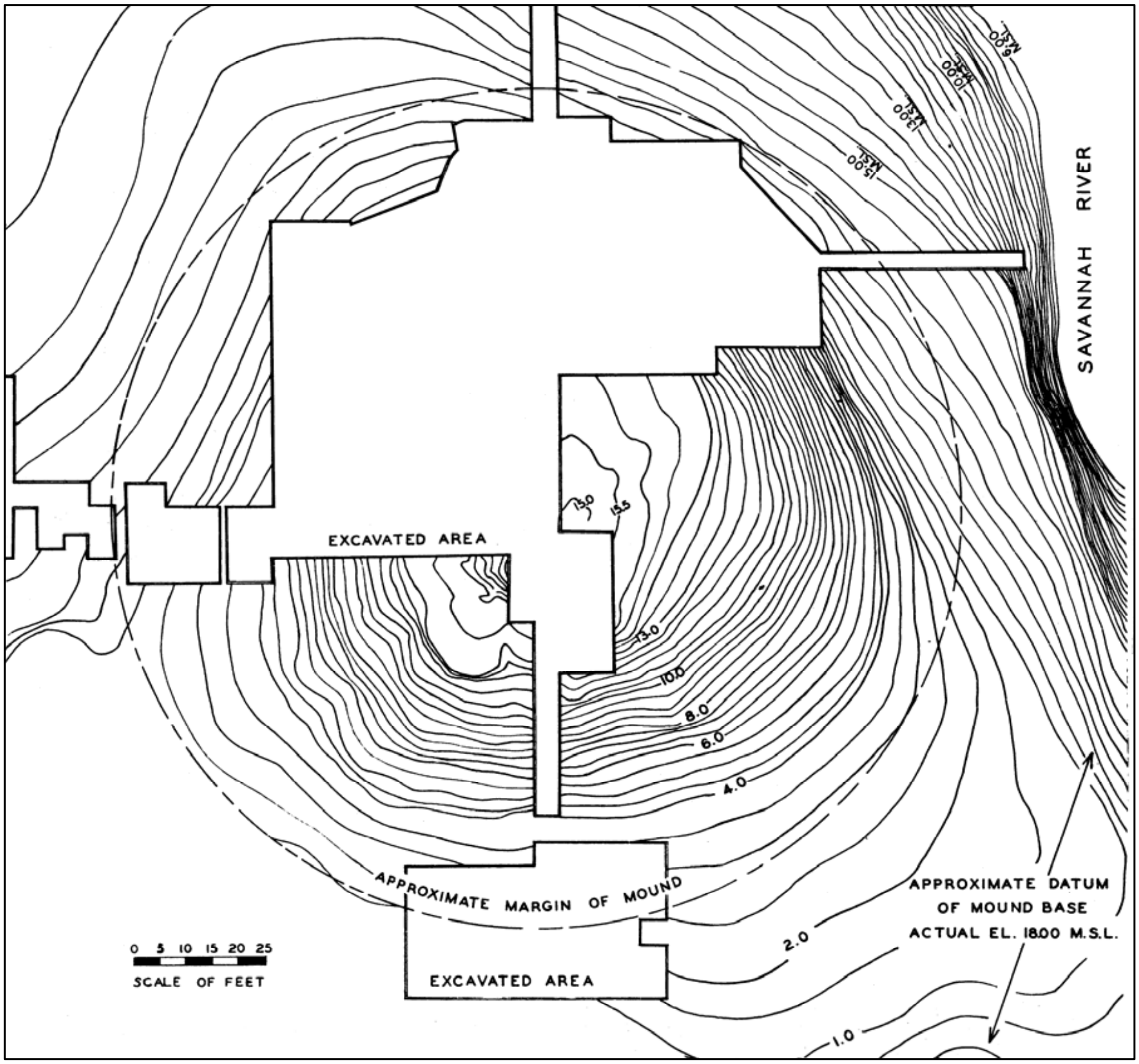

Figure 7.20 Irene Large Mound, Stage 8
(Caldwell and McCann 1941:19)

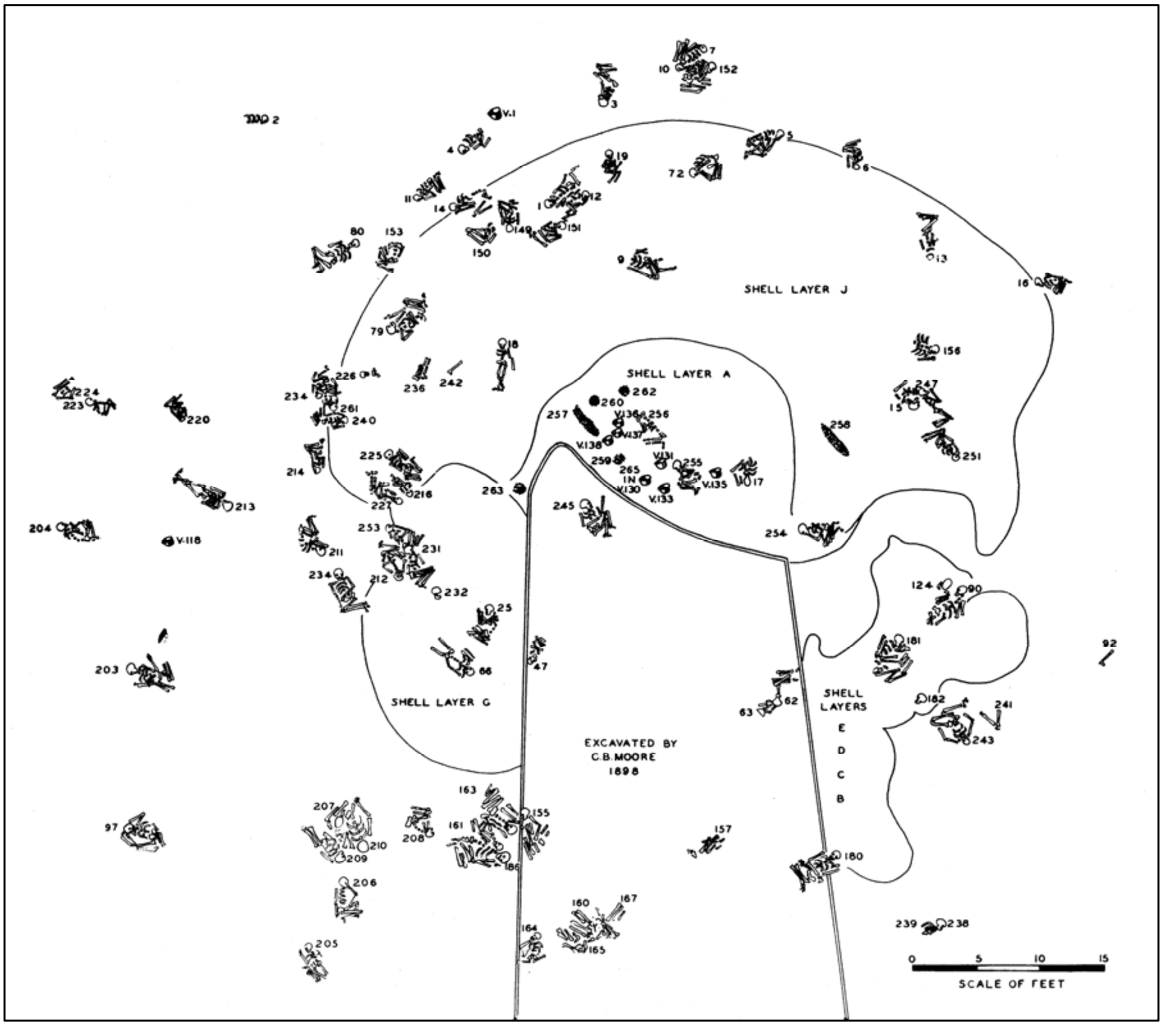

Figure 7.21 Irene Burial Mound
(Caldwell and McCann 1941:23)

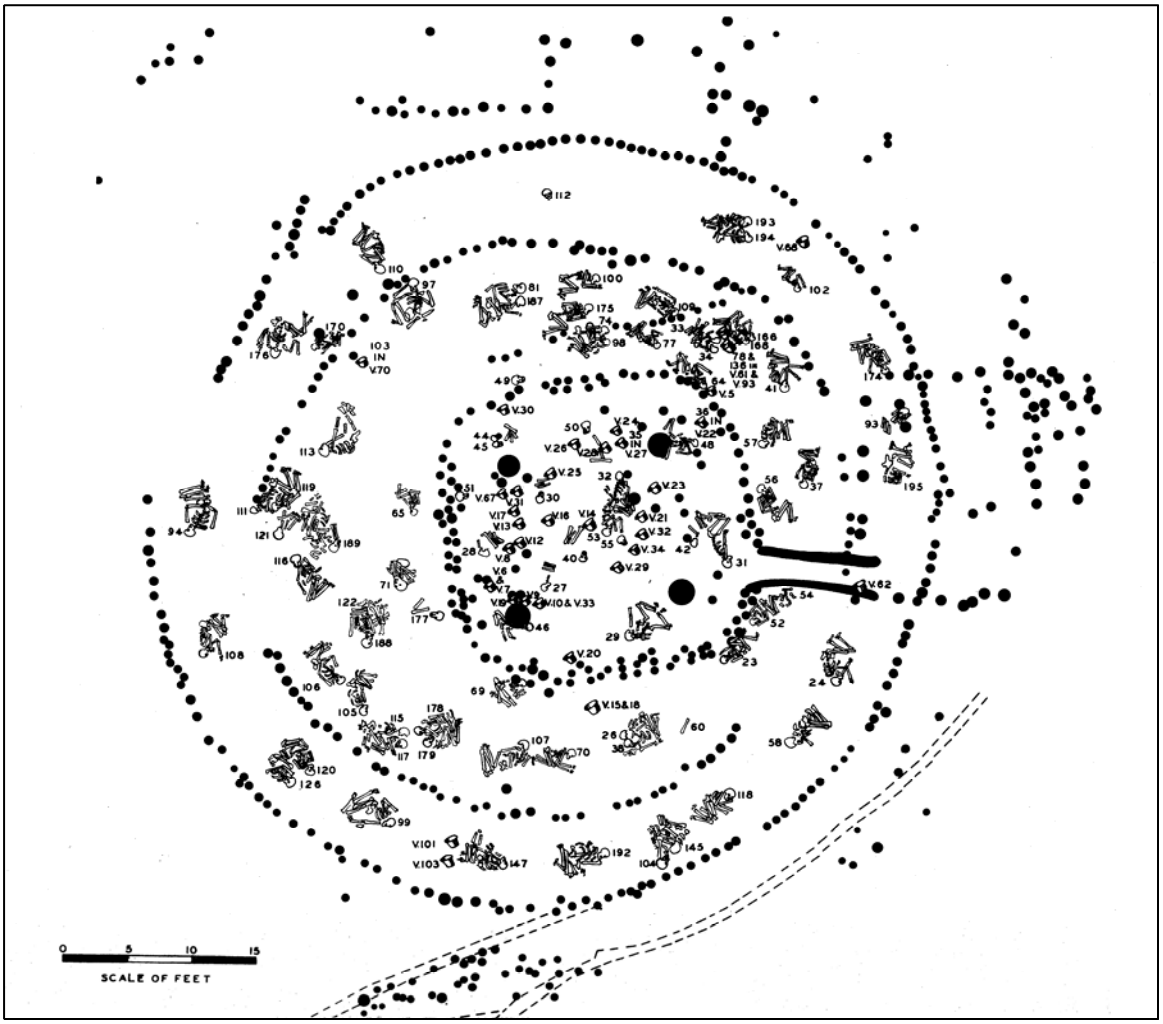

Figure 7.22 Irene Mortuary
(Caldwell and McCann 1941:26)

Figure 7.23 Irene Rotunda
(Caldwell and McCann 1941:Plate XII)

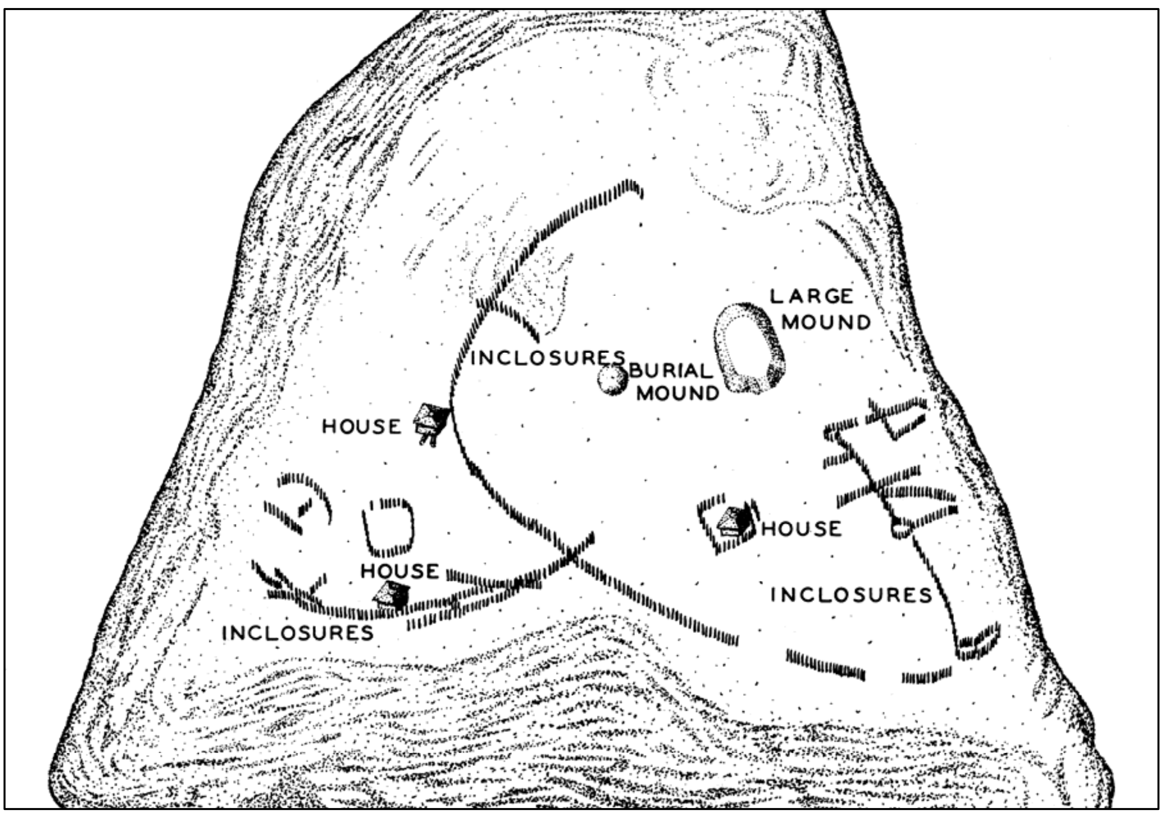

Figure 7.24 Irene Site, Savannah Period Architecture
(Caldwell and McCann 1941:71)

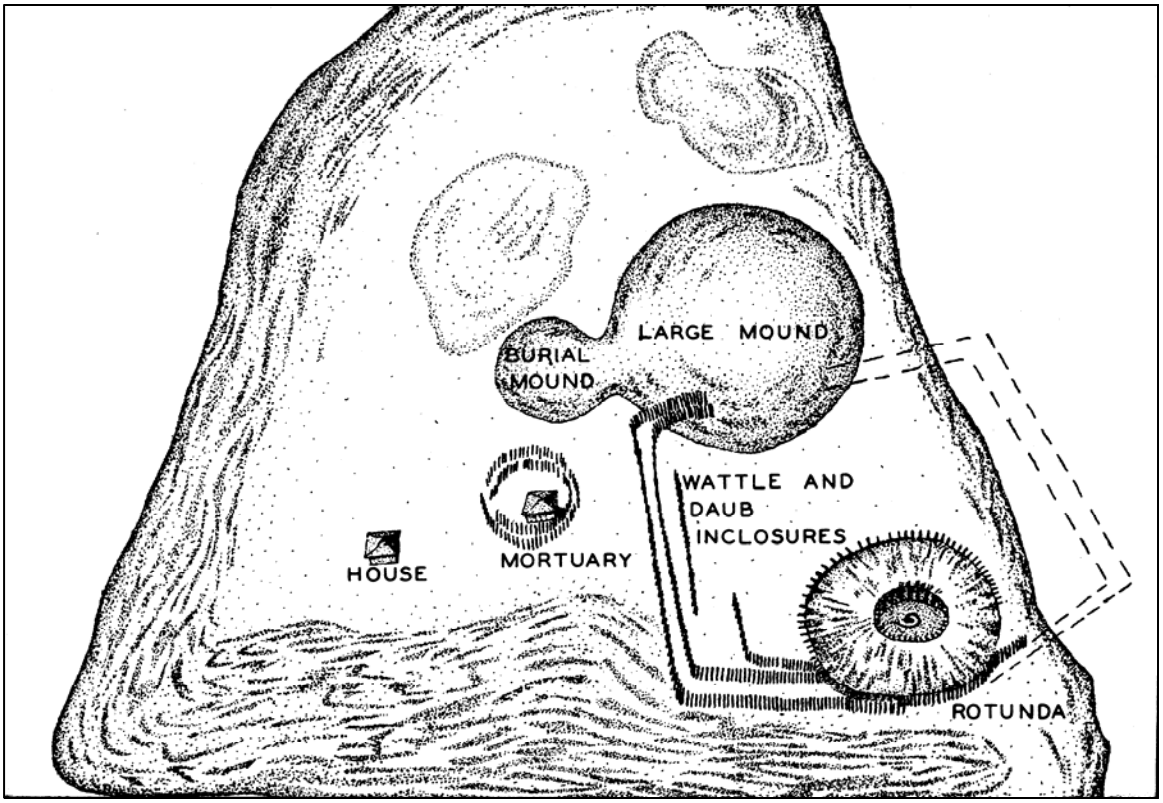

Figure 7.25 Irene Site, Irene Period Architecture
(Caldwell and McCann 1941:72)

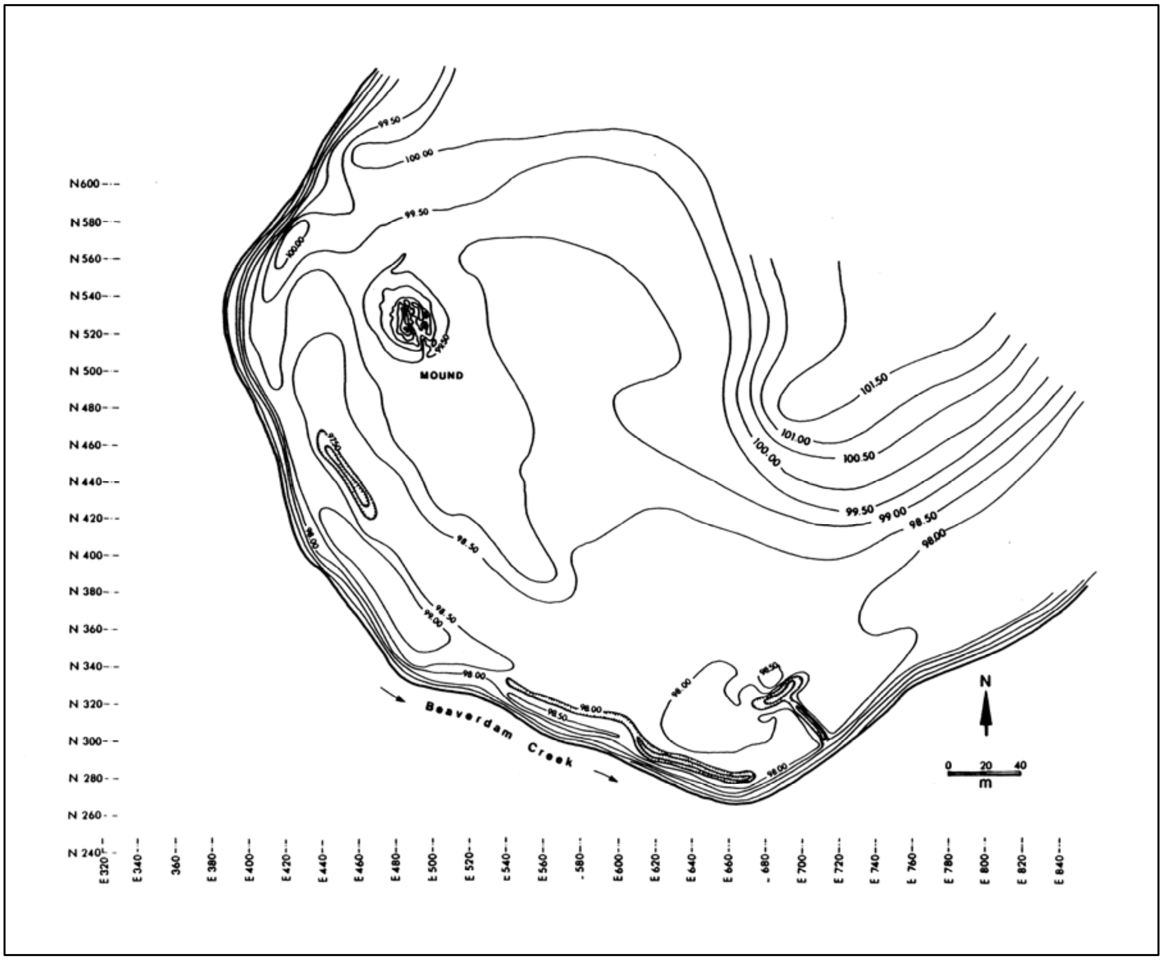

Figure 7.26 Beaverdam Creek Site Map
(Rudolph and Hally 1985:40)

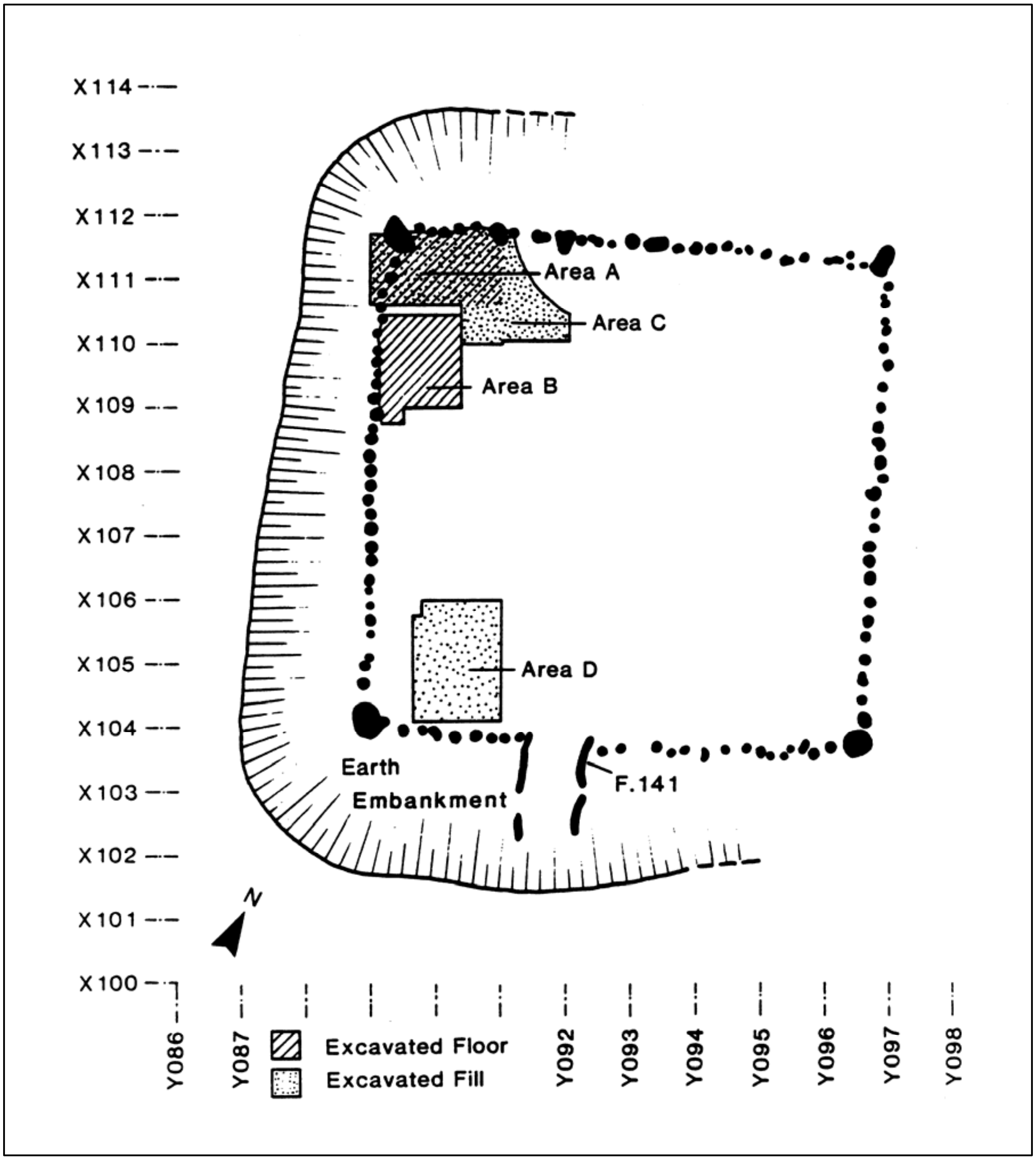

Figure 7.27 Beaverdam Creek Earth Embanked Structure 1
(Rudolph and Hally 1985:80)

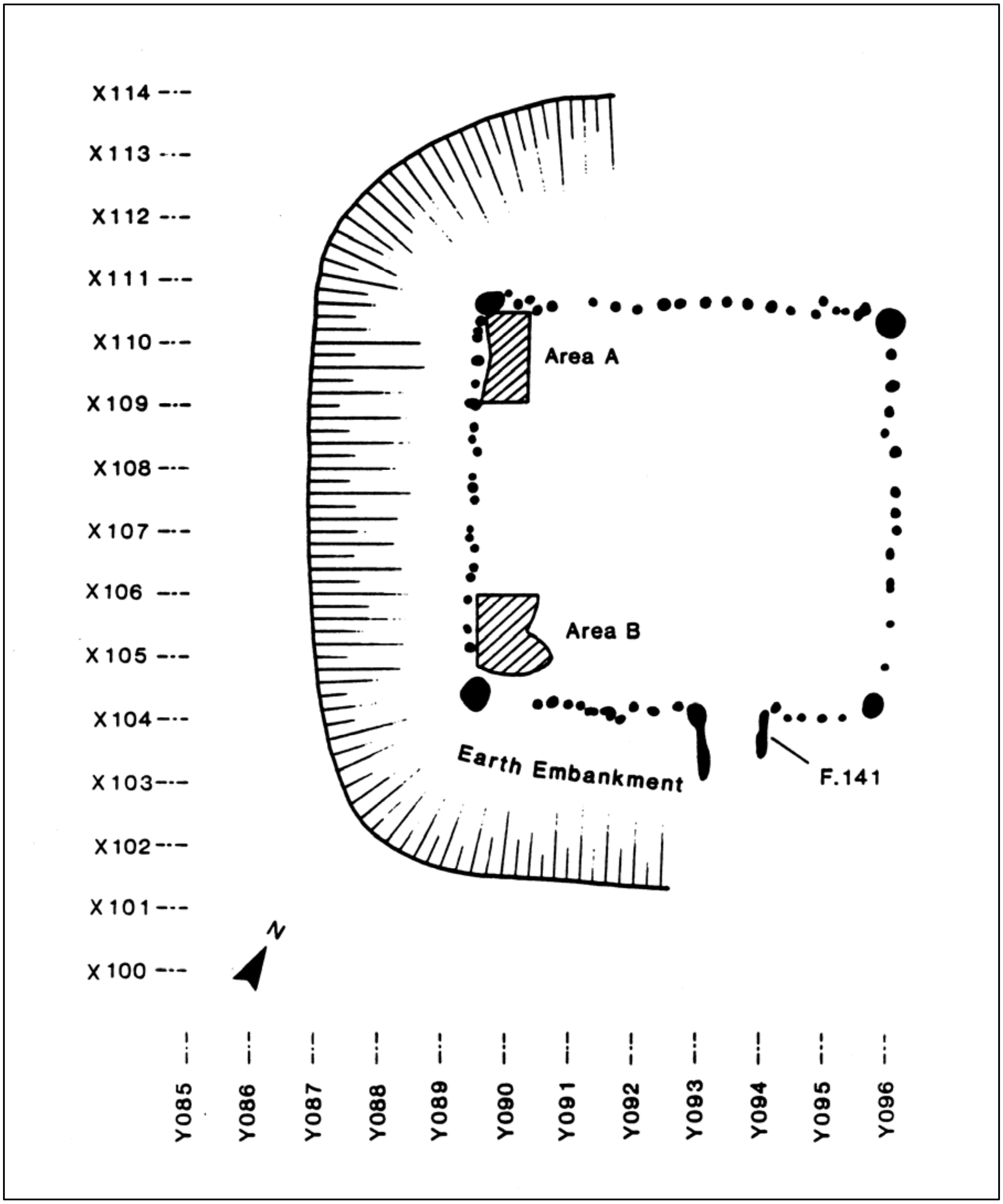

Figure 7.28 Beaverdam Creek Earth Embanked Structure 2, Floor 1
(Rudolph and Hally 1985:86)

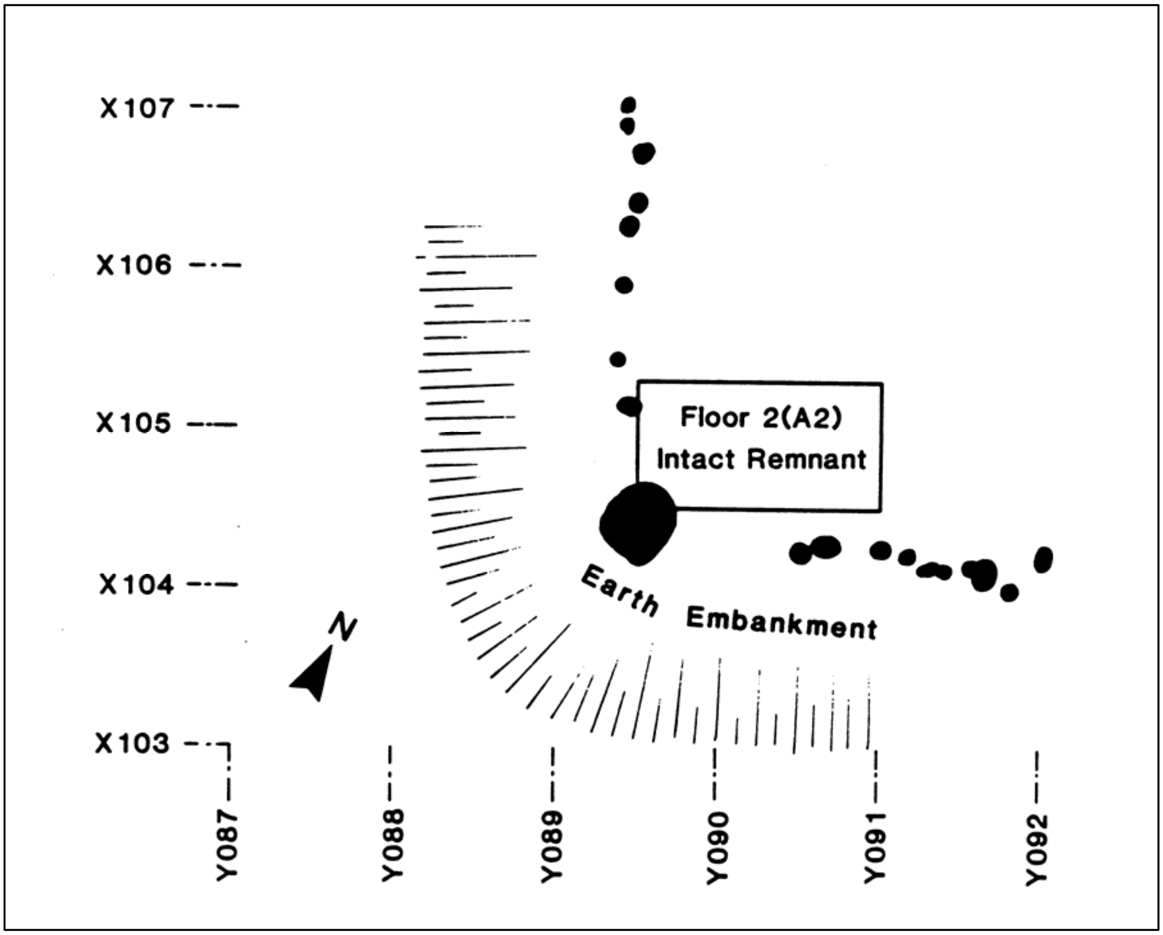

Figure 7.29 Beaverdam Creek Earth Embanked Structure 2, Floor 2
(Rudolph and Hally 1985:89)

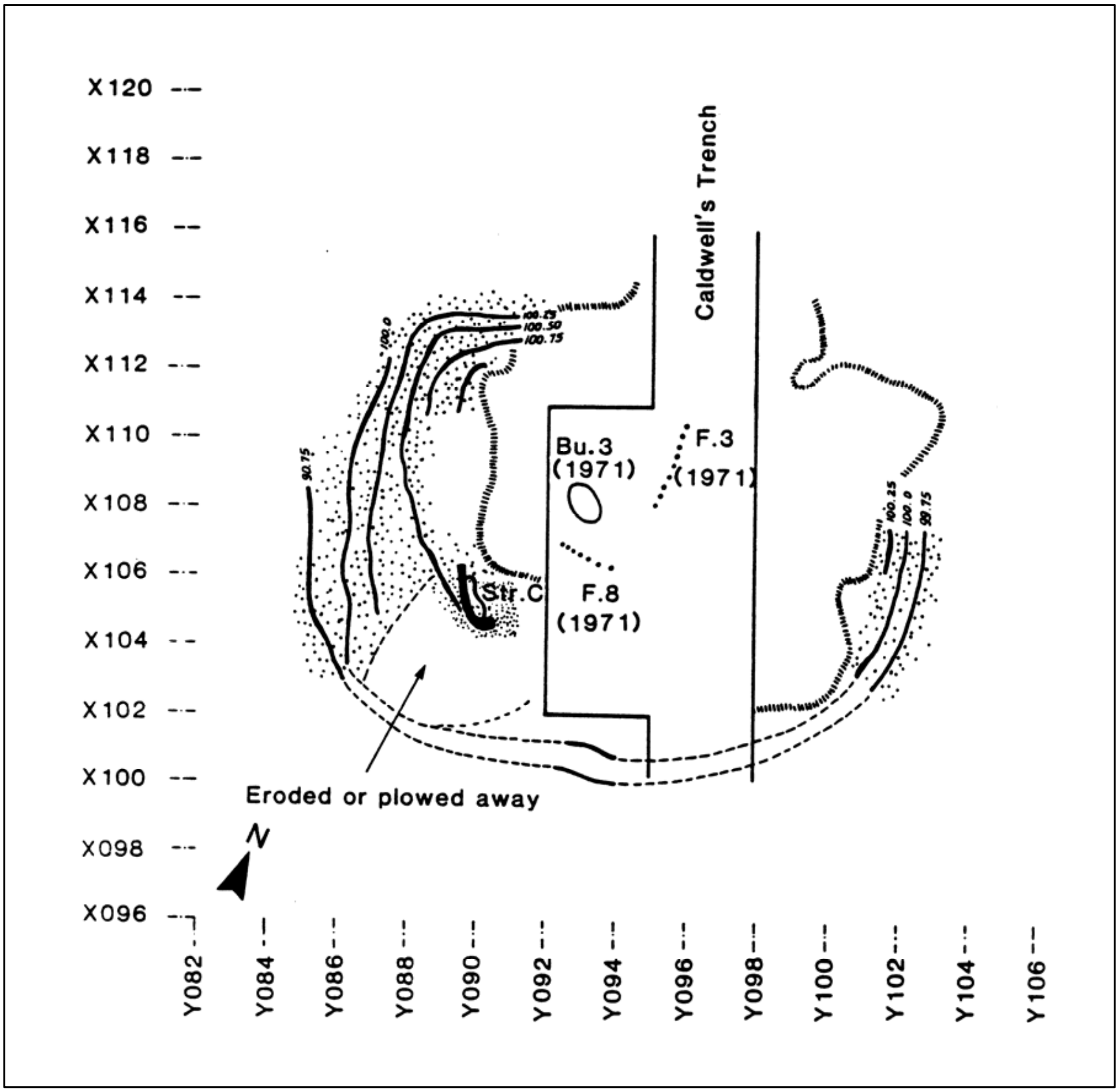

Figure 7.30 Beaverdam Creek Mound Stage 1
(Rudolph and Hally 1985:112)

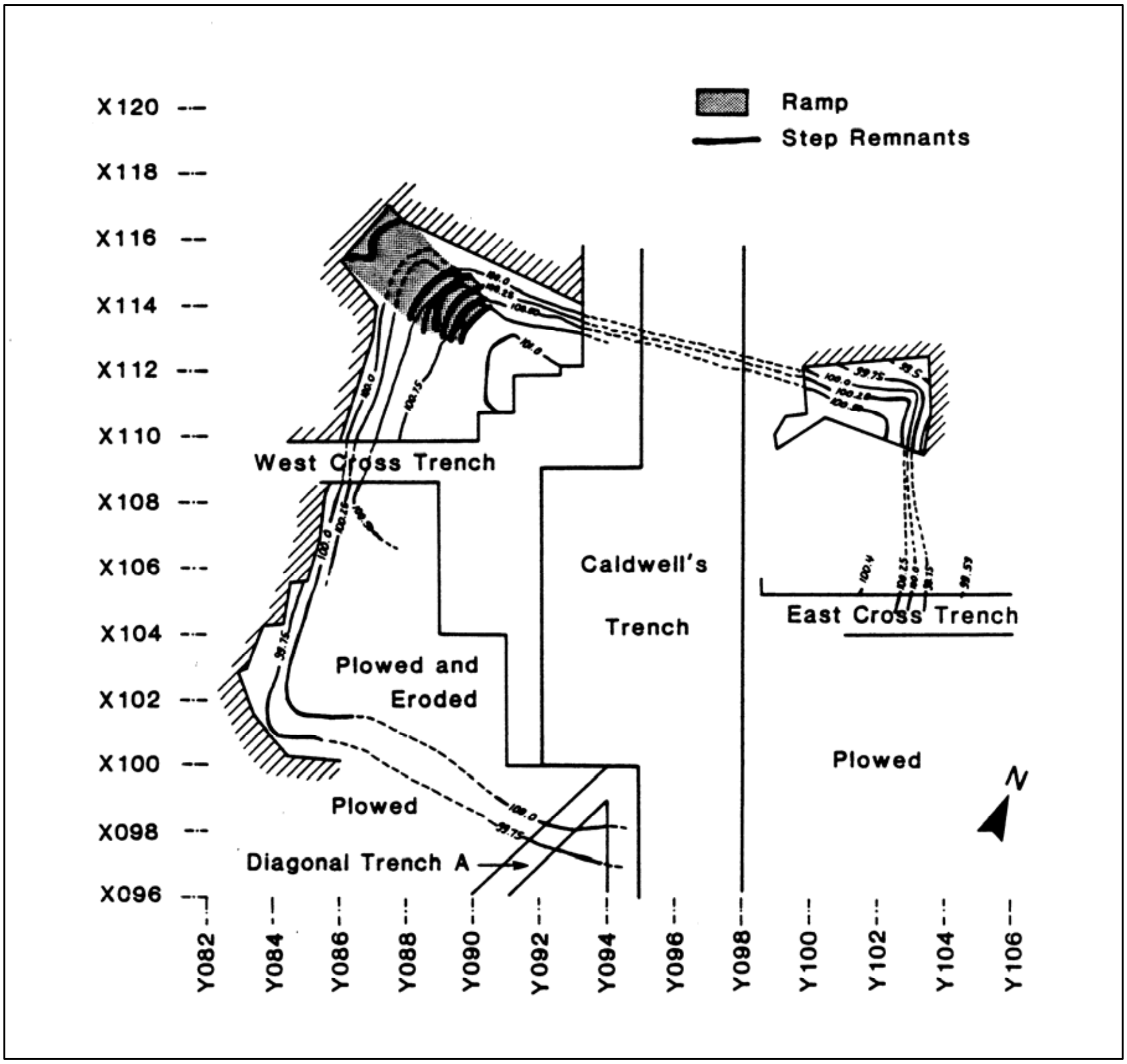

Figure 7.31 Beaverdam Creek Mound Stage 2
(Rudolph and Hally 1985:124)

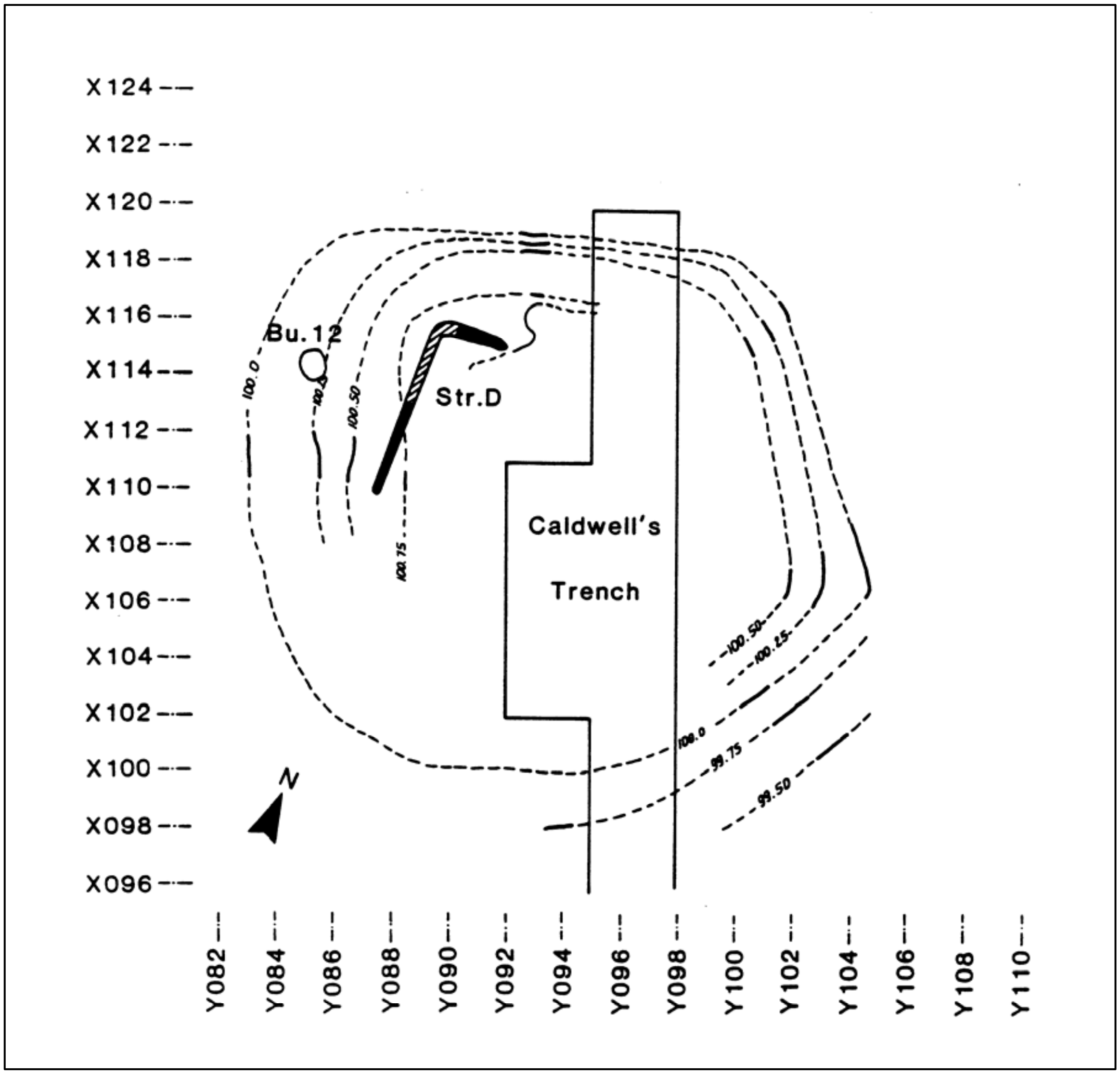

Figure 7.32 Beaverdam Creek Mound Stage 3
(Rudolph and Hally 1985:130)

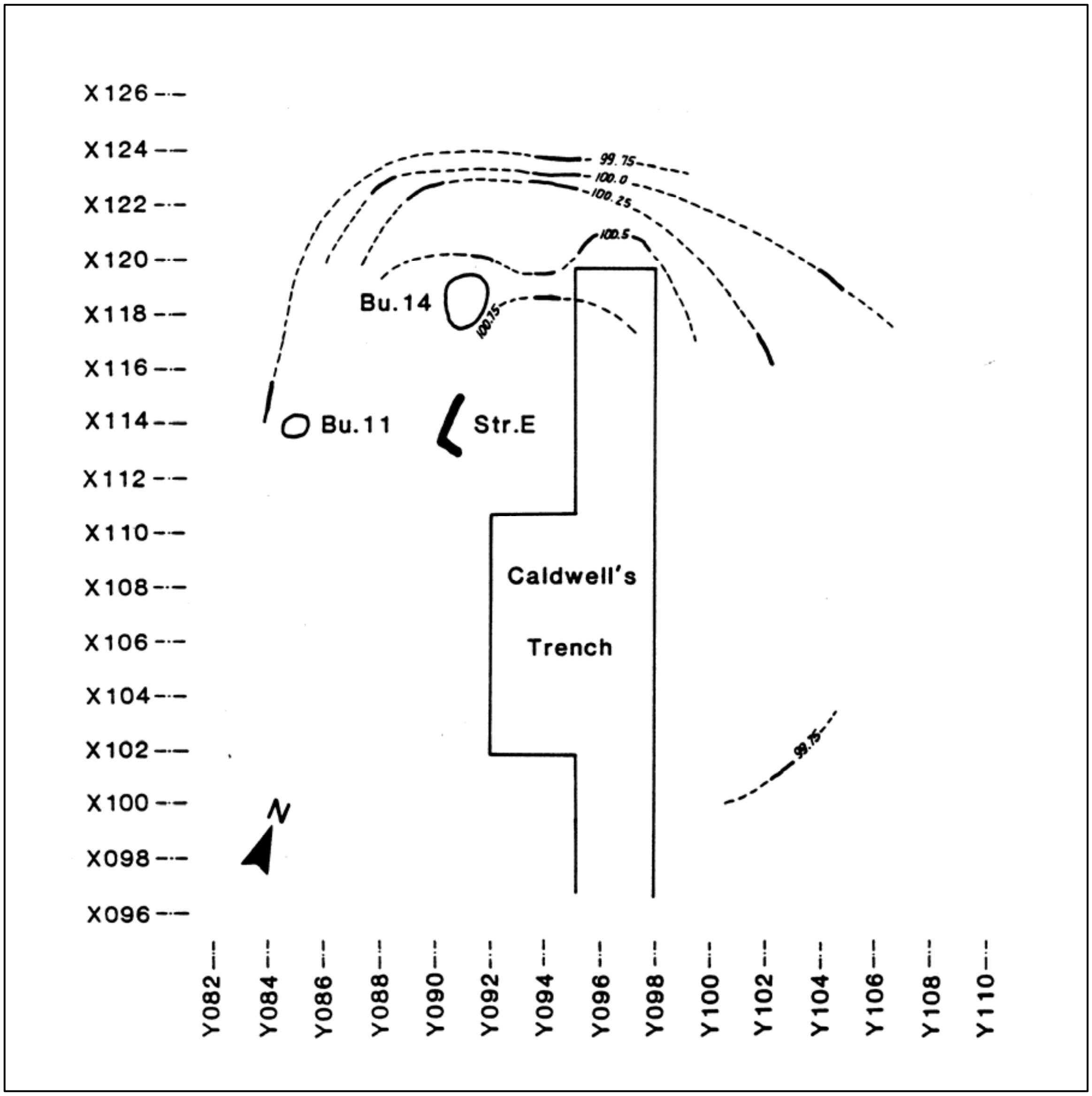

Figure 7.33 Beaverdam Creek Mound Stage 4
(Rudolph and Hally 1985:137)

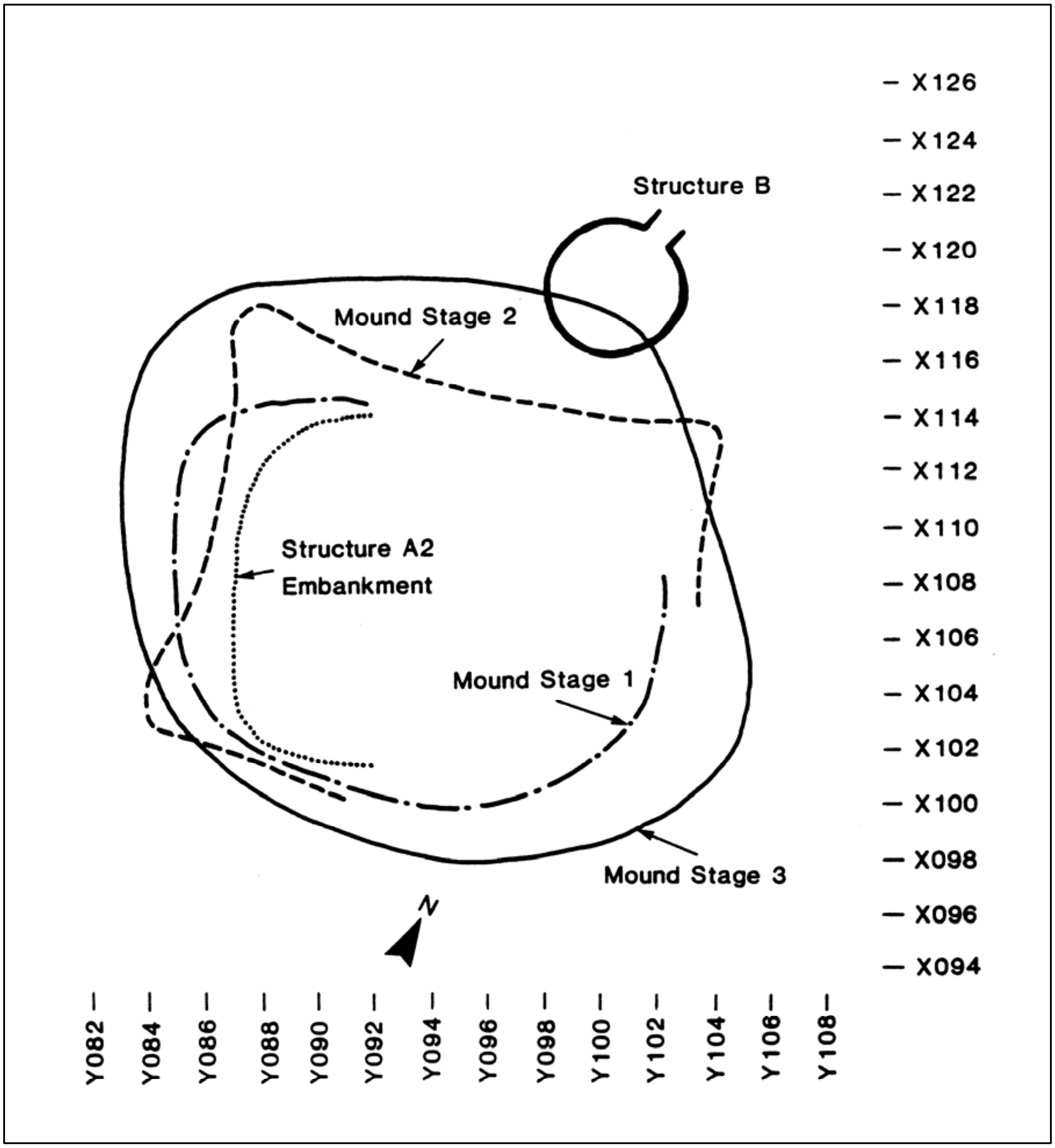

Figure 7.34 Beaverdam Creek Structure B and Mound
(Rudolph and Hally 1985:94)

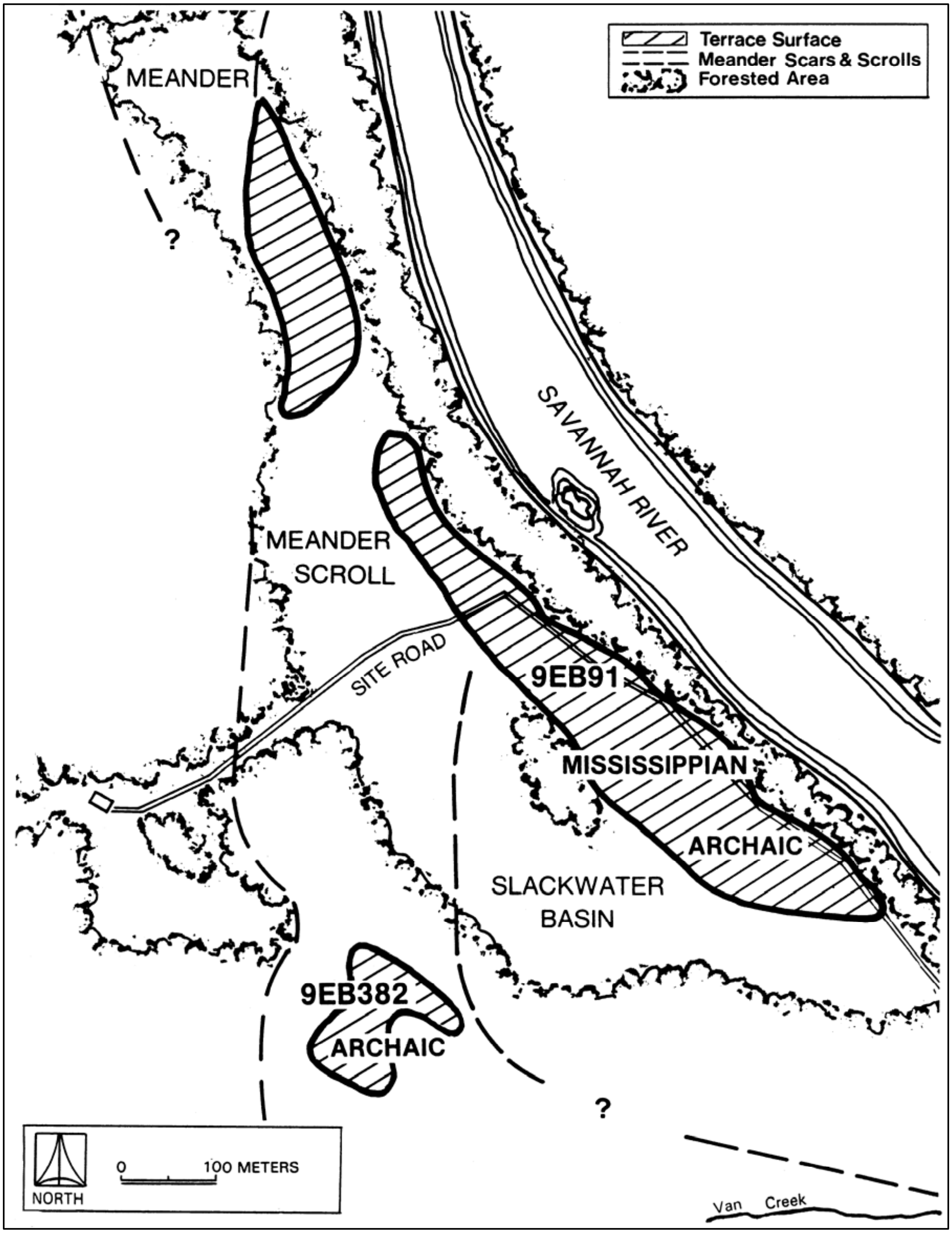

Figure 7.35 Rucker's Bottom Site Map
(Anderson and Schuldenrein 1985:253)

Mississippian Analytical Strata

1. Circular house (?) in the western part of the Rembert-phase village.

2. Squared house (?) in the western part of the Rembert-phase village.

3. Circular house (?) in the southern part of the Rembert-phase village.

4. Circular house (?) in the southern part of the Rembert-phase village.

5. Squared house (?) in the eastern part of the Rembert-phase village.

6. Circular house (?) in the eastern part of the Rembert-phase village.

7. Large public (?) building in the southern part of the Rembert-phase village.

8. Large semicircular enclosure in the area between the two villages.

9. Circular house (?) in the northwestern part of the Beaverdam-phase village.

10. Circular house (?) in the northwestern part of the Beaverdam-phase village.

11. Rectangular house (?) in the southern part of the Beaverdam-phase village.

12. Northeastern part of the Beaverdam-phase village (incompletely stripped).

13. Southeastern part of the Beaverdam-phase village (high feature density area).

14. Large public (?) building in the southern part of the Beaverdam-phase village.

15. Southwestern part of the Beaverdam-phase village (high feature density area).

16. Northwestern part of the Beaverdam-phase village (high feature density area).

17. Central part of the Beaverdam-phase village (low feature density area). Plaza (?)

18. Area between the two villages (low feature density area).

19. Southern side of the Rembert-phase semicircular ditch.

20. Northern side of the Rembert-phase semicircular ditch.

21. Southern side of the Rembert-phase rectangular ditch.

22. Northwestern side of the Rembert-phase rectangular ditch.

23. Southern part of the Rembert-phase village (high feature density area).

24. Western part of the Rembert-phase village, area between the two enclosures.

25. Central part of the of the Rembert-phase village (low feature density area). Plaza (?)

26. Eastern part of the Rembert-phase village (high feature density area).

27. Northern part of the Rembert-phase village (high feature density area).

Figure 7.36 Rucker's Bottom Mississippian Features (Anderson and Schuldenrein 1985:475)

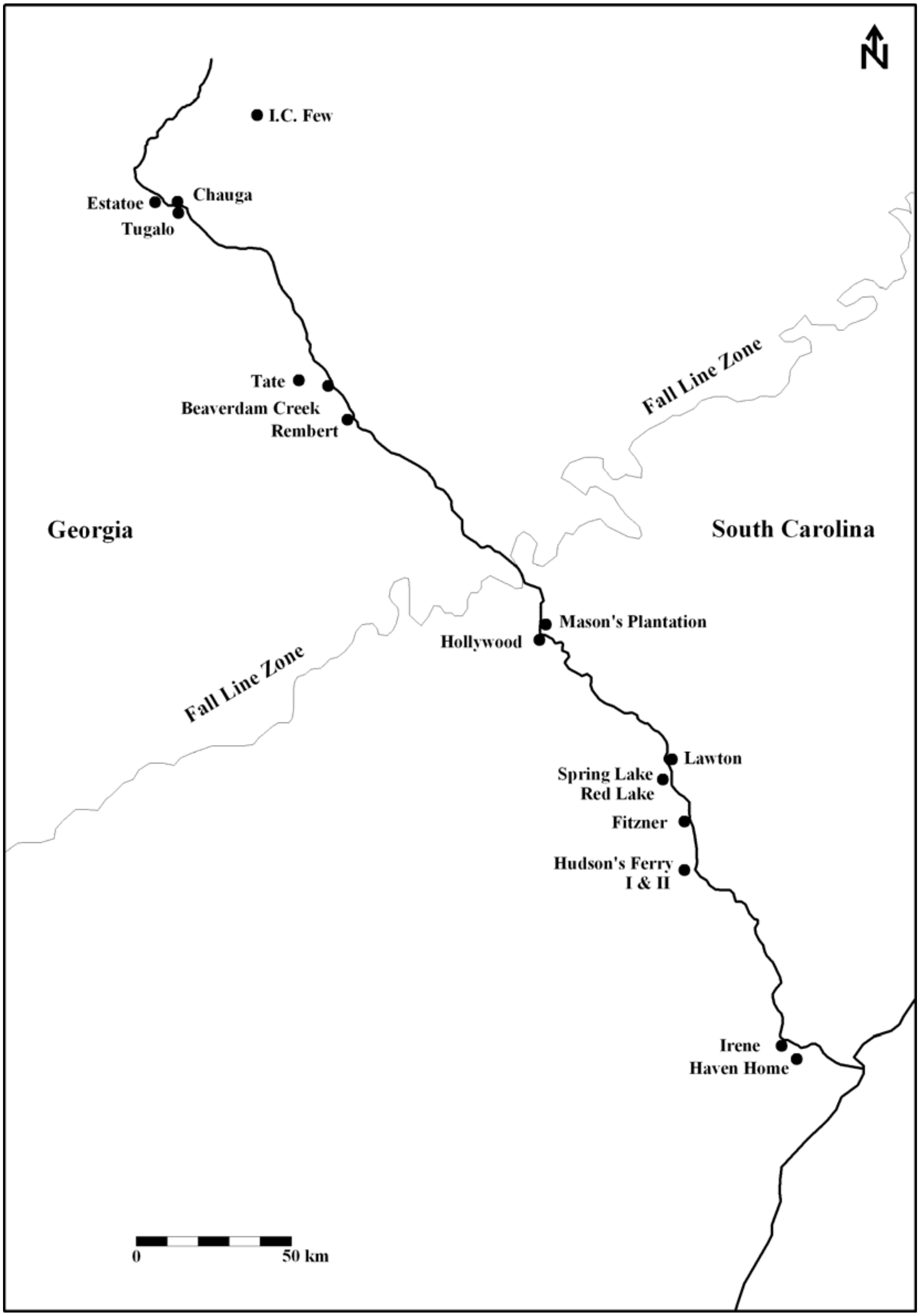

Figure 7.37 Savannah River valley Mississippian Mound Sites

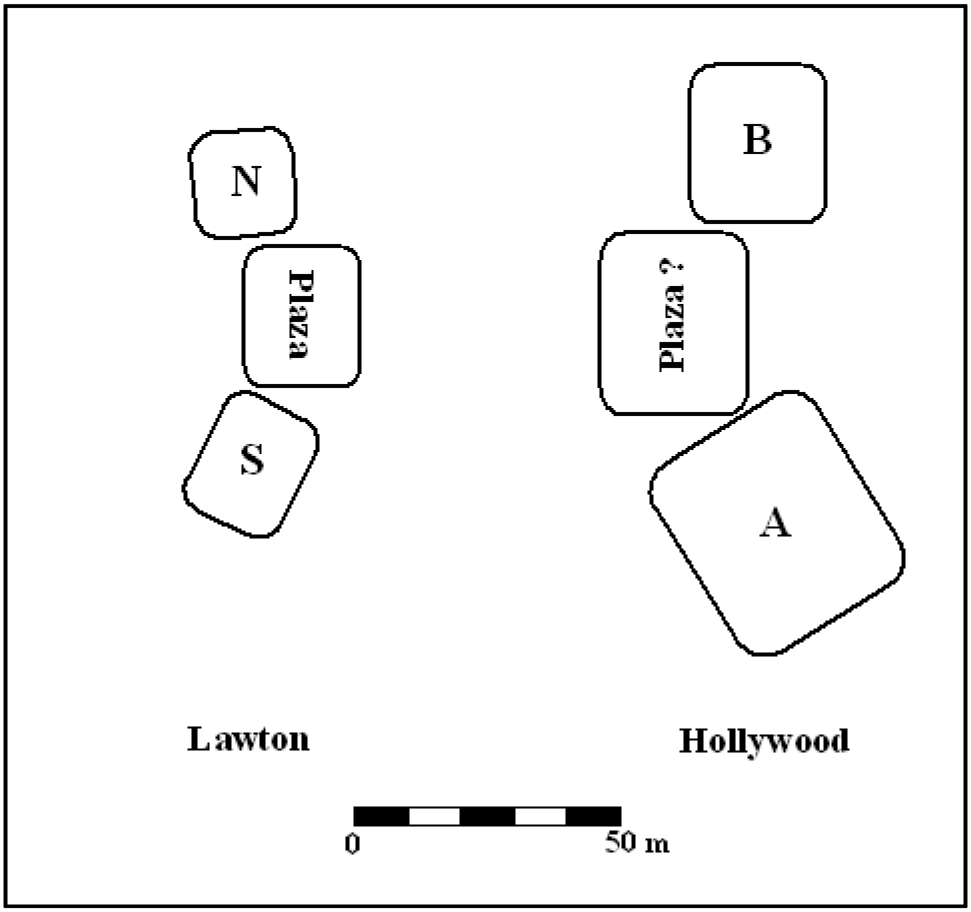

Figure 7.38 Lawton and Hollywood Sacred Precincts

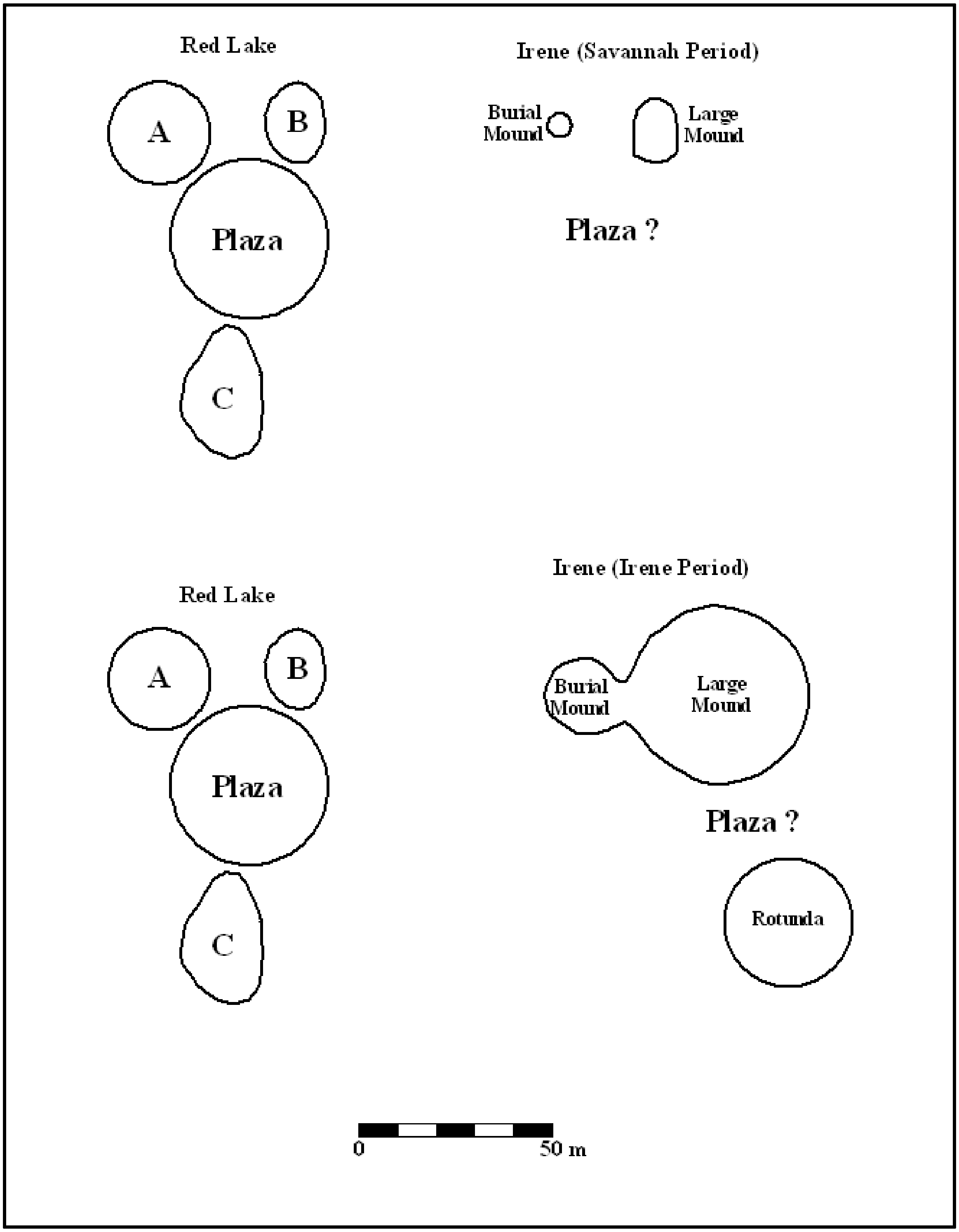

Figure 7.39 Red Lake and Irene Sacred Precincts

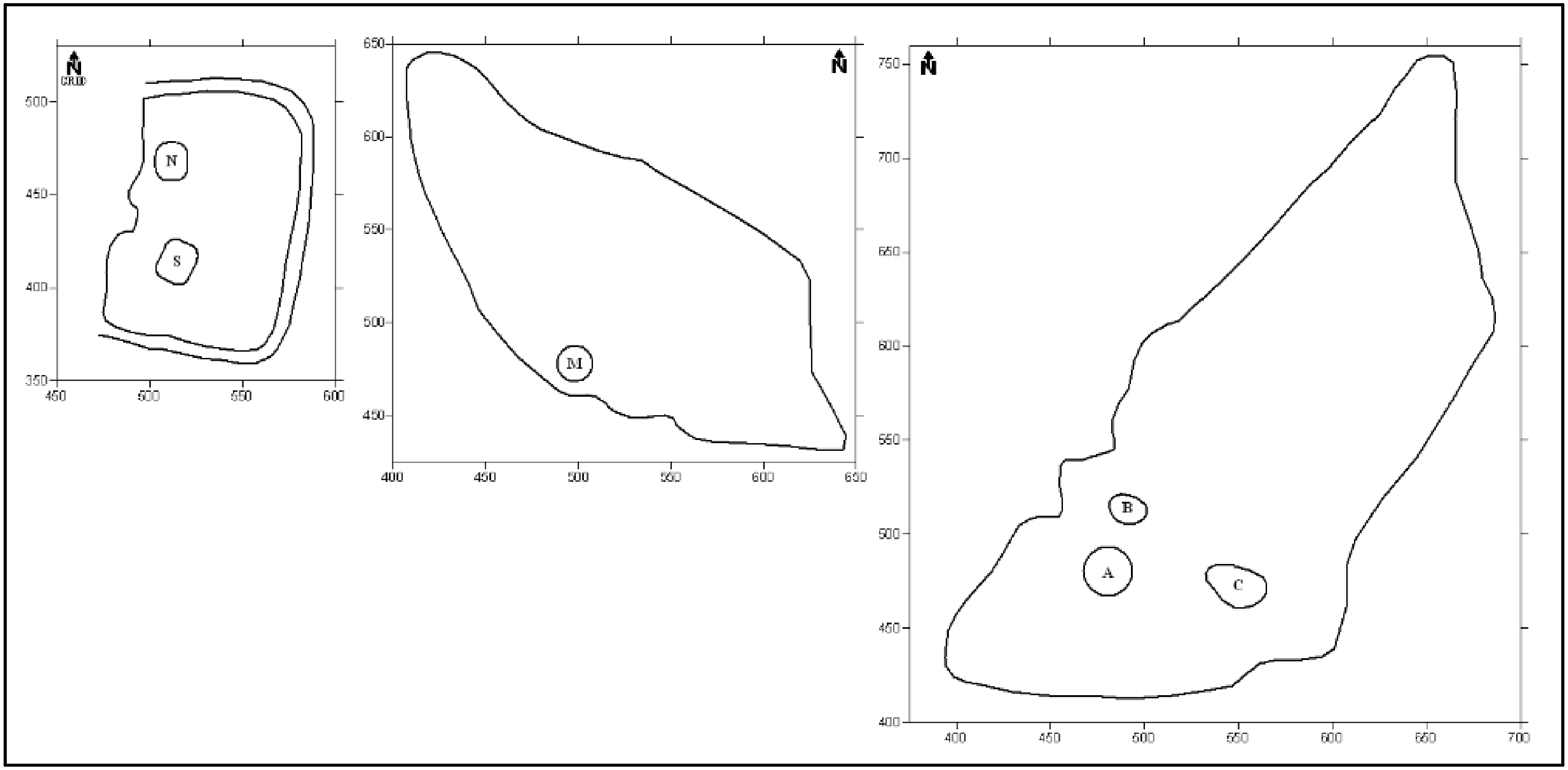

Figure 7.40 Lawton, Spring Lake, Red Lake (Meter Scale)

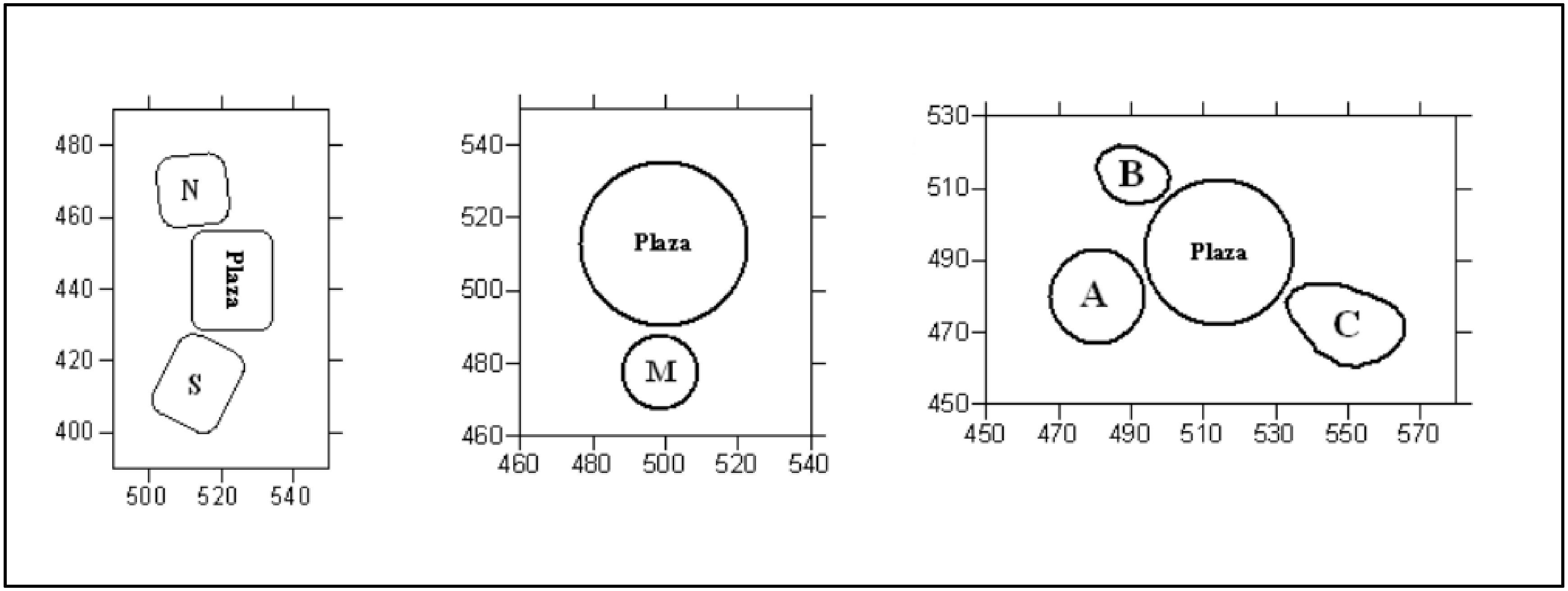

Figure 7.41 Lawton, Spring Lake, Red Lake Sacred Precincts (Meter Scale)

CHAPTER 8

CONCLUSIONS

8.1 Mississippian Chiefdom Organization: A Review of the Question

There is general agreement among most researchers of the Mississippian period that chiefdoms were the dominant form of sociopolitical organization in the late prehistory of the southeastern and midwestern United States. Mississippian societies exhibited institutionalized social inequality, political centralization, tiered political administrations, and hierarchically organized settlement systems. Archaeological and ethnohistoric evidence both support the notion that Mississippian period sites with earthen platform mounds were the administrative centers of these chiefdoms.

It has been suggested that Mississippian chiefdoms may be differentiated according to how many tiers their administrative hierarchies contain. Those with one level of political control above the local community are termed simple chiefdoms, while those exhibiting two or more levels of political control are termed complex chiefdoms. Simple chiefdoms should have one administrative center, while complex chiefdoms should have multiple administrative centers. Further, in a complex chiefdom there should be one administrative center that is larger and/or more architecturally complex than the others; this is the primary center, and was presumably the residence of the head chief and the highest level of the chiefdom's settlement and administrative hierarchy. All other administrative centers within the complex chiefdom should be measurably smaller or less architecturally complex; these are the secondary centers, presumably the residences of subordinate chiefs.

Some researchers suggest that individual Mississippian period polities may be identified archaeologically by the distribution and proximity of contemporaneous platform mound sites (Hally 1993; Smith and Kowalewski 1980). Using a large data set of Mississippian mound centers from northern Georgia, Hally (1993) noted that contemporaneous mound sites were either located within 18 km from each other or separated by more than 32 km. Hally suggests that the closely-spaced contemporaneous mound sites- those located 18 km or less from each other- were the administrative centers of complex chiefdoms. He suggests that contemporaneous mound sites located 32 km or more apart were the administrative centers of politically independent chiefdoms. Hally's model (1993) conforms to the above premises regarding primary and secondary centers within a complex chiefdom; that there should be one mound site, the primary center, that is measurably different from the secondary centers in spatial size and architectural complexity. Further, Hally (1993) proposes that Mississippian chiefdoms would rarely exceed 40 km in extent. Using his criteria for mound center spacing and identification of primary and secondary administrative centers, Hally identified as few as twenty-eight and as many as forty-seven individual chiefdoms in the northern Georgia area (Hally 1993). Most of these were simple chiefdoms with a single administrative center, but at least eight complex chiefdoms with multiple administrative centers were identified. Hally suggests that this model of chiefdom size, spacing of administrative centers, and differentiation of primary and secondary centers within complex chiefdoms is applicable throughout much of the Mississippian world, and perhaps in other culture areas (Hally 1993:164-165).

The research of Williams and Shapiro (1990) and Blitz (1999) suggest that the organization of Mississippian chiefdoms and the distribution of mound centers may be more complicated than the concise model proposed by Hally (1993). These authors identify 10 cases of closely-spaced, seemingly contemporaneous mound sites that may not be the primary and secondary centers of complex chiefdoms as defined by Hally (1993) and Anderson (1994) (Figure 1.1). They offer alternate explanations for the chronological and sociopolitical relationships that may have existed among these Mississippian mound centers.

Based on archaeological evidence from the Oconee River valley in Georgia, Williams and Shapiro (1990) suggest that some closely-spaced mound centers were occupied in an alternating fashion, rather than simultaneously. The example they cite of this phenomenon is the pair of closely-spaced mound centers of Scull Shoals and Dyar, whose occupation alternated on the level of the ceramic phase, in this case every 125 years. They propose that depletion of localized natural resources or chiefly prerogative may have driven relocation of the administrative center throughout the lifespan of the chiefdom. In the first scenario, they suggest that necessary resources such as firewood or fertile agricultural soils near the active administrative center were not sufficient to sustain the population, which prompted a migration to another nearby mound center. In the second scenario, they suggest that chiefs simply had the authority to choose which mound site would be the active administrative center, and that their subjects would migrate to the administrative center of the chiefs' choosing. Archaeologically, this scenario of alternating occupation should be reflected in ceramic chronologies and absolute dates from the mound centers that do not significantly overlap.

Blitz (1999) takes a different approach. Using historic analogy, he suggests that certain political processes observed among eighteenth and nineteenth century Choctaw and Muskogee polities may also have been in operation among Mississippian chiefdoms. Historic records indicate that some of these okla-talwas fissioned as a result of internal dissent, after which the weaker faction moved away. Needing an ally for protection against military attack, the weaker faction sought refuge with another existing okla-talwa. If accepted, the newcomers established their own polity near the host okla-talwa. The newcomers held the subordinate position in a senior-junior relationship with the host polity, but were considered politically autonomous, and apparently constructed ceremonial architecture of their own (Blitz 1999:583-585). Blitz suggests that closely-spaced, contemporaneous, architecturally similar Mississippian mound sites may represent fused chiefdoms resulting from these same political processes of polity fission and fusion. Archaeologically, Blitz' fission-fusion model indicates that the administrative center of the senior chiefdom will have been occupied first, and that the senior and junior administrative centers should be architecturally similar.

Each of the explanations proposed by Hally (1993), Williams and Shapiro (1990) and Blitz (1999) for closely-spaced Mississippian mound sites is plausible. This means that each case of closely-spaced mound centers must be tested archaeologically in order to determine the chronological and sociopolitical relationships that existed among the sites involved. Logically, their relative chronologies must first be established. If they were alternately occupied during the lifespan of the chiefdom, then Williams and Shapiro's model is supported. If the administrative centers were actually contemporaneous, the Hally and Blitz models are both valid. In this case, each mound center must be characterized according to its spatial and architectural features, and if possible, the nature of its elite burials. These characteristics must be carefully compared to determine if the sites are significantly different from each other, as Hally's model would suggest of primary and secondary centers, or are generally similar to each other, as Blitz' model would suggest of fused chiefdoms.

8.2 Application of the Complex Chiefdom, Fission-Fusion, and Alternating Occupation Models

The closely-spaced mound sites of Lawton and Red Lake were promoted as a case study of paired towns by Williams and Shapiro (1990:164) and fused chiefdoms by Blitz (1999:587-588), based on their apparent contemporaneity and their having two mounds each. The problem posed by these two sites has grown more complex with the confirmation of a third mound at Red Lake, the recording and testing of the contemporaneous, nearby single-mound site of Spring Lake, and the identification of yet another possibly contemporaneous single-mound center, the Fitzner site. This grouping of closely-spaced mound centers did not precisely fit the models proposed by Williams and Shapiro (1990) and Blitz (1999), but they also did not conform exactly to the expectations set forth by Hally (1993, 1996) for clearly-identified primary and secondary administrative centers within a complex chiefdom.

In order to determine which model best fits the site data, we must first determine whether the sites were contemporary. Archaeological testing and analysis of each site has revealed much about their relative chronology. The pottery analyses presented in this study are the most detailed, thorough examination and comparison of large, stratigraphically-secure Hollywood phase pottery collections to date in the Savannah River valley. Despite my best efforts to identify fine-grained sub-phase chronologies based on pottery types and modes from the three sites, there is not enough ceramic variation among the sites to demonstrate non-contemporaneity. There are trends, however, in the frequencies of complicated stamped designs and motifs identified among the collections that suggest the sites may have been established at different times. Namely, the sub-mound pottery collections, which were likely deposited relatively early in each site's occupational history, vary in their ratios of rectilinear to curvilinear complicated stamped design pottery. They also vary in their number of Etowah Complicated Stamped sherds.

Those collections with higher frequencies of rectilinear complicated stamping and more Etowah Complicated Stamped sherds should date earlier than those with more curvilinear complicated stamping and fewer Etowah Complicated Stamped sherds. A collection of absolute dates from stratigraphically-secure contexts and carefully-chosen samples supports the pottery analyses. The absolute dates overlap significantly, indicating that the sites were contemporaneously occupied, at least for part of their histories.

According to these findings, Lawton, Spring Lake, and Red Lake were contemporaries. This means that this particular case does not seem to support the alternating occupation model proposed by Williams and Shapiro (1990). Given the relatively short occupation span of the sites, the range of error associated with absolute dates, and limits to how finely the available ceramic collections can be subdivided chronologically, this model would be nearly impossible to prove for Lawton, Spring Lake, and Red Lake, even if it were valid. Considering that the model itself is based on one pair of sites whose occupation alternated at the ceramic phase level of 125 years, perhaps it should be refined to include explicit expectations for groups of sites occupied for shorter spans of time. Many Mississippian mound centers exhibit gaps in their spans of occupation (Anderson 1994). Whatever the reasons for the periodic abandonment of a mound center (e.g., environmental resource depletion, conflict with neighboring groups), their population had to go somewhere. If they remained together, organized as a chiefdom, then nearby mound centers should be investigated to see if their occupation spans fill the gap(s) of occupation exhibited at the abandoned center. As it stands, the model of alternating occupation has great archaeological merit, and should be tested at other groupings of closely-spaced Mississippian mound centers.

Having determined that the three sites are largely contemporaneous, we must characterize and compare each center's site layout and architecture. Mapping, survey, and test excavations at the three sites have yielded a wealth of information on their spatial and architectural characteristics. While there are architectural and site design similarities found among Lawton, Spring Lake, and Red Lake, I argue that they are significantly different from each other. The sites exhibit variation in a number of characteristics, including site location, site size, number of mounds, number of mound construction stages, size and shape of each mound, size and shape of plazas, layout and organization of each site's sacred precinct, the presence and nature of defensive works, and the estimated communal labor requirements for monumental construction at each site. Unfortunately, all of these criteria do not co-vary consistently among the three sites (Table 7.27).

These findings have direct implications on the complex chiefdom model (Hally 1993) and the fission-fusion model (Blitz 1999) for closely-spaced, contemporaneously occupied mound sites. While neither of these models is strongly supported by the current data from Lawton, Spring Lake, and Red Lake, the complex chiefdom model seems the most applicable. The sites are not markedly similar, as would be expected in the fused chiefdom arrangement. Rather, there is notable architectural variation present among the sites. Although the nature and degree of this variation is perhaps not as great as one would anticipate among administrative centers in a complex chiefdom, I argue that the sites are best interpreted as such. There may be debate on which architectural and site design characteristics are the most reliable indicators of site primacy in situations of closely-spaced administrative centers. Perhaps we should widen the criteria used to differentiate them. It is possible that the site designated as the primary center changed throughout the history of the chiefdom (i.e. Lawton and Red Lake switched roles), but this would be difficult to detect archaeologically. It does seem clear that Spring Lake is best interpreted as a secondary administrative center, according to almost every criterion considered. The question remains whether Lawton or Red Lake represents the primary administrative center. I suggest that Lawton's favorable location, ditch and palisade protecting the sacred precinct, and significantly higher communal labor demands for monumental construction place it in a category above Red Lake. As such, I suggest that Lawton was the primary administrative center of a complex chiefdom, with Red Lake and Spring Lake serving as secondary centers.

There is additional information to suggest that the fused chiefdom arrangement is not a particularly appropriate explanation for the sociopolitical relationships among Lawton, Spring Lake, and Red Lake. The fission-fusion model requires that an established chiefdom operate long enough for internal dissent to become a serious political issue, and that there be sufficient distribution of polities on the landscape such that the weaker, migrating faction cannot find a suitable, safe location of their own at which to settle. If the chiefdom fissioned in such a scenario, then the weaker faction would seek to fuse themselves with another established chiefdom. According to Blitz (1999), the newcomers sought this fusion due to their military vulnerability. The senior, host chiefdom would presumably protect the newcomers from either their former chiefdom or other nearby polities who would view them as vulnerable to attack. The known Mississippian occupation of the Savannah River valley does not seem to support such a scenario.

Only a few Mississippian mound centers may have been occupied immediately prior to the middle Mississippian period Hollywood phase (A.D. 1250-1350) (Figure 8.1). These include Beaverdam Creek, Rembert, and Irene. The Beaverdam phase at the Beaverdam Creek site is a reliable chronological designation, but it predates the Hollywood phase by only 50 years or less.

The Irene chronology has not been refined to the ceramic phase level. I suspect that the Savannah period pottery from Irene dates to the late Savannah period, possibly even coeval with the Hollywood phase. The extant Rembert site pottery collection contains a few sherds that may date to the Beaverdam phase, but this remains to be confirmed. Given the current evidence, there appears to be only one distinguishable chiefdom in the Savannah River valley, centered at the Beaverdam Creek or Rembert sites, that predates the Hollywood phase. This Beaverdam Creek / Rembert chiefdom is located almost 150 km upstream from where Lawton, Spring Lake, and Red Lake subsequently were established. In addition, there are no reported chiefdoms for 100 km or more to the east and west of the Savannah River valley at this time (Georgia Archaeological Site File). Therefore, there appears to have been no long-established chiefdom in the Savannah River valley, or nearby, to have fissioned just prior to the Hollywood phase, let alone any established chiefdom to have fused with, or serious competition to be protected from.

The Hollywood phase (A.D. 1250-1350) marks a significant, rapid establishment of numerous Mississippian mound centers throughout the Savannah River valley (Figure 8.2). The newly-established administrative centers at this time are Tate, Hollywood, Lawton, Spring Lake, Red Lake, and Irene. Occupation is probable at Mason's Plantation and Fitzner, and may have continued at Beaverdam Creek. The upper three groupings of sites might represent three complex chiefdoms: 1) Tate (primary center)/Beaverdam Creek (secondary center), 2) Mason's Plantation (primary center)/Hollywood (secondary center), 3) Lawton (primary center)/Red Lake, Spring Lake, Fitzner (secondary centers) (Figure 8.3). Irene might represent a simple chiefdom near the coast (Figure 8.3). Just as before the Hollywood phase, there are no reported chiefdoms immediately to the east or west of the Savannah River valley during the Hollywood phase (Georgia Archaeological Site File). This rapid Mississippian development created a new, dynamic political environment within the valley, but it was relatively short-lived. All of these centers, with the exception of Irene, apparently were abandoned by A.D. 1350.

If the fission-fusion process was responsible for the closely-spaced centers of Lawton, Spring Lake, and Red Lake, then it must have occurred with great rapidity, and within the confines of the Hollywood phase. Even in such a scenario, the emigrating faction would have fissioned from the Tate/Beaverdam Creek chiefdom, approximately 150 km upstream, the Hollywood/Mason's Plantation chiefdom, roughly 60 km upstream, or from Irene, roughly 100 km downstream. If a faction fissioned from Tate/Beaverdam Creek chiefdom, they presumably could have found refuge further upstream in the Piedmont, or between Tate/Beaverdam Creek and the Fall Line. Otherwise, they would have been forced to travel through the territory of the Mason's Plantation/Hollywood chiefdom- perhaps one of the most powerful in the valley- to arrive at Lawton. This seems illogical. If a faction fissioned from the Mason's Plantation/Hollywood chiefdom, they could have moved upstream to establish a chiefdom of their own in presumably uncontested territory between the Fall Line and the Tate/Beaverdam Creek chiefdom. If this option was not available, it is possible that such an emigrant faction from Mason's Plantation/Hollywood could have fused with a chiefdom centered on Lawton. If a faction fissioned from Irene, there is open, seemingly available space upstream between Irene and the chiefdom centered on Lawton, where they could have settled. Given the requirements implicit in the fission-fusion model (an established chiefdom with significant internal dissent, another established chiefdom for an emigrating faction to fuse with, military pressure to necessitate an alliance for protection, and sufficient time for the newcomers to establish a center and construct mounds), this scenario seems unlikely to have taken place during the interval from A.D. 1250-1350.

There is another potential flaw with the application of the fission-fusion model to Lawton, Spring Lake, and Red Lake. Blitz (1999) gives no example of fusion between okla-talwas that lasted for a significant amount of time. In fact, he indicates that these fusions were perhaps as unstable as the okla-talwas that originally fissioned. Citing several examples of fusions among groups in the Lower Mississippi valley, Blitz states that “Fusion was fraught with social tensions; eventually several of these pairs attacked one another and dissolved the union” (1999:584). I suggest that social tensions might have been even greater in such a fusion of Mississippian period chiefdoms, where head chiefs were assumed to be divine and their span of sociopolitical control seems to have been greater than that of historic period okla-talwa leaders. Fusion of historic okla-talwas is one thing; the same type of fusion between politically-centralized, hierarchically-organized chiefdoms may be something else altogether. Considering that Lawton, Spring Lake, and Red Lake were apparently occupied for approximately 100 years, and that both Lawton North Mound and Red Lake Mound A exhibit multiple construction stages, this would be an exceptional example of fused chiefdoms that operated amicably together for several generations. I am skeptical that such an arrangement would have existed for such a long period of time.

Despite my own conclusion that Lawton, Red Lake, and Spring Lake are best explained as administrative centers of a complex chiefdom, there are several problems with this interpretation as well. First, the architectural differences between Lawton and Red Lake are not as great as I would hope, and some of these differences are admittedly confusing. For instance, why would Red Lake, as a secondary center, have more mounds than Lawton, the proposed primary center? This seems illogical. Also, why does Spring Lake have only one mound? As a secondary center, should it not have at least the basic architecture found at the other secondary center in the chiefdom? Second, why are there more mound construction stages in Red Lake Mound A, the chief's mound of a presumed secondary center, than in Lawton North Mound, the head chief's mound of the presumed primary center? If the number of construction stages indicates duration of occupation, this implies that Red Lake was occupied longer than Lawton. This could occur if Red Lake were established first and/or abandoned after Lawton. A scenario where the primary center is established after the secondary center seems improbable. Third, the presence of multiple construction stages in the chief's residential mounds of Lawton and Red Lake would indicate that fundamentally similar funerary ceremonies were conducted at the deaths of both head chiefs and subordinate chiefs at those sites. This begs the question of why the Spring Lake mound has only one construction stage. Was it used for the lifetime of a single, subordinate chief, or did it serve another purpose? These are important points that should be addressed in further studies of complex chiefdoms.

8.3 Additional Research and Speculation

The rapid Mississippian development and expansion of chiefdoms throughout the Savannah River valley during the Hollywood phase is an important phenomenon that poses many additional research questions. While the general timing of this phenomenon is supported with current data, further excavations and detailed analyses of pottery collections and radiometric samples from known Mississippian administrative centers are necessary to confirm the histories of their individual occupations. Additional testing is also required to characterize fully these recorded administrative centers. Do they have associated habitation areas, plazas, and defensive works? Seemingly isolated Mississippian burial mounds, such as the Hudson's Ferry sites and Haven Home, must be dated and characterized. Are these administrative centers of a sort, or merely funerary architecture, perhaps serving local Mississippian period communities not organized as chiefdoms? Additional survey is required to document any unrecorded mound centers, if they exist; this is a serious concern given the fact that two small, previously unrecorded mound centers were located as part of this study. Further, we must determine the nature and distribution of non-mound Mississippian sites within the valley, of which we know relatively little.

This additional research should allow for a more complete picture of the Mississippian occupation of the Savannah River valley, and a greater understanding of how these polities were organized on the landscape. If Hally's (1993) model of chiefdom size and spacing is applicable to the Savannah River valley, individual polities may be recognized; perhaps we may begin to address the reasons behind their distribution. I have suggested elsewhere that this spacing conforms to Hally's model, and was likely driven by access to natural resources and environmental locations that could support chiefdoms, while simultaneously allowing for buffer zones between them to limit competition (Wood 2006).

A larger theoretical question posed by the rapid Hollywood phase Mississippian expansion is this: What drove such a development? Were polities outside of the valley responsible for the spread of ideas or people that spurred such a flurry of mound center construction over such a great distance? Does this development represent an influx of populations from elsewhere, or is this the in situ adoption of Mississippian sociopolitical organization by local peoples? It may be possible to approach this question in several ways. The first is to identify clearly what pre-Hollywood phase material culture looks like, and if it exists throughout the valley. Second, we should identify regional variations in Mississippian material culture within the valley, both before and during the Hollywood phase, and see if these persist (e.g., do "Piedmont Mississippian" period societies retain "Piedmont" traits, do "Coastal

Mississippian" period societies retain "Coastal" traits, etc., despite adopting chiefdom sociopolitical organization?). Two Hollywood phase traits with strong coastal ties- sand burial mounds and Savannah Burnished Plain and Fluted bowls- do extend for some distance upstream into the interior. Sand burial mounds certainly predate the Hollywood phase, but the history of fluted bowls is uncertain. If regionally-identifiable material culture traits persist in portions of the valley, it could be argued that the spread of ideas, rather than large influxes of new people, drove the adoption of chiefdom organization.

Within the Savannah River valley, I suspect that the five-mound Rembert site, located in the Piedmont, and the Hollywood / Mason's Plantation site pair at the Fall Line (with two and six mounds, respectively), were dominant political centers in their portions of the valley. It is certainly possible that these administrative centers were established relatively early within the Hollywood phase, and were influential in the establishment of additional mound centers downstream. The Irene site may also have been a relatively early, dominant political center near the coast that influenced development further upstream.

Such an arrangement of mound centers throughout the interior Coastal Plain, facilitating interaction from the Piedmont to the coast, and vice versa, would have tangible, socially important economic benefits. Marine shell beads, perhaps the most ubiquitous artifacts found in high-status burials throughout the Mississippian world, were intensively manufactured on or near the coast, perhaps by part-time craft specialists (Pearson and Cook 2008:142-146). Numerous shell beads were recovered from the Hollywood site mound burials, and the only conclusively exotic object found among Lawton, Spring Lake, and Red Lake was an olivella shell, possibly drilled as a bead, discovered in the Red Lake Mound A sub-mound midden (Wood 2007). A trade network of Mississippian polities, centered at platform mound sites, could have facilitated the trade of marine shell goods further upstream. In addition, polities in the Piedmont or Fall Line zone could have provided necessary badges of office constructed from exotic materials not found on the coast; most notably copper. Several finely-made copper objects were discovered among burials from the Chauga, Beaverdam Creek, and Hollywood sites, and some fragments of repoussé copper sheeting were discovered on the stage six summit of the large mound at Irene. This is not to say that the polities located in the interior Coastal Plain were directly subject to those in the Piedmont, at the Fall Line, or at the coast. It is merely a suggestion that such a trade network would likely have been encouraged by chiefs among those polities.

Environmental conditions within the valley have also been cited as possibly encouraging settlement during the Hollywood phase (Anderson 1994:277-289; Blanton 2008). According to several lines of evidence regarding climatic trends, this interval of time was marked by a relatively benign pattern of temperature and precipitation, with infrequent episodes of extreme wetness or drought. Such a climate could have supported the development of chiefdoms with mixed subsistence economies that included horticulture.

Just as notable as the rapid Mississippian development of the Savannah River valley is its rapid demise. Following the Hollywood phase, in the interval from A.D. 1350-1400, the great majority of mound centers within the valley are abandoned (Figure 8.4). Evidence for occupation during and after this interval exists at the I.C. Few and Tugalo mound sites near the headwaters, the Rembert site in the Piedmont, and the Irene site near the coast (Anderson 1994; Anderson et al. 1986). Occupation or use of mounds for burial during this period of time has been suggested at the Hollywood site (Anderson 1994), but this chronological designation is likely unreliable. The reasons for this abandonment of mound centers are unclear and remain to be investigated further. Current interpretations of this phenomenon focus on environmental stresses (Anderson 1994:277-289; Blanton 2008; Stahle and Cleaveland 1992), primarily drought conditions, that could have depleted local resources and availability of staple food crops for several years in a row, or on competitive pressure from paramount chiefdoms that developed to the west in the Oconee River valley of Georgia and the east in the Santee/Wateree river drainages in South Carolina (Anderson 1994:326-329).

8.4 Conclusion

Not all questions regarding Lawton, Spring Lake, and Red Lake have been answered. Additional excavations and analyses may allow for the construction of fine-grained internal site chronologies that shed light on the establishment, development, and abandonment of each administrative center. Further excavations and geophysical testing may provide greater understanding of the function served by each mound within the sites. Block excavations in each site's habitation area and plaza should reveal what sort of structures and features are present there, and how these areas were used. The Lawton ditch must be investigated further to determine its date of construction, and the palisade must be confirmed through additional excavations. Site perimeter testing at Spring Lake and Red Lake could document defensive works, if they existed at those sites. Environmental research, including geomorphology, distribution of resources, and catchment area studies, may reveal how and why such a cluster of closely-spaced mound centers were established, supported, and possibly, why they were abandoned.

Despite the great amount of work yet undone, the research presented here provides a significant contribution to our understanding of the Mississippian period occupation of the Savannah River valley. The phase-level occupations of Lawton, Spring Lake, and Red Lake have been firmly established. Large collections of artifacts from comparable contexts at each site have been analyzed and compared. Many of the sites' spatial and architectural characteristics have been mapped and recorded. Theoretical models explaining their sociopolitical relationships have been tested and critiqued. Just as importantly, this research proposes additional questions and future research that will benefit not only our understanding of regional Mississippian period developments, but also our understanding of the greater Mississippian world.

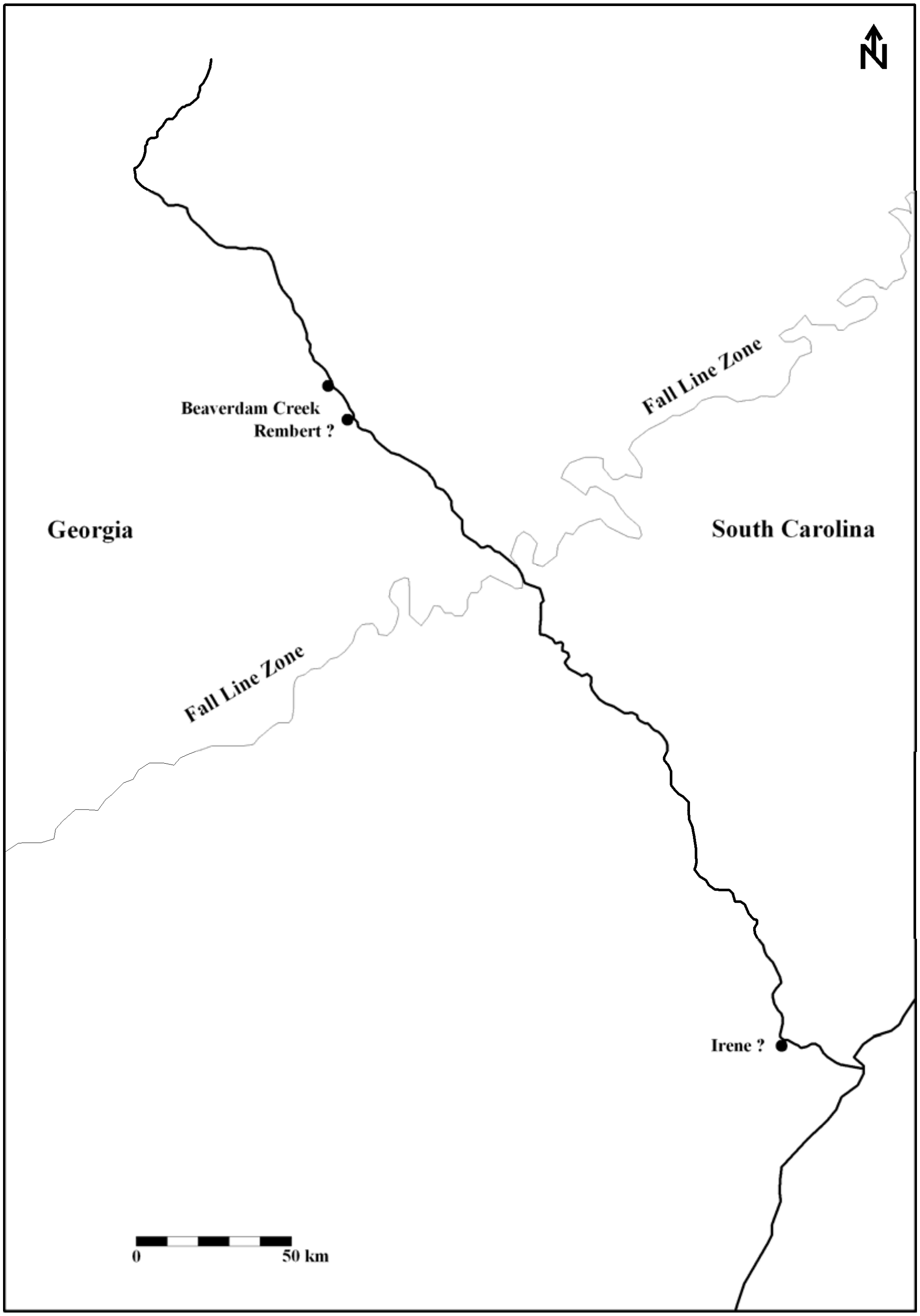

Figure 8.1 Mississippian Administrative Centers, A.D. 1200

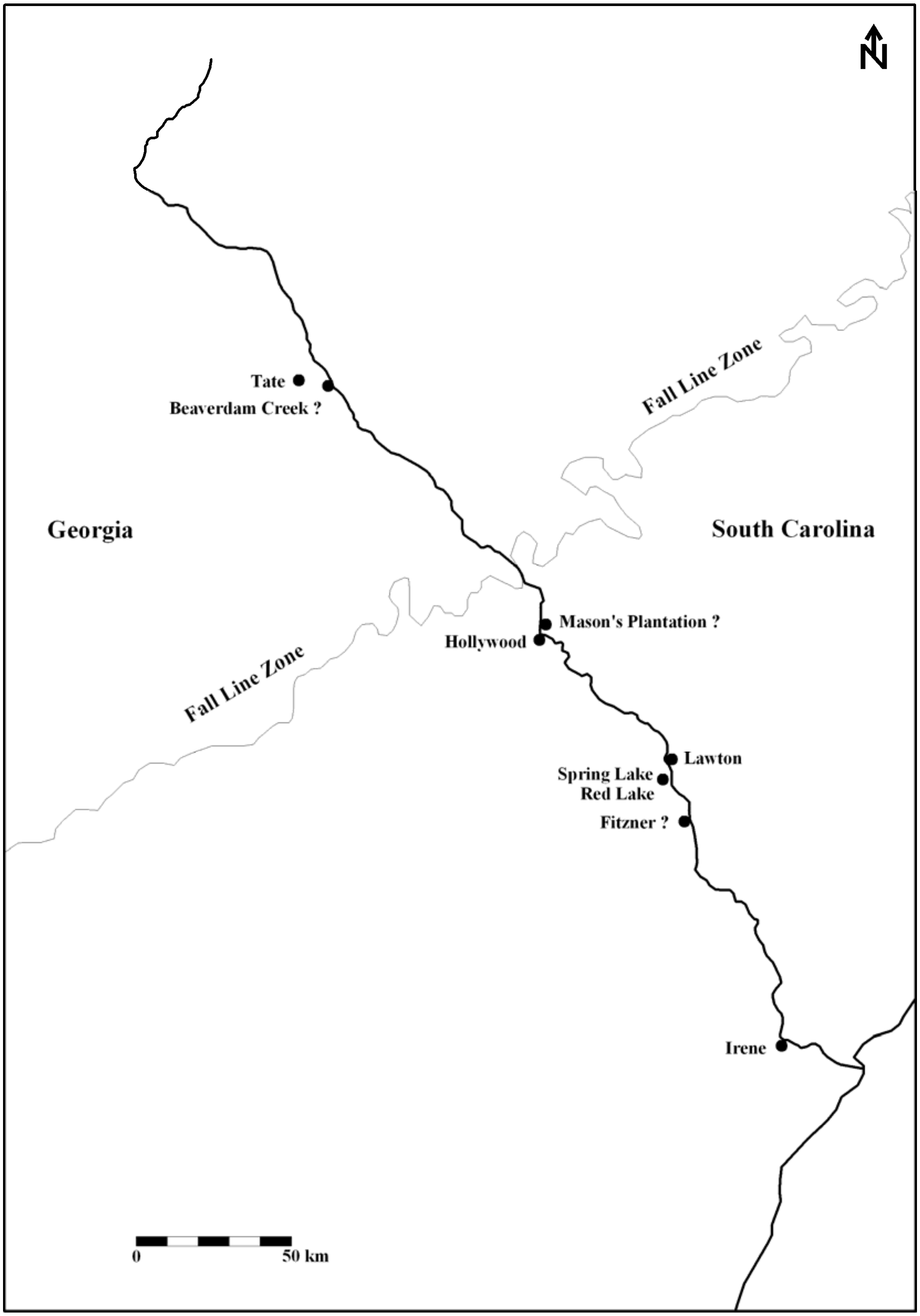

Figure 8.2 Mississippian Administrative Centers, A.D. 1250-1350

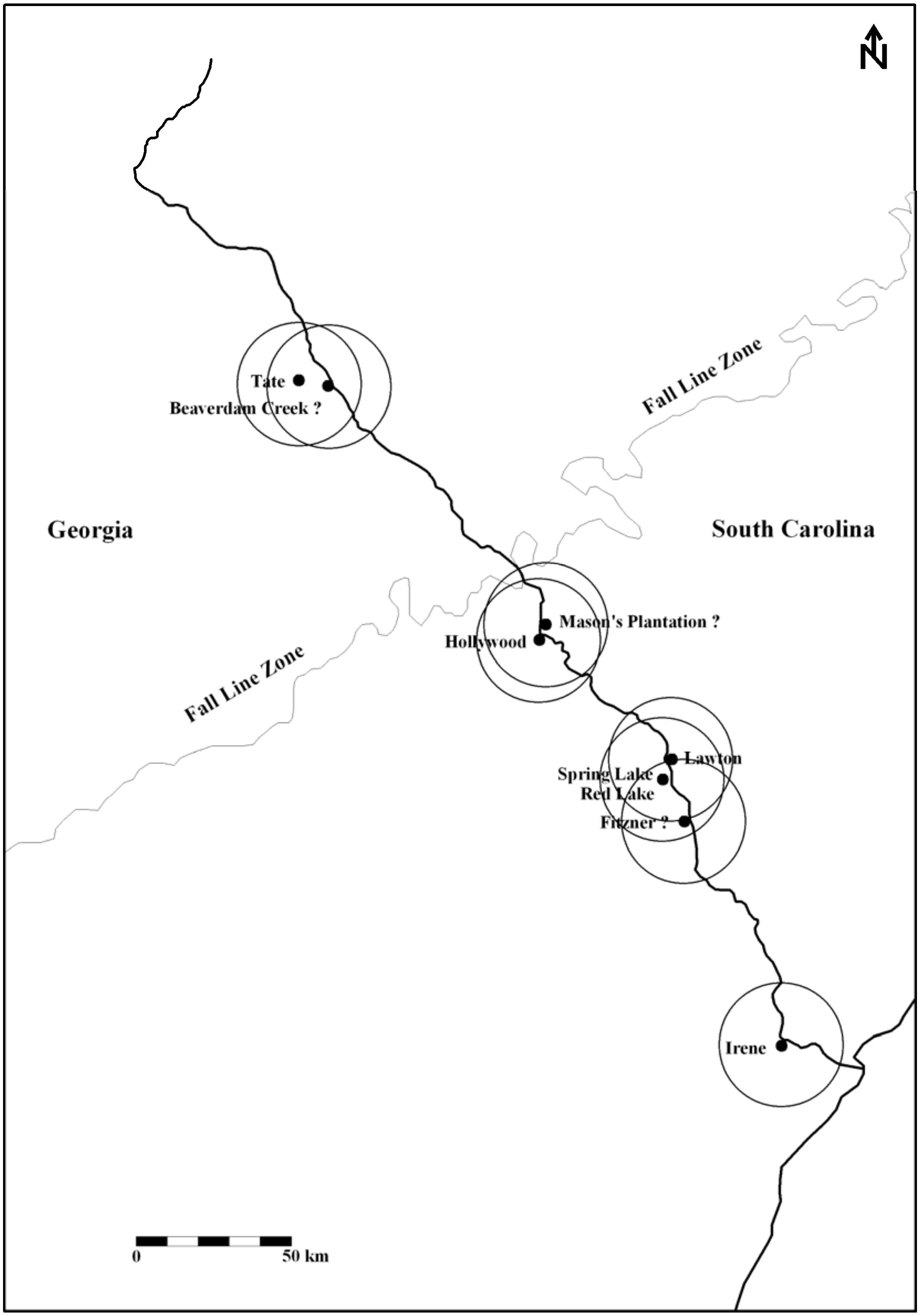

Figure 8.3 Possible Hollywood Phase Chiefdoms

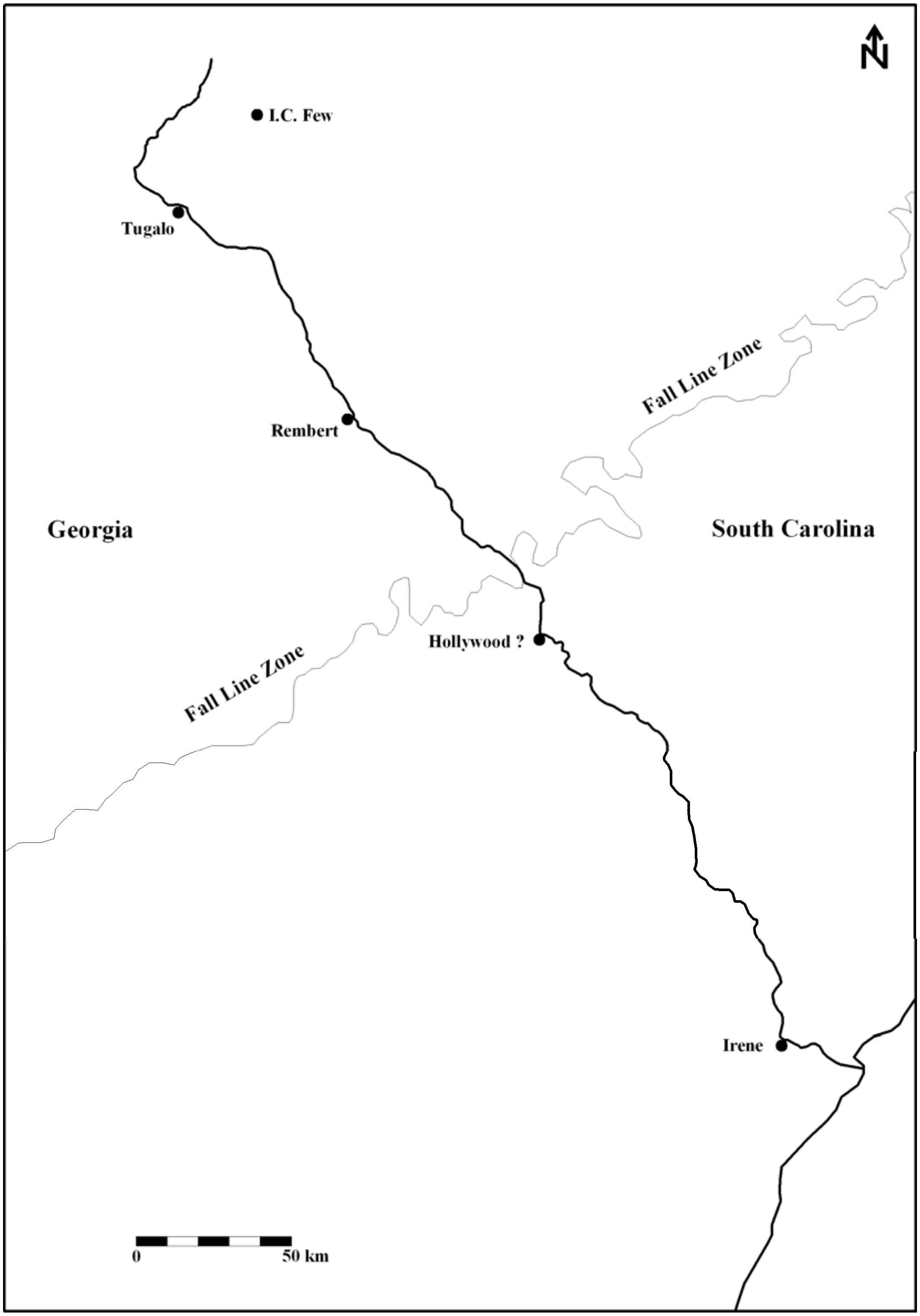

Figure 8.4 Mississippian Administrative Centers, A.D. 1350-1450

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