The Temporal Distribution and Duration of Mississippian Polities in Alabama, Georgia, Mississippi, and Tennessee

David J. Hally and John F. Chamblee

To aid our understanding of prehispanic social change in a subcontinental context, this article presents data and analysis relating to the occupational histories of 351 Mississippian platform mound sites in Alabama, Georgia, Mississippi, and Tennessee. Based on the premise that sites with platform mounds served as the administrative and ritual centers for Mississippian polities, our study demonstrates that polities in the study area rose and fell with some regularity, and in many cases, new polities succeeded old ones in the same locations. Our work expands on a previous analysis of 47 northern Georgia area sites. Through a theoretical framework tailored for macroregional processes and a rule-based approach in collecting and standardizing data from previous work, this study serves as an example for incorporating different processes and regions to provide a more coherent and complete picture of the Mississippian macroregion. Our results show that polity cycling was typical in our study area, and we argue that the rise and fall of polities is best described within a theoretical framework emphasizing collapse and resilience. By treating collapse as a normal feature of Mississippian polities, we can better understand the interconnectedness of Mississippian polities across regions.

Keywords: Southeastern U.S., Mississippian polity cycling, resilience theory, adaptive cycles, panarchy

En un esfuerzo por entender el cambio social prehispánico en la escala de subcontinentes, este papel presenta datos y análisis de 351 sitios montículo de la plataforma misisipiana en Alabama, Georgia, Misisipí y Tennessee. Basado en la premisa que los sitios con montículos de la plataforma sirvieran como los centros administrativos y rituales de estructuras políticas misisipianas, nuestro estudio demuestra que las estructuras políticas en el área de estudio se subieron y se cayeron con alguna uniformidad y, en muchos casos, las nuevas estructuras políticas sucedieron a viejas en las mismas localizaciones. Nuestro trabajo expande en un análisis anterior de 47 sitios en el parte norte de Georgia y presente historias de la secuencia de ocupación para los 351 sitios. Usando un marco teórico hace a medida para procesos macroregionales y un enfoque basada en la regla para coleccionar y estandarizar datos del trabajo anterior, este estudio sirve como un ejemplo para la incorporación de otros procesos y regiones en una imagen más coherente y completa de la macroregión misisipiana. Nuestros resultados muestran que es típico para nuestra área de estudio que las estructuras políticas se repiten en ciclo, y sostenemos que la subida y la caída de las estructuras políticas es describir mejor con el uso de un marco teórico que enfatizar desplome, teoría de resistencia y panarquía. Tratando el desplome como una característica tradicional de las estructuras políticas misisipianas, podemos entender mejor la interconectividad de las estructuras políticas misisipiana a través de regiones.

Palabras clave: sureste de EE.UU, ciclos en unidades políticas mississipianas, teoría de resiliencia, ciclos adaptivos, panarquía

Enduring from AD 1000 until its destruction by Europeans beginning in the sixteenth century, the Mississippian macroregion covered most of the southeastern and midwestern United States (Figure 1, inset map). It was characterized by, among other things, intensive maize, bean, and squash agriculture; a limited variety of domestic architecture and pottery styles; platform mound construction; and political centralization. Another feature is the organization and integration of social groups as polities located in one or more river valleys. A central concern of

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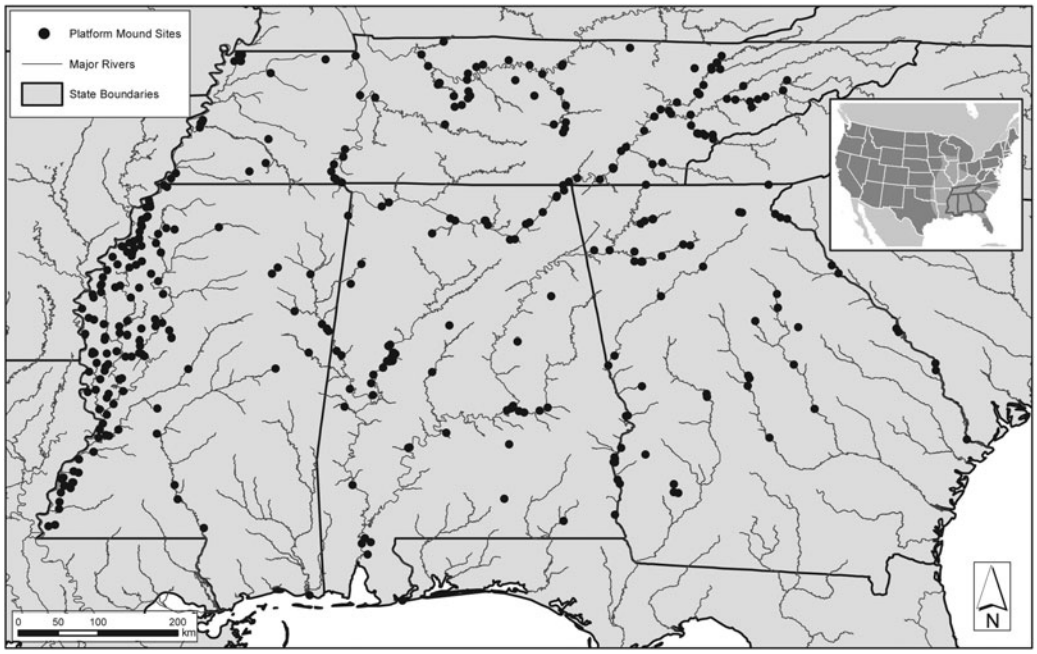

Figure 1. Map showing distribution of 351 Mississippian sites with platform mounds included in the study and the approximate geographic extent of the Mississippian macroregion shown as light gray in insert map.

archaeologists studying the Mississippian macroregion has been the structure, spatial distribution, and temporal distribution of such polities.

A previous analysis of the spatial and temporal distributions of Mississippian sites with platform mounds in northern Georgia (Hally 1993, 1996) demonstrates that Mississippian polities in that region rose and fell with some regularity and, in many cases, new polities succeeded old ones in the same location after 100 to 200 years. The South Appalachian Mississippian region, which includes northern Georgia, lies on the eastern margin of the Mississippian macroregion and is culturally distinct in some ways (Blitz 2010; Ferguson 1971; Stephenson et al. 2015). One can therefore ask whether the spatial and temporal patterns of polities observed in northern Georgia are characteristic of Mississippian societies farther west and north, such as in the Mississippi and Tennessee River valleys.

We pursue this question by expanding the scale of the northern Georgia study and presenting evidence to support the proposition that Mississippian polities across the eastern United States were typically short-lived, rising and falling with some regularity. We also argue that this pattern of polity cycling is best understood within a methodological framework of macroregional analysis supported by a theoretical framework focused on collapse and resilience.

We support our conclusions with a comparative analysis of settlement pattern data for 56 sites in Georgia and 295 sites in Alabama, Mississippi, and Tennessee. We justify the comparative approach on the basis of chronological control. Many of the mound sites in the Georgia sample have more precise chronologies than those in the larger region and, because of their finer scaled chronologies, serve as a comparative baseline.

Conceptual Framework

At broader spatial and temporal scales, researchers widely recognize some degree of interconnectedness among the communities and polities that constitute the Mississippian macroregion (e.g., Anderson 1999; Lewis and Stout 1998; Muller 1997; Payne 1994). The existence of these connections is validated by continental-scale

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distributional studies of copper, marine shell, and greenstone artifacts and related iconography (Brain and Phillips 1996; Brown 2004; Hally 2007; Knight et al 2001; Steponaitis et al. 2011). Using narrower scales, a few scholars show multiregional connectivity by demonstrating broad stylistic approaches to ceramic production, food production, household form, and mortuary practices (Hally 1994; Milner 1998; Scarry 1996). An understanding of macroregional spatial and temporal patterns of social and political dynamics, such as the rise and fall of Mississippian polities, is less frequently pursued (e.g., Anderson 1999). This study represents an initial attempt to fill that gap.

We define Mississippian polities as independent or quasi-independent political entities that consist of a recognized and defended territory, a supporting population distributed across multiple communities, and a leadership structure that maintains some degree of political control over those communities. As such, Mississippian polities should be represented in the archaeological record by spatially discrete clusters of contemporary habitation sites that include one or more sites with platform mounds identifiable as administrative and ceremonial centers.

We know this type of evidence exists in the archaeological record for northwestern Georgia and the Tennessee and Coosa River drainages in northeastern Alabama and southeastern Tennessee (Hally et al. 1990) but has yet to be documented for much of the eastern United States. With few exceptions (Hammerstedt et al. 2016; Milner 1998; Muller 1978; Schroeder 1997), systematic regional site survey data allowing for the identification of spatially discrete clusters of contemporary sites does not exist. In many areas, platform mound sites and contemporary nonmound habitation sites coexisted, but reliable evidence for the relative frequency and spatial distribution of the two site types is lacking (Cobb 2003:68). However, we have fairly complete inventories of Mississippian sites with platform mounds across the eastern United States. Explorers and travelers recorded their existence beginning in the late eighteenth century. Looters and amateur and professional archaeologists continued to record such sites throughout the nineteenth and twentieth centuries. In recent years, these records have been compiled and systematized in state site files (see Chamblee 2006 for an application).

By necessity, our project focuses on the spatial and temporal distribution of Mississippian sites with platform mounds. We justify this focus on the premise that Mississippian polities had administrative centers marked by the presence of one or more earthen platform mounds. We believe these mounds are present at and restricted to administrative centers because they played an essential role in the political and religious institutions of Mississippian societies.

Sixteenth- and seventeenth-century European accounts and archaeological investigations indicate temples and chiefs' residences were erected on the summits of platform mounds and that several symbolically important activities related to the polity's identity and unity and the leaders' sacred authority and political power were conducted in and around these structures (DePratter 1991; Hally 1996; Knight 2010; Lindauer and Blitz 1997; Milner 1998). Most platform mounds were constructed in stages, and it is likely that these were added when new chiefs succeeded to office (Blitz and Livingood 2004; Hally 1996; but see Knight 1989; Pauketat and Alt 2003). To the extent that Mississippian platform mounds had these functions and meanings, we can assume their construction and use were largely coterminous in time with the existence of the polities in which they functioned. In short, we propose that Mississippian sites with platform mounds can serve as proxies for the existence of Mississippian polities.

Our approach differs from earlier Mississippian mound site comparative studies such as Blitz and Livingood (2004), Lewis and Stout (1998), Lindauer and Blitz (1997), and Payne (1994) that primarily look at the form, function, and meaning of Mississippian mound sites and platform mounds. We focus on defining long-term trends and variation within a class of institutions and social arrangements that share features despite significant internal structural diversity. Similar studies of macroregional change in the southwestern United States include Hill and colleagues (2004), Varien (1999), and Wilcox and colleagues (2007). These studies leverage highly visible masonry and adobe architecture to

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understand macroregional shifts in demography and residential mobility. Common features include the following:

1. the use of highly visible archaeological features that can be reliably traced in data from gray literature, published records, and site file offices;
2. the successful achievement of Kowalewski's (2004) goal of retaining variation while reducing it to concepts easily quantifiable in abstract comparable metrics; and
3. the novel employment of theories that are appropriate to the macroregional scale (cf. Feinman 1999).

Below, we describe the methods we use to integrate mound data from four states into a unitary quantitative system. We present results based on quantifiable metrics of variation in the chronology and duration of mound site occupation, as well as mound construction and use. We discuss ways that collapse and resilience theories can be used to describe Mississippian polity cycling as a single process within a larger, integrated human ecosystem. We conclude with observations concerning the limitations and opportunities associated with our approach.

Macroregional Analysis, Mounds, and Mississippian Polities

Our primary real-world objective has been to systematically document the physical characteristics of known Mississippian sites with platform mounds and their spatial and temporal distributions across the eastern United States. By using such sites as the primary proxy for Mississippian polities, we can record the spatial and temporal distribution of Mississippian polities, identify large-scale patterns in their distribution, and identify broad-scale processes responsible for those patterns.

Because of the enormity of the project and our focus on mound site distributions in time and space, we have had to make several important decisions about organizing our data collection effort. We already possessed information on mound site distributions in time and space for Georgia, and it made sense to expand this knowledge to the contiguous states of Alabama, Mississippi, and Tennessee, where Mississippian polities appear to exhibit variations in size, complexity, and spatial distribution not found in Georgia.

We have adopted a relational database framework for data collection and reporting to ensure the data are collected according to consistent and machine-enforceable rules. In addition, we have limited the kinds of information we record for individual sites largely to site location, date of occupation and mound construction, physical characteristics of mounds, and mound-plaza arrangements. Finally, we have chosen to restrict the tasks of data evaluation and entry to one researcher to ensure greater consistency. Database construction and content is described in Supplemental Text 1.

We envision this project as part of larger "big data" movements in archaeology and other sciences (cf. Cooper and Green 2016) and similar to the Digital Index of North American Archaeology developed by Anderson (2018). We agree that the integration of data into rule-based, scalable digital systems is a necessary step toward achieving a systematic and comprehensive view of the North American archaeological record (cf. Kintigh et al. 2014).

Lofty goals aside, problems with data quality and integration are inevitable. Some sites have disappeared from the archaeological record without being recorded, others lack accurate location data or evidence for mound type, and many lack data on mound construction stages and summit architecture. Dating poses the largest problem for many analyses we want to do. We date site occupations and mound construction stages by aligning them with local ceramic phase sequences, but the existence of 200–300-year-long phases in some sequences greatly reduces dating precision. Dating mound construction and use is especially difficult due to the added problem of correctly identifying construction stages from test excavations.

A total of 616 Mississippian sites with mounds have been recorded in Alabama, Georgia, Mississippi, and Tennessee. The majority (351)[1] have one or more platform mounds (Figure 1). Of those 351 sites, 30 also have one or more burial mounds,[2] 3 have ridgetop mounds, and 135 have one or more mounds of unknown

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type. Based on the number of sites in the four-state region, we estimate the number of Mississippian sites with platform mounds across the eastern United States far exceeds 2,000.

The Temporal Distribution and Duration of Mississippian Polities in Georgia

Forty-seven Mississippian sites with platform mounds are known to have existed in northern Georgia and immediately adjacent portions of Alabama, South Carolina, and Tennessee. Forty-five of these were included in the analyses published in 1993 and 1996 (Figure 2). In those analyses, site occupations and mound construction episodes[3] were dated by merging local ceramic phase sequences from across the region into a set of seven sequential periods, each ranging from 75 to 100 years. Sites with contemporary episodes of platform mound construction were spaced either more than 33 km apart or less than 18 km apart. The former were identified as representing administrative centers of separate polities, while the latter were identified as representing primary and secondary centers in polities having two levels of administration above that of the local community (see discussion in Hally 1993:159–160).

Twenty-three sites had single mound-construction episodes lasting one period, while seven sites had construction episodes spanning two consecutive periods. In addition, mounds at five sites had two or three construction episodes separated by one or more periods lacking mound construction and use. In other words, polities appeared to have gone through cycles of formation, growth, and collapse that typically spanned approximately 100 years. In a few cases, these cycles were repeated in a locality, with the same platform mound site serving as the administrative center for successive polities.

Nonmound habitation site survey data from several areas in northern Georgia indicate that local populations declined precipitously following the cessation of mound construction and use (for examples, see Anderson 1994:245–256; Chamblee 1997; Elliott 1982; Hally 1996:116–118; Stephenson et al. 2015). While representing only a fraction of the 37 stratigraphically documented cases of mound construction and use in the region, these data indicate that at least in some cases, polity territories were abandoned following polity collapse.

In the present study, we use a sample of 56 sites as a basis for comparison with sites in Alabama, Mississippi, and Tennessee. These sites represent all known Mississippian platform mound sites in Georgia with one or more occupations that can be dated to a phase using ceramic evidence. Fifty-one of these sites have one or more occupations spanning one phase; 13 have at least one occupation spanning two consecutive phases; and 3 have one or more occupations spanning three consecutive phases (Table 1, rows 1 and 2). In addition, 21 sites have only a single occupation spanning one phase, and 28 sites have multiple occupations separated by phase-length periods of site abandonment.

Forty-six sites in the Georgia sample have mound construction episodes that can be dated to a phase using ceramic evidence. Of these, 41 have one or more construction episodes spanning one phase; 8 have one or more construction episodes spanning two consecutive phases; 31 have only a single construction episode spanning one phase; and 9 have one or more phase-length gaps between construction episodes (Table 2, rows 1 and 2).

The Temporal Distribution and Duration of Mississippian Polities in Alabama, Mississippi, and Tennessee

In the following sections, we compare the temporal distribution and duration of polities in Alabama, Mississippi, and Tennessee (hereafter, ALMSTN) with that of polities in Georgia. We considered two sets of data in our investigation of when and for how long polities existed: 1) when sites with platform mounds were occupied and 2) when platform mound construction and use occurred at those sites. The former is relatively easy to identify from available site data but provides a less reliable and less accurate picture of when individual sites served as administrative centers. Mound construction and use probably occurred at most sites during occupations represented by large surface or excavated artifact collections; however, without stratigraphic evidence from the mounds, we cannot

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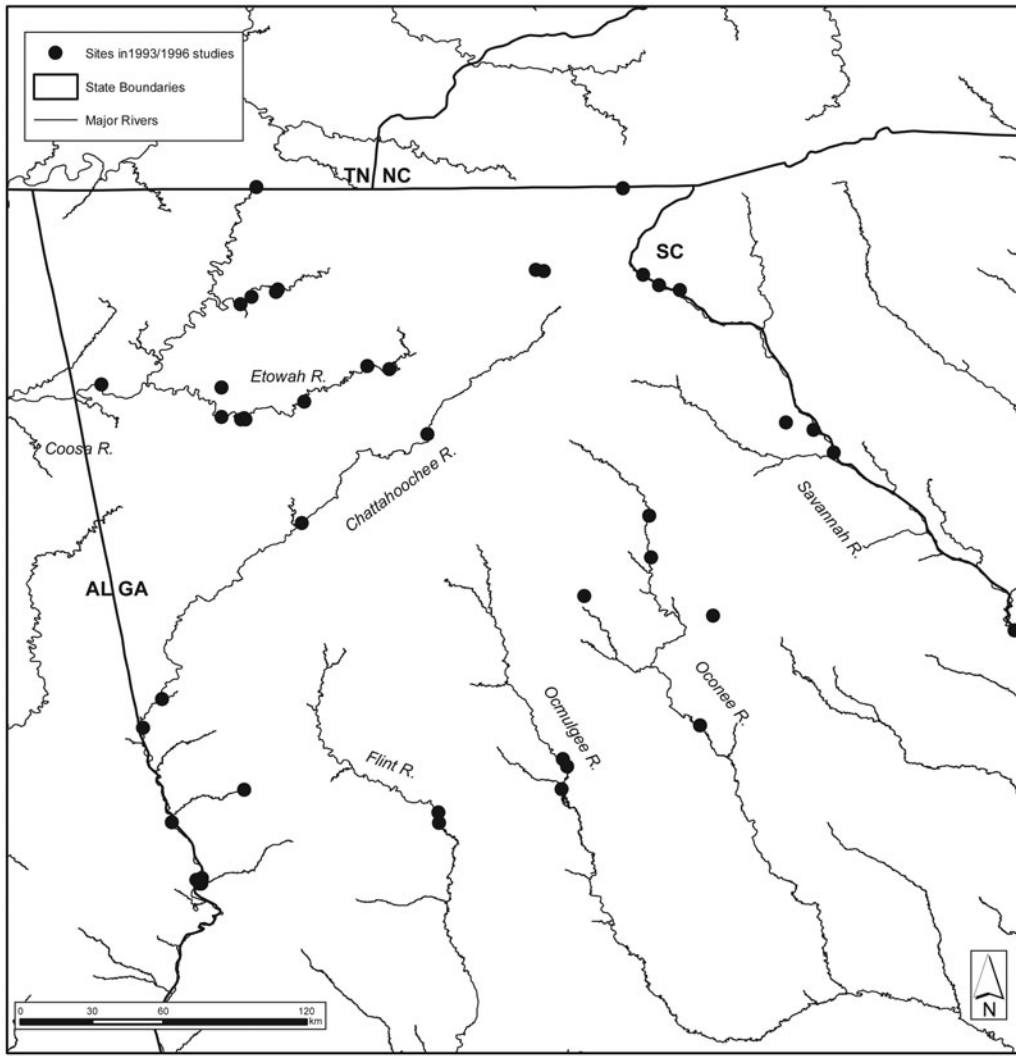

Figure 2. Map showing Mississippian sites with platform mounds included in 1993 and 1996 analyses.

be certain that is always the case. In both analyses, we date site occupations and mound construction episodes using ceramic phases and local phase sequences that are reported in the literature (see Supplemental Text 1).

Site Occupation Evidence

Two hundred forty-seven sites with platform mounds in our sample of recorded ALMSTN sites have Mississippian occupations that can be dated to a phase using ceramic evidence (Table 1, rows 3 and 4). Sites with one or more occupations spanning one phase or two consecutive phases are proportionately somewhat less common in Alabama, Mississippi, and Tennessee than in Georgia (compare rows 3 and 4 with rows 1 and 2). The two samples have roughly similar proportions of sites with occupations spanning three consecutive phases, but there are no sites in the Georgia sample with occupations spanning four or more consecutive phases. The most notable differences between the samples, however, are the number of sites having only a single occupation spanning one phase (60% of ALMSTN sites compared to 38% of Georgia sites) and the number of sites

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Table 1. Variability in Duration and Frequency of Platform Mound Site Occupancy.

Site Samples	Sites with One or More Datable Occupations	Sites with One or More Phase-Length Occupations	Sites with One or More Two-Phase-Length Occupations	Sites with One or More Three-Phase-Length Occupations	Sites with One or More Four to Seven-Phase-Length Occupations	Sites with Only a Single Phase-Length Occupation	Sites with One or More Phase-Length Gaps between Occupations
Georgia sites	56	51	13	3	0	21	28
		91%	23%	5%	0%	38%	50%
ALMSTN sites	247	181	39	20	12	149	33
		73%	16%	8%	5%	60%	13%
ALMSTN sites with at least one phase ≤100 years	86	51	15	17	11	28	25
		59%	17%	20%	13%	33%	29%

Note: Relative frequencies listed in rows 2, 4, and 6 are based on number of sites listed in column 1. They do not sum to 100% because categories represented in columns 2–8 are not mutually exclusive. A single site, for example, may have one phase-length occupation, one two-phase-length occupation, and one phase-length gap between the two occupations.

Table 2. Variability in Duration and Frequency of Platform Mound Construction Episodes.

Site Samples	Sites with One or More Datable Construction Episodes	Sites with One or More Phase-Length Construction Episodes	Sites with One or More Two-Phase-Length Construction Episodes	Sites with One or More Three- or Four-Phase-Length Construction Episodes	Sites with Only a Single Phase-Length Construction Episode	Sites with One or More Phase-Length Gaps between Construction Episodes
Georgia sites	46	41	8	0	31	9
		89%	17%	0%	67%	20%
ALMSTN sites	160	147	14	5	138	5
		92%	9%	3%	86%	3%
ALMSTN sites with at least one phase ≤100 years	44	40	7	4	34	5
		91%	16%	9%	77%	11%
ALMSTN sites with professionally excavated mounds	103	96	11	5	86	5
		93%	11%	5%	83%	5%
ALMSTN sites with "fully" excavated mounds	43	36	6	2	33	1
		84%	14%	5%	77%	2%

Note: Relative frequencies listed in rows 2, 4, 6, 8, and 10 are based on number of sites listed in column 1. They do not sum to 100% because categories represented in columns 2-6 are not mutually exclusive.

with at least one period of abandonment between occupations (13% and 50%, respectively).

It is possible these contrasts reflect differences in the occupational histories of sites in the two regions. We believe, however, that much of the difference is due to a lack of chronological precision in Mississippian phase sequences in Alabama, Mississippi, and Tennessee relative to Georgia. Forty-three Mississippian period ceramic phases in Georgia range between 50 and 300 years and average 106 years. Only six of these phases (14%) are longer than 100 years, and only two (5%) are 200 years or longer. In the ALMSTN region, 102 ceramic phases range between 50 and 350 years and average 147 years. Sixty-three phases (62%) are longer than 100 years. Of these, 23 (23%) are 200 years or longer. Long phases may mask changes in ceramic style that would otherwise allow identification of multiple shorter phases. Phase chronologies comprised of shorter phases should result in an increase in the number of sites identified as having gaps in site occupation. They should also result in a decrease in the number of sites identified as having only a single phase-length occupation and an increase in the frequency of multiphase-length occupations; that is, some single-phase occupations will consist of two or more sequential phases.

With more precise ALMSTN phase chronologies, we expect the occupation histories of some sites to change in these ways. Support for such expectations can be found in a tabulation of ALMSTN sites having occupations dated by shorter phases (see Table 1, rows 5 and 6). Twelve ceramic phases in Alabama, Mississippi, and Tennessee have durations of 100 years or less and an average duration of 91 years. Among the 86 sites with at least one occupation dated by such phases, the relative frequency of sites with multiple occupations separated by periods of abandonment more than doubles, the relative frequency of sites identified as having only a single phase-length occupation decreases by more than a third, and the relative frequency of sites with two and three phase-length occupations increases by half.

Regardless of how we interpret the differences in site occupation histories between Georgia and the ALMSTN regions, the majority of platform mound sites in the latter region have only one phase-length occupation, and many of these sites were occupied, abandoned, and later reoccupied.

Alabama, Mississippi, and Tennessee include a number of areas that exhibit minor differences in material culture, settlement pattern, and history. One might anticipate, therefore, that there should be intraregional variation in temporal patterns of mound-site occupation and mound construction of the kind investigated in this article and that these are potentially masked by lumping all sites in the three states into a single analytical unit. However, a comparison of site data from five river basins in the three states indicates that there is a high degree of uniformity across the ALMSTN region among the site occupation and mound construction variables considered in this article (see Supplemental Text 2 for details).

Mound Construction Evidence

As with dating site occupations, we attempted to date mound construction stages by assigning them to locally recognized ceramic phases. Mound construction stages were identified based on a critical reading of published or manuscript descriptions of mound stratigraphy. Unfortunately, relatively few sites throughout the four-state region have yielded this kind of information. Only 142[4] of the 351 Mississippian sites with platform mounds in our sample have received some kind of professional mound excavation.

Table 2 lists the frequency of sites in Georgia and the ALMSTN region with at least one platform mound construction episode datable to a phase using ceramic evidence. Alabama, Mississippi, and Tennessee have proportionately fewer sites with construction episodes spanning two or more consecutive phases than Georgia, more sites with only a single construction episode spanning one phase, and fewer sites with phase-length gaps in mound construction (compare rows 3 and 4 with rows 1 and 2).

The longer ceramic phases in Alabama, Mississippi, and Tennessee probably account for some of the differences. Support for this can be found in a tabulation of ALMSTN sites having construction episodes dated by at least one phase of 100 years or less (Table 2, rows 5 and

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Table 3. Nature and Extent of Platform Mound Excavations.

	Sites with Professional Mound Excavation	Sites with No Professional Mound Excavation	Sites with at Least One "Fully" Excavated Mound	Sites with Only Partially Excavated Mounds
Georgia sites	39	3	18	21
	93%	7%	46%	54%
ALMSTN sites	103	57	43	60
	64%	36%	42%	58%

6). In this sample, the proportion of sites with only a single construction episode spanning one phase decreases by a tenth, the proportion of sites with at least one phase-length gap in construction almost quadruples to 11%, and the proportion of sites with multiphase construction episodes more than doubles to 25%. These changes conform to expectations outlined above and more closely approximate figures for Georgia sites.

A second factor that may account for differences evident in Table 2 between the Georgia and ALMSTN site samples is the kind of investigation sites in the two regions have received. Over 90% of Georgia sites have had some professional mound excavation, whereas only two-thirds of ALMSTN sites have (Table 3). The extent of excavations also differs. Mounds that have been "fully"[5] excavated are slightly more common among Georgia sites than ALMSTN sites. However, tabulation of ALMSTN sites with professional mound excavation (Table 2, rows 7 and 8) and those with fully excavated mounds (Table 2, rows 9 and 10) shows that these factors have only a modest effect on identification and dating of mound construction episodes.

Discussion

We are unlikely in the near future to have as much chronological control over Mississippian site occupation and mound construction in Alabama, Mississippi, and Tennessee as we do in Georgia. The evidence we have, however, is adequate to demonstrate that few sites in the three-state region saw continuous occupation or mound construction and use extending through all or most of the Mississippian period. Rather, most sites were occupied for only a single ceramic phase, and most datable mounds show construction and use only during a single ceramic phase. Available evidence also shows that phase-length breaks in site occupation and mound construction, while relatively uncommon, do occur.

Based on this evidence, we argue that Mississippian polities in Alabama, Mississippi, and Tennessee, with few notable exceptions—Moundville (1TU500), Lake George (22YZ557), and Winterville (22WS500)—behaved much like those in Georgia. Polities rose and fell with some regularity, and their life spans were usually fairly short—seldom longer than a ceramic phase. In short, the Mississippian sociopolitical landscape was dynamic and constantly changing.

Collapse

We believe it is appropriate and useful to consider the rise and fall of Mississippian polities within the theoretical framework of societal collapse. At a general level, societal collapse may be defined as a "rapid (over a few generations) decline in sociopolitical complexity or the demise of a particular political system" (Faulseit 2016:5). Interest in societal collapse has grown considerably since Tainter (1988) and Yoffee (1988) defined the field, but the focus has generally been on early state-level societies. Both authors see collapse as largely a political process, but whereas Yoffee limits collapse primarily to states and civilizations, Tainter extends the concept to include less complex societies. Yoffee (1998:15) and Cowgill (1988:257) also make the important distinction between the collapse of states, which involves political fragmentation, and the collapse of civilizations, which is rare and involves the termination of a "Great Tradition" (Redfield 1956). The latter expands the definition of collapse to include the breakdown

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of centralized economies and sociopolitical hierarchies, population dispersal, and rejection of official ideologies (Faulseit 2016; Schwartz 2006).

We see the collapse of Mississippian polities as first and foremost a political process. Collapse occurred when the centralized political authority, represented by the construction and use of platform mounds, ceased to exist within a society. Tied to this as either a proximate cause or an immediate result was massive population loss. In cases where systematic site survey data is available in Georgia, we know polity collapse was accompanied by abandonment of previously occupied and controlled territory, but we lack archaeological evidence for this in the ALMSTN region. Logically, territory abandonment would seem to be the inevitable outcome of polity collapse since leadership factionalization or selective out-migration, or both, would have left the local population vulnerable to domination and exploitation by other polities.

Polity collapse accompanied by territory abandonment would have a number of systemic consequences (Anderson 1996; Hally 2006). As noted by Blitz (1999:590) and Hally (2006), we can be reasonably certain such consequences would include the movement of substantial numbers of people between polities and, in other cases, the settlement of new territories and the resettlement of previously occupied territories. Local abandonments would allow for soil and ecological renewal, whereas movement driven by the attraction of polities or locations that were underpopulated could have evened out population density across broader areas. Local abandonments also would have increased the size of uninhabited zones separating neighboring polities, thereby creating larger military buffer zones between them.

Other authors have discussed cases in which populations joined existing or developing polities (see especially discussions of this in Anderson 1996, 1999; Smith and Kowalewski 1980), but as Blitz (1999:590) notes, "The theoretical status of population movement is underdeveloped in Southeastern archaeology."

We argue such movement must be carefully considered because it would have brought together people who previously may have had little nonhostile contact, a situation that would have promoted the spread of cultural innovations and different ways of doing things. Although we cannot say how these processes played out in pre-European-contact situations, such innovations are seen among the responses developed by the "coalescent societies" discussed by Kowalewski (2006) in the postcontact southern Appalachian and Atlantic Slope regions.

Our evidence indicates these kinds of processes occurred in Alabama, Mississippi, and Tennessee, as well as Georgia. The number of short-term and repeated site occupations and mound construction episodes evident in this larger region certainly supports such a conclusion. We will attempt to document this more convincingly in future research focusing on the spatial size of polities and changes in their spatial distribution through time, but for now, we suggest that polity collapse was a structural feature of a larger, integrated Mississippian ecosystem. Further, we suggest the movements of people and changes in polity locations that accompanied collapses were a major factor in driving the variation we see in regional settlement patterns from river valley to river valley through time and in the overall cohesiveness of Mississippian regional systems, such as that in Georgia during the Late Mississippian period (cf. Hally 1994). The primary difference between our view and that of previous authors is we substitute an analytical assumption of regional independence with one of macroregional interdependence.

This view has parallels in the U.S. borderlands. In the northern Tucson Basin, Fish and Fish (1993) argue that following the Early Classic abandonment of the multisettlement community at the base of the Tortolita Mountains, populations were absorbed by existing communities to the north and south. Varien (1999) postulates that in the Four Corners area near Mesa Verde, abandonment was due to a combination of local population growth, community fissioning, further population growth, and eventual conflict. Stepping back to consider the entire southwestern United States, Wilcox and colleagues (2007) combine data from multiple macroregional sources to reinforce these local results, showing multiple episodes of migration across the Sonoran Desert between AD 1200 and 1600.

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Recent investigations of collapse are more concerned with what happens following the fragmentation of states and the accompanying disintegration of regional economic systems and state ideologies (Costanza et al. 2007; McAnany and Yoffee 2010; Schwartz and Nichols 2006). They recognize that social complexity usually reappears following collapse. They focus on how and under what circumstances the process of regeneration occurs and on distinguishing types or regeneration. Most investigations also focus on a single instance of collapse and regeneration or on the collapse of a civilization while ignoring what happens on the smaller scale of polities making up that civilization. Few (Anderson 1994; Friedman 2007; Marcus 1998; Pool and Loughlin 2016) deal with or recognize the type of situation reported here, in which individual polities rise and fall with some regularity while the larger macroregion to which they belong continues largely unchanged. To better understand the nature of macroregional connections and how they can derive from seemingly stochastic events such as local polity collapse, we employ a different theoretical framework: resilience (Faulseit 2016; Gunderson and Holling 2002; Redman 2005).

Resilience

Resilience theory considers how biological, ecological, and social systems respond to disturbance. Generally, resilience is measured by how quickly a system recovers to its original state following disturbance or by the magnitude of disturbance a system can tolerate before it shifts to a new stable state (Gunderson and Holling 2002; Scheffer 2009). Holling and Gunderson (2002:25-52) and Holling, Gunderson, and Peterson (2002) model the processes underlying system resilience using the concepts of adaptive cycle and panarchy. We believe these concepts provide a useful framework for exploring and describing resilience in Mississippian polities and the larger Mississippian macroregion.

Holling and Gunderson (2002) argue that biological, ecological, sociopolitical, and economic systems tend to pass through adaptive cycles that have four phases: 1) exploitation, the rapid expansion of r-type (pioneer) species and organizations in recently disturbed, unutilized, or unoccupied areas and arenas; 2) conservation, the slow accumulation and storage of resources such as biomass, nutrients, knowledge, social networks, and financial capital by K-type species and organizations; 3) release, the sudden release of accumulated resources triggered by agents of disturbance such as fire, disease, and rapid technological change; and 4) reorganization, when accumulated resources become available for use in the following exploitation phase.

Exploitation and conservation proceed slowly, whereas release and reorganization progress rapidly. Potential for system change or regeneration in the form of nutrients, biomass, or other kinds of resources accumulates during the exploitation and conservation portions of the cycle. System connectedness, "the degree of connectedness between internal controlling variables and processes, a measure that reflects the degree of flexibility or rigidity of such controls" (Holling and Gunderson 2002:33), also increases during these phases, making the system more vulnerable to collapse in the face of internal problems or external stimuli. System resilience, the "capacity of a system to experience disturbance and still maintain its ongoing functions and controls" (Holling and Gunderson 2002:50), declines during the conservation phase when connectivity is high and rises during the reorganization phase when accumulated resources become available for combination in new cycles. Reorganization may result in the repetition of the previous cycle, a shift to a new stable state, or a system collapse into a degraded state (Holling, Carpenter, et al. 2002:399).

The proposition that adaptive cycles are nested across space and time scales within hierarchical structures (panarchies) is equally central to resilience theory as conceived by Holling and Gunderson (see Holling, Gunderson, and Peterson 2002:72–76). Adaptive cycles at higher levels in the hierarchy are larger and evolve more slowly than those at lower levels. They also serve as reservoirs of information and resources that constrain change in smaller, more rapidly changing adaptive cycles. The latter, in turn, serve as sources of innovation and experimentation that may lead to change in higher level adaptive cycles. We believe the cycling of Mississippian polities fits within this conceptual

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framework. We suggest that late prehistoric societies in the Southeast probably experienced adaptive cycles at four scales—household, community, polity, and macroregion. We consider only the polity and macroregional scales here.

As the spatially largest and slowest-paced adaptive cycle recognizable in the late prehistoric period in the southeastern and midwestern United States, the Mississippian macroregion provided the cultural continuity and institutional memory that Mississippian groups drew from during the reorganization phase to form new polities. The success of this role is evidenced by the similarity of artifact styles, architectural styles, settlement patterns, and sociopolitical organization found in most new polities to those of preceding or contemporary polities. It is also demonstrated by polities that reused the platform mounds of earlier polities.

Archaeologists have a fairly good understanding of how the Mississippian macroregion adaptive cycle ended (Beck 2013; Ethridge and Hudson 2002) but not how it began. The same can be said for the reorganization phase of the first Mississippian polities. Therefore, the following discussion of the adaptive cycle of Mississippian polities pertains to polities that developed after the origin and spread of the Mississippian macroregion.

Reorganization Phase. In the reorganization phase, new polities formed from populations that split from existing polities or were remnants of collapsed polities. At that point, the Mississippian macroregion probably had its greatest influence on the developmental trajectory of polities, causing most to become structurally and functionally similar to those that preceded them. It is possible, however, that under certain conditions other types of sociopolitical systems may have emerged during the reorganization process. At this point in our investigation, we can only speculate on what these systems looked like, but one possibility is that some lacked platform mounds and the associated rituals that supported a centralized leadership hierarchy. The occupational history of the lower Ocmulgee and Oconee Rivers in south-central Georgia provides a reasonably credible example of such systems. One site with platform mounds existed in each drainage between AD 1150 and 1350 (Stephenson et al. 1990; Williams 1996). There were none after AD 1350, even though the general area was heavily occupied for another 200 years (Snow 1990).

If the founding population of a new polity was small, it was likely militarily weak and vulnerable to aggression from nearby, more mature polities. Five outcomes could follow from this situation: the fledgling polity could 1) maintain its political independence, 2) temporally maintain close ties with the polity from which its founding members originated if that polity still existed, 3) temporarily align with a different militarily powerful polity (Blitz 1999), 4) be absorbed into a paramount chiefdom (Hudson 1994), or 5) fail to survive in any form.

Large areas of northern Georgia lacked recognizable polities at various times during the Mississippian period (cf. Hally 1999:Figure 8.10). Some of these may have been the result of fledgling polities that failed to survive their initial vulnerability. More direct evidence of such failure—in the form of sites with short-term occupations and ground-level public buildings or small, single-stage platform mounds—is difficult to recognize in the archaeological record. The 1682 capital of the Taensa in northeastern Louisiana—consisting of a large temple and chief's house, houses of seven or eight "old men," and a surrounding palisade but apparently lacking earthen mounds—would seem to be a good example of such low-visibility sites (Williams 1967). Many platform mounds in our database provide evidence of ground-level structures underlying mound construction stages. Such structures may date to the reorganization phase of polities that survived into the exploitation and conservation phases.

Exploitation Phase. During the exploitation phase, food resources in the form of fertile agricultural soils and wild game would be readily available in territories that were newly settled or resettled following a decades-long abandonment. Small population size, however, would continue to be a problem, making it imperative that the new polity develop an effective defensive capability and expand its population. Close-spaced nucleated settlements with defensive

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perimeters would provide some of the former, while abundant food resources would be attractive to potential immigrants. Most immigrants would arrive with diverse ethnic backgrounds. As a result, aspiring leaders would likely have relatively limited social and symbolic resources to draw from in their efforts to accrue political power. Achieved statuses, such as that of a successful warrior, could have been important, and leadership hierarchies might have been poorly developed and fluid. Under these conditions, political actors might have utilized corporate (Blanton et al. 1996) or group-building (Beck 2003) strategies emphasizing group solidarity, inclusive and integrative political leadership, and the incorporation of outside groups.

Conservation Phase. Growth in demographic and spatial size of polities would continue and sociopolitical complexity would increase during the conservation phase. Two growth processes—increase in community size and in number of communities—can be recognized in the archaeological record from the Valley and Ridge section of northwestern Georgia. Communities grew as a result of natural population growth and continued immigration. Both processes have been documented at the King site (9FL5), a mid-sixteenth-century, nucleated town belonging to the Rome polity located on the Coosa River (Hally 2008:314–329). The maximum sustainable size of such communities was around 300 to 500 people (Hally et al. 1990). Depending on the relative importance of immigration and natural population growth, two or more generations may have been necessary for newly established towns to achieve such numbers.

Communities were added to polities as a result of fissioning of existing communities in the polity and immigration from nearby polities experiencing collapse (cf. Blitz 1999). Most mid-sixteenth-century polities in the Valley and Ridge section of Georgia, Alabama, and Tennessee were located along rivers with member towns strung out at intervals of 3 to 4 km over a distance of up to 20 km from the mound center (Hally et al. 1990). For defense and administrative efficiency, polities likely added towns near the administrative center first, and towns farther away would be added later (Hally 2008:540–541). Most polities in the region had between four and eight towns. According to this scenario, King was the last town added to the Rome polity, and with its ditch-and-palisade perimeter, it may have defended the polity's western boundary.

Political complexity increased in response to growth in the size and number of communities making up polities. Pressure to add a second level to a polity's administrative hierarchy would increase as the number of component communities approached and exceeded six or seven (Johnson 1982). The sixteenth-century Carters polity in northwestern Georgia—with one multimound site, one single mound site, and eight known towns—is a possible example of the latter process (Hally et al. 1990). Responses to changes such as these might have included a shift to a network (Blanton et al. 1996) or group-distancing (Beck 2003) leadership strategy characterized by increased emphasis on hierarchical ordering of corporate descent groups and individual wealth and status, more exclusive control of political power, and an increase in factionalism and competition for political power.

Release Phase. In the release phase, individual Mississippian polities ceased to exist as political entities. Since there is evidence from Georgia that polity territories were also abandoned at this time, we must conclude that polities may have ceased to exist as social and demographic entities as well. The adaptive cycle model posits that system collapse was in part due to increasing connectedness among structural elements within the system and decreasing flexibility in the system's response to internal and external stresses. Several factors leading to such conditions in Mississippian polities can be postulated:

- increased competition for agricultural land and wild resources due to population increase
- shorter agricultural fallow periods resulting in reduced agricultural yields (Baden 2005)
- increased communication costs (Fletcher 1995:7–8) of administering larger and more distant communities

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- new administrative responsibilities and problems associated with the addition of a second administrative level
- continued immigration leading to less ethnically homogenous populations,[6] greater social and descent group inequality, and increased factionalism (Blanton et al. 1996; Blitz 1999:585)

To manage such problems, leaders may have required increased legitimizing authority, which may have led to further increases in status and wealth inequality and greater emphasis on warfare and ritual activity that reinforced the military prowess and sanctity of the polity leader. Leaders also may have responded to these problems with greater coercion and more authoritarian administrative techniques. Through time, population growth within elite descent groups may have created unmanageable levels of competition in the upper levels of the sociopolitical hierarchy.

As noted earlier, new forms of Mississippian sociopolitical structure are most likely to appear during the reorganization phase of polity adaptive cycles. Holling, Gunderson, and Peterson (2002:74–75) argue that system changes at higher panarchic levels may arise from changes at lower levels. Since polities continued to appear with similar structural characteristics throughout the Mississippian period, we may conclude that change at this scale was infrequent and for the most part inconsequential at the scale of the larger macroregion. Based on the criteria we have used to identify Mississippian polities, the Mississippian macroregion appears to have undergone fundamental change only in one part of the four-state region—the Middle Cumberland area of Tennessee, where mound construction and use ceased and population levels declined after approximately AD 1450 (Krus and Cobb 2018).

In this section, we have looked at Mississippian polity life history within the framework of adaptive cycles and panarchy. We also presented a review of previously demonstrated processes within known polities that exemplify how these cycles might work. We argue adaptive cycles and panarchy are useful in analyzing Mississippian polities because they not only provide opportunities to better understand interregional connections but also allow us to recognize that, beneath the veneer of historical particularity, there is a certain degree of uniformity and predictability in the way most polities behaved through time.

Conclusion

This article is a contribution to the understanding of prehispanic social change at the subcontinent (e.g., the Eastern Woodlands or the Mississippian macroregion) scale. We have introduced a new dataset that helps us understand, within a rule-based digital framework, the complex social phenomena behind the construction, use, and abandonment of platform mounds. We have demonstrated that the phenomenon of polity cycling was typical throughout our study area, and we have suggested possible mechanisms to consider when examining the processes behind it. However, rigorous consideration of any such explanations requires better site and polity-level data describing the mechanisms of territory abandonment and reoccupation, as well as migrant dispersal and integration by host groups.

The advantage of considering Mississippian polities within the adaptive cycle/panarchy framework is that it raises such questions and suggests the kinds of evidence needed to answer them. However, this framework is useful primarily as a descriptive tool, not for explanation. Resilience theory in the form considered here is useful because it allows us to proceed from the assumption that the Mississippian macroregion is interconnected—as are the disparate, but linked, ecological landscapes that resilience theory was developed to describe. By distinguishing description and explanation, we can explore multiple and interconnected mechanisms for cycling that can be understood at local, regional, and macroregional scales. While we cannot settle on any of these and would expect them to differ across time and space, we provide a scaffolding onto which differing processes from differing regions and times can be incorporated into a more coherent and thus more complete picture of the Mississippian macroregion.

Available archaeological evidence (Blitz 2010; Cobb 2003) supports a cyclical view of polity collapse. Our approach extends this by emphasizing the interconnectedness of polities.

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From this starting point—and accepting that highly visible and well-documented mound sites can serve as proxies for polities—we can use the adaptive cycle phases recognized in resilience theory to describe the cycling of Mississippian polities and link them across regions in what may be the most sensible and comprehensive description of the process of Mississippian polity collapse to date.

In doing so, the adaptive cycle/panarchy model also forces us to consider the collapse of Mississippian polities in a positive or perhaps appropriately neutral light. As Tainter (2016:37) points out, "Nothing necessarily goes wrong in a collapse. Collapse is a normal evolutionary process." The model also forces us to consider that the cycling evident in Mississippian polities is rather common across complex societies (Pool and Loughlin 2016:297) and shares many features with other biological and cultural systems (Gunderson and Holling 2002).

Notes

1. The remaining 265 sites in the database have mounds that cannot be positively identified as platform mounds.
2. Burial mounds differ from platform mounds in that they are constructed primarily as repositories for the dead and generally lack the flat summits surmounted by buildings constructed of perishable materials characteristic of platform mounds.
3. Mound construction episodes are defined as construction stages added to a mound during a single site occupation that may extend through all or part of a ceramic phase or through two or more sequential ceramic phases.
4. This number does not include sites lacking dated mound construction stages or mound construction stages dated only to the longer Mississippian, Pensacola, and Plaquemine periods.
5. Fully excavated platform mounds are those in which the entire preserved construction sequence has been revealed through extensive excavation or test trenches that extend from mound summit to subsoil and from mound edge to center.
6. At least one of five domestic structures excavated at King has yielded a distinctive assemblage of pottery types indicating that the household, or at least its potters, originated from the Tennessee Valley 75 km to the northwest in Alabama (Smith and Garrow 1973).

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Data Availability Statement. Data for this project are derived from a larger, ongoing Mississippian Mound Database that the authors are still developing. When complete, the database, minus the geographic coordinates for site locations, will be made available as a data paper in an appropriate peer-reviewed venue. Data for the present publication consist of two distinct datasets:

1. Site numbers, phase names, and mound counts for all sites in the Mississippian Mound Database.
2. Site numbers, phase names, phase dates, phase data sources, and identifiable mound construction stages for all platform mounds.

These two datasets, minus geographic coordinates, have been released as a distinct dataset via the Environmental Data Initiative Data Portal, a repository for data funded by the NSF Long-Term Ecological Research Programs (see https://portal.edirepository.org/nis/home.jsp and https://environmentaldatainitiative.org). Data are housed with other datasets that received partial funding from the Coweeta Long-Term Ecological Research Program. The DOI for this dataset is https://doi.org/10.6073/pasta/09c5c68cc096365d09112ebdf7d45f08.

Release of geographic coordinates for archaeological sites is prohibited by law and standard ethical practice. The inclusion of site numbers will allow qualified researchers to request coordinates from state site file offices in Alabama, Georgia, Mississippi, and Tennessee.

Supplemental Material. For supplementary material accompanying this paper, visit https://doi.org/10.1017/aaq.2019.31.

Supplemental Text 1. Description of database construction and content.

Supplemental Text 2. Chi-square comparison of site occupation and mound construction variables across five river basins.

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