REMAPPING HISTORIES: ARCHAIC PERIOD COMMUNITY CONSTRUCTION ALONG THE MIDDLE ST. JOHNS RIVER, FLORIDA

By

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To Jane

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This study examines the significance of hunter-gatherer built landscapes through an analysis of Mount Taylor period (ca. 7300–4600 cal B.P.) shell mounds along the Middle St. Johns River in northeast Florida. Mount Taylor communities are best known for the incipient exploitation of shellfish and other aquatic resources in the region. In Florida and elsewhere, shell mounds are routinely interpreted as refuse accumulations, while their repeated occupation is taken to represent long-term continuities enabled by abundant wetland resources. Through a historiography of local research, I show that this model of shell mound growth reflects widely held anthropological assumptions regarding hunter-gatherer social simplicity and stasis, and obscures evidence for change through time. I develop an alternative framework based on practice theory to detail how shell mounds and associated places emerged as a historical process in which communities inscribed and politicized social memories through the deposition of shellfish and other materials within landscapes.

In order to problematize the contexts of shell mound inhabitation, I examine the paleohydrology of the Middle St. Johns River. I also consider the evidence for

continuities in subsistence, settlement, exchange relationships, and mortuary traditions throughout the Mount Taylor period. The social and ecological contexts provide a spatial and chronological framework for examining how Mount Taylor communities inhabited places. Because most shell mounds were destroyed by twentieth century land-use practices, I use historic observations and modern remote sensing data to develop a geospatial database detailing the location and organization of Mount Taylor places. The results of topographic and stratigraphic testing of non-mounded shell sites are also reported. This analysis details how Mount Taylor communities established and renewed settlements as witnessed in small-scale depositional practices. Finally, I reconstruct the histories of six Mount Taylor shell mounds based on stratigraphic testing.

The results demonstrate that shellfishing was initiated at a time of considerable landscape instability by arguably diverse regional populations. After being established as places to dwell, some preexisting settlements were reconfigured as platform mounds upon which shellfish was deposited in ritualized sequences, while others were converted into foundations for mortuary mounds. Through time, other shell mounds experienced complex histories of abandonment, renewal, and transformation as well. I argue that along the St. Johns, Mount Taylor communities routinely referenced past places in order to construct new social histories that accommodated or denied social and ecological change.

CHAPTER 1
SHELL MOUNDS AND OTHER NONEVENTS

This study examines the ways in which so-called *pre*-historic hunter-gatherer communities wrote their own histories through inscriptive practices that modified their landscapes. By histories here I am explicitly referring to the unfolding of daily and extraordinary events, as well as the practices, historical consciousness, and cosmologies to make those moments and processes significant with respect to an acknowledged past. Following the arguments of Barrett (1994:169–170), Bradley (2002), Pauketat (2001b), and others, it is my contention that these histories matter when archaeologists attempt to explain different arrangements of past communities and how they were reproduced and transformed in time and space.

Within the vast and complex literature on "landscape," this is a line of argument that has significant currency with respect to past farming communities. In the absence of written narratives, such communities routinely constructed and politicized the past as social memories. Histories in this sense were materialized through practical traditions of inhabiting settlements, constructing and transforming monuments, venerating ancestors, manufacturing and exchanging objects, and interacting with others (Barrett 1999; Edmonds 1999; Pollard 1999; Tilley 1994). They were the means by which diverse communities were integrated (Cameron and Duff 2008; Pauketat and Alt 2003; Yaeger and Canuto 2000), and by which physical environments were appropriated and made meaningful (Dwyer 1996; Ingold 1992; Ruiz-Ballesteros et al. 2009). In some cases social memories and their materialization provided a framework for interpreting catastrophic or unforeseen events (Pauketat and Emerson 2008; Sahlins 1985:138). In others, they structured practices in the course of social reproduction, frequently to interfere with perceived change (Shils 1981; Wobst 2000). Above all, however, communities creatively generated histories as both a medium and outcome of social change (Pauketat 2001b:80). As such, the shifting arrangements of peoples, places, and things that archaeologists recover are the process of social becoming that we describe as societies (Barrett 2001:157), and are not reducible to generalized patterns of social evolution (Pauketat 2001b).

One example of hunter-gatherer landscape inscription as history can be found amongst the communities who inhabited the Middle St. Johns River Valley in northeast Florida during the preceramic Archaic Mount Taylor Period (ca. 7300–4700 cal B.P.[1]) (Figure 1-1). The hallmarks of preceramic Archaic inhabitation are highly visible mounds of freshwater shellfish remains and earth in addition to subtle heaps and piles of shell distributed throughout the wetlands and terraces of the river valley (Randall 2008). At a minimum, these shell matrix sites[2] register the consequences of intensive shellfishing by hunter-gatherer communities. Internally, such sites are characterized by (seemingly innumerable) depositional episodes varying in scale, composition, intensity, arrangement and social context. As I will detail in this study, over the course of three millennia preceramic Archaic communities generated places for daily habitation or inhumation of the dead through depositional practices involving shellfish and earth. Although many Mount Taylor places are composed primarily of shellfish remains and objects of residential life, some contain dedicated mortuaries, while others still were

[1]All radiocarbon assay estimates and age ranges are reported in calibrated years before present (cal B.P.) unless otherwise noted.

[2]The term “shell matrix site” will be used as a general reference to sites with shellfish remains. This term precludes static and normative typologies that view shellfish remains as proxies for behaviorally redundant refuse (i.e. middens); see Claassen (1998:10-12). The term “shell mound” is reserved for those shell matrix sites characterized by significant relief and surficial extent.

constructed of sand primarily for the inhumation of the dead. Many of these places underwent rapid histories of construction, yet also show complex patterns of abandonment and reuse through which they were transformed in highly visible ways.

Throughout this era communities variously engaged in local and regional interactions, signaled materially by the exchange and production of objects. As dynamic as community engagements were throughout the preceramic Archaic, so too was the river. Alternate periods of flooding and regression of the St. Johns obscured and resituated places of habitation, all the while generating new ecologies that undermined or made more significant preexisting places. My argument is that shell matrix sites, and the practices occurring through them, figured prominently in the ongoing production of preceramic Archaic histories by providing a frame of reference against which contemporary social realities, such as regional interaction or hydrologic change, could be made meaningful. To draw a phrase from Gosden and Lock (1998:6), shell matrix sites were “engines for the creation of time.” As places of repeated habitation they framed the unfolding of daily life through the deposition of shellfish and other materials in places. At the same time, shell matrix sites provided historical resources as a past that could be made monumental and commemorated, politicized, or neglected.

My thesis presupposes that hunter-gatherers have histories in the sense outlined above. Yet with few exceptions, such histories have not been readily forthcoming. Instead, Mount Taylor communities, and their hunter-gatherer equivalents elsewhere, have been treated as decidedly prehistoric phenomena. In Florida, archaeologists have long recognized distinct associations between site location and assemblage composition: sites composed principally of freshwater shellfish remains and associated cultural materials are preferentially situated within or adjacent to wetlands and channel segments (Goggin 1952:67; Wyman 1875:10). The incipient exploitation and deposition of shellfish 7000 years ago appears roughly coeval with a near-modern hydrological regime that established partially as a consequence of decelerating middle Holocene sea level rise (Miller 1992). Taking these two observations together, it has been presumed that the organization and distribution of shell matrix sites directly reflects the development of wetland resources and subsequent pressures brought on by population increase (Milanich 1994:87). As a consequence, Mount Taylor traditions are routinely characterized as a response to large-scale environmental phenomena (Goggin 1952; Miller 1992, 1998). The over-arching presumption is that the environment provided resources to which populations variously “adapted” through a combination of increased settlement permanence and intensive resource extraction.

In a related vein of thought, shell mounds are routinely interpreted merely as refuse—true middens—and thereby unintentional and socially insignificant. While burials have been widely recognized in sand and shell deposits within mounds, their presence is presumed to be incidental to other biologically important processes such as consumption and discard (see also Milner and Jefferies 1998). Questions regarding Archaic lifeways in northeast Florida are dominated by issues of ecology, diet, and paleoenvironmental reconstruction (Cumbaa 1976; Miller 1992, 1998; Russo et al. 1992). As one local researcher recently articulated, “the Archaic period shell middens of central-east Florida represent a series of outdoor laboratories where the study of human adaptation to the early and middle Holocene Epoch of peninsular Florida can take place" (Quitmyer 2001:25). This sentiment is echoed throughout the literature on shellfishing (e.g., Ambrose 1967; Marquardt and Watson 2005a; Morey and Crothers 1998; Stein 1992).

Mount Taylor communities are part of a larger assemblage of early to middle Holocene hunter-gatherer societies who engaged in intensive aquatic exploitation in the post-glacial era in the southeastern United States (Claassen 1996; Dye 1996; Russo 1996b). Shellfishing emerged as early as the eighth millennium in the Midsouth (Dye 1996) and persisted as a widespread phenomena into the Woodland period 1000 years ago (Peacock 2002). It should be noted that earlier coastal exploitation is likely. The most widely recognized tradition is the so-called "Shell Mound Archaic," originally applied to all shell bearing sites dating to the middle Holocene, but the term is now preferentially used to refer to shell matrix sites in the Midsouth (Sassaman 2004a). Elsewhere shell matrix sites have been identified along the Atlantic and Gulf coasts. The timeframe encompassed by incipient shellfishing in the greater Southeast coincides with the Middle and Late Archaic periods, often portrayed as a time of increasing economic specialization and technological innovation, decreasing mobility, and widespread and elaborate exchange (Bender 1985; Brown and Vierra 1983; Jefferies 1996; Marquardt 1985; Sassaman 1996).

Worldwide there is a dramatic increase in riverine and coastal settlement centered on aquatic exploitation roughly 7000 years ago (Bailey and Parkington 1988; Nicholas 1998). In many cases, this apparent intensification emerges with other aspects considered emblematic of social complexity: status inequality, relative settlement permanence, storage, and technological innovation (Price and Brown 1985). A number of arguments have been offered to explain this chronological and social pattern, including the irresistibility of newly established aquatic resources (Brown and Vierra 1983), competition over scarce terrestrial resources (Charles and Buikstra 1983), appropriation of surpluses and competitive feasting in the context of abundant resources (Hayden 1994, 1995), or group fragmentation, increased settlement permanence, and technological specialization and efficiency in tension zones (Binford 1968, 1990). Such explanations of shellfishing and its consequences are fundamentally based on the role of subsistence economies shaping social change, particularly as they would have affected population dynamics, provided new opportunities, or introduced new crises to long-term food-getting strategies.

The orthodox approaches outlined above have perpetuated a particular kind of history for ancient hunter-gatherer societies. By focusing on long-term social and environmental processes, what Braudel (1980:27) referred to as *la longue dureé*, archaeologists have composed structural histories at the expense of investigating short-term moments of social reproduction, interaction, and transformation. In these uneventful histories, the primary agents delimiting past societies are impersonal processes such as economy, climate, and demography operating over multi-generational time scales. Although particular events, practices, and beliefs no doubt existed within these structures, they have no bearing on the long-term persistence of any one pattern. What is left are decontextualized and gradualist perspectives on past hunter-gatherer social change and stability. Little room is left for the histories of past communities, who are presumed to operate in ignorance (or denial) of their own pasts.

This is not to say that structural histories are entirely uneventful. As noted by Gamble (2007:24–26), archaeologists since the time of V. Gordon Childe have tended to view the past as a series of revolutions (e.g., Neolithic, Urban, Industrial), characterized by rapid change, interspersed with long periods of gradual change. Although most archaeologists today do not perceive such watersheds as events per se, revolutions are given the rhetorical force of events. Gamble argues that revolutions continue to serve two functions in archaeological interpretation. The first is that they provide a container for organizing a series of concepts and observations into a manageable network (Gamble 2007:19). As a collection of related issues, such problems can be studied without reference to past conditions. Yet revolutions also provide “locomotives of change,” as explanations for how the Western world as we know it came into being by successively transcending tradition and primitiveness (Gamble 2007:13–14). Hunter-gatherers, defined as they are in terms of subsistence, and occurring chronologically prior to those revolutions that would eventually lead to contemporary nation-states, remain subject to the whims of dehumanized, long-term processes. For a more thorough examination of the implication for Gamble’s perspective on hunter-gatherers and the Archaic period in the southeastern United States see Sassaman (2010:Chapter 6).

Within structural histories, practices such as shell mound inhabitation and construction equate to what Fogelson (1989) has referred to as “nonevents.” Fogelson observed that many processes, practices, and beliefs important to nonwestern peoples are ignored or obscured by Western sensibilities of what constitutes proper or legitimate history (see also Echo-Hawk 2000; Nabokov 2002). Such accepted histories invoke linear concepts of time, emphasize concrete facts or persons, and require verification via accepted standards. In narrative histories, events are isolatable moments around which plots turn, such as a series of social and technological revolutions discussed above. In contrast to an event, a nonevent does not carry empirical weight or rhetorical force in the reconstruction of the past. A nonevent, then, is process or moment that does not fit dominant ontologies. Fogelson envisioned an array of nonevents, which he termed pseudo events, imagined events, and epitomizing events. All of these constructions of the past may have been central to past community identity, but were nonetheless ignored in syntheses and grand narratives. As an example, Fogelson described the difficulty with which Native American's experience gaining recognition under Federal law, particularly when armed solely with oral traditions. It is precisely because these groups often resisted intrusive documentation or intervention that their history is a nonevent: by law and decree they never happened (Fogelson 1989:141–142). This is, in fact, a problem for many hunter-gatherer communities whose land use practices often do not match criteria set by the State to justify ownership or control of traditional lands (Pinkoski and Asch 2004; Zvelebil 2003). Fogelson's larger point, however, is that there can be differential recognition of what is considered an event depending on the history and historical consciousness of the communities involved (see also Pauketat and Emerson [2008] and Sahlins [1985]).

Fogelson's (1989) discussion emphasized the importance of oral traditions amongst non-lettered societies in the construction of social histories. I would note that Fogelson (1989) himself perpetuated a view of ancient native North American history as uneventful by invoking a revolution of sorts. In addition to referring to the Archaic period as characterized by “monotonous sameness” (Fogelson 1989:139), he suggests that Native American communities were largely ahistorical and slowly changing, or “cold” in Levi-Strauss’ (1966:233) terms, only becoming historical in the centuries leading up to, and following, contact with the West (Fogelson 1989:139). The implication being that it was not until later in time, and then into the Colonial era, that Native American’s experienced sufficient change and social complexity that they would reflect upon and transform their own histories to incorporate contemporary concerns.

Yet written or oral histories are only one means through which societies make history. Unfortunately, because archaeologists do not have access to the verbal or written discourse of past societies, it is even easier to perceive them as ahistorical nonevents. Bradley (2002:3–5) makes a similar point in his discussion of the invention and dual meaning of “prehistory.” When coupled with a model of unilineal social evolution, prehistory became synonymous with ancient or distant peoples, who could be used as a foil against which the success of Western Civilization could be measured (see also Fabian 1983). Like Bradley, Kehoe (1998:1) situates the emergence of prehistoric archaeology, closely allied with geology (the study of long-term process), in the nineteenth century as social scientists attempted to examine the development of humanity “untrammeled by the authority of texts.” Bradley (2002:5) continues, noting that another meaning of prehistoric refers to those societies whose historical traditions are not treated as history, including monument construction, seasonal movement, object curation, and gift giving. Because such practices are not routinely recognized as being produced with respect to an indigenous historical consciousness, they are reduced to epiphenomena of past economic or social systems.

Archaic communities have become nonevents, and their history prehistoric, by the imposition of orthodox conceptions of linear time that foreground gradual and stepwise change. In this noneventful view, Archaic shell mounds provide a record of food consumption practices that were optimally selected against a range of alternatives, or serve as paleoproxies of environmental processes operating at centennial or millennial time scales. Hiding beneath dietary or paleoenvironmental reconstructions is the belief that shell matrix sites are significant for what they contain (i.e. shellfish and other materials), and not the social processes ultimately responsible for their generation and final dispositions. To be sure, human-environmental interactions are one of a myriad of important issues surrounding a shellfishing way of life. Moreover, long-term processes were certainly at work throughout the St. Johns. Yet emphasis on shell matrix sites as a proxy record has precluded investigating how the creation of shell matrix sites may have been central to ongoing Archaic history-making. Indeed, many events of Archaic significance may have been obscured by impositions of western historiography that emphasized gradual change through time and the primacy of diet over contingent social reproduction.

In this study, I will develop the notion of shell matrix sites as more than unintentional heaps, and certainly more than what they contain. Central to this discussion is a need to rethink the relationships between hunter-gatherers, social change, and space. Drawing on the work of Barrett (1999, 2000, 2001) and Pauketat (2001a, b) I argue that landscape inhabitation, including the creation of settlements and sacred places, was a historically contingent process of becoming, through which communities were reproduced and transformed. As such, placemaking emerges as the central means through which past hunter-gatherers along the St. Johns and elsewhere wrote and contested their own histories. In the sections that follow in this chapter, I will outline some of the epistemological and ontological barriers to hunter-gatherer landscape use as anything but a nonevent, and describe some of the unnecessary contradictions that emerge when we fail to take into account social histories.

How is it then, that Archaic shell mounds specifically emerged as nonevents? Whose historiographies are we reproducing in our own research? More importantly, is it necessary that we continue to emphasize impersonal ecologies and natural histories at the expense of historical alternatives? A complete answer to how we came this far will take us back to the origins of archaeological thought in Florida and elsewhere, and necessitates examining the underlying assumptions that have dominated discussions of past and contemporary hunter-gatherers.

Inconceivable Agencies along the St. Johns River

It was in the nineteenth century that prehistoric time and the significance of shell mounds were invented along the St. Johns, as they were throughout the Westernized world (Bradley 2002; Kehoe 1998:1). Early studies were concerned with establishing the anthropogenic or geologic origins of mounds along the St. Johns, but quickly turned towards questions of culture-history by the end of the century. During these embryonic years the dichotomies between natural and cultural, chronologically early and late, and simple and complex were established. These dichotomies have hence served as frames of reference for understanding societies along the St. Johns. In particular, a suite of normative cultural traits were isolated and arranged along an evolutionary continuum. These traits included mortuary treatment, object exchange and production, subsistence, and intentional mound construction. As I will document here, the image of ahistorical Archaic communities that continues to be produced in archaeological discourse rests on the uncritical acceptance of assumptions and observations dating to these early years.

We can begin this story *in medias res*, as the first concerted efforts to document and explain the shell mounds of the St. Johns were well underway. Much of our current understanding of Archaic shell mounds can be traced back to February 8, 1871. Jeffries Wyman, first curator of Harvard's Peabody Museum of Ethnology and Archaeology, spent that morning examining the eroded profile of a massive freshwater shell mound on the western shore of the Middle St. Johns River in northeast Florida, known today as the Silver Glen Springs Complex (Figure 1-1). This was one of many winter trips he made to the region between 1860, 1867, and 1871–1874 to study the shell mounds along the river. These trips organized in part to collect specimens for Harvard's new museum (Wyman 1875:15). More than collecting, however, his goal was to determine whether human or natural actions were responsible for these geomorphologically anomalous, yet widespread topographic features. In addition to Wyman's (1867) earlier explorations in New England his interest was piqued by the discoveries of shell matrix *kjökkenmödding* sites in Denmark (Morlot 1861) and along the coast of Maine (Chadbourne 1859). Heaps of shell thought to be naturally deposited shellfish beds were determined to be anthropogenic upon systematic scrutiny. The term *kjökkenmödding* is the basis for our well-worn term "midden," which in its original context referred expressly to material that had been discarded in the course of food preparation and consumption (Claassen 1998:11; Trigger 1986:xii–xiii).

In his own travels, Wyman observed scores of shell mounds distributed throughout the Middle and Upper St. Johns basin similar to that at Silver Glen Springs. He identified many variations on a theme: isolated linear or crescent-shaped ridges, immense multi-mound complexes, and even small heaps that were all primarily composed of freshwater shellfish remains. He also noted smaller mounds of sand, sometimes associated with shell ridges but often set apart. Centuries of wave action and bankward erosion at many shell mounds provided stratigraphic profiles for him to examine large-scale features and small-scale objects *in situ* (Figure 1-2). In most he found incontrovertible evidence for the mounds' artificial origins in the form of pottery, stone and bone tools, and even human remains. He also identified variations in the thickness and composition of shell deposits, noting that many strata lacked anything but shellfish remains.

No doubt struck by the extent of the mound facade at Silver Glen Springs, estimated at 8 m high and 300 m long, Wyman retired that afternoon to an orange grove upon the mound and contemplated the apparent contradiction between the overwhelming scale of the shell mounds on one hand, and their mundane content on the other. Wyman's journal entries (1872) and published monograph (1875) provide a sense of the questions he was struggling with: How did these landscape features come into being? What agents (anthropogenic or otherwise) could account for their deposition and final configuration? What role, if any, did the St. Johns River have in creating such features? If humans were responsible, what was their intent in amassing materials in these locations? If shellfish accumulations were monumental in scale, were they monumental in significance? What relationship, if any, do shell mounds have with either the sand burial mounds or low-lying shell "fields" identified throughout the region?

Based on these ruminations, Wyman (1875:11) would later pen the following statement that at once deftly summarized his empirical observations, and arguably set the agenda for over a century's worth of archaeological investigations:

> Any one who for the first time views the larger ones [shell mounds]…might well be excused for doubting that such immense quantities of small shells could have been brought together by human labor…It is, however, absolutely impossible that such quantities of shells and such combinations of objects could have been the result of natural causes. It is impossible too to escape the conviction that these deposits of shells, and the remains of the various animals they enclose, were collected in any other way than as the refuse portions of articles of food. If the object of the Indians had been merely to construct a mound, materials for this in all cases could be had, as with the burial mounds, by scraping together sand from the neighborhood, and which even if brought from a considerable distance, would involve far less time and labor than the slow gathering of shells from beneath of the waters of creeks and lagoons.

Drawing on the cumulative force of his data, he correctly concluded that the shell matrix sites along the St. Johns were ultimately the product of human agency. Yet Wyman also offers a pragmatic resolution to the shell mound contradiction by introducing a dichotomy: in contrast to the sand burial mounds, which manifestly demonstrate intentionality and forethought, shell mounds singularly represent the cumulative result of food collection and refuse deposition. He even extended this deductive logic to the fragmentary human remains he uncovered amidst the shell mounds, arguing that their disposition was direct evidence for cannibalism (Wyman 1874; 1875:67–71). Taking the data at face value, how could the scale, final configurations, and apparently mundane composition of shell mounds be otherwise explained?

At the time, Wyman's insistence on the indigenous origins of the shell mounds, in addition to his recognition of change through time, was a progressive stance for a North

American scientist. Speculators, government officials, and naturalists alike were then entrenched in debating the various non-indigenous identities of mound builders across the Eastern Woodlands (see Trigger 1989:104–108). It would be another twenty years before the debate would be resolved through archaeological research that demonstrated, in fact, Native Americans had produced them (i.e. Thomas 1894). Only after the turn of the century would archaeologists seriously consider change through time (Trigger 1986:xxii). Although others had come to this conclusion for other shell mounds in Florida (Brinton 1859:177), it was the insightfulness, rigorous attention to detail, and skepticism that made Wyman's observations endure. Wyman's contributions to Florida archaeology cannot be overestimated. Many of the shell mounds he recorded have since been destroyed or significantly compromised. As with anthropogenic shell deposits the world over (Ceci 1984), shell mounds were targeted as sources of construction fill and razed by bulldozers and draglines in the twentieth century. Wyman's own student, Clarence Bloomfield (C. B.) Moore, was responsible for much destruction as well. Cannibalism aside, Wyman's empirical observations have withstood the test of time. Any account of shell mounds in the region must consider his monograph and notes, as his descriptions form an irreplaceable record of places that no longer exist.

Wyman did not simply provide a record of observations, he also established prehistoric time along the St. Johns. Time emerged naturally from the stratigraphic profiles he examined. In many mounds, he recognized basal strata without pottery, which were superseded by successive strata bearing fiber-tempered pottery and check stamp decorated pottery. Many mounds lacked pottery altogether, or it was expressed only on the surface, and he argued that these mounds were the earliest. This tripartite scheme not only forms the basis for our current culture histories, but was one of the earliest recognitions of change in the past by an American archaeologist (Trigger 1986:xvii). Less recognized, however, was the lasting impact of Wyman's dualism between the intentional construction of sand mounds for the purposes of burial and the unintentional accumulation of shellfish refuse on the other. Wyman (1875:47) held open the possibility that burial mounds were as old as the earliest shell mounds. But this delineation was appropriated by later researchers. The differences between a "monument" and a "midden" were used to construct culture histories, and make behavioral interpretations as well. His dichotomy continues to shape the contours of archaeological theory and practice, and as I will detail below, has done much to obscure the details of past practices.

Wyman was neither the first nor last to investigate the St. Johns shell mounds. In his synthesis of northeast Florida's Colonial period, Goggin (1952:31) argued that no significant mention of indigenous use of shell matrix sites was made by either the early Spanish and French settlers. The earliest collected references are known from the late eighteenth naturalist William Bartram (1791), who described shell mounds as "shelly bluffs," which were frequently used as campsites by foreigners and Native Americans alike. A second wave of observations emerged in the later portion of the nineteenth century. Louis de Pourtalès, a surveyor and student of the naturalist Louis Agassiz at Harvard, discovered human bones in shell deposits at Stone Island/Doctor's Island on Lake Monroe in 1848, and considered the deposit to be intentionally placed there (Agassiz 1881; Wyman 1875:15).

Brinton wrote several accounts on Florida in general, and shell deposits in particular for popular (1859, 1869) and professional (1867) audiences. Brinton recognized correctly that many of the sand mounds were constructed as burial mounds (1859:172). He only recognized shell mounds occurring on or near the coast as anthropogenic in origin. Some he considered to be “mere refuse heaps, the debris of villages of an icthyophagous population, showing no indication of their having been designedly collected in heaps” (Brinton 1867:356). Others, such as Turtle Mound on the Atlantic Coast and Crystal River near the Gulf of Mexico, he considered to be designed as watchtowers. In contrast, he supposed that shell mounds along the St. Johns were geological in origin and were reused as places of burial by indigenous groups (Brinton 1867:357). Other contemporary guidebooks lack the historical depth and consideration of Brinton, and describe shell mounds as shell bluffs or “coquina” and do not ascribe them to human agents (e.g., Barbour 1882). William Dall (1885) briefly made mention of the 5-m high Old Enterprise Complex, and was convinced that it was intentionally constructed due to the general lack of anything but shell. Finally, Le Baron (1884) provided an account of mounds along the river that was, by his own admission, a reconnaissance and not a thorough examination.

Although Dall and Le Baron were aware of Wyman’s research, it would was one of his last students, the wealthy and prodigious C. B. Moore, who formalized and tested his observations through extensive excavations (Mitchem 1999). Moore revisited all sites observed by Wyman, found many others, and attempted to verify Wyman’s conclusions. Unlike Wyman, Moore’s work is notable for his geographically expansive survey, extensive excavations, and, relative to the times, detailed and well illustrated publications. His earliest explorations targeted shell mounds, which he identified throughout the Upper and Middle St. Johns basin (Moore 1892, 1893a, b, c, 1894c). Moore's excavations led him to uphold and expand upon Wyman's conclusions: "the shell heaps of the St. John's (sic) are refuse heaps simply, and in them refuse alone can be expected under ordinary circumstances," and any stratification within shell mounds was "of course a matter of accident" (Moore 1892:913–914). Despite this opinion he suggested in his earliest synthetic paper of shell mounds that variation in shell composition reflected different modes and intensities of refuse disposal and living, although he never continued this line of thought. For example, he suggested that crushed shell lenses were likely the result of trampling, while whole shell strata were the result of dumping episodes and lacked significant post-depositional trampling (Moore 1892:915).

Following this initial focus, Moore expanded his efforts to sand mounds (1894a, b), and largely stopped excavating shell mounds once he recognized the greater likelihood of locating objects elsewhere (1894c:26). Almost all sand mounds were found to contain human burials, and most contained pottery. However, he identified some mounds, such as those at Bluffton, Thornhill Lake, and Orange Mound in the Upper St. Johns, that lacked pottery except for surface exposures. Thornhill was particularly interesting for him because at least one individual was interred with numerous marine shell beads, in addition to extralocal objects such as groundstone beads and bannerstones (Moore 1894b:168). Bannerstones were reported in a non-pottery bearing sand mound at Tomoka on the coast as well (Douglass 1882). Elsewhere Moore had identified near-basal sand burial lenses within shell mound strata lacking pottery altogether, or upon which pottery was emplaced. These inhumations presented a problem. Most evidently they violated Wyman's shell/sand dichotomy. Because the human remains were largely unbroken, they could not be easily dismissed as evidence for cannibalism. More problematic, however, was that the lack of pottery in mounds violated his progressive evolutionary schema. Most shell mounds lacked pottery except in their upper strata, they were demonstrably older, and by extension less evolved socially. In discussing the relative age of sand mounds and shell mounds, Moore (1894b:210) rescued Wyman and social evolution by concluding that "save with burials, no incentive existed for the inhumation of pottery, whole or in sherds, in the sand mounds, and that even in the burial mounds it was simply a matter of custom, almost universally followed, it is true, but still not without exceptions."

With the conclusion of Moore's investigations, interest in archaeology within the region waned considerably (Goggin 1952:34), although Nelson (1918) did conduct excavations at Oak Hill on the Atlantic coast where he identified a preceramic sequence. Nelson in fact suggested the mound was constructed rapidly, but this observation has never been seriously considered (although it should have been). Beginning at the turn of the century, archaeological investigations shifted towards triage, as one site after another disappeared at the end of draglines and steam shovels, accelerating with the growth of population in the region. During the 1930s work was conducted by the Civilian Conservation Corps (CCC) along the Lake George segment of the basin (Abshire et al. 1935). Beginning in the 1950s , Ripley Bullen and others at the Florida Museum of Natural History (then the Florida State Museum) initiated more systematic investigations at intact sites (Bullen and Bryant 1965), and others as they were being destroyed (Bullen 1955b; Jahn and Bullen 1978). Aided by publication through *The Florida Anthropologist*, avocational archaeologists made numerous contributions, searching through mined backfill and as shell was washed prior to final transport (e.g., Gut and Neill 1953; Neill 1954).

It was also in the middle of the twentieth century that the culture history of the region was literally transcribed from shell mound profiles and systematized by John Goggin (1952) (Table 1-1). From the beginning of concerted investigations in northern Florida archaeologists recognized a pervasive *non-association* between ceramics and the basal deposits of shell mounds. This complex was initially recognized as part of the Southeastern Archaic Stage, and defined simply by J. W. Griffin (1952:323) and Goggin (1947:123) as a “Pre-pottery period” or “Non-ceramic horizon” respectively. After a detailed analysis of extant collections and historic observations, Goggin (1952:40–43) defined the preceramic Archaic Mount Taylor Period, named for the shell mound for which there was the most contextual data, as the “earliest period of occupation on the St. Johns River.” This period has now been securely dated between 7300 and 4600 cal B.P. Today we recognize earlier traditions of the Late Paleoindian and Early Archaic periods, but they are poorly understood. Following the systematics of the times, his definition of the Mount Taylor period was based on the association of a host of objects, but also coupled with behavioral interpretation. Although recognizing that burials could occur within shell matrix sites, he (1952:66) argued that the “indifference towards the dead is emphasized by the lack of burial offerings.” It is also at this time that we see a movement toward shell matrices as nothing more than a container for objects and an aid for chronological ordering, as he noted (1952:41) “there is some stratification in the deposits but it apparently has little cultural significance." Bullen and Bryant (1965:21) would echo this sentiment later, noting that the presence of shellfish layers without abundant objects made chronological considerations and reconstruction of past lifeways difficult.

The regional chronology continues with the appearance of fiber-tempered pottery, which signals occupation during the ceramic Archaic Orange period (ca. 4600–3600 cal B.P.). Bullen (1972) would later subdivide the Orange period based on what he perceived to be changing decorative styles. Finally, superimposed upon many shell mounds are the residues of the post-Archaic St. Johns I and II periods, evidenced by the presence of spicule-tempered St. Johns pottery (ca. 3600–500 cal B.P.), often found in association with objects and inhumations in low, truncated cone sand mounds.

Although the orthodox culture-historical sequence of the middle St. Johns was internally consistent, in truth it belied several empirical contradictions. Most notably, burials in mounds or other elaborate contexts were not recognized as Archaic in origin, precisely because they did not fit the expectations of unilineal social change through time. For example, Goggin attempted to use changes in burial treatment to define subperiods within the St. Johns period, although with admittedly limited success. He did, however, define an "Unclassified Complex" which included sand mounds, bannerstones, and stone beads. As Endonino (2008) has recognized, this is the same complex that C.B. Moore struggled with in his investigations at Thornhill Lake. Goggin did not give it a precise cultural attribution, but suggested it was of the St. Johns period, arguing that "the concept of sand burial mounds is apparently post-Archaic or at least only recognized in this part of Florida in St. Johns I times." Of the bannerstones which

Goggin (1952:53) knew to be of Archaic age, he could only say that there was "some sort of a carry-over from very early times."

Other culture-historical problems with burial mounds were encountered by Sears (1960) at Bluffton, where an individual was interred beneath rapidly deposited lenses of shellfish, sand, and muck. Although the individual was not interred with pottery, Sears concluded that it was St. Johns in origin. Perhaps the most egregious cultural misascription was by Jahn and Bullen (1978). While performing a salvage excavation at the multi-component Harris Creek mound they documented a mortuary containing over 160 individuals interred in a mound constructed of white sand and shell. This had been covered over by meters of later strata. Although the material culture was consistent with Mount Taylor assemblages, and no pottery was found within undisturbed strata in the mortuary, they were loathe to ascribe it to anything but the later St. Johns period. While holding out the possibility that the mortuary was Archaic in age, they (Jahn and Bullen 1978:21) suggested that St. Johns era people

> dug a tremendous hole in a preexisting preceramic Archaic midden, built some type of charnel house therein, introduced vast quantities of white sand in which they serially interred hundreds of burials which had been collecting in the charnel house (or houses), covered the complex with the Archaic midden material previously removed.

This is a prime example of the construction of a nonevent, wherein prevailing assumptions regarding the worldview and abilities of Archaic communities precluded an objective assessment of the data at hand.

Beginning in the 1980s treatments of shell matrix sites consisted of targeted research-based excavations and cultural resource management (CRM) mitigative work. In particular, Barbara Purdy (1987, 1994b) led several investigations into inundated wetsite deposits at Groves' Orange Midden, an extension of the Old Enterprise

Complex, and the Hontoon Island North site, one of the largest shell complexes in the region before it was mined for shell in 1935. Her research interests lay solely in recovering well preserved organics. At Groves Orange Midden she and her colleagues identified a saturated shell component of Mount Taylor age in which abundant wooden objects and botanical remains were recovered. Analyses focused on material culture (Wheeler and McGee 1994b) and subsistence remains (Newsom 1994; Russo et al. 1992; Wheeler and McGee 1994a). At the Hontoon Island North site, excavations by Purdy (1987; 1991:102–138) and colleagues (Newsom 1987; Nodine 1987; Wing and McKean 1987) focused on wetsite deposits adjacent to what had been the eastern apex of the largest shell ridge. They recovered well-preserved faunal and botanical assemblages in addition to a ceramic inventory of over 70,000 St. Johns sherds in a shell matrix. Although the presence of preceramic deposits were surmised (Purdy 1991:130), they were thought to only be of limited significance and extent. Later excavations by Sassaman, myself, and colleagues (2005) would actually prove that the majority of the 300 m long shell ridge dated to the Mount Taylor period.

The late twentieth century was also a period of renewed synthesis, which principally involved reducing Mount Taylor to its most essential qualities. Following Goggin, Miller (1992, 1998) suggested that Mount Taylor lifeways were enabled by the emergence of productive wetland locales. He developed a hydrological model that equated the onset of near-modern hydrology with the establishment of productive ecosystems, in large part enabled by increased flow from freshwater springs. In his synthesis of Florida archaeology, Milanich (1994:87) offered that the apparent emergence of shellfishing during the Mount Taylor period was part of a restructuring of regional populations, largely because “it was much less difficult to harvest fish and mollusks than to maintain a hunter-gathering way of life in the interior forests.” He envisioned Mount Taylor populations initiating what would be a very long running record of sameness enabled by these new economic resources, as he noted that “there are changes apparent in the archaeological record of the Late Archaic period…But these changes are related to demography rather than changes in basic lifeways” (Milanich 1994:86).

As revealed in this short historiography, Wyman’s original dichotomy has emerged as both a temporal and ontological duality. The initial distinction between shell mound deposition and sand burial mound construction has been tacitly accepted and coupled with a model of unilineal, progressive social evolution that remains the default frame of reference. Despite the clear evidence for Mount Taylor mortuary mounds, they were routinely ascribed to a later period (Endonino 2003b). Beyond mortuaries, however, it is inconceivable that Archaic shell deposits reflect anything but the unintended consequences of mundane and unreflective behavior by chronologically early hunter-gatherers. In fact, the St. Johns River is allotted a greater role in creating and structuring Archaic period regional inhabitation than the communities themselves (e.g., Miller 1998). It is equally inconceivable that mounds and associated places could tell us anything about Archaic societies beyond subsistence, or alternatively, that such places were significant to Archaic communities beyond trash heaps. As a result, research into the structure, organization, and significance of Archaic practices at shell mounds has largely been precluded.

Interpretations of the significance of the first and last vestiges of occupations are animated by opposed narratives and operationalized by different research agendas. Archaic-period components, produced by chronologically early and presumably socially "simple" hunter-gatherers, are viewed as a proxy for past environmental conditions. Change in site location or size and variations in depositional episode content are reduced to either ecological change or demographic processes. In contrast, the largest and most structurally complex sites are attributed *a priori* to the post-Archaic St. Johns period (e.g. Purdy 1987), where site structure and location serves as a proxy for social organization and ritual processes (Goggin 1952:76–77; Milanich 1994:254). Depositional acts at mound sites are considered to be truly monumental, reflecting intentional acts constitutive of the politics and histories of St. Johns communities at sacred venues. Higher population densities, settled village life, the presumed use of cultigens, and social stratification are modeled as coincident with a step-wise increase in the scale of monumental construction (Goggin 1952; Milanich 1994:256; Miller 1998; Smith 1986; Steponaitis 1986).

A Persistent Other

That a noneventful Archaic has its roots in the nineteenth century is evident by now. If this was a parochial problem, it would be simple to reset the research agenda in northeast Florida and carry on. Unfortunately, the interpretations along the St. Johns are part of a much larger ontological handcuff. Among hunter-gatherer specialists there has been a long-running discourse on the existence and significance of the social category "hunter-gatherer" (Barnard 1999, 2002; Ingold 1996; Kent 1992; Lee 1992; Shott 2001; Solway and Lee 1990; Wilmsen and Denbow 1990). Much of this discussion has been in regards to whether the contemporary foragers that frame our ethnographic sources of analogy (including communities in the African Kalahari, Australia, and elsewhere in the tropics) represent social configurations unaffected by cultural contact, or are a product of complex histories of interaction with more powerful others (Sassaman 2004a:229; Sassaman and Heckenberger 2004). The discussion has great significance for the identity and social status of those labeled hunter-gatherers by the State (Buntman 2002; Lee 2006; Pinkoski and Asch 2004). Moreover, it is highly relevant to how we understand contemporary hunter-gatherer societies, and the potential power relationships underlying many culture contact experiences in the past (Sassaman 2001; Wolf 1982). In most cases, however, this notion of history is forensic. The emphasis is on determining which aspects of forager lifeways may be modern, and which may be considered a more persistent form of a general condition.

Although widespread social, historical, and structural variation is recognized within the category (Ames 2004; Kelly 1995), most who have considered the subject conclude that there are enough similarities amongst present-day foragers to continue using the construct (Barnard 2002; Lee 2006; Politis 2007:29). A prominent component of this discourse is the structural relationship between hunting and gathering as a mode of production and landscape use (Ingold 1988). How communities use space at their disposal is part of a core of attributes that delimits the category “hunter-gatherer” in opposition to non-foraging peoples (Kelly 1995:111; Lee and Daly 1999). To be sure, Lee and DeVore’s (1968:11) famous dictum that hunter-gatherers “move around a lot” has been undermined by a greater recognition of sedentary or infrequent annual mobility (Kelly 1992; Marquardt 1985; Price and Brown 1985; Whitelaw 1991). However, most researchers view movement through or engagement with landscapes as restricting the possible range of variation in hunter-gatherer societies (following in the steps of Steward [1955]).

Central to this emphasis on landscape use are other aspects defining hunter-gatherer lifeways, most notably subsistence economies based entirely on wild foodstuffs, and concomitant worldviews and social organization that emphasize sharing and egalitarianism (Bird-David 1990; Ingold 1999). Numerous typologies within the class of hunter-gatherer have been constructed to describe the relationship between landscapes and alternative strategies of food getting, settlement arrangement, technological organization, modes of social interaction, and socioeconomic differentiation (e.g. Bettinger and Baumhoff 1982; Binford 1980; Testart 1982; Woodburn 1982). Archaeologists have also constructed sophisticated models and sets of expectations based on material culture signatures to examine how systems of landscape use and settlement organization were structured in the past (Binford 1979, 1980, 1990; Chatters 1987; Gamble 1991; Habu and Fitzhugh 2002; Kent 1991).

Yet landscape use has a dual identity in anthropological conceptualizations of hunter-gatherers. On one hand, space—variously conceived of as the physical distribution of social or economic resources—is accorded a fundamental role in structuring variation in forager lifeways (e.g. Binford 1980; Kelly 1995:111; Lee and Daly 1999). On the other hand, the ways in which hunter-gatherers are perceived to inhabit landscapes forms the basis of a chronological and ontological chasm between those who subsist by hunting and gathering and those who do not (Ingold 2000a:56; Pluciennik 2002). As argued by Ingold (1995:67–68) foragers are perceived as *collecting* from the environment, with lifeways determined ultimately by the physical distribution of social or economic resources (e.g. Bettinger 1991; Binford 1980; Keen 2006; Kelly 1995). Any modification of the environment in this view is incidental and inconsequential (Ingold 1995:68), with the structure of subsistence pursuits undermining socially significant long-term engagements in place (e.g., Meillassoux 1972:99).

Non-foragers, to the contrary, *produce* their food and surroundings through domestication and landscape appropriation as manifested through the construction of buildings, monuments, and other features. Or, as Bradley (2003a:xvi) has put it, the productive labors of farmers in modifying the environment for either mundane or ritual facilities "are often considered to result from the strategic 'investment' of agricultural surplus." Non-forager landscape use is routinely understood as social reproduction, through which communities construct, politicize, and inscribe their social and physical worlds. In so doing communities write and manipulate their own histories by variously referencing, destroying, or co-opting memories and materiality of the past (Barrett 1999; Meskell 2003). Devoid of their own agency, and without the capacity or recourse to a past (mythical or otherwise), hunter-gatherers and the places they create still remain fixed as static entities.

This simple division has been the foundation for much social theorizing. In this framework foragers remain as passive objects, subject to nature, whereas non-foragers emerge as active participants in their own cultural productions because they are not limited by the demands of hunting or gathering. When coupled with evolutionary models of social change, the posited differences in landscape alteration are the basis for further distantiation between foragers and others. Although many researchers allow that present-day hunter-gatherers do not represent evolutionary hold-overs in and of themselves (Lee 1992), the notion of hunting and gathering as a way of life that is both distinctive and inherently more ancient (read: primitive) persists. This dichotomy of social types along primarily economic and chronological axes has deep antiquity within social thought (Pluciennik 2001). As early as the seventeenth century, social theorists postulated the notion of mobile and property-less peoples as the antithesis to then-emerging economies and civil society based on property ownership, capital, and progress (Barnard 2004; Pluciennik 2002). By the late nineteenth century, social scientists such as Morgan (1877:6–7) and others began propping up and justifying stadial evolutionary schemes.

Emerging ethnographic observations and archaeological research positioned non-western societies as spatial and temporal *others* (Fabian 1983:144; Pluciennik 2002). Shell matrix sites were situated prominently in the construction of categories of simplicity and savagery at the time. One of the most influential volumes in this line of thought was Lubbock's (1865) *Pre-historic Times*, whose overtly racist sentiments found a home amongst many western readers (Kehoe 1998:58–59). Lubbock's method was to link archaeological finds with traveler accounts of nonwestern people, and in doing so he was able to assert that contemporary communities were still living in the Stone Age (1865:3). Amongst the mix he drew on ethnographic observations of "Fuegians" (inhabitants of Tierra del Fuego) to animate accounts of shell mounds recently discovered in Denmark. His primary sources were Charles Darwin (1860) and Robert Fitz-Roy (1839), captain of the Beagle (Darwin's vessel). The shellfishing "Fuegians" provided the perfect *other* for Lubbock (1865:556):

> If not the lowest, the Fuegians certainly appear to be among the most miserable specimens of the human race, and the habits of this people are

> of especial interest from their probable similarity to those of the ancient Danish shellmound builders, who, however, were in some respects rather more advanced, being acquainted with the art of making pottery

Not surprisingly hunter-gatherers were left on the bottom rung as savages, with no land, no law, and arguably no society.

While anthropology has distanced itself from the racism and ethnocentrism of nineteenth-century evolutionary thought, the division between forager and farmer is still reproduced in method and theory today (Bradley 2003a; Strassburg 2003; Zvelebil 2003; Zvelebil and Jordan 1999). This dichotomy has implications for how we understand past social organization and change amongst hunter-gatherer communities. Theories and models that privilege biological process such as evolutionary ecology or neo-Darwinian theory are widely used to examine hunter-gatherer social variation because foragers are interpreted as somehow more connected to and subjects of independent environmental process (Chatters and Prentiss 2005; Kelly 1995; Winterhalder 2001; Winterhalder and Smith 1992). As a result, all hunter-gatherer actions are reduced to adaptations or cost-benefit solutions (Bettinger 1999; Hawkes et al. 1982; McGuire and Hildebrandt 2005). Change through time equates to an independent process of evolution, in which past communities were not active participants (Ingold 2000b).

The reproduction of "hunter-gatherer" as a socially-simple and historically ignorant category can most readily be seen in contemporary discussions on the significance of mounds, monuments or other materially impressive edifices. Indeed, it is current orthodoxy that monumental construction is incompatible with hunting and gathering. Over fifty years ago V. Gordon Childe could write that, along with agriculture, the emergence of monumental construction was one of the major events in the emergence of civilization (i.e. complex societies) (Sherratt 1990:148). More recently, Küchler (1999:53) argued that “a culture without monuments appears to us like a ship lost to the sea…Only hunter gatherer societies, lacking institutionalized authority, are genuinely bereft of the need to memorialize the lives of their dead.” Burial mounds and other monuments are ostensibly representative of labor coordination, territoriality, and attendant power structures (Dunham 1999; Gibson and Carr 2004a; Shennan 1983; Trigger 1990). As often massive constructions or accumulations of material, they are conspicuous evidence of modification of the environment (Denevan 1992:377). They also presuppose complex cosmologies and senses of history.

These impressions of the social significance of monuments stand in opposition to the abundance of ethnographically-documented hunter-gatherer societies who did not engage in monumental construction, and who were characterized by low population densities, egalitarian social relations, and settlement impermanence (Kelly 1995:15; Lee and Daly 1999). The emergence of monumental construction is presumed to represent a fundamental shift away from foraging towards food production, sedentism, high population densities, and inevitable social complexity (Sherratt 1990; Trigger 1990; Yoffee 1993). Only societies who have met these preconditions for social complexity would have the labor, central authority, and worldview to construct monuments. Any society lacking these preconditions (i.e. hunter-gatherers) would be incapable of monumental construction, and any massive edifices attributable to hunter-gatherers must represent fundamentally different processes (cf. Sassaman [2004a:254]). In this frame of reference, it is easy to see how simplicity and noneventful status could be imposed upon shellfishers.

Monumental Discord

As with any grand narrative, however, there are not-so-subtle contradictions to the monumental axiom. Just as Wyman was faced with reconciling the natural and anthropogenic components of shell mounds, we are faced with emerging data that demonstrates hunter-gatherers were quite capable of inscribing landscapes for apparently “non-functional” purposes. Consider, for example, the recent discovery of the Pre-Pottery Neolithic (PPN) Göbekli Tepe site in southeast Turkey. As described by Schmidt (2000:46), Göbekli Tepe is composed of artificial earthen knolls, larger than, and in an unusual topographic setting for, other Neolithic sites in the region. What distinguishes the site further are the cellar-like arcuate depressions constructed in antiquity by first excavating large holes in the ground and then lining them with masonry walls and terrazzo floors. These walls supported and framed large T-topped stone pillars, measuring between 3 and 5 m in height, and weighing upwards of 10 tons. Carved in relief on many pillars are a host of animals, including snakes, boars, leopards, aurochs and other wild animals (Peters and Schmidt 2004). Lacking at the site are objects or features typically associated with daily living. In fact the excavators argue that there is very little evidence for any day-to-day activity on site.

What sets Göbekli Tepe apart the most, however, is the lack of domesticated fauna or flora associated with the earliest construction events. Dating the site has been problematic, and some of the fill within the structures and possibly one or two structures are associated with later PPN communities who had access to domesticated species. Yet the current data indicate that the site was erected 12,000 years ago by regional hunter-gatherer communities (Scham 2008). Because of its early age and association with hunter-gatherers, the excavators conservatively suggest the site served a ceremonial purpose possibly associated with hunting rituals. In the popular press the site has gained celebrity as “the world’s first temple” (Scham 2008), its construction by chronologically early hunter-gatherers made even more significant because of its location alongside the nominal cradle of civilization.

Yet another contradiction is the Poverty Point site, situated along the Bayou Maçon in northeast Louisiana. The site dates towards the end of the Archaic period, and was constructed between roughly 3600–3100 years ago by hunter-gatherer communities. What makes Poverty Point so enigmatically precocious (Gibson 1996; Smith 1986) is its scale and implications for labor organization and worldview. At the time of European contact, Poverty Point was second only to the much later Mississippian-period Cahokia complex (in the American Bottom region of Illinois) in terms of both areal extent and earth moving in pre-contact North America (Kidder et al. 2008:9). Unlike Cahokia, which was orchestrated by chiefly elite and underwritten by agricultural production, Poverty Point emerged from the efforts of seasonally mobile communities (Jackson 1991). The main features of the complex include six nested earthen ridges that range in length from 600 to 1200 m, the 22-m high earthen Mound A and associated platform mound, and other features (Gibson 1996; Kidder 2002). Dates on the sequence of construction across the entire expanse of the site are still forthcoming. Yet early indications are that Mound A went up rapidly, and Kidder et al. (2008) have recently argued that the 10-m earthen platform of Mound A was constructed in less than 3 months. The staged construction of this particular mound appears to them to represent the material telling of a cosmogonic narrative. A consideration of the scale of imported material culture suggests that like Göbekli Tepe, Poverty Point was at the center of a wide network of far-flung communities (Sassaman 2005b). Material culture from the site is diverse, and indicates that either large quantities of objects or materials were being imported and purposefully discarded at the site from as far away as Florida and the Great Lakes region (Gibson 1996). In contrast to these cosmopolitan assemblages, the resident population appears to have been quite small. The implication is that communities from far away were involved in the construction of Poverty Point (Sassaman 2005b).

Places such as Göbekli Tepe and Poverty Point are poignant for their *singularity* (Kidder et al. 2008; Sassaman 2005b). They at once draw our attention to moments in which histories were materialized and reproduced through creative acts by past hunter-gatherer communities in vastly different times, environments, and social contexts. At the time of their creation, arguably no other places on the regional landscape encapsulated so much symbolic capital. They also underscore the fallacy of the forager/non-forager dichotomy as regards the construction of massive facilities and intentionality. Clearly landscape modification was not outside the worldview, labor organization, or subsistence economies of those who engaged in practices there. These places indicate that seasonally mobile hunter-gatherer societies could amass the labor necessary to construct mounds, thus decoupling mound construction from sedentism, food production, or stratified society (Gibson and Carr 2004a).

Because of their singularity, however, it would be easy to treat Poverty Point and Göbekli Tepe as anomalous, interesting but ultimately inconsequential in the broader scheme of regional histories and social developments through time. This is particularly the case given the lack of consonance between the observed levels of social complexity and the scale of the effort in each case. Yet from a social-evolutionary perspective neither site was the necessary catalyst for increasingly complex societies. In the case of Göbekli Tepe, it preceded the emergence of monumental construction elsewhere in the region by many millennia. In fact, after its construction the site was intentionally filled in and obscured by later occupants, likely through visible and public acts. Poverty Point was abandoned as well, possibly in connection with a major avulsion in the associated river system (Kidder 2008). The historical significance of Poverty Point's collapse and its associated social networks is unknown, although it may have heralded in a new age of more localized politics and interaction at the onset of the Woodland period in the Southeast (Sassaman 2010). Each reminds us that past hunter-gatherer communities did materialize their worldviews in unanticipated ways that are not reducible to rational choice alone, but are outside the expectations of social theory today.

Recent data, however, from the Southeastern United States, including Florida, indicates that Göbekli Tepe and Poverty Point are not alone. Since the early 1990s, evidence that mounds of either earth or shell date to the Archaic period has emerged (Gibson and Carr 2004b; Russo 1994a, b, 1996a). The most widely recognized amongst these are the mound complexes of the Lower Mississippi River Valley (Saunders and Allen 1995; Saunders et al. 2000; Saunders et al. 2005). These mound centers preceded Poverty Point, and were likely referenced in its final design (Sassaman 2005b). They are characterized by earthen mounds, many of which have numerous construction phases and conform to shared geometric principles (Clark 2004; Sassaman and Heckenberger 2004). Another well documented mound tradition emerged along the western Gulf of Mexico and South Atlantic coasts, where Russo and others have identified numerous Late Archaic shell rings (Russo 1996a; Russo and Heide 2002). These sites are frequently composed of massive lenses of shell arranged in an arcuate fashion surrounding a cleaned central plaza.

Shell mounds of the St. Johns arguably present the most compelling case of construction, if only because there is a clear link between inhumation of the deceased and sand (Sassaman 2004a). As detailed above, much of the evidence for the "intentional" construction of shell mounds was identified by Wyman and C.B. Moore over a century ago, but was dismissed as anomalous. Most notable are places such as the Thornhill Lake Complex, which Endonino (2008) has demonstrated was built in part as a mortuary mound towards the end of the Mount Taylor period. The chronology, sequence of construction, and presence of bannerstones is consistent with what Douglass (1882) and Piatek (1994) documented at the preceramic Tomoka Mound complex adjacent to the Atlantic Coast. Aten (1999) reviewed Jahn and Bullen's interpretation of the Harris Creek mortuary, and found that it is entirely a preceramic Archaic facility which may date as early as 7000 years ago. Using Moore's excavation notes, Beasley (2008) has documented that Harris Creek was not alone. Palmer-Taylor and Orange Mound in the Upper St. Johns share similar sequences and layouts. Shell mound inhabitation would appear to be more complex than typically portrayed. Stratigraphic testing in Archaic period exposures routinely encounters shellfish remains lacking the expected output of residential activities (Sassaman 2003a, 2005a; Wyman 1875). As Nelson (1918) suggested long ago, other contexts appear to have been deposited rapidly, countering arguments for their gradual, continuous accumulation.

Excavations also suggest that preexisting shell matrix sites were actively mined for use as mound construction fill, in many cases to create summit platforms upon shell mounds (Piatek 1994; Sassaman 2005a; Sears 1960). Collectively, such observations indicate that shell matrix sites cannot be simply reduced to refuse disposal alone.

The St. Johns shell mounds and the communities who participated in their construction present marked contradictions to established axioms and categories. They join an ever-accumulating list of chronologically early hunter-gatherer societies who engaged in practices and reproduced institutions not anticipated by cultural evolutionary models. What are we to make of these apparently precocious societies? One possibility would be to simply downstream accepted monumental significance, and test whether presumed attendant dimensions of social hierarchy (large populations, economic inequalities, permanent leadership, etc.) are materially manifested among Archaic communities (e.g., J. Saunders 2004). Taking cues from such thought, Archaic mounds along the St. Johns and elsewhere throughout the Southeastern United States may be significant for the social relations, and potential hierarchies, they represent (Russo 2004; Sassaman and Heckenberger 2004). The demonstrated intensive shellfishing economies could be readily interpreted as a more-than-adequate foundation for large populations, while mounds could simply represent materialized contestations and politics regarding territorial rights to resources between any number of social categories (individuals, lineages, or communities). Russo (2004, 2008), for example, has identified recurrent variations in the height and placement of shellfish at coastal shell rings, and argues that these variations can be used to infer differences in status between groups within a community. Or, we could follow Claassen (1996), who has argued that at least some Shell Mound Archaic sites in the Midsouth should be considered ceremonial mounds akin to later period mortuary mounds, in this case with shell as the primary medium of interment.

Such approaches mirror recent attempts to evaluate archaeologically identified hunter-gatherer societies characterized by relative settlement permanence, constructed facilities, and social ranking. Inspiration is typically drawn from those few historically documented groups who defy traditional forager definitions, such as the Pacific Northwest coastal communities and ethnohistoric Calusa of southwest Florida (Marquardt 1985, 1988; Renouf 1984). In archaeological contexts, such "non-egalitarian" yet "non-stratified" socialities are routinely conceptualized as emergently complex, transegalitarian, and even affluent (Arnold 1995; Hayden 1994; Price and Brown 1985; Sasaki 1981). Complexity is reduced to the degree to which enduring economic inequalities can arise through economic intensification, such as in the context of varying resource abundance, wherein social trajectories are preordained by ecology or technological innovation (Arnold 1995; Hayden 1994, 1995; Keen 2006). Prestige-based power structures have also been advanced as transformative, yet tenuous, alternatives to social complexification (Clark and Blake 1994; Hayden 1995). Current models invoking emergent complexity attempt to resolve the contradiction of hunter-gatherers and monumental construction by situating such communities in a liminal state between simplicity and complexity. Barring ecological catastrophes or truncation through contact with technologically-advanced others, early complex foragers are significant principally because they provided the foundation for later developments. Simplicity is thus preserved for the sake of complexity.

Despite the logic surrounding a model of intensification, we can ask whether conceptualizing complexity amongst hunter-gatherers along purely economic lines obscures significant social processes. As discussed by Flanagan (1989), egalitarian social relations presumed to be original to the human condition, and ubiquitous amongst most ethnographically documented small-scale hunter-gatherer societies, are also present within states. Such relations are perhaps better understood as ideologies of autonomy or as traditions of resistance (Sassaman 2001), and have more to do with the historical relationships and contestations between communities than a natural condition characteristic of early societies. In the Southeast, the link between mounds as emblematic of complex societies has met with resistance, precisely because the scale of mound construction is often incongruous with expectations of economically differentiated individuals. Some such as Hamilton (1999), have argued that Middle Archaic mounds can simply be explained as wasteful behavior, which was selected for (in Neo-Darwinian terms) in a fluctuating environment. In this case, mound construction diverted efforts away from the reproduction of offspring, and ensured that population pressure would not undermine continued biological success of mound building populations. More frequently, however, Archaic societies are shown to not match standard criteria for social complexity. In this case, prior simplicities are presumed as a standard against which complexities can be tested (e.g., J. Saunders 2004; White 2004).

The emergence of shellfishing may also not be as transformative as has been portrayed in the literature. Bailey and Milner (2002) have recently reviewed the divergent interpretations and archaeological contradictions relating to the Holocene emergence of coastal and riverine settlements. They note that these positions vary primarily as to whether aquatic resources should be modeled as either first-line food sources that would have pulled populations into a region, or secondary food sources targeted in times of stress. These are, in Erlandson's (1994:273) words, the "Garden of Eden" and "Gates of Hell" models. Each position presumes that post-Pleistocene archaeological records accurately reflect the distribution of past social practices. In fact, the use of aquatic resources before the Holocene is likely considerably underestimated (Bailey and Craighead 2003; Erlandson 2001; Rowley-Conwy 2001), and the role of terrestrial resources in the past has been greatly overemphasized. Sea-level rise and isostatic landform variance have contributed to a spotty record of early coastal or riverine inhabitation. Nor is there a clear temporal or geographic trend in the use of coastal or riverine resources (*contra* Binford [1990]). Thus, the social developments regarding shellfishing and wetlands use cannot simply be reduced to economics alone (Claassen 1998:229).

Explanations that attempt to discriminate between "monuments" and "middens" (e.g., Beasley 2008; Thompson 2006) further obfuscate the issue. At the extreme end, perspectives such as Claassen's require that mounds of either earth or shell had a single purpose and meaning. Not only does this recapitulate a binary opposition between sacred and secular that may only be relevant in Western worldviews, it also reifies the typological distinctions between unintentional "middens" and purposeful "monuments" that have confounded interpretations since Wyman's time. For example, Milner and Jefferies (1998) attempted to counter Claassen's mortuary mound view in their analysis of the Read site in Kentucky. They cited the presence of abundant stone tools, fire cracked rock, and other debris consistent with *de facto* refuse disposal as evidence that it was a "midden" in the truest sense of the word. Although recognizing that burials occurred preferentially on the valley-facing side of the mound, they argued that because of the long time span across which burials occurred, and the fact that many burials were not made within shell, that there was no intentionality behind the burial patterns. As Sassaman (2004a) notes, Milner and Jefferies had to ignore non-random patterning in the location of interments to make their case.

Hunter-gather communities were not all that orthodox thought have lead us to presume, and engaged in practices not predicted by theory. A review of Archaic shell mound research indicates that instead of investigating how such places emerged, much theorizing and research has targeted how well they fit long held expectations of simplicity. Our explanatory frameworks are mired in the same dialogue with the continued use of gradualist metaphors for hunter-gatherer landscape use and social change. The current discussion regarding the archaeological delineation of "monuments" versus "middens" is a prime example (e.g., Marquardt and Watson 2005b). Lacking appropriate frameworks, we are left reproducing the very stereotypes and misconceptions clearly in need of being overcome.

Chapter Overview

The deficiencies of either a monumental or noneventful approach to Archaic histories leads to a new way of thinking about shell mounds. In Chapter 2 I review two different paradigms for investigating the emergence and long-term histories of shell mound dwelling communities. The first category is referred to as "mapping," which traces its most direct lineage to Lewis Binford (1980). Although the primary frame of reference for contemporary studies, mapping approaches have essentialized the relationship between places, subsistence practices, and past social change. The second is the concept of “landscape inhabitation as history.” As articulated by John Barrett (1999, 2000, 2001) an archaeology of inhabitation emphasizes how community histories emerge as an ongoing process in which contemporary worldviews are reproduced and transformed in the course of the mundane and the extraordinary. The past, as written in modifications of the environment, provides a frame of reference for these actions. I develop a framework and expectations of these concepts to use in examining shell matrix sites. In particular, the practical act of creating places through the deposition of shellfish and other materials provides an access window into Archaic history-making. I suggest that we can trace how communities continually reconstructed places with significance by examining the location, organization, social context, and tempo of depositional events. Thus, we move from simply testing whether sites were monuments or middens, and move towards examining how different communities emerged through time, and how social memories and histories were produced through actions therein.

Interpreting shell matrix sites as inhabited requires detailed knowledge of the ecological and social contexts surrounding their creation and reproduction. The St. Johns has been allotted a significant role in the long-term development of Mount Taylor communities. To be sure, the river figured prominently in not only providing subsistence resources, but by defining the temporality and viability of inhabitation in any one physical location. In Chapter 3, I explore the varying material conditions of inhabitation during the Holocene epoch, and focus on the many different scales and tempos of resources that would have provided frames of reference for Mount Taylor communities.

Contrary to traditional thought, the earliest shell matrix site inhabitation occurred at a time characterized by significant ecological and fluvial variability, while successive generations experienced changing rhythms in resource structure and distribution.

In Chapter 4, I consider the genealogies of Mount Taylor traditions as they were reproduced and transformed within the context of a variable world. Although the Mount Taylor period is defined on the basis of objects and patterns within the St. Johns, I consider how Mount Taylor lifeways can only be understood by examining multiple scales of interaction and movement that inhabitants engaged in across the Florida Peninsula and beyond. In this sense, I reframe the St. Johns as a domain through which social interactions and identities could be asserted and contested. I focus on the available evidence for settlement and mobility, exchange, subsistence, and mortuary practices. Although many traditions continued unabated throughout the Mount Taylor period, social interaction at local and regional scales was a significant factor in the emergence and changing significance of places.

The discussion of the contexts surrounding Mount Taylor inhabitation turns towards shell matrix sites themselves in Chapter 5. Although I may have vilified Wyman for his pragmatic impositions, he is one of the heroes of Florida archaeology. Much of our knowledge of Mount Taylor places is based upon the observations of Wyman, Moore, and others who saw them before they were destroyed. Complicating matters is the output of millennia of later inhabitants who have obscured Mount Taylor places. These data have never been properly synthesized, and as a result we know very little about the specific location, arrangements, or chronology of Mount Taylor shell matrix sites. Drawing on prior observations, historic aerial photographs, recent excavations, and recently acquired high resolution LiDAR data, I develop a GIS spatial database to reconstruct the configuration and location of many Mount Taylor places. Using the hydrological model developed in Chapter 3, I also evaluate the relationship between shell mound inhabitation and rising surface water levels.

It is in detailed life histories of Mount Taylor places, as observed through depositional strategies, that we can trace how communities emerged and were reproduced through time. Unfortunately, there have been few attempts to document the variability of Mount Taylor depositional practices. In order to examine the details of Mount Taylor placemaking, I engaged in a series of excavations at mounded and non-mounded Mount Taylor shell matrix sites. The technical details of these excavations have been published as reports (i.e., Randall and Sassaman 2005, Randall 2007, Sassaman et al. 2010). A synthesis of these efforts, coupled with observations made at other Archaic shell matrix sites in the region, forms the core of Chapters 6 and 7.

Chapter 6 presents the results of stratigraphic testing of the Hontoon Dead Creek Complex. This site is composed of a large Mount Taylor ridge and associated shell field. Excavations into the mound were reported by Sassaman (2005a), and I save a discussion of those results for Chapter 7. The shell field is known as the Hontoon Dead Creek Village, and was targeted because it has not been compromised by millennia of later shell deposits. Close-interval coring and topographic mapping was used to delineate discrete shell matrix heaps. Those of Mount Taylor age provide a minimalist viewshed into what constitutes the arrangement and composition of shell matrix sites. The local hydrological context of the complex is reconstructed through the examination of sediments extracted in the adjacent swamp. Collectively, the results of testing indicate that there were long-term traditions regarding the proper maintenance and reproduction of places. These traditions belie considerable change and transformation at the regional scale, and suggest that residential settlements provided a model of history and place-making along the St. Johns in microcosm.

The patterns identified at the Hontoon Dead Creek Village provide a framework for examining the biographies of shell mounds distributed throughout the study region, and which span the length of the Mount Taylor period. In Chapter 7 I trace the history of transformations at the Hontoon Dead Creek Mound, Live Oak Mound, Silver Glen Springs Complex, Bluffton, the Harris Creek Complex, and the Hontoon Island North site using published descriptions and recent investigations. Although each place had a complex history of abandonment and reuse, acts of capping a place of prior inhabitation and replacing it with a new kind of social domain was a dominant theme running throughout the Mount Taylor period. Places of prior residence were frequently converted into mortuary mounds. Even shell mounds that were places of residence underwent complex transformations as communities were reworked.

Finally, in Chapter 8 I present Archaic community histories as seen through patterns of landscape inhabitation. I focus on major transformations evident in the content, scale, and organization of depositional practices that include the construction of mortuary mounds, the replacement of small-scale settlements with platform mounds for the living, and the reorganization of mound complexes. These practices intersect complex ecological processes and increasing scales of social connectivity. Such events and trends no doubt shaped the contours of structural reproduction, yet Archaic communities routinely mobilized the past as a means of accommodating or interfering with such change. These transformations in traditional practices resulted in a continuous reworking of relationships between people and places, the final outcome of which are the shell matrix sites we encounter today.

Table 1-1. Culture-history of northeast Florida

Period	Years ^{14}C B.P.	Years cal B.P.
Paleoindian	11,500–10,000	13,500–11,700
Early Archaic	10,000–6200	11,700–7300
Mount Taylor	6200–4100	7300–4600
Orange	4100–3500	4600–3600
St. Johns I	3500–1250	3600–1250
St. Johns II	1250–500	1250–500

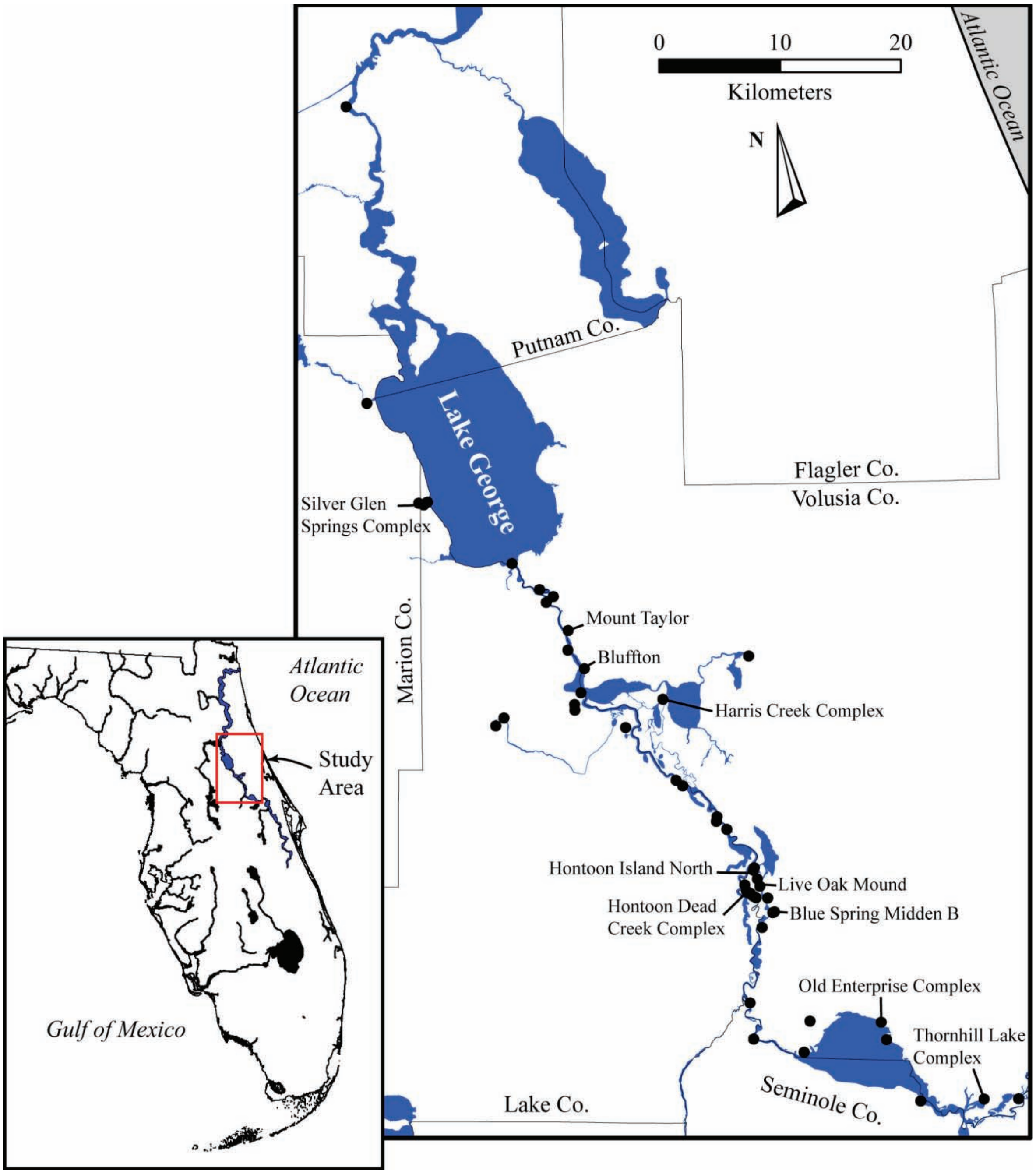

Figure 1-1. Preceramic Archaic Mount Taylor period shell matrix sites within the Middle St. Johns River Valley in Northeast Florida, with emphasis on those sites discussed in Chapter 1.

Figure 1-2. A naturally eroded shell mound that Jeffries Wyman would have observed, in this case the outer shell ridge of the Hontoon Island North site (8VO202). Photograph titled “Shell heap deposits at Hontoon Island” attributed to C.B. Moore, dated 4/18/1893. Courtesy of the State Archives of Florida.

CHAPTER 2
HUNTER-GATHERERS, LANDSCAPES, AND HISTORIES

Mount Taylor shell matrix sites were reduced in conventional thought to prehistoric nonevents on the basis of their composition, early age, transient occupation, and production by hunter-gatherer communities. Despite the normative model that has been developed, data indicative of contrasting patterns of continuity and change have emerged. Long-term patterns of continuity can be seen in the repeated occupation of places, as well as the exploitation of shellfish and aquatic resources. Yet short term and radical transformations are also evident. New practices were innovated in the context of environmental and social change, including the initiation of shellfishing and the production of mortuary mounds. As argued in Chapter 1, these patterns suggest that Mount Taylor lifeways were not unchanging, and that shellfish collection and deposition cannot be disregarded as nothing more than unreflexive behaviors.

In this chapter, I examine how the repeated use of places, materialized through “mundane” practices such as shellfishing, are inextricably bound with larger scale social processes. In order to reframe the practices of Mount Taylor communities, however, it is necessary to first consider in more detail how hunter-gatherers are projected in archaeological thought today. Contemporary interpretations of hunter-gatherer lifeways are characterized by what I called the “mapping” perspective. In this view, hunter-gatherer settlement systems and social change are modeled as dependent variables, and subject to evolutionary processes. This is the orthodox framework for explaining hunter-gatherer lifeways, and its products are the structural histories I discussed in Chapter 1.

An alternative perspective that I will develop in this chapter I have labeled "landscape inhabitation as history." In this perspective, social histories are constructed by inhabiting landscapes filled with significance. While I will explore history and history-making throughout the latter portions of this chapter, it is important that I state up front what I mean by history. One basic definition of history would simply be what happened in the past. As I illustrated with reference to nonevents in Chapter 1, however, the significance of what happened (or did not happen) depends on with who is talking about it. As Boone (2000:13) has argued, "the past becomes history when it is organized." If history is not what happened, then what is it?

Noting the ambivalence with which the term history can be employed, Trouillot (1995:2) suggested that history can best be understood along two axes, a position that I follow here. On one hand, humans participate as actors in history. Social actors reproduce practices learned in collective social contexts, and creatively generate new traditions as an ongoing and contingent process (following Pauketat 2001a,b). Actors also modify their surroundings, leaving traces of past practices. On the other hand, humans participate in history-making through the construction of narratives. It is in the talking about, mythologizing, or referencing prior events (real or imagined) that the past is continually remade as collective social memories. Yet these narratives, and the elements of the past that are selected for telling, are informed by the cultural taxonomies and historicity (or historical consciousness) of the narrator(s). These two axes (sociohistorical process and narrative production) are recursively linked, such that each is structured by the other (Trouillot 1995:29). In considering history, then, I will be referencing both the contingency of community reproduction through practice and tradition, as well as the historicities that make those practices and their consequences meaningful.

Mapping

In orthodox anthropological thought, the relationship among hunter-gatherer society, change, and space falls under the *mapping* perspective. At the core of this perspective is an assertion that hunter-gatherers are defined first and foremost by the distribution and availability of resources. Central here is the belief in a direct, causal association between environment, the organization of subsistence practices, and population dynamics. There is a formal relationship between the physical distribution of economic resources and social resources that is quantifiable. Furthermore, this relationship is regarded as a determinant factor of social process and variability.

The relationship between hunter-gatherers and space was formalized by Julian Steward, first in his salvage ethnographies of the Numic Shoshone and Paiute communities of the Great Basin (Steward 1933, 1938), and later in his *Theory of Culture Change* (Steward 1955). Steward developed the dual concepts of cultural ecology and multilinear evolution as a means of transcending what he saw as the deficiencies of unilineal social evolution of the nineteenth century and the particularistic approach of culture-historians in the early twentieth century. Steward held that variations in trends towards social complexity between societies were primarily structured by local environments. The crucial step for Steward (1955:37) was defining the *culture core*, "the constellation of features which are most closely related to subsistence activities and economic arrangements," notably technology and settlement patterns. Although religion and belief systems could be considered part of the core, this was only the case if they were empirically demonstrated to be functionally related to food getting procedures.

Steward envisioned a methodology which emphasized tiered analyses of environment and exploitative patterns, the relationship between food-getting and “behavior patterns,” and finally between behavior and other aspects of the culture core (1955:40–41).

These methods would enable the determination of different levels of sociocultural integration, Steward’s basis for making cross-cultural analyses. Levels of sociocultural variation differed in the relationship between food distribution, economic interdependence, and cooperation between family and other kin groups. As an example, Steward discusses the Western Shoshone as at the “family” level of sociocultural integration; they were characterized by disparate nuclear families who were integrated at the regional level only during times of resource abundance, but even then there was little cooperation or need for coordination (1955:114). That is, food was so scarce that small family units were forced to move to areas where food was available. As there was no “functional need” for ceremonialism to integrate families, interaction and communal performances were important mostly for recreational purposes (1955:114). According to Steward, it was only when white settlers provided both horses and resources to be exploited (i.e. raided) that higher levels of sociocultural integration were possible amongst the Western Shoshone (1955:121).

Increasing levels of sociocultural integration include the patrilineal band, composite band, and clan. Variations between levels were inherently caused by ecological phenomena, such as whether food stuffs were migratory or scattered, population density, and large-scale interaction. Steward allowed for historical causes in bringing more people to a region, such that the evolution of a patrilineal band to a composite band could be instigated by population movements. The role of religion, in the sense of rituals, commemorative ceremonies, and public performances were, in his words, "independent variables" due to their diversity and apparent lack of consonance with ecological phenomena (Steward 1955:141).

While Steward injected studies of hunter-gatherer diversity and space into anthropology, it was Lewis Binford to whom we can directly attribute the systematics of the mapping perspective. The term mapping was canonized in Binford's (1980) *forager-collector* subsistence-settlement pattern model. Using ethnographic data to develop middle-range theories, Binford inferred two alternative strategies of settlement organization based on the differential distribution of resources in time and space. In this model, collector strategies are expected in areas where there are significant incongruities (his words) in the timing and abundance of resources. Collector strategies are typified by logistical settlement organization, wherein long-term settlements in centralized locations are provisioned by task groups. In contrast, forager strategies are expected in areas where resource patches are more evenly distributed within the local environment but are nonetheless spatially discrete. In this strategy resource patches varying in space-time are "mapped onto" (Binford 1980:10) through mobility and group membership flux.

To sum up each alternative, foraging strategies bring consumers to the food, while collector strategies bring food to the consumers. For each strategy, Binford posited ways in which the location, structure, and distribution of sites on the landscape could be expected to vary. In particular, differences in assemblage composition are used to define different functional site types. Because he presented expectations for their archaeological correlates, the forager-collector dichotomy has been widely exploited by archaeologists. Finally, Binford attempted to correlate these different strategies with changes in effective temperature, such that collector strategies typified groups living in regions with short growing seasons in higher latitudes, while forager strategies would be more typical of tropical foragers. Although Binford's scheme may have been the most general, and thus the most widely used, there have been many similar turns of phrase. These include *tethering* [Taylor 1964 cited in Binford (1980)], *residentially constrained mobility* (Graham and Roberts 1986), *central place wandering* (Beardsley et al. 1955), *traveler* versus *processor* (Bettinger 1999), and even *territorial defense* just to name a few. We could also add divisions between "simple" and "complex" foragers based on the degree of residential permanence.

Binford was primarily interested in detailing process within a stable system, as such the forager-collector continuum was never intended in his original work as an evolutionary model (Binford and Johnson 2002). In a series of papers, however, he outlined related thoughts which have had significant impact on how archaeologists have approached shell matrix sites and their significance. Underlying each of these arguments was a model of society in which culture is the "extra-somatic means of adaptation" (Binford 1962:218), which he adopted from Leslie White (1959:8), whereby cultural systems can be modeled as tending towards optimum efficiency through a process akin to natural selection. In *Post-Pleistocene Adaptations*, Binford (1968) noted that there was an increase in riverine and coastal exploitation after the close of the Pleistocene, apparently coeval with but spatially segregated from regions with evidence for plant and animal domestication. He argued that the onset of aquatic exploitation was, in part, the result of a greater trend towards sedentism in which populations targeted seasonally productive but migratory resources such as waterfowl and anadromous fish. Sedentism was enabled by technological innovations relating to food storage, but also had the effect of increasing populations. As a consequence, he posited that there should be an increase in emigration of family groups out of productive localities into regions of lower environmental productivity. The net effect was that daughter groups moving out of productive zones would need to increase their technological efficiency, which included plant and animal husbandry, particularly when these daughter groups appropriated landscapes already inhabited. Population increase and sedentism were the expected and necessary outcomes of the regional availability of aquatic resources.

This line of thought presaged Binford's (1990) later argument that aquatic- and terrestrial-oriented hunter-gatherers exhibited graded differences by latitude in terms of mobility, housing permanence, and overall land-use patterns. He noted that ethnographically documented aquatic-oriented hunter-gatherers tended to be located at higher latitudes and employed a logistical pattern, while terrestrial groups tended towards a foraging pattern. Although recognizing that certain aspects of social complexity were present among aquatically-oriented foragers, he suggested that this was more likely in areas with low productivity of terrestrial resources, and highly productive aquatic biomes. He critiqued the notion that either thick midden deposits or robust housing could be taken as evidence for increasing social complexity. To the contrary, he suggested that because foragers could not move members to the direct source of aquatic biomes (i.e. they could not live directly where fish and other resources were available), that we should expect thick middens to occur at access points. Thick midden sequences, in his view, represent residential tethering to habitable areas that are in closest proximity to exploitable aquatic resources. Redundant site use follows preferentially, regardless of whether or not groups were sedentary or seasonally mobile. In the literature on Florida's shell mounds, Binford is rarely cited directly. However, his influence can be seen in the widely held interpretation of shell mounds as proxy for past environmental productivity and redundant unreflexive deposition of food remains (see Chapters 1 and 4).

A related strain of thought within hunter-gatherer studies is behavioral or evolutionary ecology (Kelly 1995:50–62; Winterhalder and Smith 1992). Evolutionary ecology's central premise is that human actions are subject to natural selection, and that the diversity of human behavior through time is the product of differential reproductive success at the level of the individual. Underlying the basis for this framework are the dual concepts of methodological individualism and optimality (Kelly 1995:53). Evolutionary ecology assumes that individuals will choose to act in ways that maximize the likelihood of meeting a set goal. Secondly, behaviors will be oriented towards optimizing their reproductive fitness relative to a currency, such as caloric intake or prestige (e.g., McGuire and Hildebrandt 2005). Individuals will attempt to either maximize their currency, or at the very least, minimize risk. At the heart of evolutionary ecology is a suite of models initially borrowed from ecology to describe nonhuman foragers. These include the diet breadth, patch-choice, and central place foraging models. In each case, mathematical models are used to predict at what point a behavior will either be engaged in or avoided, given a set of optimizing priorities.

In a mapping perspective, then, hunter-gatherer lifeways are reduced to an algebra in which space and time are *independent* variables. The diversity inherent in hunter-gatherer societies can be modeled as an equation, whereby time = temporal availability of social and economic resources, and space = those resources distributed across physical landscapes. To solve a particular question regarding hunter-gatherer diversity, one simply needs to plug in time and space. Patterns of site location, architecture, social interaction, and even the construction of ceremonial facilities follow dependently (Binford 1980, 1982, 1990; Whallon 2006; Whitelaw 1983). That is, the arrangements of physical settlements in this view take their particular form due to the physical constraints of mobility and settlement as directed by environmental processes.

Mapping Away History

Although a pervasive framework for examining hunter-gatherer diversity and social change, we can be critical of *mapping* on a number of empirical and theoretical points. Wiessner (1982), for example, immediately criticized Binford's collector-forager model for not taking into account social interaction, and suggested that the distribution of sites and their assemblage structure was as much a product of reciprocity and risk reduction amongst communities as it was environmental organization. Soon after optimal foraging theory was put into practice, contradictions to the optimizing assumption emerged in fieldwork. Dwyer (1985) noted how the practical act of hunting was inexorably linked to a web of socially constituted logic and a host of other actors. Others (e.g., Clastres 1998) documented how food-getting strategies of foragers, thought to represent ideal optimizing behaviors (e.g., Hawkes et al. 1982) (and thus reflect a natural condition), should not be disarticulated from their own historical context involving contacts with more powerful others.

Empirical problems abound as well. As I noted in Chapter 1, there is increasing evidence for the exploitation of aquatic resources worldwide. Just like other aspects of hunter-gatherer lifeways, shellfish use must be problematized and not presumed to represent a particular evolutionary trend (Erlandson 2001). Claassen (1996; 1998:231–233) has been a vocal critic of viewing shell matrix site locations as direct proxies for the distribution of non-mobile riverine resources such as shellfish. In her own work on shellfishing in the Southeastern United States, she has shown that there is limited association between the location of Archaic period shell heaps and areas targeted by commercial shell fishing industries in the historic era. She suggested that the presence of shellfish at archaeological sites cannot be necessarily ascribed to local contexts, and that their inclusion in sites may have more to do with their use for non-food purposes (although see Morey and Crothers [1998]).

At a fundamental level, however, the mapping perspective suffers from an underlying model of spatial representation which is ahistorical and decontextualized. In the mapping perspective, hunter-gatherers are portrayed as making economic decisions with reference to a wide range of alternatives that are separated in physical space. For example, the decision to maintain a campsite or to move to another locality is informed by expectations of food-getting success and the predictability of resources elsewhere. All places of similar economic viability have the same value, such that any given locality that shares an isomorphic ecological configuration is accorded the same status given equal transportation costs. Secondly, movement between localities is presumed to take the least-cost pathway. When viewed as change through time, prior activities at places on the landscape have no significance, unless there has been an economic investment in their long-term utility. The ongoing reproduction or change in lifeways emerges as non-recursive and unreflexive. Foragers are modeled as methodological individuals attempting to maximize food intake or minimize energy loss through differentially adaptive means. Conceived in this way, hunter-gatherers literally mapped their landscapes in reference to optimizing priorities, much like a modern-day land surveyor would plot the geometric and finite relationships between buildings, roads, and other landscape features.

This conception of maps and mapping as an objective and rational (in a micro-economic sense) response to the physical distribution of resources is itself a product of a particular phase of Western history (Cosgrove 1985a; de Certeau 1984:120-121; Thomas 1993). Cosgrove (1985a,b) has traced the development of a distanced, quantifiable landscape perspective to fifteenth century realist Italian Renaissance painters. Alberti, for example, formalized a method for transforming three-dimensional landscapes into two dimensional representations. Based in geometry, Alberti's linear perspective allowed artists to produce images with the illusion of depth. By fixing a scene from an observer's point in physical space, artists could calculate physical spatial relationships between elements in the scene with reference to distance and angle (Cosgrove 1985a:48). The geometric properties of things would later be defined in Cartesian space. The innovation and elaboration of linear perspectivism resulted in the production of static and quantifiable representations of real world phenomena. In addition to privileging vision over other sensory experiences, linear perspectivism maintained distance and separation between the observer and subjects of a scene.

Cosgrove (1985a:55) argues that such landscape perspectives were fundamentally an act of appropriation and objectification. That is, elements of the landscape scene could be could be ordered, structured, and controlled according to the observer. It is significant, then, that the geometric fundamentals of linear perspectivism were translated to cartography and quantification of real world property during the transition from feudalism to capitalism and early nation states. In this historical context, maps were produced as representations of political boundaries, which could be conquered and exploited, or as land which could be alienated and transferred just as any other commodity. Tilley (1994:21–22) further suggests that Western divisions of culture and nature, and an emphasis on demarcated spaces of economic interest, are the product of increasingly expansive nations (see also Pluciennik 2001). Mapping in this sense reflects an increasing need to surveil and control resources and communities. In either case, landscapes could be removed from their social context and valued and controlled according to the observer.

In practice, the mapping perspective is inscribed through our own cartographic conventions that precisely locate the material output of past human activity among various ecological alternatives or economic topographies. The prioritization of what is included in a map is based on preconceived notions of what are relevant and significance processes (Thomas 1993). This model of spatial distributions has been referred to as “map-making” by Ingold (2000a:233), who suggests that these spatial models have been reduced from processes that were constantly in motion. In this view, mapping problematically reduces practices, worldviews, and experiences into totalizing and static frameworks (Chapin et al. 2005; de Certeau 1984:120–121; Thomas 1993;

Wood 1993). At the same time, mapping inserts foreign assumptions and categories upon what were once historically contingent and diverse social productions (Küchler 1993).

Maps and mapping, as defined here, are inherently ahistorical representations in which the relationships between places and peoples are held constant and separated by geometric distance. Implicitly, then, maps also distance past societies from experiences in, and knowledge of, their own landscapes. From the perspective of archaeological interpretation, all past agency is removed from the contexts of historical production. Like Thomas (1993:27), I am not suggesting that the heuristic of creating spatial models of past processes be abandoned; far from it. In fact, by entitling this dissertation "Remapping Histories," I am suggesting that a rapprochement between the science of spatial representation and the investigation of past, contingent histories is entirely possible. But I am suggesting the underlying model on which the mapping perspective is based is opposed to historical reconstruction. That is, the map, as an essentialization of diverse and dynamic processes, obscures the diverse practices and world views through which its production was made possible (de Certeau 1984:120; Thomas 1993).

Inhabitation as History

There are other ways to investigate hunter-gatherer social process. In this section, I introduce an alternative set of theories based on a different paradigm. Archaeologists have become increasingly interested in understanding how cultural change and stability at the micro-scale of everyday life was reproduced and transformed through human interaction in the world at larger and longer scales (Dobres and Robb 2000; Dornan 2002; Joyce and Lopiparo 2005; Ortner 1984; Pauketat 2001b). Practice-theories, initially developed outside of archaeology, such as those of Bourdieu (1977, 1990), Giddens (1979, 1984), and de Certeau (1984), provide an means to break away from normative descriptions of archaeological cultures, eco-functionalist models that reduce the past to behaviors ordered by ultimate causes, and ahistorical structural accounts that explain past variability in material culture by reference to generalized or vague notions of social systems (Pauketat 2001b; Shennan 1993). As a body of interrelated concepts, practice theory problematizes how historically contingent practices and structures are recursively implicated in social construction (Dobres and Robb 2000; Joyce and Lopiparo 2005, Ortner 1984). This is not a particularistic pursuit, as communities of varying modes of organization can be confronted with moments of radical environmental change, incursions of other peoples, or other unforeseen events. It is these contexts of interaction and contingent social reproduction, not generalizable patterns of social evolution, in which we can make comparisons and trace alternative pathways between different communities (Pauketat and Emerson 2008).

The framework that I find has promise for historicizing Archaic communities is derived most immediately from Barrett's (2000, 2001) "archaeology of inhabitation" and Pauketat's (2001a, b) "historical processualism," who in turn have developed concepts from the practice and phenomenological theories of Bourdieu, de Certeau, Giddens, Heidegger (1977), Sahlins (1985), and others. The central premise of inhabitation is that communities live in, experience, and value their worlds in distinctive ways (Barrett 1999; Mills and Walker 2008). These ways of inhabiting are always in a state of becoming, and emerge from a constant interplay between people, environmental processes, material conditions, and a recognition of a past through social memory.

The goal of investigating inhabitation is not to find proximate and ultimate causes for why something may have happened in the past. Instead, the focus is on how communities were able to inhabit a world, how they were able to effect social continuities and generate moments of fundamental change, intentionally or otherwise (Pauketat 2001b:87). Because such approaches problematize social practices as constitutive, contingent, generating, and constraining they allow us to transcend the long-held dualism between hunter-gatherer and others (as discussed in Chapter 1), and instead focus on how past communities (irrespective of mode of subsistence) situated themselves in reference to a wider world. This situatedness was always framed by material conditions which were ever changing (Barrett 2000:67). I will highlight three aspects of inhabitation that have significance for shell matrix sites and history on the St. Johns: (1) the relationship between practices and communities; (2) the link between landscapes and places in social reproduction; and (3) social histories as viewed through biographies of place.

Practice and Community

Shell matrix sites have been dismissed as nonevents because they appear, largely on stratigraphic evidence, to have been occupied repeatedly over long stretches of chronological time. In order to investigate in what ways such repetition could be construed as social history, it is necessary to broadly consider the role of practice in the formation of community. How is it that practical acts such as shellfish collection and deposition or the (re)creation of settlements framed communities? At the heart of an archaeology of inhabitation are models recursively linking the embodied dispositions, or practices, of human agents (individuals or collectives) and the structures within which those practices were enacted. These frame how we can conceptualize social reproduction and transformation as a continuum that is grounded in practices made with respect to material or social conditions (Barrett 2001; Johnson 1989).

Gidden's structuration theory, in particular his *duality of structure* in which structure and practice are recursively implicated in their mutual reproduction, is relevant here. For Giddens (1979:64) structure is composed of rules and resources. The relationship between these components of structure are critical, but are poorly defined by Giddens (Sewell 1992). Barrett (2000:65–66) makes the following distinctions in which both components of structure can be reconfigured. *Structural conditions* are the material matrix of everyday life, the so-called givens which would include the material results of practice, techniques and practical skills, as well as cultural logics of symbolic order. Such conditions exist and can be studied in isolation, but as Barrett notes, they have no significance without practice. *Structuring principles*, on the other hand, are the ways through which agents act with reference to these conditions. These are in Sewell's (1992) terms, transposable schemata, ultimately derived from Bourdieu's (1977) notion of the habitus (see below). Structuring principles accord with what Pauketat (2001b) refers to as traditions, they are the ways in which agencies make structural conditions relevant.

The other side of the duality of structure is agency, defined by Giddens (1984:15) as the ability of agents to effect outcomes or the organization of the material world through practice. Broadly defined, all individuals, collectives, and even things have agency, the power to do. Because agents in this paradigm are relational, agency should not be equated with specific individuals or class of people (Barnes 2001; Gillespie 2001; Pauketat 2000). Human agents are assumed to have some knowledge about both the setting and timing of conduct (Giddens 1984:90–91), yet it is important to analytically separate intent or rationalization and the unintended consequences of practice (Giddens 1984:10–11). Important are those moments when the deployment of stocks of knowledge were not effective, or had unintended consequences (Barrett 2001:154; Sahlins 1985:152). Regardless of motivation, all practices have the potential to reproduce the unacknowledged conditions of action. Practical acts also transform, even in subtle ways, the material conditions of their deployment. They open up new possibilities through which their significance can be transformed (Joyce 2004; Pauketat 2000). As social principles, "structure" is reproduced through practice, and as such it only exists in a virtual state. That is, practices only have significance in that they are performed (Giddens 1984:25; Pauketat 2001a:10).

We can extend the structuring process to examining how traditions of embodied dispositions are reproduced through Bourdieu's conception of the habitus. For Bourdieu, the habitus is a system of learned and enduring practical, bodily dispositions, which are structured by the organization of material conditions of a particular collective (1977:71–72). As structured by those conditions, the habitus provides for action in the world and generates thoughts, perceptions, and meaning associated with practice (Bourdieu 1977:97). Bourdieu's primary interest lay in understanding the reproduction and routinization of non-discursive, practical forms of knowledge which are immune to self-reflection except in extreme cases (1977:94). Experience and perception are products of an individual's corporeal and sensory body being in the world, while practices generated on the basis of experience can be shared and reproduced between individuals and larger collectives (1990:54). Practices are not infinitely variable, nor are they relevant only at micro-scales (Thomas 1996:97–98). The temporality of practice differentially incorporates individuals and communities through time and across space. Because individual expectations of events are inherently based on the actions of others, practices across space are orchestrated or coordinated without necessary institutional control or containment (Bourdieu 1977:80, 163). The organization of practices of collectives occurs because agents to a certain extent share mutual stocks of knowledge about how to act or go on in places and in interactions with others (Giddens 1984:90). Institutionalized and routine features of that organization provide for the differential spacing and timing of fields of practices and resources.

The logic of practices are schemata, which include taxonomies for organizing the world, and interpreting and imbuing the acts of others with significance. There are potentially infinite responses that can be generated within the historically situated structure of the habitus (Bourdieu 1990:59). However, the enactment of bodily dispositions (i.e. practice) inherently reproduces both the meaning and structure of dispositions in the habitus, and by extension the relationships between individuals and collectives (Owoc 2005). Through routinization, the taxonomies through which the world is understood and their material referents become *doxa*, the unquestioned taken-for-granteds of social life. That is, they appear as naturalized, without history, and are generally unassailable no matter how arbitrary the distinctions may be (Bourdieu 1977:164).

Practices have context, and take their significance in relationship to other doxic referents, the organization of people and things. As individuals perform practices they are situated in time and space (Bourdieu 1990:81). Practices have both a tempo and a sequence, such that each practical act implies past and future actions (Ingold 2000:Chapter 11; Joyce and Lopiparo 2005). Practices are situated within a spatial context in the world. The tempo and situatedness of a practice is defined by its own sequence in relationship to other practices, and thus any given practice is embedded in *fields* or webs of relationships to other practices (see Barrett 2001). Together these form a system of reference, in which any given practice “implicitly refers to many others” (Gosden 1994:16). Enchained as they are both temporally and spatially, each practice gains its significance in relation to other times and places (Barrett 1999), and has the potential to reference other objectified social or natural rhythms. Practices also reference and act upon objects in the world, and as such people and materials are relational (Gosden 1994:82; Pauketat 2003). The significance of materials within a system of reference, or their materiality, is thus inherently interwoven with their context of deployment, as well as underlying systems of value (Gosden 1999:120; Mills and Walker 2008; Owoc 2005; Pauketat 2003). For example, Bourdieu (1990:250) discusses how the meanings embedded within subsistence practices are fundamentally linked with the cyclicity of the seasons as well as the practices themselves. Alternatively, the arrangement and orientation of agents with respect to others at the micro-scale, such as in the context of a settlement, can become a model for how the larger world is encoded.

Because schemata are transposable (Bourdieu 1977, Sewell 1993), new meanings and strategies can be generated by deploying stocks of practical and discursive knowledge into alternative fields of practice. Such shifting practical deployments have genealogies in a sense of their accepted sequence, but also in histories of use and transformation (Pauketat and Alt 2005). As a base example in a contemporary American frame of reference, dumping your garbage in a predetermined place such as a trash receptacle reproduces the (in)significance of the material, making reference back to the cleanliness of the house and more general views on the separation of clean and not-clean. At the level of a neighborhood, improper disposal may incur some intervention by concerned citizens, but likely will not result in sanctions. Dumping your garbage on the steps of the White House, however, would be understood within a fundamentally different frame of reference.

The significance of practices and their referents is not inherent in things and people, but in the intersections when practices are enacted (Robb 1998; Thomas 1996:97). As traditions or structuring principles they have contexts which reference other times and places. They are also a process of negotiation, subject to acceptance, modification, resistance, and accommodation (Pauketat 2001a). It is in the deployment of dispositions that their significance is open for negotiation, and thus they present opportunities for reproduction and transformation, and there is no necessary guarantee of their intended success.

Communities emerge as ongoing, yet historically contingent intersections of peoples, places, and things that are defined in part by their co-presence in the act of inhabitation, yet they are relationally contrasted and understood with other communities (Appadurai 1996:178–179; Yaeger and Canuto 2000). It is in the continual reworking of enchained practices (Robb 1998) that communities take shape through continued interactions at local and regional scales, and are differentiated and incorporated via traditions ranging from the organization of residences, to food getting strategies, to the recognition of who is, and who is not an “other.”

In contrast to the subtext of Bourdieu’s habitus, we should not conceive of community formation and reproduction as simply non-discursive, and need to consider how communities discursively and actively constructed themselves (e.g., Barrett 2001; Basso 1996). All practices embody within them acts of memory by drawing links between what has happened and what should occur next in relation to materiality (Gosden 1994:16). Social memory, as a collective understanding of an acknowledged past, is also central to the construction of communities (Bradley 2002; Connerton 1989; Halbwachs 1925, 1992; Van Dyke and Alcock 2003). Following Halbwachs (1925, 1992), Connerton (1989) made an important movement towards investigating how practices were central to the process of remembering. Connerton suggested that individual frames of reference can be collectivized in shared experiences. So-called commemorative ceremonies afford a dominant perspective on how the present is a continuous extension with the past (Connerton 1989:48). These are formalized, what anthropologists typically refer to as rites or rituals, and make explicit reference to historical and mythic founding events and persons (Connerton 1989:61). For Connerton, commemorative practices can involve either incorporative acts which are habituated exchanges and interactions, or inscriptive acts, those which actively inscribe and mark out the material world (see also Rowlands [1993]). The latter example has implications for archaeology, as they are manifested in a tangible world that we can investigate (Knapp and Ashmore 1999; Van Dyke and Alcock 2003).

Subsequent working through the implications of commemoration indicates that social memories are literally everywhere, and that the distinction between incorporative acts and inscriptive acts are not so clearly defined (Berliner 2005; Mills and Walker 2008; Van Dyke and Alcock 2003). Nor is the distinction between “ritual” and “mundane” necessarily discrete or analytically useful. Amongst archaeologists, ritual activities are normally equated with practices that are non-functional or appear irrational because they do not fit economic models of behavior (Brück 1999; Walker 2002). One example is the concept of “structured deposits,” in which various materials were thought to be brought together to create a new kinds of meaning and interpretation of the world (Richards and Thomas 1984). These were contrasted with unstructured or incidental deposits (Hill 1995), thought to represent day-to-day residential activities, and thus not representative of social memory construction or a wider sense of myth and religion. Recent treatments of “ structured deposition” have pointed out that by definition all practices are structured, in accordance with a system of referents that likely does not accord with contemporary Western sensibilities (Pollard 2008). Amongst communities many rituals inhere to everyday life, and are not necessarily separable as events in the larger flow of inhabitation (Bradley 2003b). Brück (1999) argues that the continued separation or ritual and mundane practice needlessly recapitulates Western notions of *rational* and *irrational*, as well as *secular* and *sacred*.

It is thus paramount to consider how practices can be drawn from the everyday to generate social memories in particular contexts. Bell (1992: 88–93) suggests that we focus on how practices were strategically combined to create social memories in a process of *ritualization*. For Bell (1992:90), ritualization does not involve the enactment of fundamentally different practices that are outside the bounds of routine activities. Instead, it is the process of emphasizing certain practices and performing them in contrast to the routine flow of inhabitation (Gosden 1999:129). In this view, some elements of practice and materiality are drawn together to create and recreate continuity, or rupture, with the past at multiple scales (Bell 1992; Bradley 2003b; Stahl 2008).

Landscape and Place

In charting out the relationship between practice, community, and social memory I have left the problem of landscape on hold. However, it is through inhabiting landscapes that histories are lived and social memories are constructed. All practices are spatial and make reference to a material world, and thus traditions and communities are inseparable from the landscapes they inhabit (Soja 1985). In a relativist paradigm, landscapes are not the imposition of either social structures or sets of meanings onto an inert physical backdrop. Instead, they are the historically generated structuring principles, the system of reference, within and through which practices and communities are spatially organized and made significant (Barrett 1999). Landscapes emerge as the relationship between places of human activity and inactivity resulting from practices enacted through time and space (Hirsch 1995; Ingold 2000a:189; Tilley 1994:34). In one sense landscape is virtual, in that it is lived, experienced, and subject to structuration. Without human agents, there would be not landscape. With this starting point we can begin to erode the distinction between hunter-gatherers and others based on settlement types, and consider how communities could inhabit the structural conditions of their time (Barrett 2000).

The notion of an inhabited landscape can be traced to phenomenological literature, in particular Heidegger's (1977) conception of the dwelling perspective. For Heidegger dwelling is the process of experiencing the world. As bodies are situated in space, knowledge, biographies, and experience in the world is necessarily spatial (Casey 1996; Thomas 1996:89). The implication is that communities do not generate cognitive maps onto a *tabula rasa*. Instead, the perceived constraints, significance, and potentiality within landscapes are generated as historical process.

De Certeau (1984) and Ingold (2000) provide useful insights for considering the complexity of landscape inhabitation and its relationship to social memory. De Certeau was interested in examining how inhabitants appropriate and make physical spaces significant through practice. He explicitly addressed the relationship between being, practice, and the physicality of the world. De Certeau (1984:Chapter 9) argued that it is through *spatial stories* or narratives that inhabitants create links and pathways—literally and figuratively—between elements on the landscape. Memories created in one space necessarily refer to others. De Certeau uses the image of a pedestrian walking on the street, linking different places together through movements. Stories may mark out the boundaries between places, define regions in which practices are interwoven, and delimit non-places through avoidance (see Munn 1996 on avoidance). These spaces, boundaries, and paths links are created not by natural features, but by the practices and webs of significance drawn between them. With reference to spatial stories, De Certeau makes a distinction between "the map" and "the tour." For de Certeau (1984:121) the map represents how the world should be organized based on tradition (de Certeau 1984:121), but it is continually modified by experience. In contrast, the tour, or itineraries, are created as spatial stories, in which the biographies of individuals, as well as the significance of places, emerge as connections are drawn between them in a network. De Certeau argues that the map, an idealized arrangement of places, and itineraries, the links drawn between spaces in everyday life, were mutually constitutive.

Ingold (2000a:Chap 11) also recognized that landscapes are made possible by many acts of remembrance as generations inhabited or dwelled within them. These practices, and their many expressions within a landscape may comprise “taskscapes,” an embodied form of landscape. The primary factor in this view is that landscapes have temporalities of experience that are embedded in the many practices distributed on the landscape. Making tools, hunting animals or collecting particular plants, moving between settlements, and venerating the dead all have their own rhythms. Such ways of being comprise the many structuring principles at work (Barrett 2001). These rhythms are informed as much by the cycles of the natural world as they are interactivity between human agents. The temporality of the landscape is found not in different rhythms per se, but where fields of practice are formed at intersections of “complex interweaving of very many concurrent cycles” (Ingold 2000a:197). All activities that occur within the flow of inhabitation such that “histories are woven, along the with life-cycles of plants and animals, into the texture of the surface itself” (Ingold 2000a:198). In this sense, places gather meaning (following Heidegger 1977) from the experiences of individuals in them, and from their relationships to other places through space (Basso 1996). As interpreted by Ingold (2000a:199) landscape is “never complete: neither ‘built’ nor ‘unbuilt,’ it is perpetually under construction.”

Landscape inhabitation can be also be understood in terms of *economies of memory*. As described by Ahearn (1995:53), de Certeau employed a broad definition of economy, not necessarily as it related to financal or material transactions, but as a way in which “a society orders, manages and distributes its material and intellectual resources”. Indeed, the production of maps and itineraries verge on what de Certeau (1984: Chapter 10) called economies of writing. De Certeau saw the act of writing in contemporary Western society as one way in which social space was divided and through which relationships between communities were prescribed (Ahearne 1995:53). Likewise, spatial stories were another way of “writing,” in that they imbued places with social memories, and thus redirected human experience and history. Through the creation of “maps,” the systems of reference which compose landscapes are reproduced and resignified as a historical process.

This is not to say that landscape use was real writing, or that landscapes can be read like a text. Instead, landscapes are deeply implicated in the process of social remembering (Küchler 1993), and they are inseparable from the politics and worldviews of their inhabitants. As argued by Santos-Granero (1998) with respect to Yanesha communities in the Amazon, elements of the landscape can be imbued with social memories through ritual performances or practices in place. In his description of Yanesha landscape inhabitation, Santos-Granero makes a distinction between topograms and topographs. Amongst the Yanesha, topograms are places which are thought to have been inscribed by humans or supernatural beings, and effectively stand as reminders of isolated events or persons of the past. Topographs, however, are narratives that are constructed by combining different topograms in discourse or movement. By moving between, and acting within, particular places the Yanesha can reproduce or create new social memories to contest, explain contemporary concerns, or actively resist incursions by outsiders.

That movement and inscription is synonymous with history-making among hunter-gatherer societies, is illustrated by several examples. Morphy (1995) describes how the landscape forms a complex system of referents in which time is subordinate to space. For the Yolngu people of Australia, social identities are deeply enmeshed as cosmogonic and biographical narratives. Kinship and clan affiliation are associated with ancestral beings whose acts of creation are experienced in places distributed across the landscape. Ceremonies are conducted to retrace these ancestral tracks, which in turn reproduce and legitimate sacred objects and laws of the clan. In contrast, mortuary rituals for individuals trace a path through a landscape which cuts across the ancestral places, yet ties together the dead individual with the living. These individual and community biographies are enacted as practical and discursive spatial stories that reference the movement of ancestral actors upon the landscape. Yolngu historicity effectively subverts social change to myth yet also provides a powerful method for creating social memories across communities. This mode of historical consciousness is typical of so-called “cold” societies (Chapter 1).

A similar kind of historicity has been documented by Wilson (2005), who suggests that mobile Native American communities of the Great Plains understood time as a cycle related to the annual migration of target animals. Persistent places were created in which ritualized deposition of deer antler led to the accumulation of monumental piles. Adding to the piles was seen as an act of world renewal, replicating the first practices in that place. According the historic documentation, monuments were not seen as territorial markers, nor as the agency of a particular individual. Instead, they were added to by diverse communities and provided one avenue in which a sense of place could be shared between groups.

The Siberian Khanty frequently inscribe their landscapes. Traditions of settlement and the commemoration of ancestors and non-human spirits form a complex web of mundane and ritualized practices that Jordan (2003) refers to as enculturation, as opposed to domestication (see also Zvelebil 2003; Zvelebil and Jordan 1999). These practices are embedded in the temporality and spatiality of mobility and subsistence. For example, “sacred settlements” are parsed out and modified through the creation of shrines and the deposition of feasting remains. Such sites can only be visited during certain times of the year, which roughly correspond with mobility practices through the area. The Khanty also have cemeteries, which are largely avoided except in times of burial. Jordan argues that these landscape features roughly correspond with kin groups, but that they overlap with others on the landscape as well. In this case, social memories and histories of interaction are understood in relation to traditional lands.

These examples highlight how places and the paths between them generate provide a series of material referents for commemoration. Far from epiphenomenal, such traditions have a real world impact on how, when, and under what contexts hunter-gatherers engaged or avoided people and places. It is not without some irony that I note that different approaches towards the origins of monumentality in Europe developed from alternatively tracing the spatial stories of hunter-gatherers and farmers. Many of the aspects of taskscapes and landscape temporality have been developed by

Ingold (2000a), a hunter-gatherer specialist. One can trace in his writing the development of a line of thought attempting to break the bounds of the ontological divide that has dominated discussions of hunter-gatherer societies from others (as discussed in Chapter 1).

Authors coming from the perspective of the European Neolithic, however, frequently use hunter-gatherers as a foil to explain the emergence of monumental construction in the context of an incursion of agriculturalists, or the adoption of agriculture (Bradley 1998; Hodder 1990; Thomas 1991). Bradley (1998:34), for example, bases much of his model for early monumentality in Europe on a simplistic division between Mesolithic hunter-gatherers as emphasizing continuity "between humans and the animal kingdom. Such ideas have little place among farmers." This argument is based in part on two burials, a pair of Mesolithic inhumations and one Neolithic found within 2 m (horizontally) of each other. Drawing on the substantive differences between burials, he suggests that the Mesolithic burial was set in a nature-oriented frame of reference, completely different from that of the Neolithic burial. Unfortunately for Bradley's argument, the burials were likely coeval based on recent chronological refinements (Strassburg 2003, Meiklejohn et al. 1998). Whatever led to this juxtaposition, it does not appear that it was gradual erosion of a Mesolithic way of life with farming winning out.

It is in this context of the Mesolithic/Neolithic burial example that we can consider how particular places enable social memories. From a routinized perspective, "inhabitation becomes meaningful when it is situated between different frames of reference…the inhabited place is known with reference to past experiences and by actions at that place which are played off against a wider ‘reality’ of social continuity and order” (Barrett 1999:259). Similarly, Hirsch (1995) contrasted “background” and “foreground” in landscapes. The significance of places is recursively derived from a dialectic of the “foreground” of daily life (life as it is), and a “background” (the way the world was in the past or could be in the future), each of which is constantly being reformulated. To resituate this within Barrett’s discourse, the deployment of structuring principles is made meaningful as juxtaposed by the background of expectations in particular social fields. These frames of reference constitute different temporalities, and as such, moving between frames of reference can be considered as moving between different times. The inhabitation of settlements implies acts of remembrance that draw together the relationships of community members, which in turn structures how such relationships are remembered and marked out (Pollard 1999:88). Social memories, in terms of sense of place, may be expressed as a routinized renewal of the settlement, which like Wilson’s (2005) example of deer antler mounds recapitulates the founding myth of the community (see also Appadurai 1996:183).

Although backgrounds are always latent and can be referenced, certain places serve as focal points through which dominant discourses, or models of how the world should work, can be made that relate the present and the past (Barrett 1999). It is in this sense that the construction of monuments is increasingly recognized as processes in which peoples with distinct biographies, and possibly even distinct social and cosmological histories, were integrated through shared yet likely contested ritualized performances (Adler and Wilshusen 1990; Barrett 1999; Bernardini 2004; Bradley 1998; Pauketat and Alt 2003; Van Dyke 2003). In many cases, the authority of experience within a monument is enabled by referencing the past as a means of projecting a future, both of which are projections of a background into the foreground (Bradley 2002:86). Regardless of their relationship with the past, ritualized performances in focal places provide a moment of transformation as individuals and materials are shifted between fields of practice and revalued. For example, this would occur in the process of burying the recently deceased and transforming them into ancestors (Barrett 1999). Just as the deceased are transformed, the living are unified (if only for a moment). It is through such practices that places can become imbued with ancestral presence, thus solidifying their significance to the community.

Biographies of Place

From the perspective of inhabitation, social memories emerge amongst the many spatial stories distributed throughout landscapes, from the routinized to the ritualized. These memories enabled inhabitation by providing ways in which referents could be creatively combined or neglected according to schemata. Because dwelling perspectives based on phenomenology emphasize being in the “here and now,” they tend to be synchronic (Gosden 1999:128–129). Indeed, one flaw with Ingold’s formulation of the dwelling perspective is that there can be no breaks in the taskscape. In one sense this is true, structuring principles will be reproduced in practice, and will themselves be structured by the ongoing flow of inhabitation. Ingold’s view, however, is hard to reconcile with the process of inhabitation and structuration in the long term. It is just as important to consider those moments when the system of reference changes (e.g., Gillespie 2008). As Barrett (1999:257) is fond of illustrating, all societies must live in the accumulated materiality of previous generations. Communities are thus routinely confronted with material reminders of the past, the so-called “surviving remains of antiquity" (Bradley 2002:14). While these elements may have provided a basis for societies to create a sense of continuity in place (Tringham 2000), they could also be appropriated, politicized, and set apart for discursive action (Barrett 1999).

One way to examine how communities incorporated the past to accommodate change is through a consideration of biographies of place. Biographies emerge as inhabitants rework the materiality and significance of places, and are recursively structured by those acts through time. Such activities provide the potential for continuity and change as histories are negotiated amongst practioners (Gillespie 2008). A consideration of the burgeoning literature on "the past in the past" indicates that discriminating between continuity as long-term reproduction and the assertion of continuity by referencing the past is not a straight forward task (Blake 1998; Bradley 1998, 2002; Gosden and Lock 1998; Van Dyke 2004, 2009). To the point, the generation of social memory is a selective process by which agents actively resignify, reference, or discard past practices and materialities as a means of negotiating contemporary social concerns (Bradley 2002:12; Connerton 1989; Shils 1981:45; Van Dyke and Alcock 2003:3). As structured by tradition, selective memories provide the medium for ongoing culture making. There are, however, potentially diverse and dissonant reasons for referencing the past. As the basis for social reproduction, monuments, narratives, landscapes, heirlooms, ceremonial performances, or habitual practices all afford dominant discursive and experiential versions of history which structure potential action (Barrett 1999; Bourdieu 1977; Mills 2004).

At the smallest scale, unintentional consequences may forever modify the physicality of a place and open up new ways of experience (Joyce 2004). That is, despite intentions of agents to create enduring histories that authenticate their own identities and naturalize social differences, the contexts in which traditions are enacted are inherently dynamic (Edmonds 1999:134; Pauketat and Alt 2005; Rumsey 1994). Throughout the lifetime of an individual, differentiated biographies and networks of relationships can accumulate. In such cases, the potential discordance between practice and structure can be denied in commemorative ceremonies that reproduce shared ancestral pasts (Morphy 1995), or through institutionalized and politicized “forgetting” as a means of relinquishing change to history (Küchler 1993).

Maintaining “continuity” in the face of constant change requires a significant investment (see also Shils 1981:166–167). This is perhaps no more evident than in the history of Çatalhöyük, as related by Hodder and Cessford (2004). Çatalhöyük is a “tell” site in Turkey primarily inhabited during the Neolithic period between 9400–8200 cal B.P. Hodder and Cessford’s analysis points to the complexities of multiple layers of memory work enabled by repeated practices. For example, in their analysis of household organization and longevity, they argued that social memories were embodied by inhabitants in the temporality and spatiality of daily house life. They examined the repetitiveness of house forms through time, the tempo of interior wall plastering, and the spatiality of intra- and extra-household cleaning and refuse disposal. Hodder and Cessford found that houses tended to be built to a very strict set of organizational principles. An analysis of the microartifacts found recurrent patterns of segregated activities within houses. They also determined that the interior walls were plastered at least annually, and likely much more frequently. Outside of houses, middens are significantly less segregated. Taking these structuring principles together, it could be argued that the repetition of cleaning and constructing acts formed the basis for the ongoing constitution of community through embodied dispositions.

Yet remembering also took the form of more public events of less frequency. Most houses lasted between 50 to 100 years before being replaced. At the time of rebuilding, new walls were emplaced directly on top of the wall foundations of old houses. Hodder and Cessford argue that in creating new houses, a variety of acts aimed at cleaning and preparing the foundation for the new house were deployed. In many cases foundational deposits were interred. In some cases these deposits included human remains, while in others inhabitants deposited what may have been the remains of feasts. Other evidence for the operation of more specific memories is accorded by the apparent excavation of objects for use in shrines, including human crania. The archaeologists argue that the house, in their estimate, was the “main mechanism for creating social rules” (2004:22), given the complexities of aggregated inhabitation. More important for the present discussion, however, is the amount of concern placed on maintaining houses, as well as the settlement, through general and specific moments of memory construction (see also Tringham 2000). Continuity was not a given as social life unfolded, nor was it taken for granted.

The inhabitants of Çatalhöyük were able to manufacture continuities over the long term. Yet there are other examples where selected memories were drawn together to make new social histories. In some cases, these new histories were forged during during moments of radical social change, such as culture contact or political upheaval. In others, the taskscapes of old no longer had the same references. In such cases the conspicuous manipulation of the past was likely as histories were asserted and negotiated across diverse social fields (Bender 1993; Sahlins 1985; Shils 1981). Expected are the rapid reconfiguration or inventions of tradition by which agents can assert a timeless ancestry, real or imagined (Hobsbawm 1983; Pauketat and Alt 2003).

Indeed, places like Cahokia, Chaco Canyon, and Poverty Point in North America provide dramatic examples of the (re)construction of history. In these cases, landscapes were transformed through inscriptive practices as new mythic histories were forged from communities of diverse traditions, according to recent interpretations (Pauketat 2000; Pauketat and Alt 2003; Sassaman 2005b; Van Dyke 2003). No doubt, it was through participation and negotiations in founding events that a new world order emerged. Equally important however, its that during the construction of these places, the system of landscape referents was fundamentally altered. Unless these places were subsequently erased from the landscape or abandoned, they would have to be incorporated into future systems of reference. Indeed, that may have been the reason for their construction, as has been argued for early European monuments by Bradley (2002:82). The strategy for archaeologists, and no doubt agents of the past, is to discern the alternative commemorative tactics embedded in the performance of past practices, and the referencing of prior materialities, selectively drawn from tradition.

Towards Archaic Histories

I began this chapter with a two-fold definition of history. In one sense, histories are created through the practices of people in the course of routine and public living. At the same time, communities construct social memories as narratives about the past. Building on insights of practice theory, I have argued that conceiving landscapes as inhabited provides one avenue in which archaeologists can access the two sides of history-making among past hunter-gatherer societies. Central to an archaeology of inhabitation is the social constitution of landscapes, in which places are imbued with significance in the form of social memories, woven together by experiences engaging with or avoiding places. These experiences are informed as much by the structure of natural processes as they are the tempo and duration of residential life, interactions with others, intentional and unintentional modifications of the physical landscape, and treatment and veneration of the dead.

Following de Certeau (1984), I have suggested that social memories (as spatial stories) are written as links are drawn between different places and peoples on the landscape. While historical referents within landscapes cannot be treated as true writing, they nonetheless are principle sources for remembering and contesting the past. Inscriptive practices and movement between places constitute economies of memory through which the world is ordered and understood. Communities can create a sense of continuity through disciplined commemorative strategies, such as house building and other ritualized practices, that make reference to extant materiality. Yet it is also in the construction of narratives about the past that the potential for social transformation exists. This is particularly the case when historical referents change, or communities are faced with unanticipated experiences that bring the taken-for-granteds of life to the level of discourse.

From an inhabitation perspective, biographies of place, and community histories, persist in the deposits of shellfish, earth, and other materials laid down by Mount Taylor communities along the St. Johns. Because of their durability and archaeological visibility, these materials provide a unique opportunity to examine how places were created and transformed through time. It is also likely that the continued presence of these material traces likely provided Mount Taylor communities with a past that could be referenced or obscured to create social memories in the context of ecological and social change. The question remains, of course, is how does one go about delineating the histories and social memories of Archaic communities? In this regard, I follow Pauketat and Alt (2005:230–231) who suggest three "procedural fundamentals" that recursively inform the final analysis.

The first procedure is to document practical variability through time and across space, with the goal of delimiting the primary structuring principles (in the sense of Barrett [2001]) or practical traditions (in the sense of Pauketat [2001b]) which Mount Taylor communities deployed. In this study, my primary concern are those depositional practices involving shellfish or earth. Unfortunately, along the St. Johns, shell matrix sites are still, to this day, considered primarily refuse, and as a consequence, little attention has been paid to variations in depositional practices within sites or between them. I focus on macro-stratigraphic reconstructions of depositional surfaces and associated matrices. Because no site has had comparable data recovery, it is impossible to compare specific frequencies or abundances of shellfish and other materials between sites. As discussed in Chapters 5 and 6, however, it is possible to assess the variability in depositional practices across the valley in terms of their scale and location through excavations undertaken for this study and a consideration of historic records.

The second component of the methodology consists of detailing genealogies or histories of practices, in order to understand how practices were innovated, deployed, revalued, ritualized, or extended. As regards the deposition of shellfish and other materials, particular attention must be paid to preexisting material referents and the situatedness of communities. At a minimum this procedure requires detailed chronologies and reconstructions of depositional surfaces to isolate the organization of space within shell matrix sites (Chapter 6). Yet any consideration of depositional histories must take into account how structuring principles were translated between alternate social fields, and how places were transformed. In this regard, I consider how deposition in residential places, ritualized shell ridges, and mortuaries varied in terms of tempo and sequence as registered in the biographies of shell matrix sites. This analysis is effectively a process of "remapping," wherein I trace the accumulating materiality of Mount Taylor communities through time and across space.

The third component of the analysis consists of tacking back and forth between many lines of evidence at multiple scales. These multiple sources include non-shellfish related practices, temporalities of the landscape, and material structural conditions. I lay the groundwork for these comparisons in Chapters 3 and 4 by establishing the ecological and social contexts of inhabitation. The St. Johns is distinct in that both the natural and social realms were in considerable flux throughout the Mount Taylor period. As a basis for delimiting the changing organization of Mount Taylor taskscapes, I present a detailed reconstruction of the ecologies and hydrologies of the St. Johns through time. In Chapter 4 I consider the genealogies of Mount Taylor traditions that framed the deposition of materials in place. At the regional scale, this discussion emphasizes how new and old inhabitants of the St. Johns had distinct biographies which were negotiated throughout the landscape. I expand this comparison to the biographies of peoples and places outside of Peninsular Florida as seen through the deposition and curation of objects. As the basis for further discussion, I will first consider the history of the physical landscape in which Mount Taylor inhabitation unfolded.

CHAPTER 3
THE ECOLOGIES OF PRECERAMIC ARCHAIC COMMUNITIES

In popular references and imagination, the St. Johns River basin exists as a timeless and enduring landscape (Belleville 2000:xv–xxxi; Mohan 1990). For many, the region represented the last vestige of a real and unadulterated Floridian wilderness. Together with the sluggish black waters of the river, the seemingly unending marshes and swamps teeming with ecological diversity present a picture of exotic, primordial, and even undisciplined nature. The *river-as-relict* concept was first superimposed upon the landscape with the initial Spanish entrada, and was reinforced by successive waves of naturalists (e.g., Bartram 1791) and consumers of those works (e.g., Porter 1974) who perceived the landscape as largely devoid of significant anthropogenic impact.

Together with this notion of an undeveloped world, explorers, migrants, government agents, escapist authors, recreational promoters, and property speculators valorized the St. Johns in terms of its unfulfilled economic potential (e.g., Barbour 1882:294–297; Brinton 1869). All resources were targeted for exploitation, resulting in the rapid transformation of both cultural and natural resources by the middle twentieth century (Figure 3-1). Channel dredging (Figure 3-1C), cypress logging (Figure 3-1B), clearing and draining for agricultural use (notably orange groves and cattle ranches), and the continued construction of buildings and impoundments have all had lasting effects on the distribution and dynamics of resources seen today (Brenner et al. 1999; Kroening 2004; Sassaman et al. 2003; Sterling and Padera 1998). Whether recognized as anthropogenic or not, shell-bearing archaeological sites were commodified and actively sought after as sources of construction fill, foundations for buildings, and treated as curiosities for weekend explorers (Figure 3-1A).

This pristine ecological narrative is dually the product of an emergent American objectification of land as property to be freed from nature or wilderness (Cosgrove 1985b:169), and denial of the existence or significance of preexisting indigenous traditions (Balée 1998; Cronon 1983:33; Denevan 1992; Miller 1998:1). Archaeologists and geologists alike have demonstrated that the configuration of both the cultural and natural heritage of the St. Johns today reflects a series of complex processes dating back at least to the Pleistocene. The St. Johns basin was the locus of nearly 13,000 years of human settlement which has left the region rife with the accumulated materiality of pre-contact practices (Goggin 1952; Milanich 1994; Miller 1998). At certain times and places, archaeological evidence for inhabitation is limited in its extent and visibility. This is the case for traditions of the late Pleistocene and early Holocene (ca. 13,000–7300 cal B.P.), when the surviving output of practice is limited to dispersed lithic scatters, often in localities now inundated by higher sea level and inland surface waters. By the middle Holocene, however, widespread and intensive inhabitation is registered by shell-bearing components at the onset of the Mount Taylor period (Figure 3-2), some of which were repeatedly inhabited up through to the Colonial era. While these patterns undermine any notion of a vacant landscape bereft of anthropogenic input, the river is given more agency than the communities themselves (e.g., Miller 1992).

The St. Johns is thus preserved as a boundary, an inhospitable frontier prior to the onset of shellfishing, and alternatively as a center once shellfishing is established. Shellfishing is thus representative of a stable ecosystem, and by extension shellfishing cultures of the St. Johns are necessarily defined by unreflexive practices in socially undifferentiated places. From the perspective of inhabitation, however, the veil of sameness is not something to be accepted, but must be interrogated. In this chapter I consider the ecologies and material structural conditions experienced by Mount Taylor communities. Although separated in my discussion, I want to make it clear that the environment and practical traditions of Mount Taylor communities should not be decoupled. If we accept that the temporality of the landscape is in part generated by environmental structural conditions, then it is necessary to consider the potential range of variation within such processes. Climatic events and hydrological responses can be seen as potentially disrupting systems of reference that would have provided opportunity and constraint on the kinds of spatial stories possible.

All ecological change is understood through historically contingent traditions, such that perception of and response to change is always understood against the background of cosmology, history, and community identity. Indeed, constant change could have been the system of reference as well. Differences at multiple temporal and spatial scales were likely recognized and addressed in varying ways depending on how those changes were perceived (Bailey 2007; Hull 2005; Robb 2008). At the coarsest or longest scales, such alterations in the rhythms of the taskscape could have resulted in new intersections of biographies. Some changes would have potentially occurred within the observational scale of a generation or two, and may have necessitated the excision of places from memory. Others, however, potentially required the reconstitution of communities.

The data I consider in this chapter are multi-scalar and multi-temporal in nature. Mount Taylor communities were nothing if not regional in the scale of their seasonal movements, exchange relationships, and by extension their biographies. As will be detailed in Chapter 4, there is a long-running relationship between communities who inhabited Florida's interior and coasts, with the St. Johns River mediating the relationship between the two. The implication is that the St. Johns was important not solely as an economic resource as it has been modeled, but as a co-inhabited region that provided the contexts for diverse ancestries and biographies to be negotiated through place. In this vein, I first consider the large-scale structural conditions of the Florida Peninsula, whose geomorphological configuration has had long-term significance in terms of the the arrangement of the coasts, the availability of surface waters and raw materials for stone tools. In turn, these different domains have framed the situatedness and interactions of inhabitants through the course of the Archaic. As a historical process, varying local conditions across the peninsula in the course of environmental change resituated communities and inserted new or different biographies and temporalities into the St. Johns.

From the Florida Platform, I shift perspectives to the study area, the Middle St. Johns River Valley, and consider the evidence for the many different rhythms that would have framed the ongoing reproduction and transformation of taskscapes along the St. Johns. Detailing change and process in past hydrological systems, the purview of paleohydrology (Schumm 1967), is crucial for understanding "recursive human-environmental relationships and long-term landscape histories" (Kidder 2008:1268). On a practical level, how fluvial systems have responded to climatic change has a real-world impact on the long-term preservation and identification of cultural resources (Wells 2001). Any account of Holocene fluvial history must take into consideration a host of phenomena. In low-lying areas of Florida, and particularly along the St. Johns River, archaeologists routinely reference eustatic sea-level variation, or base-level change with respect to fluvial systems, as the primary mediator of localized environmental change throughout the Holocene (Miller 1992, 1998). Although no doubt an important component of regional ecological change, base-level change must also be integrated with geomorphology, atmospheric circulation data, and related precipitation regimes (Bloom 1983; Knox 1983; Schumm 1993). After reviewing the evidence for local and regional rhythms, I conclude the chapter with a consideration of possible scenarios of landscape stability and change.

Geomorphic Context of the St. Johns River

The St. Johns River is a dynamic and unique blackwater fluvial system that defines northeast Florida (Figure 3-3). In contemporary geography, the river emerges from the St. Johns marsh near Vero Beach, and traverses north to Jacksonville where it flows into the Atlantic Ocean. At roughly 500 km in length it is the largest river exclusively in Florida, and the longest river wholly within the coterminous United States that flows northward. The river is expansive and drains approximately 24,000 km^2 (Environmental Consulting & Technology 2004), which accounts for roughly 21 per cent of Florida’s area (Kroening 2004). The system is characterized by a very low gradient (0.02 m/km) and concomitantly low daily discharge and average channel velocity compared with other large rivers (Miller 1992). As a consequence, the expansive floodplains and terraces have remained in their characteristic form (Knighton 1998:283) in recent times as evidenced by extensive freshwater wetlands. However, the overall low gradient and maximum floodplain elevation (roughly 8 m at the headwaters, but less than a meter at its mid length) has also made the region potentially susceptible to small perturbations in precipitation regime or sea level (Guccione 1995; Schumm 1993; Woodroffe et al. 1989).

The study area is the Middle St. Johns River, or St. Johns Offset, which is emplaced along a roughly 125 km segment midway within the valley (Figure 3-3). This region was the heartland of Mount Taylor inhabitation, and arguably contains the highest density of shell matrix sites in the region (Figure 3-2). I consider some of the more important physiological, climatic, hydrological, and ecological trends that define the region. The divisions of the river valley employed throughout this work reference geomorphological distinctions that do not neatly conform to hydrological drainage basins. Geomorphological divisions better describe the resources, ecological distinctions, and human settlement between river segments.

Hydrogeology

The study region is located within Peninsular Florida, which occupies less than one-half of the Florida Platform, a linear landmass extending southward from the Southern Coastal Plain. The terrestrial portion of the Platform is characterized by low relief ranging from an approximate maximum elevation of 110 m above sea level[1] in Northwest Florida where it transitions to the Southern Gulf Coastal Plain (Figure 3-3), with elevations decreasing to the east, west, and south. The subsurface Peninsular Arch forms the spine of the Platform, and appears to have influenced deposition of materials on the Platform throughout its history (Green et al. 2007). The Platform further extends down to 200 m below sea level in the Atlantic and Gulf of Mexico basins

[1] "Above sea level" is a generic term used to refer to elevations in excess of a determined surface level of the ocean averaged over a stated period of time. I have converted elevation values from the earlier National Geodetic Vertical Datum of 1929 (NGVD 1929) to be relative to the North American Vertical Datum of 1988 (NAVD88) whenever possible. Based on a limited sample of spot elevations the difference between these data are typically less than a meter.

(Scott et al. 2004:14), with much of the elevated portion of the platform offset to the east. The subaqueous extension has a gradual slope extending 240 km into the Gulf of Mexico, and a more abrupt slope extending some 70 km to the east of the Peninsula's coast. Because of the low gradient, the Platform is vulnerable to rapid inundation in accord with sea level change (Faught and Donoghue 1997; Scott 1997).

The Platform's geomorphic history was written by water: its contemporary configuration is ultimately the product of marine processes (Schmidt 1997). Much of the Platform is composed of carbonate-rich sedimentary lithologies, such as the Avon Park, Ocala Limestone, and Suwannee Limestone formations, that are intercalated with siliclastic-rich formations (Randazzo 1997; Scott 2001). The carbonate composition of many of the Platform's sedimentary units are particularly susceptible to chemical weathering which results in karst topography and hydrogeology (Lane 1986). The karst configuration of Florida's geomorphology controls the distribution and availability of surface water, which is directly related to subsurface aquifers (Miller 1997).

The Surficial Aquifer System (SAS) is present throughout the Peninsula. This is an unconfined system that retains precipitation not immediately evaporated or transported as runoff. The other aquifers are confined, meaning that water is contained under hydrostatic pressure within permeable bedrock, typically carbonates, below formations with limited permeability, typically siliclastic bedrock that serves as an aquiclude. The Floridan Aquifer System (FAS) is the most extensive in the Platform, and is confined within the Avon, Ocala, and Suwannee Limestone formations (Miller 1997). Like all aquifers, the FAS is recharged by rainfall which permeates into the system through surface openings or via interchange with the surficial system.

Approximately 55 per cent of the Florida Peninsula is a recharge area for the FAS, which also receives input from Georgia, Alabama, and South Carolina (Miller 1997; Scott et al. 2004:15). Generally, the FAS is restricted to carbonate rocks of Tertiary Age and remains confined well below the ground surface. The aquifer is unconfined or debouches in regions where carbonate rocks are thin or have been penetrated.

The surficial hydrogeology of karst landscapes is typified by sinkholes, sinking rivers, disappearing lakes, and springs (White 1988). Springs have had long-running significance for Florida's ancient inhabitants (Dunbar and Waller 1983; Miller 1998; Thulman 2009). As noted by Scott et al. (2004:15), springs are most likely to occur in areas with well developed karst, and where aquifer pressures are high enough to allow flow from the vent. Artesian flow from vents in sinkholes or caves connected to confined aquifers occurs when the potentiometric surface of the aquifer is higher than the elevation of the vent. Large-scale impacts to hydrological characteristics are related to the hydrogeology of the aquifer. The elevation of the potentiometric surface varies in relationship to the base of the confining unit, the level of water within the aquifer system, and sea level (Miller 1992). While the elevation of the confining unit remains relatively constant, lowered sea level and/or rainfall rates will decrease the potentiometric surface, and concomitantly lower the volume of water flowing from the spring. Most artesian springs are associated with the Ocala Karst District, an arcuate zone that encompasses much of northwest Peninsular Florida (Figure 3-3). This area is part of the Ocala Platform which is characterized by karst plains and valleys. The FAS is thinly confined here, and spring discharge occurs from vents in sinks and stream beds, but has also been identified offshore on the platform. An important anomaly in the context of the present study is the presence of springs outside the Ocala Platform located in the Middle St. Johns River Valley to the east. The Middle St. Johns is the only riverine segment in eastern Florida to receive significant flow from spring sources.

Economic Geology

The development of karst has influenced the distribution of chert and other silicate rocks. These materials were heavily exploited by Archaic communities for the manufacture of stone tools (Austin and Estabrook 2000; Purdy 1981; Ste. Claire 1987). In Florida, chert and silicified corals were formed as carbonates in bedrock were replaced by silicates from overlying formations (Austin and Estabrook 2000). Siliceous stone can potentially occur throughout limestone bedrock, and is accessible wherever chert-bearing formations are exposed on the surface. Exploitable rock suitable for toolstone is restricted to West Central and Northwest Florida (Figure 3-3). The distribution of chert is generally conformant with the Ocala Platform and well-developed karst related to Florida’s springs where limestone bedrock is exposed. Unlike the distribution of karst, however, chert is not available in the study area. In fact, the closest source of chert from the Middle St. Johns region is approximately 50 km to the west. The implication is that any stone raw materials recovered within the study area were necessarily transported from outside the region.

Florida’s cherts can be assigned to at least 19 “quarry clusters” based on the visual identification of diagnostic index fossils and other inclusions and determination of their relative abundance (Austin 1997; Austin and Estabrook 2000; Endonino 2007; Upchurch et al. 1982). As argued by Endonino (2007), many of the current quarry cluster boundaries are based on the expected occurrence of chert within their parent formations, and do not necessarily reflect discrete distributions. The within-cluster distribution of outcrops is not ubiquitous, but is discontinuous and patchy. Regardless, both the distribution of quarry clusters and the identification of raw material source provenance is a crucial for understanding larger scale dynamics of Archaic settlement and regional interaction.

Relative Sea Level

One of the defining characteristics of Holocene landscape variability is relative sea level (RSL) change. Along the St. Johns RSL is potentially significant for two reasons. A change in river base-level in step with RSL could have affected the hydrological regime of the river, in part due to the activation of springs debouching from the FAS and a general increase in local water tables (Miller 1992). A second RSL factor is the potential impact on coastal-dwelling populations during the Archaic. A number of RSL curves have been published for the Atlantic (Colquhoun and Brooks 1986; Horton et al. 2009), Gulf of Mexico (Balsille and Donoghue 2004; Otvos 2004; Simms et al. 2007; Tornqvist et al. 2004; Wright et al. 2005), and globe (Siddall et al. 2003), although none are available for the Atlantic seaboard adjacent to the St. Johns. There is general agreement as to the shape and pace of sea level change. All models depict a rapid rise in sea level from -125 m at the height of the Last Glacial Maximum (LGM) 18,000 years ago, with a noted deceleration during the middle Holocene. There is considerable divergence, however, as to the presence of still-stands or higher-than-present stands during the middle Holocene. This is not the place to engage in a discussion on the merits of either model. The choice of paleoenvironmental proxies, sampling methodologies, and local conditions have a significant impact on how to best construct and interpret the curves (Otvos 2004, 2005; Tornqvist et al. 2004).

Presented in Figure 3-4G are three of the most recent high resolution curves for the Gulf of Mexico, which extend from between 7300–7000 cal B.P. to the present. Balsille and Donoghue (2004) generated two curves post-dating 7000 cal B.P. based on the geomorphic location of samples. The "Younger A" curve represents 77 samples located seaward from the present shoreline, while the "Younger B" curve is derived from 108 samples collected landward of the present shoreline. After culling outliers, the authors applied a 7-point floating average to smooth variance between points. Their Younger B curve does suggest high stands during the Mount Taylor period, while the Younger A curve presents a much more gradual curve without high stands. Also depicted (Figure 3-4G) is a smoothed curve derived from a detailed reconstruction of the depositional history of the Suwannee River delta in Florida (Wright et al. 2005), which also matches corrected curves presented by Tornqvist et al. (2004). In all curves, RSL is approximately -7 m at 7000 cal B.P., and rises to roughly -4 m by 6000 cal B.P. Wright et al. note that this is a period of peat formation and aggradation along the coast, which may explain why some curves identify high stands at this time. This rise equates to between 3 and 4 mm of RSL increase per year. At that rate, approximately 12 m of coastline would be transgressed annually along the Gulf Coast (Faught and Donoghue 1997). Beginning ca. 6000 cal B.P. there is a deceleration in RSL rise to roughly 1 to 2 mm per year, which equates to roughly 1 m of coastline transgression a year on the Gulf Coast.

Regional Physiography

A number of physiographic divisions in the St. Johns region are recognized (e.g., Cooke 1939; Schmidt 1997; White 1970). The St. Johns River is located in the Atlantic Coastal Lowlands, a relatively low lying zone typified by coast-parallel features (Figure

3-5). The valley is composed of three segments (Upper, Middle, Lower) whose characteristics relate to a complex geomorphic history (Adamus et al. 1997; Schmidt 1997; White 1970). Like many of the large river systems in Florida, the St. Johns is situated in a swale between elevated, upland ridges (Figure 3-5). The headwaters (Upper) and mouth (Lower) of the river are situated within portions of the Eastern Valley. The most prominent positive feature to the east is the Atlantic Coastal Ridge, which represents beach ridges formed during the Pleistocene and earlier (Scott 1997). The Upper St. Johns flows between Indian River and Brevard County near Vero Beach, to Sanford, Florida in Volusia County. The western boundary of this segment is composed of the Osceola Plain which is characterized by undifferentiated and beach ridge and dune formations of Pleistocene and Holocene age (Scott 2001). The Osceola Plain is drained by the Econolockahatchee River, a tributary of the St. Johns. Within the Upper segment, the St. Johns emerges from marshlands characterized by poorly integrated stream segments. Channeled surface water flows between shallow basins, including lakes Hell ‘n’ Blazes, Sawgrass, Washington, Winder and Poinsett. Wetlands associated with the floodplain in this reach accounted for as much as 1800 km^2 prior to the turn of the century (Brenner et al. 1999).

The study area is comprised of the Middle St. Johns, between Sanford and Lake George. It is often referred to as the *St. Johns Offset*, and is distinct in both hydrology and geomorphology (Figure 3-5). In a headward-consequent course, the river would be expected to flow from the headwaters to Jacksonville in a straight line following the late Pleistocene beach ridges of the Eastern Valley. However, at Sanford the St. Johns jogs to the west, and north of Lake George, the river jogs back to the east. It is believed that this segment of the river formed during the early Pleistocene in a period of low sea level, when the offset portion of the river captured the headwaters south of Sanford (White 1970:107–108). As a result of this offset, the river is confined between uplands and ridges on either side of the valley. The eastern boundary is formed by the Crescent City-Deland Ridge, which rises over 20 m amsl above the floodplain. This ridge is an outcrop of the Cypresshead formation (Scott 2001). To the west are the Marion Upland at elevations below 10 m rising up to the Mount Dora Ridge. The Marion Upland is characterized by extensive sand dunes, while the Cypresshead and Coosawhatchie Formations are expressed near surface along the Mount Dora Ridge (Scott 2001). Although the presence of these ridges may ultimately be due to relatively insoluble clastic lithologies (White 1970:128), their current surficial expression is typical of a mantled karst landscape. Of particular note are the numerous sinkholes that have dissected the uplands and ridges, and freshwater springs at the contact between the St. Johns floodplain and the upland zones.

The northern, or Lower St. Johns is situated between the eastward jog of the main river channel north of Lake George to the mouth at Jacksonville. This course is parallel with Crescent Lake, a relict channel of the St. Johns likely abandoned when the Middle St. Johns switched to its current location during the Pleistocene. The western border of the St. Johns is formed by the Northern Highlands, part of the Cypresshead formation, a Pliocene aged deposit of unconsolidated marine sands and clays (Scott 2001). This section of the river is essentially a drowned estuary, and is characterized by a broad channel, averaging over 1 km in width. Inshore marine and brackish habitats dominate the local ecology, resulting in a lack of freshwater shell mounds along most stretches of this portion of the river. Shell matrix sites composed of marine species near the mouth of the St. Johns register intensive exploitation of marshlands here beginning in the late preceramic Archaic period (Russo 1993).

Holocene History of the Middle St. Johns

As Miller (1998:28) notes, the dominant factor in the study region's landscape is water, which is concentrated along the St. Johns River drainage. Atmospheric circulation variation, particularly temperature and rainfall, is a key variable relating to the dynamics and long-term histories of floodplains (Brown and Quine 1999). The annual cycle plays an important role in defining the hydroperiod, or duration in which ground is saturated or flooded, which directly impacts ecological community structure (Ganopolski et al. 1998; Hupp 2000). Changes to the hydroperiod and floodplain structure can amplify hydrological responses to climate change including aggradation, incision, and channel form reorganization (Brown 2003). Thus, annual and long-term availability of water no doubt affected ecological structure and diversity, the location of channels and water bodies, and the kinds of responses the river may have initiated (Brown 1996; Brown and Quine 1999; Knox 1984; Thomas 2001).

Impacts of Historic Land Use

The hydrological and climatic data available for the St. Johns has been influenced by several recent impacts to the study region. I will make specific mention throughout the subsequent discussion, but there are several caveats associated with recent trends and their utility in reconstructing past environments along the St. Johns. The Upper St. Johns marsh serves as catchment for annual precipitation of the St. Johns system upstream from the study area, and is a critical source of natural floodwater retention. Sterling and Pandera (1998) have noted that after 1900, upwards of 70 per cent of the

Upper St. Johns was drained and converted to pasture or orange groves. They suggest that the loss of this natural floodwater storage resulted in several large magnitude floods in the 1920s and 1930s. One response was the widespread modification of the Upper Basin for flood control by the United States Army Corps of Engineers (USACE), approved in 1954. This project involved the construction of impoundments and diversion canals that decreased the amplitude of flood events but was severely detrimental to the wetlands of the region. Sedimentation rates within lakes increased because runoff of improved lands was directly injected into the river channels circumventing the marshlands, but channel velocity had decreased due to flood control measures (Brenner et al. 1999).

By 1980, the basin downstream[2] from the Upper St. Johns may have received less than 55 per cent of the pre-disturbance flow (Tai and Rao 1982, cited by Brenner et al. 1999). Recognizing the negative effects on wildlife and flora the project was ceased in the 1970s and replaced with a program of floodplain maintenance aimed at restoring pre-impoundment hydrology (Sterling and Padera 1998). The St. Johns River Water Management District (SJRWMD) is now charged with maintaining the ecological and economic viability of the river, and continues to enact flood prevention measures today. Water is also routinely withdrawn from both the SAS and FAS in the study region for agricultural, commercial, and domestic consumption (Marella 2004). Equally problematic, the main channel from the mouth at Jacksonville as far south as Lake Harney has been dredged to enable deep draught vessels. Congressional documents

[2] The terms “upstream” and “downstream” refer to the direction of water flow, thus downstream or “below” refers to areas generally to the north of the discussed feature, while upstream or “above” refers to areas generally south of the discussed feature.

indicate that the river was first dredged in the 1880s within the study area (House of Representatives [HR] 1111, 1910). Subsequent plans were authorized in 1910 to dredge and maintain the entire length of Middle St. Johns. The plan was amended in 1930 to allow for the creation of meander cut-offs and the easing of channel bends to facilitate navigation by longer vessels (HR 691, 1930). Since 1945, the USACE has been tasked with maintaining a channel at least 3.65 m deep and 30.48 m wide within the study area (Senate 208, 1945).

Dredging activities are manifested today in artificial cut-offs and dredge spoil piles adjacent channel segments. Dredging cutoff channels for navigation purposes decreased the total length and increased the gradient of the main channel. Dredging channel beds also effectively lowered the baselevel of the local channel reach. These two processes have likely increased the velocity of the system relative to pre-dredging times (Brooker 1985), while the higher capacity of the channel segment may have increased the magnitude and impact of flood events (Brookes et al. 1983; Brookes 1987). Secondary channels likely began to receive sediment immediately after channelization, leading to a decrease in storage capacity and water trapping (Hupp 2000). Because secondary channels associated with the main channel receive less flow on average today than in the past, the main channel is likely less capable of transporting higher-magnitude flood waters without erosion, and wetland communities experience decreased hydroperiods.

Climate

Ultimately, all of Florida's freshwater is derived from precipitation, with the stage[3] height and discharge of rivers in Florida correlated to surficial and deep aquifer levels (Miller 1997). Today the Middle St. Johns experiences a humid subtropical climate with a dichotomous warm and wet summer season and dry and cool winter season (Figure 3-6). During a a typical weather year, based on averages between 1971–2000 at Orlando International Airport, the annual mean temperature was 23 degrees Celsius, while each year averaged 123 cm of rainfall. Evapotranspiration equals or exceeds rainfall rates (Kroening 2004; Robison 2004), and temperature and precipitation are roughly correlated. The beginning of the dry season, typically around October 15, occurs when the Peninsula beings to be influenced by continental air masses and the first cold front drops temperatures below 15.5 degrees Celsius (Lascody 2002). Dry season conditions are characterized by lower average temperatures and decreased rainfall frequency and intensity. Monthly rainfall averages are at their lowest from October through May, below 10 cm. There is a tendency in March for slightly higher rainfall rates, but April is as dry as the months preceding March. The wet season corresponds to the onset of minimum average temperatures of 19 to 21 degree Celsius, starting between May 25–27, with average temperatures from June through October ranging between 32 and 33 degrees Celsius (Lascody 2002). Although the wet season accounts for little more a third of the annual cycle, it experiences more than 60 per cent of annual rainfall.

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[3] The term "stage" refers to the elevation of surface waters in reference to an arbitrary datum (Kennedy 1984). Unless otherwise noted, all stage values are presented in meters relative to the North American Vertical Datum of 1988 (NAVD88).

In central Florida the uptick in atmospheric water during the summer is partially the result of drenching tropical cyclones (Kroening 2004). For example, from a 52-year record of rainfall at Deland in the study region, Rao (1988) determined that one-day rainfall totals of 23 cm could be expected at least once every 10 years, which is only slightly less than total monthly averages. Over the course of four days, rainfall totals over 37 inches could be expected at least once every 100 years. These rainfall patterns are no doubt related to tropical cyclone activity. Analysis of historic hurricane records has demonstrated that they have not occurred with a constant frequency over the past 100 years (Landsea et al. 1999). Periods of hurricane intensity were highest in the 1940s through 1960s and again towards the end of the century. Although no clear periodicity has been determined for the modern era, the frequency and intensity of tropical cyclones in the Atlantic basin is influenced by periods of increased rainfall in the western Africa (Gray 1990).

One of the primary moderators of local interannual variation in Florida is the onset of the El Niño-Southern Oscillation (ENSO) phenomenon. ENSO is most directly associated with sea surface temperature (SST) anomalies in the eastern Pacific basin, but is robustly expressed through ocean-atmospheric teleconnections globally (Dunbar 2000). Although routinely referred to as El Niño, the ENSO phenomenon is composed of two phases: warm (El Niño) phases are characterized by positive SST anomalies in the Pacific, while cold (La Niña) phases are characterized by negative SST anomalies (Tudhope et al. 2001). During warm phases, Florida receives increased rainfall during the winter months, which correlates with higher surface water levels and lower temperatures (Beckage et al. 2003). Tropical cyclone development is significantly less likely to occur during warm phases (Landsea et al. 1999). In contrast, during cold phases Florida receives less-than-average dry season rainfall, increased temperatures, and a greater likelihood of tropical cyclone impacts.

A review of current paleoclimate proxies indicates that the current climatic regime changed considerably over the course of the Mount Taylor period. It was not long ago that the early to middle Holocene was broadly modeled as a period of post-glacial climate amelioration, with global climate becoming increasingly like the modern era (Schulderein 1996). The one divergence from this model was the so-called middle Holocene Climatic Optimum or Hypsithermal episode, characterized by above modern temperatures (Deevey and Flint 1957). However, this generalized model is being replaced by reconstructions and simulations that demonstrate climatic phenomena operating at varying temporal and spatial scales (Braconnot et al. 2007; Dunbar 2000; Wanner et al. 2008). These in turn have likely lead to considerable diversity in Holocene-period ecological and hydrological responses (Knox 2000).

Mayewski et al. (2004) have recently argued that climatic change during the Holocene was more variable than has been traditionally accepted. While not of the same magnitude as Pleistocene perturbations, changes would have occurred at a pace within the perception of past communities (see Bard 2002). In their review of widely-distributed high-resolution paleoproxies (including ice cores, varve deposits, and glacial extent models) Mayewski et al. identified at least six episodes of rapid climatic change (RCC) “events” at a global scale during the Holocene (Figure 3-4H). The first RCC was likely induced by atmospheric reorganization at the close of the Pleistocene, with one sub-event at 8200 cal B.P. instigated by a massive release of freshwater into the North

Atlantic (Alley et al. 1997). For the rest, they postulate that the timing of each RCC was linked to orbital and solar insolation variation. The high chronological resolution of the results indicates that many of these RCCs would have unfolded over the course of a few hundred years, and likely less (Mayewski et al. 2004:245), although these "events" are not necessarily equally distributed, synchronous, or expressed locally (i.e. Kidder 2008). For the present study, the RCC of 6000–5000 cal B.P. is the most significant as it occurs in the midst and end of the Mount Taylor period. Globally, this RCC is generally characterized by lower average temperatures in polar regions and increased aridity at lower latitudes, although its specific expression in the Middle St. Johns is unclear.

As noted by Beasley (2008:90–91) in his consideration of Mount Taylor period paleoclimate, the recent reconstruction of Holocene temperature variations across North America by Viau et al. (2006) holds promise for contextualizing middle Holocene climate change. Viau et al. compared 752 pollen records with over 2500 radiocarbon dates, and calibrated resultant pollen spectra with modern analogues to generate mean continental and regional July temperatures (Viau et al. 2006:2). The pollen time series were sampled at 100-year intervals using linear interpolation. After a rapid rise in temperature between 10,000–8000 cal B.P. the continent witnessed a decrease in mean temperature between 8000–6000 cal B.P. Beginning at roughly 6000 cal B.P., and corresponding with Mayewski et al.'s scheme, there is a rapid rise in temperature that persists until roughly 3000 cal B.P. As noted by Viau et al. (2006:4), however, these trends are often expressed inversely or asynchronously across regions.

The reconstruction of temperature anomalies within the Southeastern United States reveals trends that are at times inversely related to the continental-scale temperatures (Figure 3-4G). In a previous application of this methodology, Sawada et al. (2004) found that Florida had the highest rate of error due to its position on a boundary in the model. Thus, these reconstructions should be taken more as guides than absolute data points. There is a rapid rise in temperature between 7300–7200 cal B.P., coeval with the earliest radiocarbon determinations on shell bearing deposits within the Middle St. Johns and onset of the Mount Taylor period. At this scale, temperatures remain constant until roughly 6500, at which time there is a decrease in temperature, followed by a rapid cycle between higher and lower mean temperatures at 6000 cal B.P. Temperature remains relatively constant until another temperature cycle at 4800 cal B.P., near the end of the Mount Taylor period.

More locally, Leigh and Feeney (1995) reported higher-than-present flood regimes on the Ogeechee River in the Coastal Plain of Northern Georgia. Using paleoflood estimates, they suggest that large paleomeanders dating between 8500–4500 cal B.P. are indicative of a 10 to 30 per cent increase in annual precipitation and twice the modern bankfull discharge. Goman and Leigh (2004) have reported the results of a stratigraphic and palynological study of a paleochannel of the Little River in the upper Coastal Plain of North Carolina. They recognized two different depositional regimes after the segment was orphaned from the main channel of the river. The first dated between 9000–6100 cal B.P., and registered five flooding events, evidenced by sand overbank deposits. Based on a grain-size analysis they determined that the floods would have been of moderate to large magnitude. The upper zone, dated 6100 cal B.P.

to present, was characterized by essentially modern assemblages indicating slightly drier conditions and significantly less chance of a major storm event.

Although increased snow melt or other factors may account for this increased discharge (Leigh 2006), there is some support for an increase in storminess during the middle Holocene along the eastern seaboard (LaMoreaux et al. 2009). Liu and Fearn (2000) analyzed overwash storm deposits in Northwest Florida along the Gulf Coast. On the basis of analogy, they argued that the overwash sediments represent the landfall of major hurricanes, and thus can be used as a proxy for hurricane landfall frequency in that region. They found that the period of record between 7800–3400 cal B.P. lacked evidence for significant storm events, while the millennia afterwards were characterized by very high frequencies of large storms. This shift in landfall frequency is likely the product of the location of the Bermuda High, a high pressure system that can provide steering currents for tropical cyclones. Goman and Leigh (2004) and LaMoreaux et al. (2009) argue that the Bermuda High was likely to the north and east of its present location before 6000 cal B.P. When it is in this position, significant rainfall events are likely along the Florida Peninsula and eastern seaboard. Because central Florida is situated within a transition zone between the Caribbean and Lower Southeast, the direct implications of these studies is not clear. It would seem likely, however, that increased precipitation, and thus major flood events, was one consequence.

LaMoreaux et al. also argue that the decrease in storminess and above-average rainfall after 6000 cal B.P. was likely the result of the onset of ENSO. The onset of ENSO conditions, particularly a warm El Niño phase, dramatically decreases the likelihood of major storm events. Dating the onset of ENSO conditions is controversial, but independent paleoproxy records outside of central Florida suggest an increase in ENSO activity between 7000–5000 cal B.P., with higher intensity signals occurring thereafter (Donnelly and Woodruff 2007; Moy et al. 2002). Although a decrease in storm frequency is likely, Donders et al. (2005) also demonstrate that the onset of ENSO after 5200 cal B.P. enabled the establishment of long hydroperiod wetlands in the everglades as a product of increased winter rainfall.

Hydrology

With the regional geographic characteristics assessed, we can shift scales now to the study area (Figure 3-7). The southern boundary is defined by the junction of Lake Monroe and Lake Jessup. The northern segment of the study area terminates at Buffalo Bluff. At this segment the St. Johns is joined by the Ocklawaha River, which drains much of the Central Valley. In the past century the Ocklawaha was impounded by construction of the Rodman Dam, with surface water rerouted in part through the Cross Florida Barge Canal (Noll and Tegeder 2009). Channeled surface water along the study area is confined to a floodplain with elevations typically less than a meter above mean sea level. This floodplain is characterized by a series of geomorphic basins that are constrained at their upper and lower segments (Figure 3-7). As a consequence, the channel of the St. Johns alternates between several kinds of configurations. In part, surface water flows through large lake systems, most notably Lakes Monroe, Beresford, Woodruff, and George, which in tandem with the low velocity of the river have inspired the nickname “River of Lakes” for the St. Johns (e.g., Belleville 2000).

Between lakes, the river can take on different characteristics based on the relative proximity of uplands. In areas where the uplands are in close proximity, such as the outlet of Lake Monroe, or downstream from Lake Beresford, the river is confined to a relatively narrow floodplain. In contrast, several areas, particularly between the Wekiva River outlet and below Lake Beresford, and in the vicinity of Lake Woodruff, surface water flows through multiple channels of varying sinuosity, lagoons, and relict channel segments that course through extensive swamp and wetlands. In some cases there are no clear geomorphic controls that would act to separate channels. In others, channel segments flow around low islands of sand, clay, and marine marl such as Hontoon Island and Tick Island. In this regard the Middle St. Johns matches Nanson and Knighton's (1996:218) definition of an anabranching pattern: "a system of multiple channels characterized by vegetated or otherwise stable alluvial islands that divide flows at discharges up to nearly bankfull." Although the geomorphology and hydrology of anabranching rivers is still poorly known, recent studies indicate that they are characteristic of many large rivers with low gradients, with multiple channels allowing the system to effectively manage sediment and water discharge when increasing the depth of channels is not possible (Huang and Nanson 2007; Latrubesse 2008).

As an adjunct to precipitation, freshwater springs provide an important source of water for streamflow. The majority of water is provided by discharge from the SAS where water is largely unconfined in Pleistocene and Holocene sediments averaging 15 m in thickness, and is present at or just below the ground surface. The Middle St. Johns is situated within the easternmost extension of karst related to spring discharge (Figure 3-3). Of the 71 springs recorded within the St. Johns basin, 59 have expression within the Middle St. Johns (Figure 3-7). All but two springs are fed by the FAS which is unconfined and discharges along the Crescent City-Deland Ridge, Mount Dora Ridge, and Marion Uplands. This total includes three first-order magnitude springs (greater than 2.8 m^3/s or more) at Silver Glen Spring, Alexander Spring, and Blue Spring. Other springs of second or lower magnitude occur throughout the study region. Channels for any given spring vary in length from 0.3 km at Blue Spring to over 12 km at Alexander Spring. Annual input from springs is estimated to be roughly 13 per cent in the vicinity of Blue Spring, and up to 22 per cent downstream from Lake George (Robison 2004:61).

Variables relating to streamflow include discharge, the amount of water flowing through a channel; stage, the height of the water surface; and sediment load, the amount of sediment carried either on the bed or suspended. Detailed records are available for discharge and stage, but limited for sediment load. Based on a review of water quality characteristics Kroening (2004:89) suggested that suspended sediment loads were highest in periods of low-flow, and likely resulted from resuspension of bed material and not erosion of land surfaces. Anecdotal accounts in periods after major floods suggest that there is not a significant amount of sediment that is transported within the water column during flood events, nor are there well-developed point bar formations. This is likely a factor of a relatively low stream power and a prevalence of organic and very fine bed materials.

The characteristics of annual surface water flow can be explored through streamflow- and stage-duration hydrographs using data collected by the USGS (2009) at stream gages. Hydrographs show the change in streamflow characteristics over a particular period of time. The shape of the hydrograph is controlled by variety of factors including size of the catchment area, geomorphology, land use, and climatic season, for example. The duration of stream discharge and stage, as well as the slope of the hydrograph show how the fluvial system responds to water input in relation to these variables (Knighton 1998:67). The caveat that the current hydrological parameters likely do not reflect pre-disturbance regimes must be remembered. However, we can glean some insight into what kinds of river conditions may have been experienced. There are several gaging stations within the study area, with those employed in this discussion highlighted in Figure 3-7. Although hydrographs are traditionally depicted by water years, beginning in October and ending in November, the start of the annual Julian calendar was used in the hydrographs discussed below in order to emphasize the how the wet season's effects extend into the dry season.

Interannual variation in streamflow is apparent in daily streamflow values at the three gaging stations for the years 2005–2007 as an example (Figure 3-8). The data points were standardized by the drainage area of the gaging station to facilitate comparison. As seen in the hydrograph, the year 2005 was characterized by relatively high discharge values, while 2006 and 2007 were significantly less peaked. In 2005 the Southeast experienced one of the highest levels of tropical storm activity on record, and concomitantly the hydrograph registers two peak discharge events from June to July (198 m^3/s) and October to November (263 m^3/s). The latter event approximates the expected 5-year flood (Table 3-1). For each event, high discharge values were maintained for durations between one and three months. During 2006 and 2007 two major discharge peaks are also registered in the summer months, even though they are of significantly lower magnitude. In contrast with the wet season, the dry season is less likely to register peak discharges. Quite to the contrary, low flow or negative values are recorded at all stations between February and May.

The longer the period of record for a particular gaging station, the more likely the data will be representative of longer term conditions. Unfortunately, the only gage with an extended record is the “St. Johns near Deland” gage. As illustrated in Figure 3-8, however, hydrographs throughout the river segment are quite similar, lending confidence to the use of one gaging station for the purposes of long-term generalization. Although data for the Deland station is available from 1934 until present, a start date of 1957 was chosen. In that year a recorder was installed that could read both positive and negative values (Kroening 2004; Robison 2004). A comparison of median, 25th, and 75th percentile monthly discharge hydrographs with rainfall for the Deland station reveal the “normal” discharge conditions (Figure 3-9A). The St. Johns’ discharge is at its lowest in May, just before the beginning of the wet season and the low average rainfall in April. This is also the period of least variance. Discharge remains relatively low until June–August, where the leading limb ascends rapidly. There is a clear lag between rainfall and discharge, which is likely the result of channels and the broader floodplain storing floodwaters, in addition to a slower rate of groundwater flow. The falling limb after each peak is more steep, as water stored on the floodplain is discharged reflecting the onset of the dry season and a decrease in precipitation. It is notable, however, that the cumulative increase in precipitation is reflected in high discharge levels into November and December. The increased rainfall in February and March can contribute to higher variance in discharge, but due to a lack of abundant flow and rainfall in April there is a rapid decline of discharge into May.

Discharge is a useful metric for modeling and engineering purposes, but in terms of human experience, stage is a better measure of environmental impact. Since stage is the height of the water surface, it defines how saturated or flooded landforms will be and for how long. As seen in Figure 3-9B, changes in stage are similar but not entirely synchronous with discharge. In a system such as the St. Johns with multiple channels and broad floodplains, increases in discharge are distributed across more channels as discharge increases. Thus, the increase in rainfall experienced during the summer is not registered in a gradual increase in stage height. Although both peak discharge and stage can be expected in October, stage height lags behind in June and July. As indicated by the steep ascending limb from July through October, higher stages will occur rapidly once a threshold is met, but will also dissipate rapidly without continued rainfall. Throughout a typical year, the St. Johns can be expected to range less than a meter, between -0.18 m and 0.65 m NAVD88 (Figure 3-9B). Variance is greatest in the second half of the rainy season, and least in the tail end of the dry season. Unlike discharge values, stage does not appear to be affected by the increase in rainfall during March, likely due to an abundance of floodplain- or within-bank storage potential.

Although the central tendencies of fluvial systems can tell us about the standard state of a system at any given time, it is the extreme events that define the boundaries of the system, and changes in the frequency and amplitude within these boundary conditions can lead to rapid floodplain transformations (Knox 2000). As with the precipitation regime discussed earlier, the use of aggregate metrics to describe normal events obscures extremes. In blackwater rivers of the Southeastern Coastal Plain the hydroperiod, or annual period of inundation, is a primary factor that defines the distribution and composition of wetlands (Hupp 2000). Decreases in the hydroperiod can have rapid consequences to ecological structure. Recently the SJRWMD has conducted extensive modeling and field studies to determine the minimum flows and associated stage levels (MFLs) necessary to maintain the hydroperiod and current wetland biodiversity (Mace 2006, 2007; Robison 2004). These are reported in Table 3-1. Low flow conditions are also widely experienced throughout the region. Negative flow is routinely recorded at the Buffalo Bluff station because tidal influence is robust there, and sporadic stream flow reversals can occur as far upstream as Lake Harney (Kroening 2004). Reversals are more frequent below Sanford, up to 4 percent of the time annually and strongly correlated with periods of low flow, and reflect tidal influences as well as wind.

Less well understood are the temporality, magnitude, and potential impact of extreme floods. Extreme floods are events that occur in frequencies beyond the bounds of modern instrumentation, but likely play an important role in defining channel morphology and location. The frequency and magnitude of extreme events can be extrapolated based on extant stream gage data, but given inherent nonstationarity within fluvial systems extrapolation has a high error associated with it. An alternative is interpolating high magnitude events from paleoflood records (Baker 1987, 2008), but there are none available for the St. Johns. In his analysis of flood frequencies using 52 years of data, Rao (1986:Table 13) computed 5- through 500-year flood discharges (Table 3-1). The highest stage on record was 1.55 m, recorded on October 12, 1953, and this is the effective height of a 50-year flood. Because the relationship between discharge and stage are unknown beyond this range, the stage of 100- and 500-year flood discharges are unknown. There is a need for programs aimed at developing paleoflood indicators along the St. Johns.

Channel and Floodplain Organization

Archaeologists working on the St. Johns routinely cite its productivity as one of the reasons for its long-term significance to Archaic populations. Rarely, however, is the actual distribution of productivity in time and space considered. Rivers and floodplains have a memory which is written in the arrangement of wetlands, channels, and water bodies (Knighton 1998:261). In turn, the distribution of these features impacts the location, predictability, and vulnerability of resources that could be exploited. The dynamics between channel organization, ecology, and hydrological change are best examined at a sub-basin level and can be revealed through floodplain plan and cross section. Depicted in Figure 3-10 is a plan view of a reach of the river from below the Wekiva outlet to Hontoon Island, just above the St. Johns at Deland gaging station. Also provided is a series of cross-sections of the valley floor showing the relationship between topography, relict and dredged channels, and floodplain vegetation (Figure 3-11). At this point the floodplain reaches a maximum width of 4 km before it contracts below Hontoon Island. This reach encapsulates much of the fluvial and ecological diversity exhibited elsewhere, including first magnitude Blue Spring, islands, and multiple active and relict channel segments. Shell matrix sites including at least five shell mounds are distributed throughout this reach (see Chapters 4–6). The effects of recent land use patterns are quite evident. The main channel has been dredged along the eastern margin of the reach. At least four meander cutoffs were created during dredgework, and can be seen to above and below Pine Island. Dredge spoil piles are present on the margins of the main channel and are expressed as circular mounds

(Figure 3-11B,C). Other recent effects can be seen in the east-west channels that were likely cut for cypress logging at the turn of the century.

An examination of river planform reveals a number of important features that relate to recent and long-term fluvial histories. At the largest scale, there is a clear division in geomorphic and surface water expression. The western basin is largely devoid of topographic surface anomalies or channeled surface water, and is composed of undifferentiated bottomland hardwood swamp, likely dominated by cypress. It is unfortunate we do not know when this cypress swamp began developing. The lack of channels within the western basin may be a factor of age, such that evidence for channel processes has been obscured at the surface by aggradation and the development of cypress swamps. Alternatively, the pre-inundation substrate may be situated at slightly higher elevations than the eastern floodplain.

In contrast to the western expression, there is considerable diversity in the eastern reach that may relate to more recent fluvial and geomorphic processes. Topographic highs up to 5 m above the floodplain consist of sand/marl islands including Hontoon Island and Pine Island, in addition to the smaller Scrub, Live Oak, and Bush Islands. Disconnected channel segments in the southern aspect appear unrelated to subaerial exposures (Figure 3-11C, D). Connected water bodies include lagoons and seasonally flooded wetlands. Lagoons are characterized by shallower depths and tend to not receive streamflow directly. However, they are frequently situated on the downstream side of meander bars, suggesting that the creation of these features is directly related to channel location and age.

There are two major channel segments that are largely unconnected from the primary flow of the main river, in addition to many shorter and narrower linear features. The largest relict channels include the Banana River, which may follow the contour of a low lying terrace as indicated by the presence of islands and the inflection of the channel. Shell deposits have been reported on this landform, but their age and configuration is unknown. Situated just down stream is Hontoon Dead Creek, which as its name suggests is not a primary vector of surface water. It is however, connected to the primary channel via the sinuous, narrow, and shallow Snake Creek at its junction near Hontoon Island. Whether there was a much larger channel here or if Snake Creek is a recent response to dredging is unknown. Government Land Office (GLO) survey maps compiled in 1853 suggest that there was a main channel here. However, given that much of the basin was characterized as “impracticable to survey,” it is likely that the channel segment illustrated in 1853 was an extrapolation from the visible junctions near Pine and Hontoon Islands based on surveyors instructions at the time (see Bourdo 1956).

Both the Banana River and Hontoon Dead Creek were once active channels, and their current relict status has resulted from avulsions at a date currently unknown. Avulsions in anabranching systems can occur preferentially during periods of increased flooding, channel reorganization, or aggradation of the floodplain associated with base-level change (Slingerland and Smith 2004). More mundane and unpredictable processes such as a tree falls and vegetative clogging are also possible. In either case, flow is preferentially distributed to new segments or older paleochannels at lower elevations on the floodplain. Unlike river systems where avulsions in wide floodplains could resituate the main channel many kilometers away, such as the Mississippi (e.g., Aslan et al. 2005; Kidder 2008), the effect of an avulsion along the St. Johns would only be locally felt due to the relatively narrow floodplains that are constricted at geomorphic basin boundaries.

The Banana River and Hontoon Dead Creek channel widths are equal to or greater than the current main channel, suggesting similar amount of flow passed through them at some point in time (Drury 1976). Hontoon Dead Creek in particular contains a number of meander scars suggestive of higher-than-present stream power. That a channel or other kind of water body was situated closer to Hontoon Island is evidenced by the presence of the Hontoon Dead Creek Mound some 200 m distant from the main channel (Figure 3-11B). The 7000-year-old anthropogenic shell deposits beneath organic sediment off the western edge of the mound attests to at least a meter of floodplain aggradation since deposition first occurred there. Live Oak mound on the eastern terrace of the main channel is similarly positioned, indicating that either the river was closer to the mound or the floodplain has aggraded.

A variety of floodplain ecological communities are situated along the main channel today (Figure 3-10). These communities reflect different hydroperiods (Mace 2007). Slight variations in floodplain elevation derived from substrate anomalies, alluvial features, and in filled channels of varying maturity can result in very different resource distributions (Hupp 2000). Thus, the distribution of vegetation communities represented here likely reflect more recent fluvial activity. During a recent survey of ecological community structure at sites along this reach, Mace (2006) found that elevation and vegetation were correlated. Most widespread are bottomland hardwood swamps characterized by abundant red maple (*Acer rubrum*), bald cypress (*Taxodium distichum*), pop ash (*Fraxinus caroliniana*), and American elm (*Ulmus americana*) at elevations below 0.46 m. These grade into hydric forests dominated by water hickory (*Carya aquatica*) and other species particular along the margins of islands and terraces. These bottomland forests eventually give way to upland forests with live oak (*Quercus virginiana*) and other mesic species. Typically adjacent to the main channel or in backwater environments are found zones of emergent vegetation and low-lying scrub-shrub. Vegetation consists of water tolerant plants, such as cattails (*Typha* spp.) or sawgrass (*Cladium jamaicense*) and common reed (*Phragmites communis*).

The wetlands, lagoons, and channel segments provide habitat for a diverse array of fauna. Aquatic vertebrates such as alligator (*Alligator mississippiensis)*, otter (*Lutra canadensis)*, a variety of turtles, and upwards of 40 species of fish of economic importance to humans are present. Manatees (*Trichechus manatus)* annually congregate at spring runs in the winter as water temperatures decline, but these do not appear to have been exploited during the Archaic period (Cumbaa 1980). While there are clear habitat preferences for many fish species, including open channel versus littoral zones, most can be found in any body of freshwater connected to the main channel and are available year round. Anadromous fish such as American shad (*Alosa sapidissima*) and Hickory shad (*Alosa mediocris*) spawn up to Lakes Monroe and Harney, typically between November and March (Harris and McBride 2004). Striped mullet (*Mugil cephalus*) are also found in permanent resident populations in some springs, and other saltwater species such as Atlantic stingray (*Dasyatis sabina*) and blue crab (*Callinectes sapidus)* can also be found within spring runs (Walsh 2001). The flatwoods and hardwood hammocks of the uplands and islands provide habitat for numerous terrestrial fauna. Those of economic importance to humans include white-tailed deer (*Odocoileus virginianus*), black bear (*Ursus americanus*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), gopher tortoise (*Gopherus polyphemus*), and turkey (*Meleagris gallopavo*). Numerous species of birds, mammals, reptiles, amphibians, and gastropods also inhabit these zones.

Channels and springs are habitat for many molluscs (Walsh 2001). Species most frequently exploited by Archaic inhabitants include the gastropods *Viviparus georgianus* (banded mystery snail) and *Pomacea paludosa* (Florida apple snail), as well as freshwater bivalves (Unionidae). Smaller gastropods such as *Elimia sp.* (rasp Elimia), and the rams horn and mesa-rams horn (*Planorbella sp.*) can be found with these other species. In general, all species prefer shallow near-shore environments, such as grassy marshes and shallow lagoons (Quitmyer 2001). It is unknown in what frequencies these species normally co-occur, or whether there is predictable ecological variation in their availability. Unfortunately, little detailed information on the habitat preferences, habit, and seasonal life histories of many of these species is available. Given that *Viviparus* frequently constitute the majority of shell mounds by volume (Cumbaa 1976), it is particularly vexing and curious that *Viviparus* colonies are difficult to find today, and infrequently occur in macrobenthic invertebrate surveys (e.g., Phelps et al. 2006). Moore (1894c:123) indicated that *Viviparus* were widely available before the turn of the century, stating that “whole lake bottoms are covered with them, while they are found in abundance in numerous creeks and lagoons.” Molluscs are particularly susceptible to groundwater contamination and increased suspended sediment loads, and historic land use practices have no doubt caused significant harm (Bogan 1993; Walsh 2001). *Viviparus* prefer soft, muddy substrates with slack water, such as lagoons, creek edges, lakes, and springs (Clench and Turner 1956). Apple snails are better known, due to their status as a primary food source for the Florida Snail Kite. Apple snails are known to prefer marshes with emergent vegetation, typically with at least 50 cm of water (Darby et al. 2002). Annual draw downs in stage level are necessary for successful breeding, and they can survive exposed for up to 12 weeks during extended droughts by burrowing and aestivating (Darby et al. 2009).

A consideration of nearby wetland histories indicates the contemporary hydroperiod within the St. Johns did not emerge until after 7000 years ago, and was not fully established until even later (Figure 3-4C). Peat deposits preserved in the lakes and wetlands of central Florida suggest a significant transformation in atmospheric circulation between 7000–5000 cal B.P. Data from pollen analysis supports a general trend of dry to wet conditions evidenced by oak-dominated assemblages replaced by wetter pine dominated vegetation communities during the middle Holocene. These changes are indicative of longer hydroperiods and likely the establishment of higher water tables (Watts et al. 1996). Several pollen cores have been analyzed in the vicinity of the Middle St. Johns. Watts (1969) reported an analysis of a sediment core from Mud Lake. This is a shallow open water lake which drains into the Ocklawaha River today, at higher elevations to the east of the study area. Two sedimentary zones dating to the Holocene were recognized, with a basal date between 9520–8600 cal B.P. (2σ) for Zone M2 and 6190–5480 cal B.P. (2σ) for the stratigraphically superior Zone M1. The lower M2 zone was dominated by oak and herbaceous Chenopodiaceae-

Amaranthaceae pollen (hereafter Cheno-ams), indicating drier-than-present conditions. Although Watts could not find a modern analog for this pollen community, he suggests that it represents a dry oak forest or scrub, with marsh grasses and occasional open water patches. The transition to Zone M1 was characterized by an increase in pine, cypress, hickory, and other taxa typical of the pine-dominated uplands and bottomland hardwood forests present in that area today.

Similar results have been reported from pollen and peat analyses at the Windover site (8BR246) in the Upper St. Johns basin. The Windover site is a small pond that was utilized as a mortuary between roughly 9000–8000 cal B.P. (Doran 2002c), the social significance of which I will examine in Chapter 4. Sediments in the pond were composed of at least five distinctive peat deposits that span the Holocene. The "Upper Red Brown Peat" has a near-basal date between 9550–9140 cal B.P. (2σ), and spans the length of mortuary use at the site. Pollen is dominated by Cheno-ams, almost to the exclusion of other taxa, while pine and oak are present. Holloway (2002) interprets this trend as reflecting increased aridity, and possibly indicative of grassy salt flat vegetation communities and low water tables. Analysis of the peat itself revealed the development of a hardwood swamp community that was seasonally flooded with less than 30 cm of water (Stout and Spackman 2002:235). The higher "Black Peat" has a near basal date ranging between 7170–6680 cal B.P. (2σ). This assay places the beginning of peat deposition in this regime roughly coeval with the onset of the Mount Taylor period in the Middle St. Johns. Palynologically the transition is abrupt, with pine, oak, bayberry and grasses increasing in visibility at this time in concert with a dramatic decrease in Cheno-ams. Holloway interprets this vegetation shift as reflecting the onset of cooler and moister conditions. Analysis of the peat determined that the sedge-grass community that typifies the area today emerged at roughly this time (Stout and Spackman 2002).

No peat deposits have been subjected to pollen analysis within the Middle St. Johns. However, their presence is widely attested adjacent to shell mounds, where they typically are found superimposed upon or intercalated with subaqueous anthropogenic shell deposits (Aten 1999; McGee and Wheeler 1994; Sassaman 2005a; Wheeler et al. 2000). Groves' Orange Midden (8VO2601) is the subaqueous extension of the Old Enterprise (8VO55) site, and is characterized by saturated shell matrix layers, intercalated within a well-developed peat. Based on the preservation of organic objects, the excavators have argued that the anthropogenic deposits were deposited subaqueously, with materials likely discarded at the shore of Lake Monroe. Dates from throughout the deposit demonstrate that occupation occurred there near the onset of the Mount Taylor period, as early as 6960 cal B.P. Excavations within this wetsite component identified a well developed peat layer situated between shell matrix, with dates above and below the peat indicating it developed between 5900–4540 cal B.P. at the maximum 2σ range of the assays. Because the peat was not subjected to further analysis, little can be said about what kind of vegetative community was responsible for its formation, and thus what kind of hydroperiod it may represent. Regardless, the initiation of peat development is relatively coeval with the 6000 cal B.P. RCC identified by Mayewski et al. (2004), and consonant with the temperature variation recognized by Viau et al. (2006).

A Dynamic Land

There is no master solution or climatic event to which shellfishing and associated traditions can be attributed to. Instead, a review of paleoproxy data demonstrates that a variety of interwoven processes were at work through time (Figure 3-4). These processes influenced the organization and development of the St. Johns floodplain and associated terraces. Given the lack of chronologically sensitive paleohydrological indicators along the St. Johns, it is difficult to detail exactly how the St. Johns would have registered changing conditions. Since most paleohydrological studies have emphasized interior drainages, models for detailing hydrological responses in low-gradient systems are poorly developed. For example, base-level change associated with a relative increase in sea level can result in the drowning of low-lying reaches of river segments and the reduction in competency and development of backwater marshes. In turn, such transformations have implications for aquatic resource distribution, diversity, and sustainability (Brown 1996, 2003; Morey et al. 2002). However, such changes may be relatively isolated to near coastal regions and have little effect on up-stream hydrological regimes (Koss et al. 1994; Leigh and Feeney 1995). Consequently, only portions of lowland rivers may significantly register base gradient changes.

Similarly, perturbations in the frequency of higher-magnitude rainfall events or evapotranspiration can alter channel gradients, morphology, and associated vegetation regimes (Starkel 2002). Modeling the paleohydrology of large-basins and complex fluvial systems such as the St. Johns River can also be hampered by non-stationarity, where hydrological response to differing amplitudes of climate change is unpredictable or non-scalar (Coulibaly and Baldwin 2005; Knox 1993, 2000; Koutsoyiannis 2006; Redmond et al. 2002). Typically, large river systems are less likely to record subtle short term events or low amplitude processes than longer-term larger scale climatic trends (Kidder 2008; Knox and Daniels 2002). Fluvial histories along the St. Johns are further complicated by the relationship between surface flow, sea-level, and the potentiometric surface of the FAS (Faure et al. 2002; Miller 1992; Thulman 2009).

Although there is not enough data to specifically model how the St. Johns and associated regions were organized at any given time, it is possible to suggest some potential scenarios of landscape change and stability that can be examined through a more detailed consideration of Mount Taylor places and traditions in subsequent chapters. The paleoclimate data are in accord with earlier interpretations of “near modern” conditions established at the onset of shellfishing. RSL rates were in the process of decelerating from the terminal Pleistocene, and there is evidence from Windover that a wetter and longer hydroperiod was on the verge of being established.

However, a closer inspection of the conditions surrounding shellfishing suggests that there was the potential for considerable variability operating at the level of the floodplain. Within the Middle St. Johns, lower than present sea levels still meant that water tables, and likely the springs that fed the Middle St. Johns, experienced decreased flow relative to modern times. However, spring discharge would increase relative to sea level rise between the period of 7300 and roughly 6000 cal B.P. The data from Hontoon Dead Creek Mound and Groves’ Orange Midden suggest that the floodplain was situated at least a meter, if not more, below its present elevation at 7300 cal B.P. However, there does not seem to be a corresponding aggradation of the floodplain with organic matter until much later. What we do not know at the moment is the relationship between this lowered floodplain elevation, channel organization, and the vegetation communities associated with a longer hydroperiod. The presence of tree stumps at the base of the Groves' Orange sequence (McGee and Wheeler 1994) would suggest that hardwood communities at lower elevations were effectively drowned out roughly 7300 years ago. Whether this was abrupt or gradual is unknown, although the temperature fluctuations recorded by Viau et al. around 7300 cal B.P., and the synchronous development of the black peat at Windover would indicate that it occurred rapidly.

The transformation of entire ecological communities throughout the floodplain would likely open up large expanses of once-forested floodplain prior to the onset of a more stable hydroperiod, much like the lateral sections of the floodplain today that are characterized by emergent or scrub-shrub vegetation. The suggestive evidence for frequent flooding may mean that despite a lower floodplain and lower-than-present annual flow, the region would have experienced periodic flood events that raised the river stage to above normal bankfull conditions, flooding large expanses of the low floodplain. In this scenario, despite the lower water tables, there may have been more expansive open water conditions at lower elevations during the summer and early fall in comparison with today. It is also likely that it was in this context that the anabranching pattern we see today emerged. With respect to the higher storm frequencies, then we might expect that the avulsions would have been more likely to occur. As a result of these processes, we would expect that local embayments that were the habitat for shellfish and other species of economic importance would be subject to potentially frequent relocations.

The ongoing cycles of flood events, rising water tables, and potential temperature fluctuation seems to have persisted until roughly 6000 cal B.P., and coeval with

Mayewski et al.'s RCC. It is at this time that sea level decelerated, there was an increase in the frequency of ENSO events, and a decrease in major storm events. There was a moderate temperature increase as well, although whether or not this is reflected in the southeastern United States is unclear. It may also be the case that flow from the FAS attained its present regime around this interval. The local consequences of these changes appear to be manifested in floodplain aggradation, as witnessed in the development of peat deposits at Groves' Orange Midden. This process could be interpreted in two ways. The excavators of Groves' Orange Midden (McGee and Wheeler 1994) felt that the peat reflected a lower-than-present sea level stand, because they assumed the materials that had accumulated subaqueously were deposited in relatively deep water. The peat then would have formed as a consequence of a marsh developing in what had once been open water. The scenario that I find more likely, given what we know now, is that the peat was enabled to form by a persistent and stable hydroperiod. Although relating to lower-than-present water tables, the normalized flow regimes allowed the marshland to be established, leading to the development of stable vegetation communities in areas that had once been open water. In this scenario, the floodplain began to aggrade through the development of organic deposits throughout the basin. Eventually, the floodplain would stabilize to a higher water budget.

The end of the peat sequence at Groves', roughly 5000 years ago, would again appear to signal a regime change along the St. Johns. Of particular interest is the fact that the Groves' peat is superimposed with highly fragmented shell and sand deposits which McGee and Wheeler (1994) interpreted as evidence for storm deposits. Given the lack of storm deposits elsewhere, this may signal a one time event, that was perhaps a significantly higher magnitude than has been recorded along the St. Johns. The long-term significance of this storm event is less clear, other than the fact that it does correlate stratigraphically with the end of peat formation and a return to shell deposition locally. Given that both well-preserved organic remains and terrestrial gastropods were recovered in these upper units, this zone was alternatively flooded and dried out on an annual basis (Russo et al. 1992). If this is the case, then the region may have experienced lower stage levels. This period is consonant with the end of the postulated RCC as well. Correlating the end of peat formation to larger scale processes is less clear than before. However, if we take the evidence from the Everglades for example, this would have been a time in which essentially modern hydroperiods were established, and roughly consonant with the onset of the near-modern frequency and amplitude of ENSO events globally. As a consequence, channels along the Middle St. Johns may have finally become entrenched, and subject to processes of lateral migration.

Contrary to orthodox models, the present review highlights local and regional variability in landscape stability. The alternative scenarios of hydrological development point to different temporalities in the physical landscape through time. Although only a broad outline, they can can be used to examine concomitant processes in landscape inhabitation. It is in this milieu of a complex and dynamic environment that Mount Taylor communities emerged.

Table 3-1. Minimum and maximum flood stage frequencies for the St. Johns at Deland USGS gaging station

Event	Return Frequency (Years)	Discharge (m^3/s)	Stage (m NAVD88)	Hydroperiod	Source
Minimum Average	≤1.5	58	-0.05	Typically Saturated	Robinson (2004:81)
Minimum Frequent High	≤3	130	0.29	Seasonally Flooded	Robinson (2004:81)
Minimum Frequent Low	≤5	31	-0.20	Semi-permanently Flooded	Robinson (2004:81)
Flood	5	294	0.89	n/a	Rao (1986:Table 13)
Flood	10	354	1.23	n/a	Rao (1986:Table 13)
Flood	25	433	1.35	n/a	Rao (1986:Table 13)
Flood	50[1]	479	1.55	n/a	Rao (1986:Table 13)
Flood	100[2]	535	n/a	n/a	Rao (1986:Table 13)
Flood	500[2]	663	n/a	n/a	Rao (1986:Table 13)

[1]The 50-year stage was averaged from discharge measurements of 453 and 484 m^3/s between 10/12/1953 and 10/14/1953. A discharge of 484 is the highest on record.
[2]Rao extrapolated discharges for these infrequent events. There are no corresponding stage values.

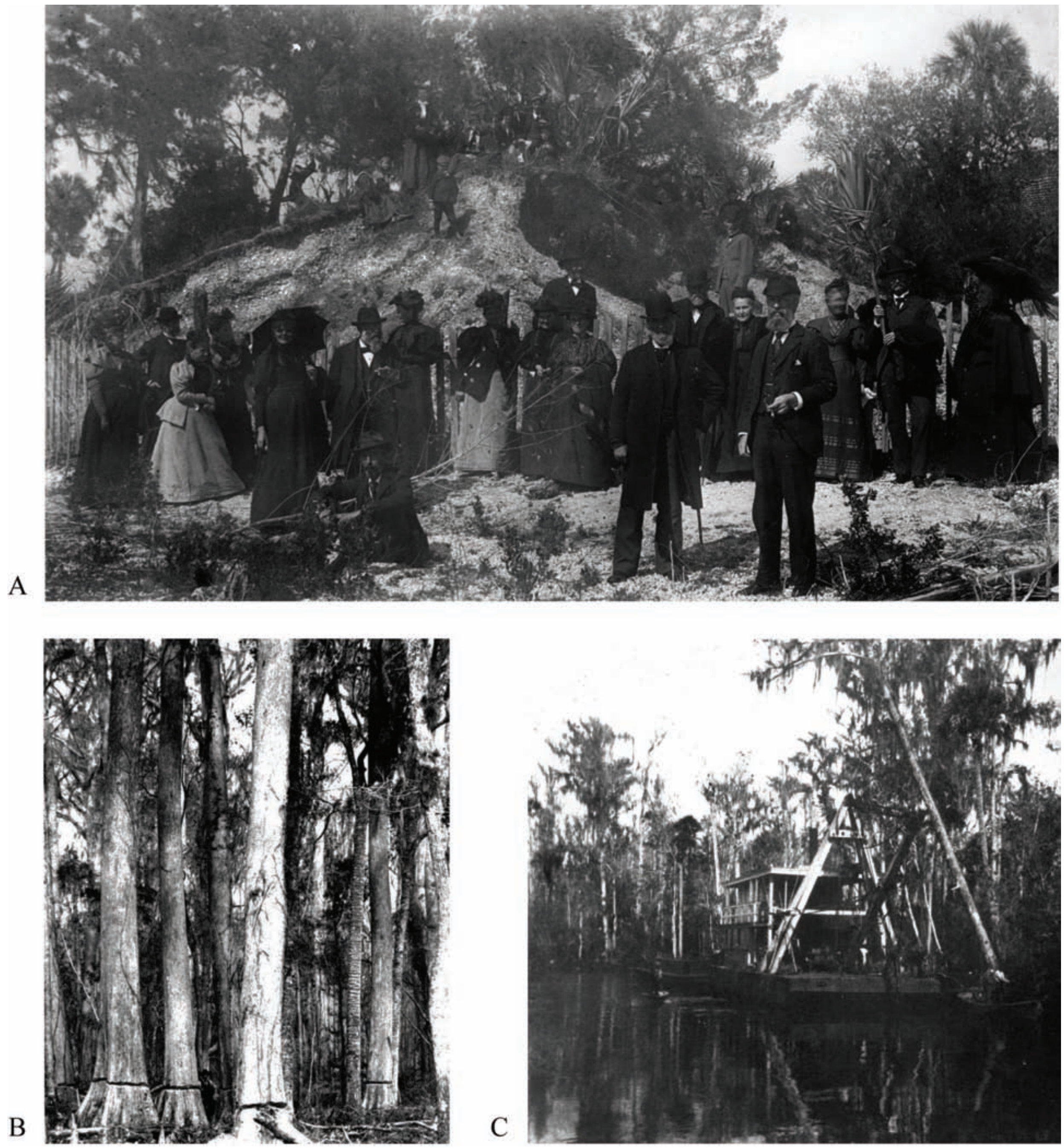

Figure 3-1. Late nineteenth and early twentieth century impacts to the St. Johns River region, photographs and captions courtesy of the State Archives of Florida. A) “Group of people digging in shell mound: Lake Monroe, Florida”, 1896, most likely the Old Enterprise site (8VO55). B) “Cypress trees ready for logging”, 1929. C) “Government dredge on the Ocklawaha River”, 1892.

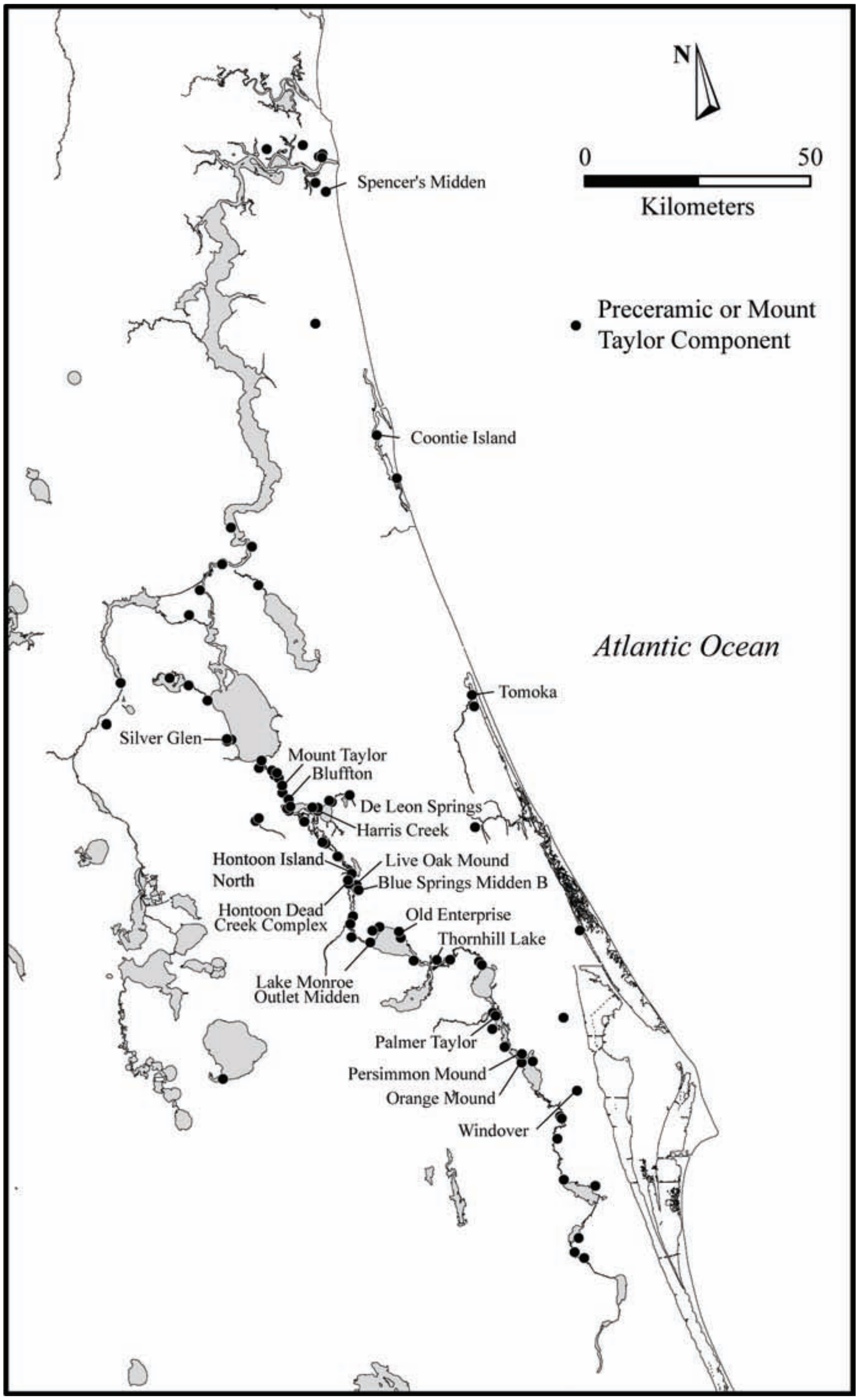

Figure 3-2. Distribution of known Mount Taylor and contemporaneous Preceramic Archaic shell matrix sites in northeast Florida (after Wheeler et al. 2000:Figure 11), with emphasis on those sites discussed in Chapters 3 and 4. Also included is the Windover site, an earlier non-shell matrix mortuary pond.

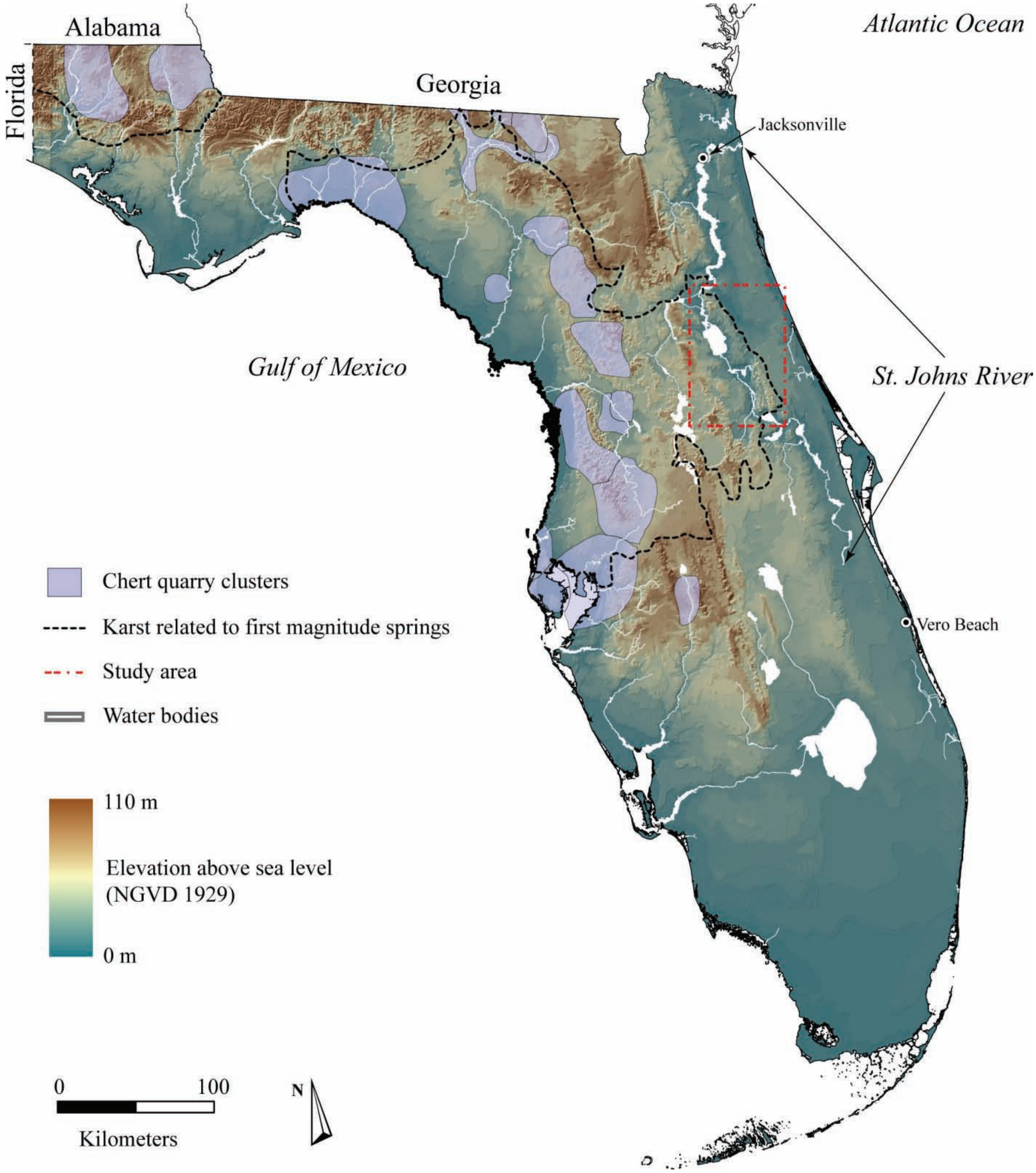

Figure 3-3. Hillshaded topographic map of the eastern Florida Platform emphasizing surface hydrology, karst areas (after Scott et al. [2004:Figure 6]), and the distribution of chert quarry clusters (after Endonino [2007:Figure 13]) in relation to the study area.

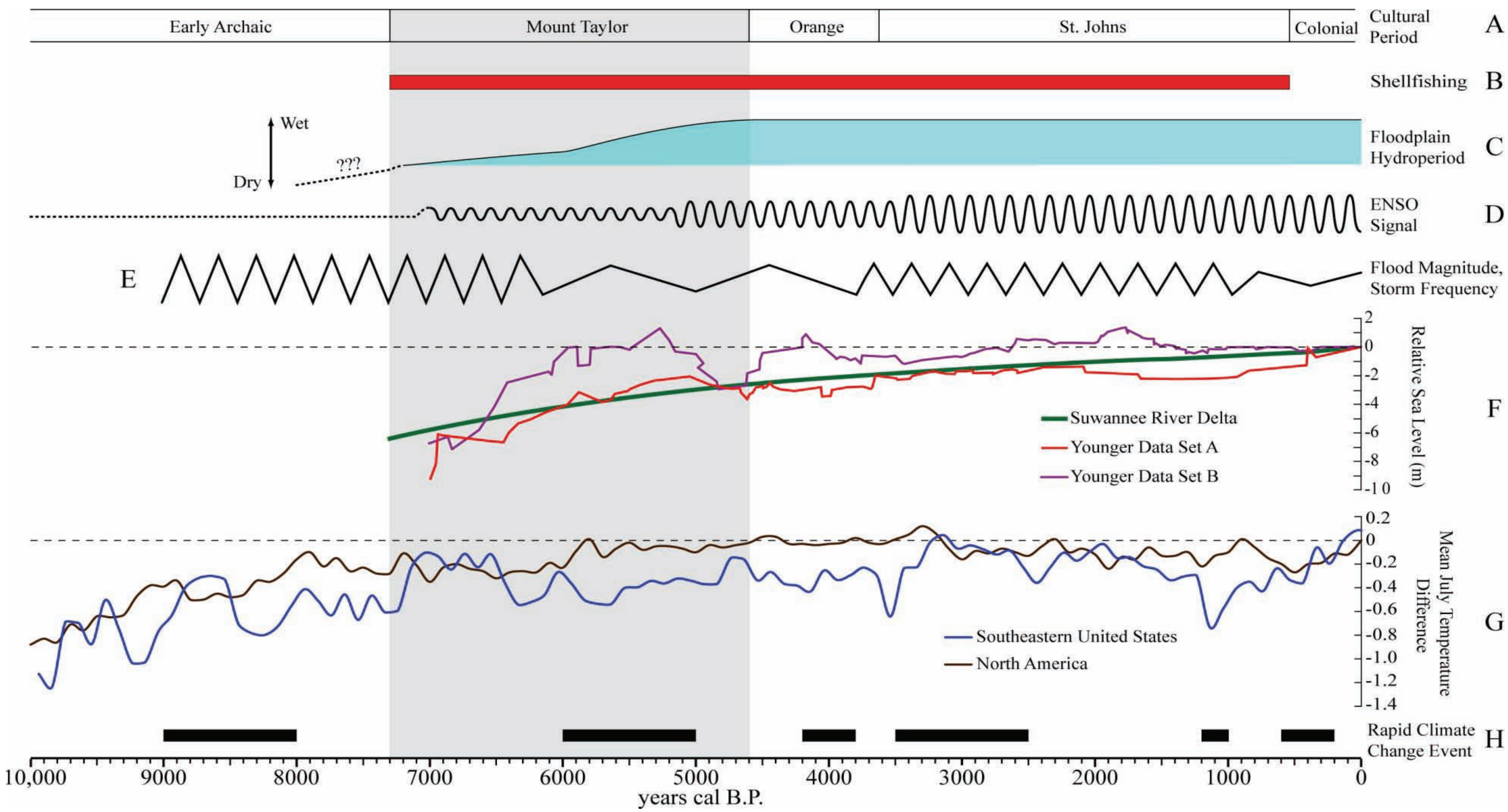

Figure 3-4. Environmental processes in relation to cultural periods along the Middle St. Johns River. A) Culture-historical periods. B) Onset and duration of shellfishing (this study). C) Hypothetical St. Johns floodplain hydroperiod change inferred from paleoproxy data (this study). D) Relative strength of ENSO signal (Donders et al. 2005; Moy et al. 2002). E) Relative flood frequency and storm magnitude (Goman and Leigh 2004; Liu and Fearn 2000). F) Sea level curves for the Suwannee River delta (modified from Wright et al. 2005) and Gulf of Mexico (modified from Balsille and Donoghue 2004). G) Mean July temperature difference from modern based on pollen analysis (Viau et al. 2006). H) Rapid Climate Change events (Mayewski et al. 2004).

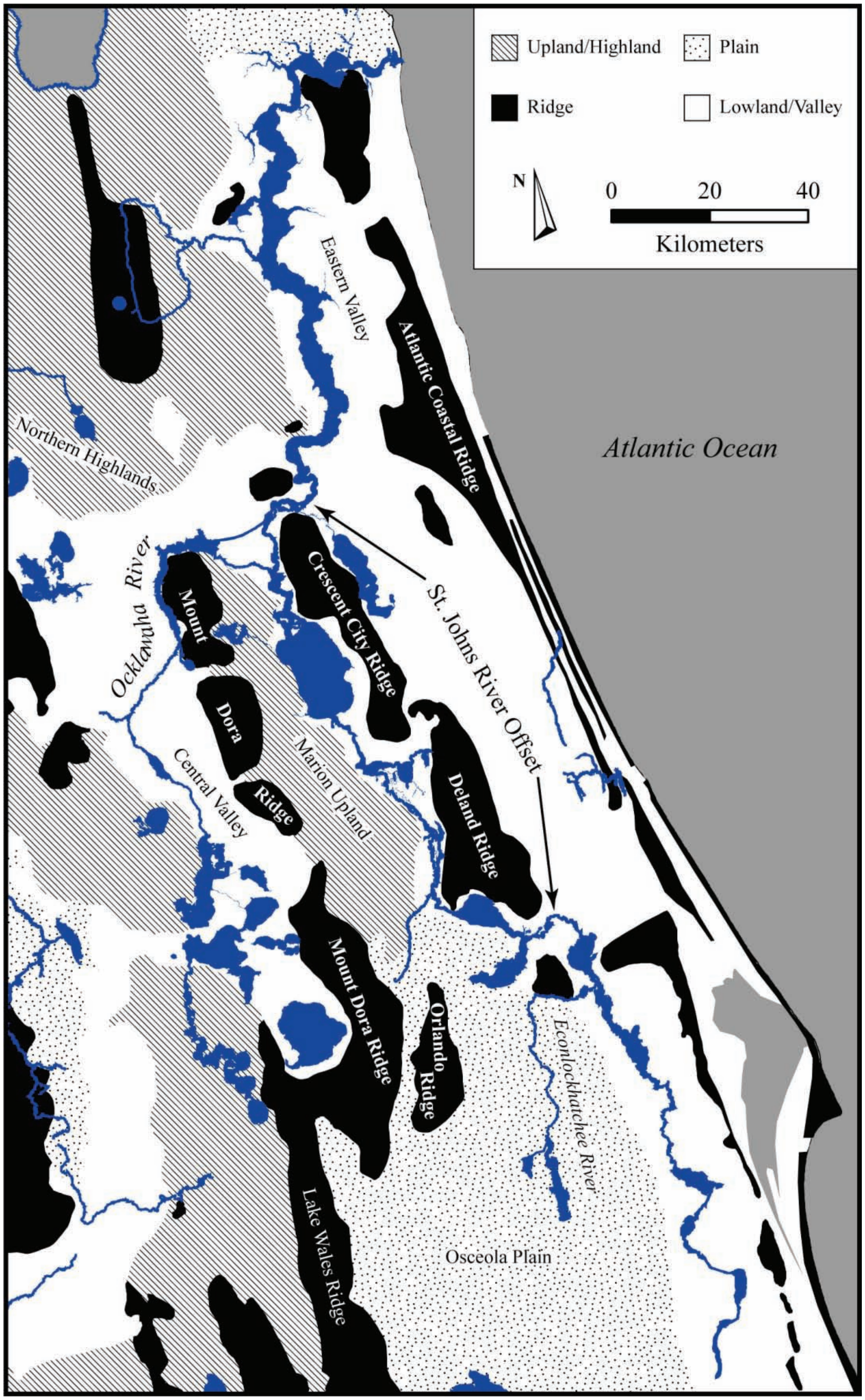

Figure 3-5. Physiographic provinces of the St. Johns River Region in northeast Florida, data derived from the Florida Geographic Data Library (2005).

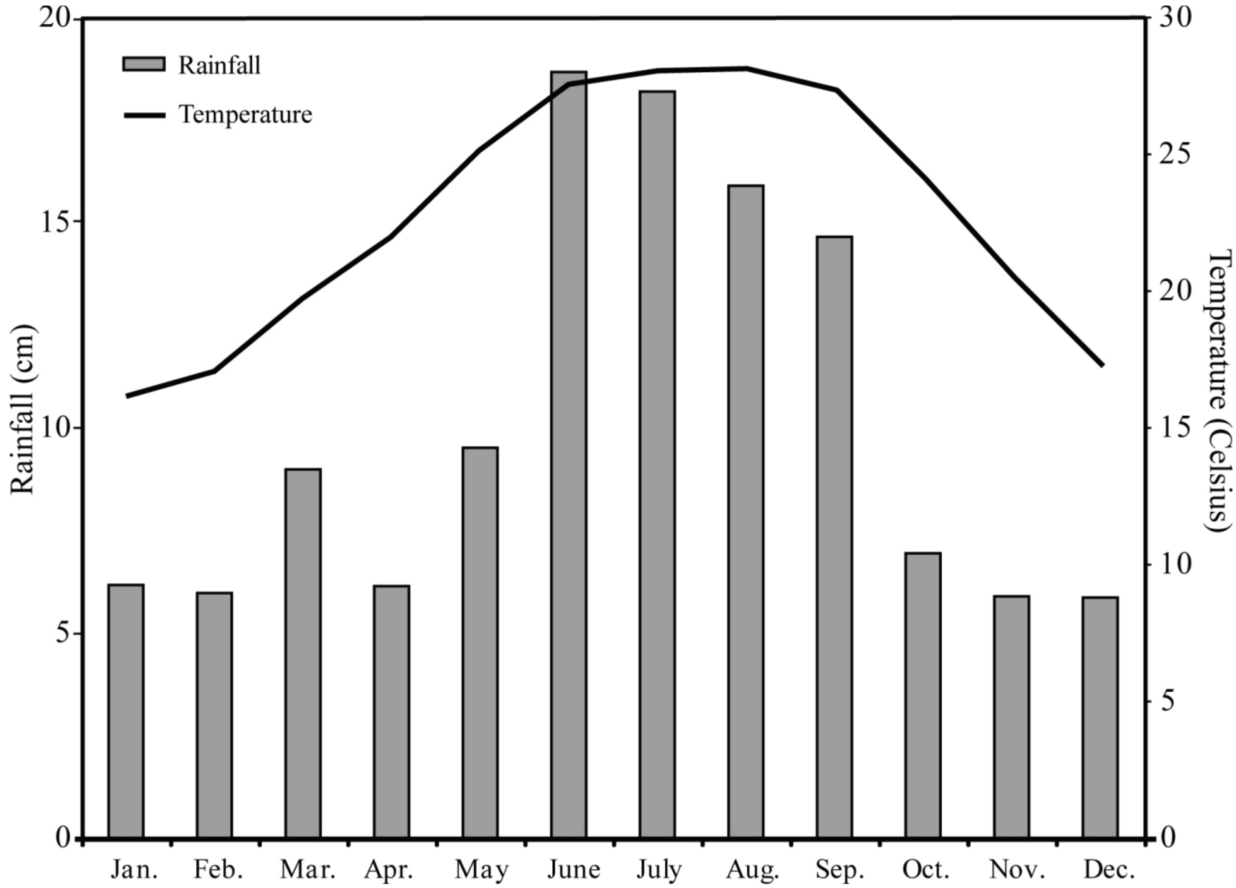

Figure 3-6. Monthly rainfall and temperature averages for the years 1971–2000 at Orlando International Airport, Florida (Florida Climate Center 2009).

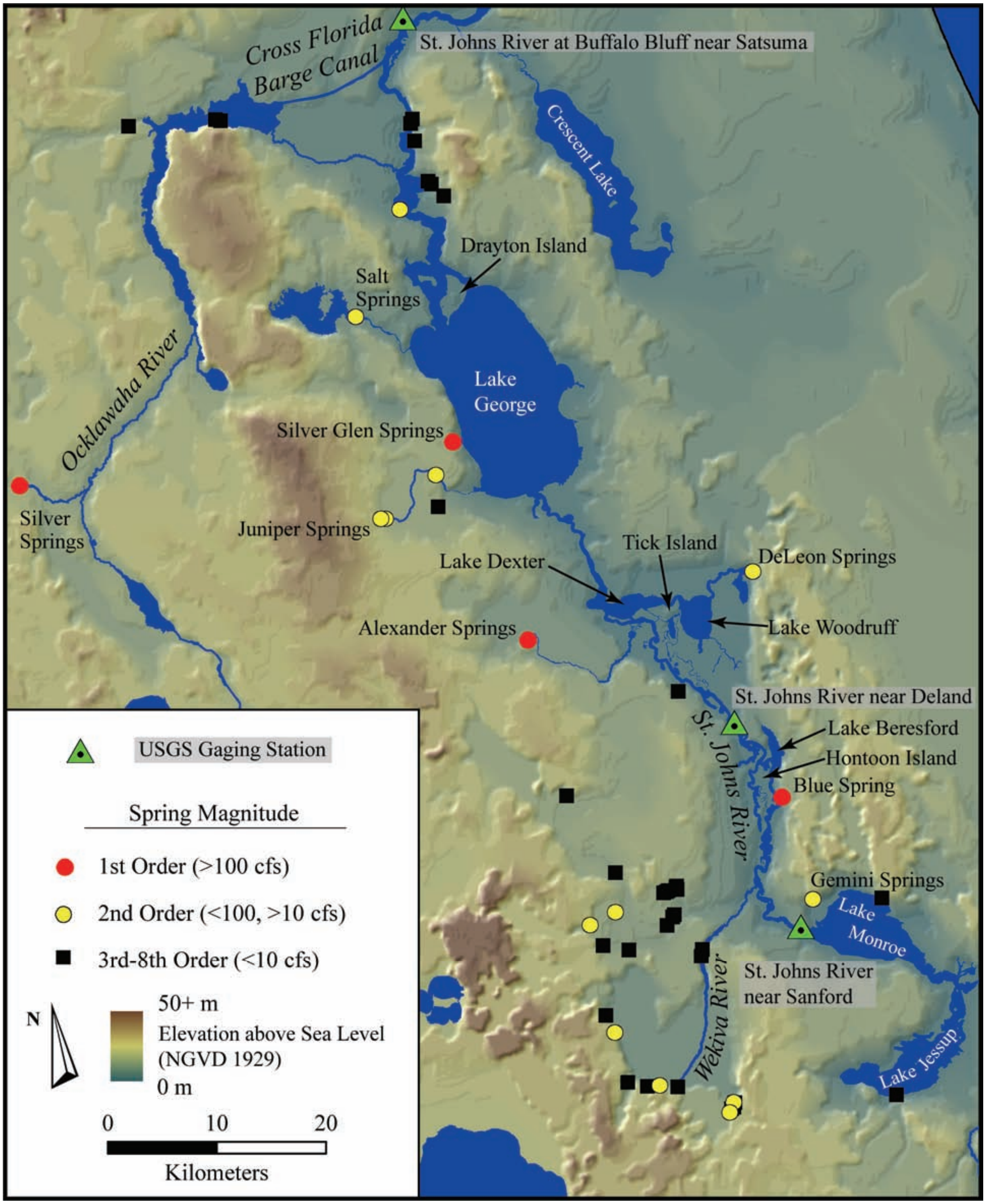

Figure 3-7. Springs, lakes, and islands of the Middle St. Johns River Valley. Elevation and stream gage available from the U.S. Geological Survey (2009), all other geographic data provided by the Florida Geographic Data Library (2005).

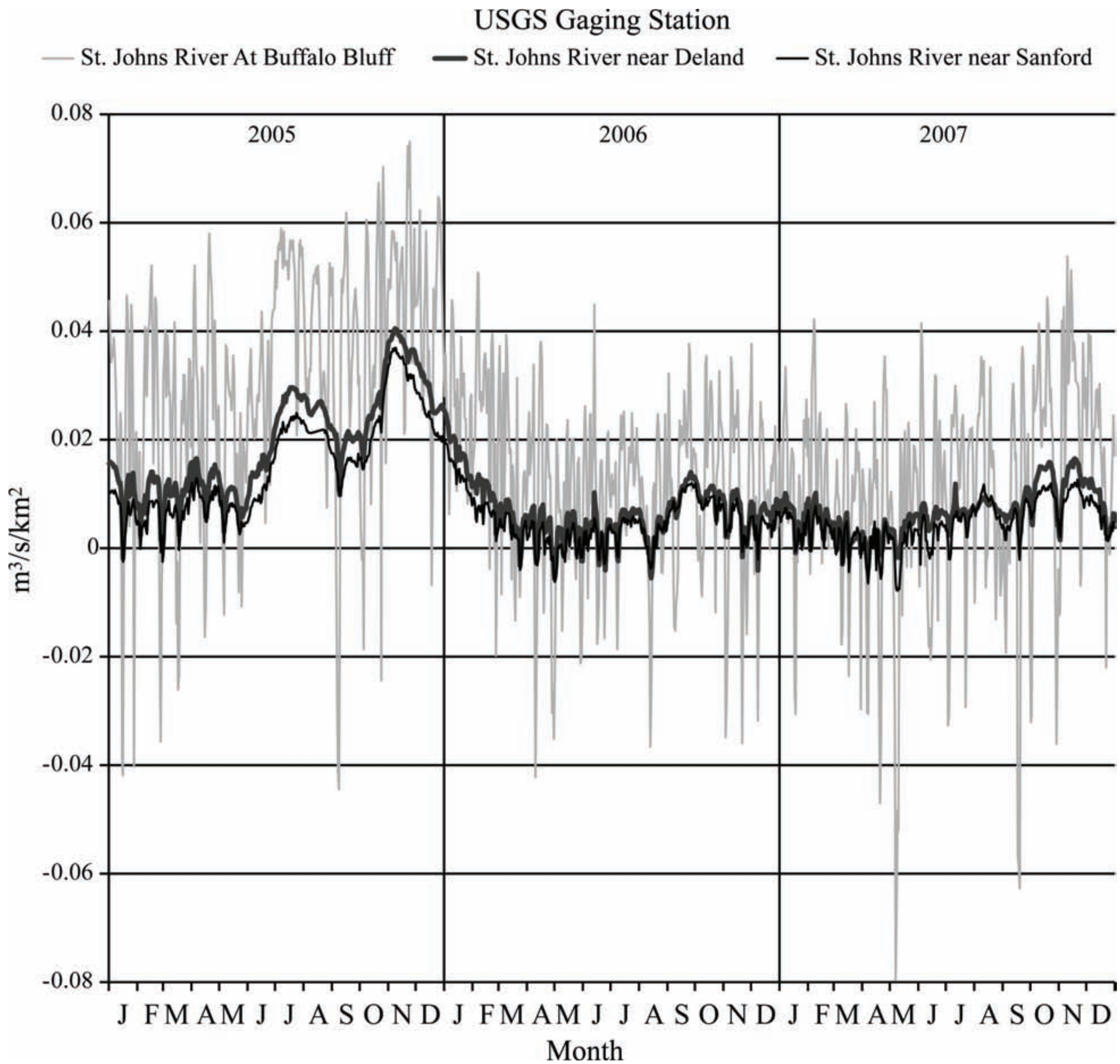

Figure 3-8. Daily streamflow-duration hydrographs standardized by drainage area for the years 2005–2007. Years begin in January. Stream gage data from the USGS (2009).

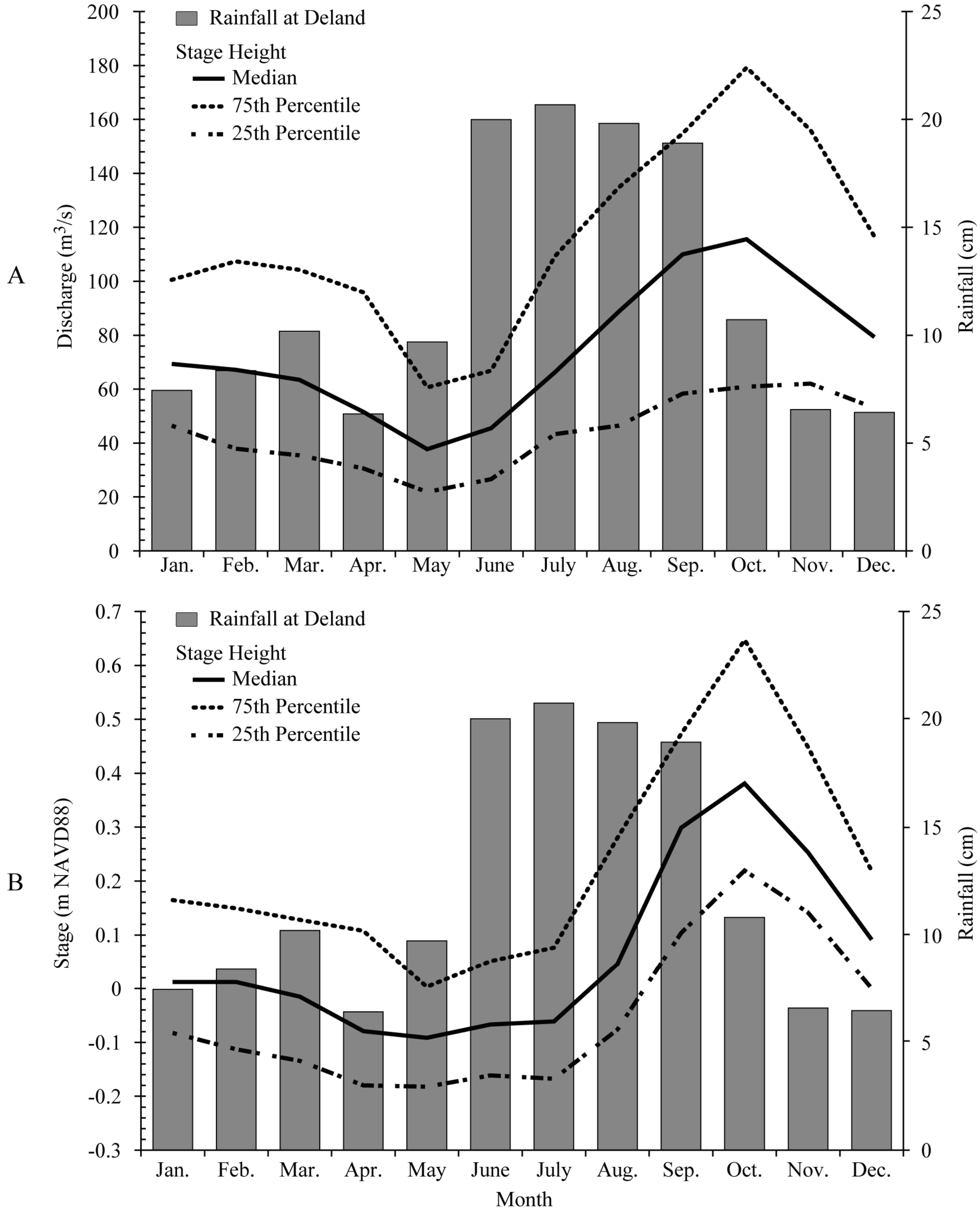

Figure 3-9. Monthly streamflow- and stage-duration hydrographs (USGS 2009) and rainfall (National Oceanic and Atmospheric Administration 2006) for the years 1957–2006 at the St. Johns near Deland, Florida gaging station. A) discharge. B) stage height.

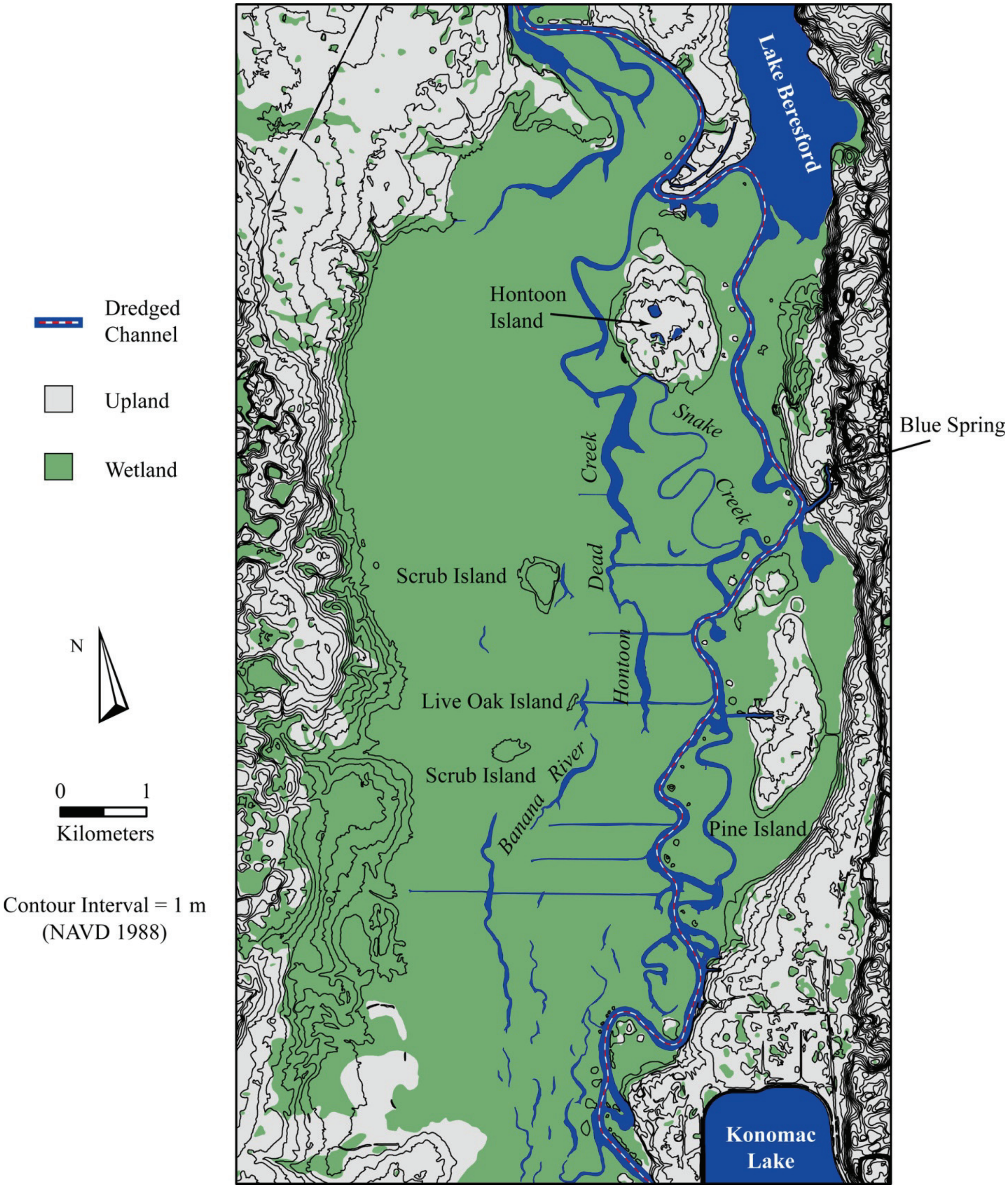

Figure 3-10. Channels and wetlands along the Middle St. Johns River Valley, from the Wekiva River outlet (south) to Hontoon Island (north). The lowest contour elevation is 1 m amsl.

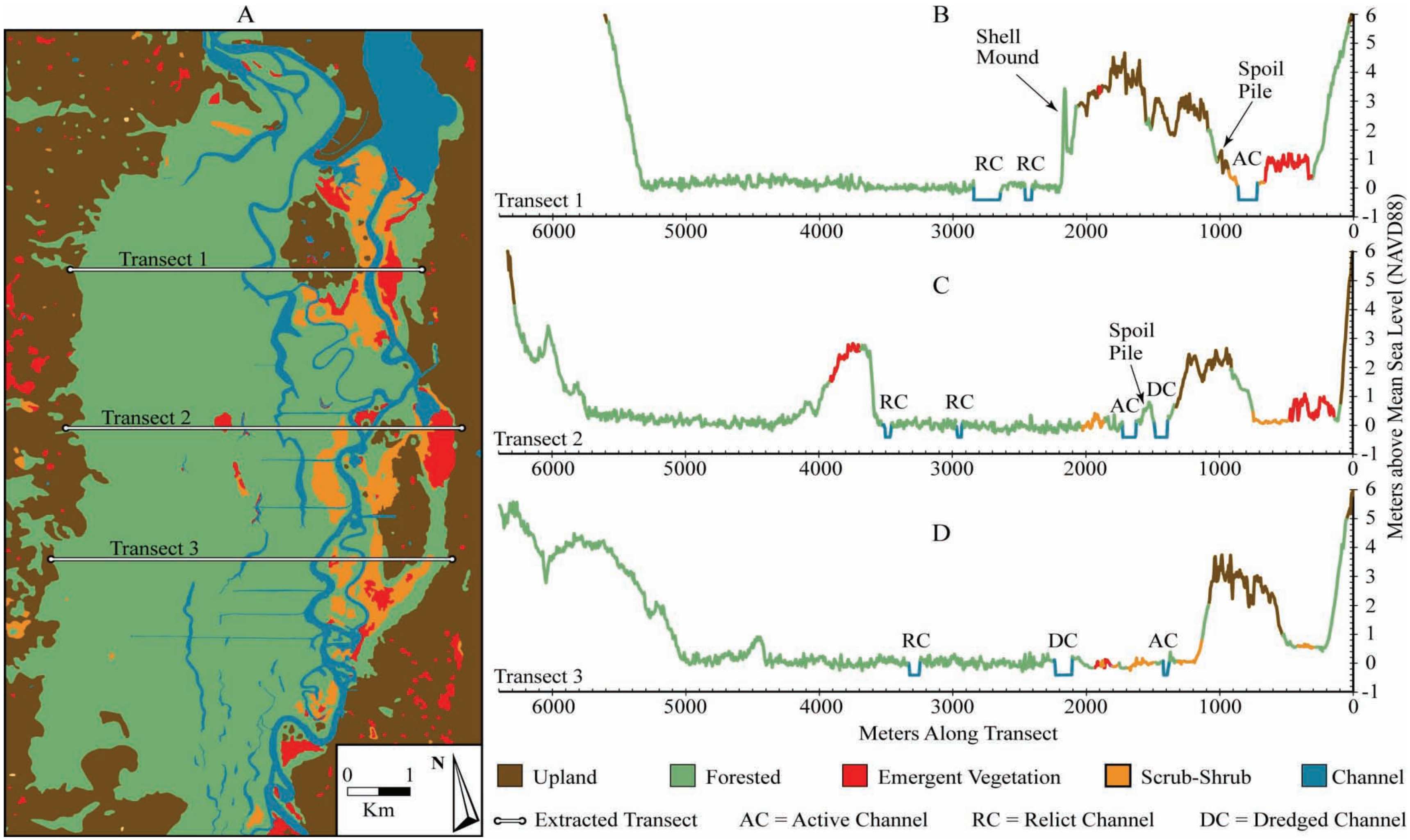

Figure 3-11. Distribution of wetlands (U.S. Fish and Wildlife Service 1992) in relationship to channeled surface water and elevation (Volusia County Public Works Department 2006) along the Middle St. Johns River, from the Wekiva River outlet (south) to Hontoon Island (north). A) plan view. B-D) extracted transects depicting elevation and vegetation type, vertical exaggeration approximately 230x.

CHAPTER 4
A SHORT GENEAOLOGY OF MOUNT TAYLOR TRADITIONS

The Mount Taylor period was defined on the basis of shellfish-dominated matrices, a suite of artifact types, and notably a lack of pottery (Goggin 1952). This definition has been further refined (e.g., Wheeler et al. 2000), and some have suggested new culture-historical divisions within the Mount Taylor period on the basis of mortuary traditions and exchange relations (e.g., Beasley 2008; Endonino 2008). While increased attention to chronological precision is an important turn in regional research, the taxonomic approach has the potential to obscure genealogies of practice and histories of communities at multiple scales. The preceding review of the ecologies of the middle Holocene St. Johns has outlined processes operating at multiple scales that defy easy separation.

Instead of a taxonomic approach, in this chapter I take a multiscalar and historical perspective to trace the history of Mount Taylor community traditions. I emphasize some of the better known elements of Mount Taylor lifeways, including regional settlement and mobility, subsistence, technology, exchange, and mortuary traditions. However, I want to draw attention away from Mount Taylor as a typological entity, and instead examine what we define as Mount Taylor along the St. Johns should be understood as a historical product of communities engaging in relationships between central Florida, the Atlantic and Gulf of Mexico coasts, and beyond. To this end, I consider in brief the lifeways of the region's inhabitants prior to the onset of shellfishing and those on the margins of the St. Johns. I will conclude the chapter with a brief statement on traditions of the Orange period. Many of the processes supposed to characterize the Mount Taylor period have actually been derived from analyses of

Orange period lifeways. In rethinking the Mount Taylor period, however, our current interpretations of their descendants require considerable revision.

Amidst the Rising Waters

The organization and history of early occupation prior to shellfishing in the St. Johns is largely a black box. Few sites dating before the Mount Taylor period have been discovered. The extent to which this is a factor of preservation bias or represents a true pattern of limited occupation is currently unknown. This is an unfortunate situation, as it is difficult to track what kinds of innovations communities may have made across the shellfishing divide. The deep history of the region was written by communities of the late Pleistocene Paleoindian traditions including Clovis, Suwannee-Simpson, and Dalton and various Early Holocene traditions identified by Side-Notched and Corner-Notched Bolen hafted bifaces (Bullen 1975). Given the drier atmospheric conditions and lower water tables, much of interior Florida was characterized by xeric vegetation.

Outside of the Middle St. Johns River Basin, water was a precious economic and symbolic resource. Sites of these time periods are typically restricted to inundated contexts such as drowned river segments (Dunbar et al. 1988; Faught 2004; Thulman 2009), sinkholes (Clausen et al. 1979), or perched basins and depressions (Daniel and Wisenbaker 1987; Neill 1964; Sassaman 2003b). Noting the co-occurrence of Paleoindian artifacts and karst topography in northwest Florida, Dunbar and Waller (1983) posited the “Oasis” hypothesis, that in effect Paleoindian populations were tethered to karst regions, abundant in toolstone and reliable surface water. In the St. Johns Basin, early sites are expected to occur adjacent to first-magnitude springs fed by the FAS (Miller 1998:84; Thulman 2009). The few known sites and isolated finds seem to fit this overall pattern (Sassaman et al. 2000). A survey of Crescent Lake, a perched water source, has demonstrated that there is great potential for recovering early assemblages in the region (Sassaman 2003b). Thulman (2009) has also mentioned a large Paleoindian encampment on a paleoterrace or dune beneath Lake George. The extent to which occupation was "tethered" to these water sources is unknown. Regardless, it should not be presumed that the St. Johns was vacant prior to the initiation of shellfishing.

Between 9000 and 7000 rcybp Florida's Early/Middle Archaic traditions also remain poorly defined (Austin 2004; Milanich 1994). As before, our knowledge of this period is largely derived from hafted biface technology. Stemmed hafted bifaces, consistent with the Kirk Stemmed type and locally referred to as Kirk, Wacissa, Hamilton, and Arredondo (Bullen 1975) are distributed throughout the North, Central, and Gulf Central portions of the state, often in similar localities as early forms (Milanich 1994). This period also witnesses the establishment of a long-standing tradition of aquatic mortuaries, wherein individuals were interred in shallow bodies of water such as ponds or sinkhole margins. Windover Pond in the Upper St. Johns basin represents the earliest so far identified, and is the most thoroughly investigated mortuary pond in the region (Doran 2002c), the significance of which I will discuss below.

Following these poorly documented periods, across much of Peninsular Florida researchers have recognized the Middle Archaic Newnan Horizon, characterized by short, narrow stemmed, broad bladed chipped stone hafted bifaces including Newnan and others forms (Bullen 1975; Milanich 1994:76). There is significant variation in the form of stemmed hafted bifaces from this period, leading to a less formal designation of the “Florida Archaic Stemmed” type, which includes any broad-bladed stemmed hafted biface. Lithic artifacts during this period were typically manufactured from thermally altered chert or silicified coral (Ste. Claire 1987). Radiocarbon assays place Newnan sites as early as 7000 cal B.P. and likely earlier (Clausen 1964; Milanich 1994:77), although similar forms were likely produced throughout the Archaic. Settlement in interior Florida, particularly the Central Highlands, which contains much of the available chert and silicified coral for the production of stone tools, is characterized by a dichotomy between large sites with diverse assemblages and small lithic scatters. The large sites have been interpreted by Milanich (1994:79) as indicative of reduced seasonal mobility. Austin (2001) suggests, however, that the larger sites likely represent more intensive short-term reduction episodes near raw material outcrops. Several quarries have also been identified in the Central Highlands, including the Senator Edwards site (Purdy 1975).

In contrast to the widespread, if poorly understood, evidence for inhabitation within interior Florida on the cusp of the Mount Taylor period, direct evidence for occupation or interaction on the Atlantic coast lags by several millennia. The lack of early coastal populations was once ascribed to the paucity of marine resources during the preceramic era (e.g., Goggin 2952:67). Ste. Claire (1990) argued that Archaic coastal occupation has been significantly underestimated, due in large part to the submergence of the coastal strand during the early Holocene. So far, the earliest shell matrix sites on the coast date no earlier than 6150 cal B.P., identified at Spencer’s Midden in the Timucuan Preserve in the Lower St. Johns Basin (Russo 1992). There is abundant, albeit indirect, evidence for coastal contact or seasonal mobility involving coastal resources. In the millennia prior to the emergence of shellfishing along the St. Johns, the communities associated with the Windover mortuary were acquiring objects of marine origin, including shark teeth, whelk (*Busycon*) shell, and *Marginella* shell beads (Dickel 2002; Penders 2002). Although these may have been acquired through exchange, analysis of stable isotopes from the inhumations at Windover has demonstrated that individuals were also consuming marine resources (Tucker 2009; Tuross et al. 1994). Today the site is some 8 km from the coast, and so the presence of marine resources should not come as a surprise. Although Windover's location in relation to the early Holocene shoreline is unknown, it was a greater distance back then.

Windover communities also traveled to, or had contact with, communities farther afield. Amongst the grave inclusions were four bifaces, one biface fragment, and one lithic flake. All were manufactured from raw material sourced to the Panasoffkee cluster, 130 km away to the west (Dickel 2002). Although small in quantity, these objects hint at biographies that ranged across the Florida Peninsula. I would suggest that we need to consider that the coastal resources documented at Windover may have come from the west coast as well. Evidence for early marine subsistence is also emerging on the northwest Gulf Coast. Although coastal occupation no doubt occurred on the Atlantic and Gulf margins, the earliest preserved evidence comes from the Gulf Coast which experienced a less destructive, low-energy wave environment. Along the PaleoAucilla River, Faught (2004) has identified diagnostic Middle Archaic stemmed hafted bifaces submerged to a depth between 4 and 5 m. Also found at the site were beds of disarticulated oyster shell, dated as early as 7000 cal B.P., which Faught suggests may be indicative of marine procurement. Equivalent coastal settlement at this time was likely in Tampa Bay and points south as well (Russo 1996b).

Mount Taylor Chronology

Until the last decade, little was known of the chronology of Mount Taylor practices due to a lack of abundant or widely spaced radiocarbon determinations. Recent research and mitigative projects have generated a large enough sample to contextualize practices through time. The absolute chronology of Mount Taylor practices within the Middle St. Johns is defined by a total of 52 radiocarbon assays from 11 sites (Appendix A). This total includes those previously published and those reported in this study. Sites represented in this analysis span the the study area, and include (from north to south) Silver Glen Run Complex (8LA1), Bowyers Bluff 2 (8VO88B), Harris Creek Complex (8VO24), Hontoon Island North (8VO202), Hontoon Dead Creek Mound (8VO214) and Village (8VO215), Live Oak Mound (8VO41), Blue Spring Midden B (8VO43), Lake Monroe Outlet Midden (8VO53), Groves' Orange Midden (8VO2601), and the Thornhill Lake Complex (8VO58–60). One other date from the Tomoka Mound Complex (8VO81) on the intercoastal waterway is also included for comparison. All samples were recovered from within shell and/or sand matrix strata. I have also provided selected assays (n=15) from Orange period components as a point of comparison. These include samples from shell matrix strata and vessel soot.

I have excluded all assays on materials other than charcoal, nutshell, marine shell, or human bone. Throughout the years authors have attempted to directly date freshwater shell (e.g., Bullen and Bryant 1965; Johnson 2005), or use chronometric techniques other than radiocarbon (Bullen and Sackett 1958). However, all freshwater shell dates are affected by the old carbon problem typical of regions downstream of karst bedrock. As a result all determinations directly on freshwater shellfish remains return significantly earlier results than their actual age. Although it is possible that a calibration curve could be developed, none has been forthcoming as of yet.

All radiocarbon assays were calibrated in Calib 5.0 (Stuiver and Reimer 1993). For samples from terrestrial materials, the IntCal04: Northern Hemisphere (Reimer et al. 2004) calibration curve was used. For samples from marine materials, the Marine04 (Hughen et al. 2004) marine calibration curve was used (Reimer et al. 2002; Reimer et al. 2006). A local correction of 380 years was added to uncorrected ^{14}C determinations prior to calibration, and a marine reservoir correction factor of ΔR33 ± 16 was applied to marine samples based on the nearest source (^{14}CHRONO Centre 2010). No modeling was conducted during calibration, and each assay was considered independently.

One final caveat regarding the calibration of human bone is required here. Stable isotope analysis by Tucker (2009) of human remains from Harris Creek determined that individuals were consuming marine foods as part of their annual diet. The consumption of marine resources introduces depleted carbon into human bone, as it does for other consumers (Meiklejohn et al. 1998:204–205). In this analysis, no marine reservoir correct factor was applied on human bone samples. However, there are discrepancies between Tucker's (2009) assays on human bone from Harris Creek, and those acquired by the original excavators who sampled charcoal from the mound fill. The charcoal assay intercepts clustered within a two-hundred year span (ca. 6200–6000 cal B.P.), suggesting a relatively short use life (Aten 1999). Because of large sigmas, however, these charcoal assays place construction of the mortuary sometime between 6900–5600 cal B.P. Assays of human bone from the mortuary layers acquired by Bryan

Tucker (2009) yielded a similar range between intercepts, but which were much earlier and restricted in time, between 7240–6480 cal B.P. The human bone assays place mortuary construction roughly coeval with the regional onset of shellfishing. The reality likely lies somewhere in between. The Harris Creek assays on human bone may be younger on the order of more than a century.

The radiocarbon assays will be referred to throughout this study. However, there are several patterns worthy of note up front. At the scale of the region, the most compelling argument for continuity is the distribution of assays through time. Presented in Figure 4-1 are the 2σ-calibrated assays from Archaic components, ordered chronologically by the median probability intercept. As a general rule, the median intercept is a poor measure of centrality because probability distributions can have multiple intercepts (Telford et al. 2004). Thus, the median should not be used for point sampling or estimates. However, the median can be used to order assays for general comparisons. In this graph there are no temporal gaps over the 3700 year time span that includes both Mount Taylor and Orange period components. While the sample size is relatively small, a stepwise comparison of assays within 2σ intervals suggests that there were no obvious regional hiatuses. If the temporal distribution of mirrors human occupation, then any social transformations identified can not necessarily be explained by regional abandonment.

I would also note that the initiation of shellfishing is geographically extensive and event-like from the perspective of the assays. Shellfishing in the region appears abruptly, as early as 7300 cal B.P. Although the earliest assays from shell matrix are situated at two nearby locations, the Hontoon Dead Creek Complex and Live Oak mound, assays falling within the 2σ range of this early date are found as far south as Groves' Orange Midden and potentially as far north as Harris Creek. The implication is that the region was rapidly inscribed with the deposition of shellfish in localities beginning 7300 cal B.P.

Finally, a consideration of samples ordered by latitude from north to south reveals several temporal and spatial trends (Figure 4-2). The only long-term sequence spanning the entire Mount Taylor period was reported for Groves' Orange Midden (McGee and Wheeler 1994). As noted before, this site is a subaqueous extension of the Old Enterprise Complex. All radiocarbon assays were from subaqueous strata and present a largely continuous sequence. However, at least one shift in deposition occurred between 5900 and 4540 cal B.P., possibly reflecting floodplain aggradation (McGee and Wheeler 1994). Despite the long-term reoccupation of this place, assays collected from elsewhere in the region reveal much more punctuated inhabitation. Assays from 8LA1W-A, 8VO202, 8VO214, and 8VO53 indicate that habitation was of variable duration, with ranges between 200 and 400 years. There are, however, two important points that are revealed by the disparate chronologies of shell matrix sites. First, we should not expect that every shell matrix site in the region was active at any one point in time. The other point is more mundane. Our knowledge of Mount Taylor traditions is tied to poorly contextualized regional surveys and more intensive, localized research. As a result, we are left with a series of snapshots that do not necessarily reflect change through time at the regional level.

Settlement Mobility

The annual movements of Mount Taylor communities loomed large in their experiences engaging in residential and ritualized fields of practice. Currently, there is no clear answer as to what the annual mobility or residential permanence of inhabitants may have been throughout the preceramic Archaic (Wheeler et al. 2000). A review of the current data suggests there were a number of pathways that communities took throughout the duration of the period, and even between years. The current state of our knowledge regarding these patterns reflects as much the preconceived notions of researchers as it does processes of the past. In this respect, the settlement patterns of Mount Taylor communities has been the subject of some debate, with the seasonality, range of mobility, and long-term stability of occupation in any one place the primary points of concern.

Prior to the 1970s, there was little interest in determining the seasonality of regional habitation, although Wyman (1875:79) did note when some species were most likely to be captured. Goggin as well (1952:66) does not address mobility directly, and only offers that the Archaic Tradition was “characterized by a semi-sedentary group of people obtaining their food by hunting, fishing, and gathering.” The importance of the coast was considered minimal. Cumbaa (1976) was the first to address mobility patterns directly. His model framed Mount Taylor populations on an evolutionary pathway somewhere between mobile big game hunters and sedentary villagers. His primary assumption was that Mount Taylor communities were oriented towards increasing their energy capture efficiency, and used the extant ethnographic analogies of low latitude foragers as a guide. He suggested that individual shell mounds (he was expressly interested in the largest sites) reflected a pattern of “central-placed nomadism” (1976:52), wherein one band composed of approximately 50 individuals would inhabit a location until daily collection and hunting forays resulted in diminishing returns. At the regional scale, this would result in an isolated band moving between shell mounds in a serial fashion. Underlying the model was the assumption that local *Viviparus* colonies could be easily overexploited locally, but would rebound within 1 to 5 years. Thus, each mound would be occupied on a return interval of several years.

Milanich and Fairbanks (1980:61,150) also deemphasized aquatic resources in their model of Mount Taylor and Orange period settlement mobility. They proposed that the Mount Taylor period reflects gradual and increasing use of aquatic resources by populations of the central highlands. In their model, the increased use of the river eventually gave way to more sedentary occupation and marshaled in an era of village life by the Orange period. They envisioned groups seasonally migrating between the central highlands and the St. Johns River. By the onset of the Orange period, they supposed that coastal resources would be exploited in the winter (on the assertion that shellfish would be more likely to spoil in the hotter months), with populations migrating into the St. Johns during the winter. Spurring the change to freshwater shellfish collection was, in this model, a degradation of oak-dominated forests in the Central Highlands that were replaced by pine-dominated forests. Miller (1992,1998) also argued that environmental conditions were central to the development of Mount Taylor lifeways. He asserted that the establishment of stable wetlands around 7000 years ago was enabled by higher relative sea level and a concomitant rise in the water table and spring discharge. Together, these enabled permanent or at least seasonal occupation of the St. Johns Basin. Like Milanich and Fairbanks, he did not believe that coastal habitation was an important component of the annual round.

In the 1990s, Russo and colleagues leveled several critiques at these earlier models, particularly as they regarded terminal Mount Taylor and early Orange period settlement. Instead of migrating populations, they envisioned different ecological zones inhabited by distinct and permanently settled populations. Along the St. Johns, the model was based on an analysis of flora and fauna from Groves' Orange Midden (Russo et al. 1992) (see below). At Groves' they noted that the botanical assemblages indicated settlement between late summer through fall. Although the faunal remains could not be used to determine seasonality, they argued that dry-season occupation was also a possibility. The basis for the argument was that they recovered both freshwater and terrestrial commensal gastropod species in strata thought to be deposited underwater. They suggested that the terrestrial gastropods were incorporated into the matrix during annual dry-downs in the winter and spring. Although not decisive in and of itself, they noted the presence of multi-seasonal occupations elsewhere, including the Upper St. Johns Basin (Sigler-Eisenberg et al. 1985), mouth of the St. Johns (Russo 1992, 1993), and the Atlantic coast (Russo and Ste. Claire 1992).

What was perhaps most revolutionary in these analyses was the determination that coastal shellfish, particularly coquina (*Donax variablis*) were exploited during the summer months. Although these studies were based on Orange period components, Russo later (1996b) extended the model into the preceramic Archaic. As he noted, many of the sites in the Timucuan Preserve, as well as Spencer's Midden on the south side of the mouth of the St. Johns, contained preceramic components. Seasonality studies at Spencer's Midden in particular demonstrated that coquina were collected in the summer, oysters were collected in the winter, and estuarine fishes were captured in the spring through fall (Russo 1996b:190). These data accord well with considerable evidence for intensive and often multi-seasonal coastal occupations in Southwest Florida dating as early as 6000 cal B.P. (Russo 1996b).

Tucker (2009) tested these alternative settlement models through a stable isotope analysis of skeletal remains recovered from Windover Pond and the Harris Creek mortuary. This sample selection allowed him to track changes between pre-shellfishing (ca. 9000–8000 cal B.P.) and early Mount Taylor communities (ca. 7000 cal B.P.). In his analysis, he compared carbon and oxygen ratios of serially sampled teeth. This methodology allowed him to obtain sub-annular resolution of isotopic variation that occurs during the development of mature dentition. Annual temperature and precipitation variation is registered by variations in the ratio of oxygen isotopes, wherein enriched samples are indicative of warmer months. The consumption of marine foods are tracked by variations in carbon isotopes, such that enriched samples are typical of marine food consumption.

In general, Tucker's analysis showed that the Windover population and the Harris Creek population were consuming marine foods during the warmer (i.e. summer) months, but were not routinely consuming marine resources during cooler (i.e. winter) months. The correlations were strongest amongst the Windover population, suggesting that Windover communities were moving from the interior to the coast during the summer months, and then returning to the interior during the cooler months. The Harris Creek sample was more variable. Some individuals clearly followed the Windover seasonal pattern, while in others the relationship was less robust. Although this may suggest more diverse mobility practices during early Mount Taylor times, Tucker indicates that sampling errors may have contributed to the variance. Regardless, Tucker's research demonstrates that mobility patterns during the middle Holocene spanned the St. Johns region and the coastal zone, and this pattern had great antiquity. This is a reversal of Milanich and Fairbanks's model. The extent to which it is a challenge to Russo's work is less clear. If the new radiocarbon assays from Harris Creek can be trusted, then Tucker's sample predates much of the preserved coastal record by up to 1000 years. In this view, the onset of sedentary, or at least seasonally restricted settlements along the St. Johns may have been a later phenomenon.

Subsistence

As the defining characteristic of Mount Taylor practices, surprisingly little is known of the temporality, diversity, or changes in subsistence practices through time. Prior to the 1970s, most approaches to Mount Taylor subsistence were defined by speculation as to the significance of shellfishing in general, and fishing specifically. Since Brinton's time, archaeologists have recognized that shellfishing was a component of lifeways along the St. Johns. Wyman (1875) presented taxonomic lists of species he identified amongst the shell matrix sites he observed, arguably one of the first zooarchaeological analyses in the United States (Trigger 1986). At the height of salvage excavations, Neill et al. (1956) reported on faunal remains from four Mount Taylor sites, although they explicitly excluded shellfish and fish from their quantifications (Russo et al. 1992). They did not systematically sample, nor were they concerned with time. They did note that a total of 47 species were identified, all of which are found within the region today.

Current debate and research centers on the importance of terrestrial, aquatic, and marine resources and the implications for seasonal settlement. The first concerted effort to model Mount Taylor subsistence was Cumbaa (1976), who analyzed a small shell matrix sample. Because he could not find an adequately excavated sample from Mount Taylor contexts, he used an Orange period assemblage from the Colby Site. In his now discredited paper (i.e. Russo et al. 1992), Cumbaa argued that shellfish would have contributed roughly 24 per cent of the daily intake of a Mount Taylor individual, vertebrates would consist of 43 per cent of the diet, while fish would account for only 1.7 per cent. This interpretation was based on a small sample of shell matrix, approximately 1 m^3 in volume, from an Orange period component. The only size grade analyzed was greater than 1/4-inch mesh. The results of this analysis were combined with total caloric values for the minimum number of individuals he identified in the sample, as well as an estimate of 55 per cent plants that would have been a be present in the sample as well. The plant estimate was derived from his survey of extant hunter-gatherer literature, although there is no clear reason why he chose that particular contribution. For Cumbaa, Mount Taylor communities were primarily terrestrially-oriented hunters and gatherers, and in this sense were more like Kalahari San groups than comparative temperate zone hunter-gatherers.

Cumbaa's analysis has been overturned by recent zooarchaeological studies that have demonstrated the greater importance of aquatic resources. In a much needed paper, Russo et al. (1992) systematically collected and analyzed a column sample from a saturated Late Mount Taylor/Early Orange period stratum at Groves' Orange Midden. They noted that Cumbaa's approach was flawed due to small sample size, the use of large size grades which would deemphasize small vertebrates, and incorrect calculations of meat weight used to calculate dietary contribution. In their analysis they examined all faunal remains greater than 1/16-inch, and used ratio and allometry to determine the contribution of species by meat weight. Based on their calculations, the column sample was dominated by aquatic species. Shellfish composed a total of 96 per cent of the sample by meat weight. The sample was dominated by *Viviparus* (58 per cent), followed by bivalve (27 per cent) and apple snail (11 per cent). In contrast, fish and turtles contributed less than 2 per cent and mammals less than 1 per cent of the total sample. A subsequent preliminary study of samples spanning the Mount Taylor period at Groves' Orange Midden by Wheeler and McGee (1994a) replicated the earlier results of Russo and colleagues in broad outline. One point of variance, however, was the relative contribution of shellfish through time. Although there was no temporal trend, they found that contribution of invertebrates varied between 33 and 85 per cent.

The dominance of aquatic species has been further demonstrated by zooarchaeological studies of later Mount Taylor samples from the Lake Monroe Outlet Midden (Quitmyer 2001) and late Mount Taylor and Orange period assemblages at Blue Springs Midden B (Sassaman 2003a:127–153). In general, broad similarities in species captured and exploited ecological zones are evident. Zooarchaeological samples have recognized that a diverse array of species were collected. Fishes include catfishes (Ictaluridae), sunfishes (*Lepomis sp.*), gars (Lepisoteidae), bowfin (*Amia calva*), largemouth bass (*Micropterus salmoides)*, striped mullet, American shad, chubsucker (*Erimyzon sucetta*), and American eel (*Anguilla rostrata*). Most of these species prefer shallower, near shore environments (Quitmyer 2001). In many cases, freshwater turtle is relatively abundant, including the soft shelled turtle (*Apalone ferox*), pond turtles (*PseudemysITrachemys sp*.), and mud/musk turtles (Kinosternidae). Other reptiles include alligator and various snakes. Although rarer, birds such as turkey, various ducks (*Anatidae*), and other species have been recovered. Similarly, the typical mammalian assemblage includes opossum, rabbit (*Sylvilagus* spp.), raccoon, otter, and white-tailed deer. Invertebrate species include *Viviparus*, apple snail, and bivalve in varying abundance. The broad similarities in species composition mask subtle but likely important changes in local ecological conditions and exploitation patterns (Sassaman 2003a:153). For example, eel appears more prevalent in Mount Taylor assemblages than in Orange period assemblages, which may relate to a decrease in river velocity through time (Sassaman 2003a:133). At Lake Monroe Outlet Midden Quitmyer (2001) suggested that there was decreasing diversity in the exploitation of species, particularly shellfish.

Although often overlooked, and difficult to quantify in terms of relative importance, a wide array of plant remains were exploited by Mount Taylor communities. Where waterlogged conditions have enabled the preservation of plant matter, such as at Groves Orange Midden (Newsom 1994; Russo et al. 1992) and Windover Pond (Newsom 2002), a consistent pattern characterized by high diversity is established by no later than 9000 cal B.P. Mast resources such as hickory and likely acorn were exploited. Pulpy fruits such as black gum (*Nyssa sylvatica* Marsh), prickly pear (*Opuntia humifusa*), saw palmetto (*Serenoa repens*), maypop (*Passiflora incarnata*), wild plum (*Prunus* sp.), blackberry (*Rubus* sp.), persimmon (*Diospyrus virginiana*), red mulberry (*Morus rubra*), elderberry (*Sambucus canadensis*) and grape (*Vitis* sp.) appear to have been the most important (Newsom 2002). These fruits were supplemented with starchy seeds such as amaranth, pigweed, and knotweed, as well as the greens from these and other species. Numerous tubers were potentially eaten. Cabbage palm hearts and shelf fungi have also been identified (Newsom 2002). Undomesticated varieties of both bottle gourd and *Cucurbita pepo* gourd have been identified. The former may have been used as net floats, while the seeds of the latter could have been consumed. All of these species could be located within the floodplain or in the immediately adjacent mesic uplands (Newsom 1994).

There are a number of caveats and questions regarding Mount Taylor resource exploitation. Because so few samples have been analyzed, there is currently no way to assess whether there were significant changes through time, or whether there are differences between social contexts of deposition. Despite the presence of shellfish within matrices, the degree to which shellfish were collected for food or other purposes such as construction material is largely unknown. Tucker (2009) attempted to model the dietary contribution of shellfish by comparing the Windover and Harris Creek populations. He found that there was no isotopic model solution that could account for the proportion of shellfish found within zooarchaeological samples, presuming that shellfish were a primary contributor to diet. He was able to identify a slight increase in the use of riverine resources between Windover and Mount Taylor times. However, the increase could not account for the relative abundance of shellfish documented within the shell matrix sites. That is, on isotopic grounds we cannot assume that shellfish were being consumed in the quantities suggested by zooarchaeological analyses. This is an important finding. It suggests Mount Taylor communities were collecting and depositing shellfish for purposes other than consumption.

Technology

The broad outlines of Mount Taylor technology have been described by Wheeler and McGee (1994b) based on the analysis of the Groves' Orange Midden assemblages, and further summarized by Wheeler et al. (2000). As demonstrated at Groves', much of the toolkit of Mount Taylor communities was in place from the beginning of regional settlement, and shares similarities with the Windover material culture (e.g., Penders 2002). Mount Taylor period assemblages are typified by mundane and decorative material culture manufactured from locally available bone, fired clay, and wood, in addition to marine shell and various chipped stone tools (Wheeler et al. 2000). In most contexts, formal and informal chipped stone tools are rare. The hafted biface assemblages are consistent with the Newnan horizon. Aside from hafted bifaces, Mount Taylor lithic assemblages are dominated by unifacial tools that appear to have been used for a wide range of applications including perforating, scraping, cutting, and wood splitting (Archaeological Consultants, Inc. [ACI] and Janus Research [JR] 2001). The rarity, fragmentary disposition and apparent rates of attrition on working edges would suggest that stone tools were of limited availability or utility (Purdy 1994a). The discovery of a dense lithic workshop at the Lake Monroe Outlet Midden, separate from the shell matrix (Scudder 2001), suggests that a sampling strategy focused on shell matrix may under represent activities that were traditionally spatially segregated away from loci of shell deposition.

Marine shell tools and objects are routinely documented in Mount Taylor assemblages. Most widely exploited were varieties of the whelk, *Busycon sp.*, which are available on the Atlantic Coast. Many whelk shells were modified to use as wood cutting tools. Adzes and axes were manufactured by piercing the whorl for insertion of an organic handle, while the siphonal canal was cut or ground to a working edge. Celts or gouges were also manufactured out of whelk, in this case by removing the columella and sharpening the distal edge of the whorl. Additionally, celts were made from the lip of the *Strombus gigas* shell, only available in southern Florida (see below). Marine shell was also used to make containers. That many were used for cooking purposes is attested to by residue adhering to the interior surfaces, and many have thermally fractured bases. Decorative shell objects are also typical, and include marine shell beads and plummets made from large whelk columella. *Oliva sp*. shells were also modified, but their function is unknown. Fossilized and non-fossilized shark teeth are often recovered, and many have been drilled to facilitate hafting for use as a tool or as personal adornment.

Aside from the ornamental objects, much of the inorganic toolkit was apparently geared towards manufacturing tools from locally available bone and wood. Bones from deer and other terrestrial animals were used to make a variety of tools. Many of the bone tools were likely associated with textile making, some of which was likely oriented towards fishing technology including gouges, awls, needles, fids, net gauges (Wheeler and McGee 1994b). Interestingly enough, there are no known examples of fishhooks anywhere during the Archaic along the St. Johns, suggesting that many of the capturing techniques involved nets, weirs, or baskets. Socketed antler projectile points have been documented in many contexts, as have antler handles. Bone beads and pins have also been recovered. One of the remarkable finds at Groves' Orange midden was an assemblage of wooden objects that had been preserved in the anaerobic conditions there. As detailed by Wheeler and McGee (1994c), the wooden inventory of Mount Taylor assemblages was diverse, and included tool handles, net floats, stirring paddles, and canoe paddles, and canoes. Many of the wood objects were made from either radial branches or split planks. Copious amounts of wood debitage attests to significant cutting and chopping as well.

The importance of canoes framing and enabling community interaction and mobility probably cannot be overstated. Due to the abundance of wetlands with anaerobic conditions, Florida is home to one of the highest densities of preserved ancient canoes in the world (Newsom and Purdy 1990). They have been recovered from throughout much of the state, and are often found in either springs or the margins of ponds. In the study region, the earliest known canoe was recovered from De Leon Springs, and dates as early as 7000 cal B.P. Within the St. Johns, canoes typically occur as isolated finds, and on this basis it would be hard to quantify their presence in the past. However, Wheeler et al. (2003) documented 95 canoes on the margin of Newnan's Lake in the highlands region. Of the 55 canoes subjected to radiocarbon dating, 37 were contemporaneous with the later Mount Taylor and Orange periods along the St. Johns (ca. 6000 to 3600 cal B.P.). All Archaic canoes were likely manufactured out of pine, using fire to hollow out the interior. They averaged roughly 7 m in length, although one example likely exceeded 9 m. In contrast, they were narrow, averaging .58 m, and shallow, typically .30 m or less in height. Wheeler et al. suggest that the canoes would have been best suited for local transportation of people and minimal onboard cargo, as they had limited internal volume. Although they were not apparently designed for stability under weight, they were well-suited for fast travel amongst shallow lakes and streams.

Exchange

One of the defining characteristics of Middle and Late Archaic lifeways at the scale of the Southeastern United States was exchange involving a variety of objects

(Claassen 1996; Jefferies 1996; Sassaman 1995). Mount Taylor communities were no different (Wheeler et al. 2000). The seemingly mundane and local content of much of the Mount Taylor assemblages belies considerable diversity in social interaction at increasing scales of Florida and the Great Southeastern United States. We have already seen how much of the inorganic assemblages from Mount Taylor contexts were derived from the coasts (marine shell and other marine species) and the interior (chipped stone). Limited sourcing of lithics from the Lake Monroe Outlet Midden (ca. 6000–5000 cal B.P.) demonstrates that materials were being acquired from sources ranging from Tampa Bay in the southwest as far north as the Suwannee River Valley to the northeast (Endonino 2007) (Figure 4-3). While this assemblage occurs later in the Mount Taylor era, and may not be representative of earlier pathways of exchange, the presence of lithic resources from the Lake Panasoffkee cluster as early as Windover times would suggest a long-term pattern. The extent to which procurement was accomplished via exchange or embedded within mobility patterns has yet to be adequately assessed, however.

Much of the marine shell inventory at Mount Taylor sites could have been directly acquired from the nearby Atlantic Coast. This is certainly true of many of the shell beads. In contrast, celts manufactured from the lip of the queen conch, *Strombus gigas*, had to be acquired from communities inhabiting southern, and likely southeast Florida (Wheeler and McGee 1994b; Wheeler et al. 2000). *Strombus* celts have been recovered from places throughout the Middle St. Johns region. However, they occur later in the settlement history of the region. For example, all examples recovered by Bullen (1955b) at Bluffton were located in the upper portion of the sequence. At

Groves' Orange Midden, the celts were found only in layers post-dating 5000 cal B.P., and at Lake Monroe Outlet Midden they appear no earlier than 5600 cal B.P. These objects were no doubt utilized in woodworking activities, presumably for the production of canoes. They are frequently recovered from general matrix contexts, and so their local significance is hard to trace.

Other objects point to connections farther afield, which in many cases resulted in complex transformations of value and biographies within the St. Johns. Of particular note are two classes of objects: stone beads and bannerstones. Groundstone beads have been recovered from several, chronologically young contexts, including Lake Monroe Outlet Midden (ACI and JR 2001), Silver Glen Run Locus-A (Sassaman et al. 2010), and Thornhill Lake (Moore 1894b:277). Although their origins are unknown, they are quite similar to tubular beads produced in Mississippi and the Mid south during the Middle Archaic (Brookes 2004; Crawford 2003). Fragments or beads of soapstone (steatite) have also been recovered from Groves' Orange Midden and the Lake Monroe Outlet Midden, all of which had to originate in the Piedmont region of the Lower Southeastern United States.

The other revealing object class is bannerstones. Bannerstones are elongated groundstone objects perforated along their mid-axis, and are associated with atlatl or spear-thrower technology (Sassaman 1996). From a functional perspective, atlatl's are characterized by an elongated haft, which frequently has a hooked inset at the distal end to receive a spear-shaft. In many contexts beginning in the Early Holocene if not earlier, atlatl's were constructed out of wood or antler. Beginning in the middle Holocene, however, organic atlatls were embellished with groundstone bannerstones that would be attached along the end of the shaft or would replace the distal hook (Sassaman 1996). Throughout the Middle and Late Archaic there is considerable diversity in the form and final disposition of bannerstones. Some are incredibly ornate, and even hypertrophic, while others appear in a normative view as "functional" (Sassaman 1996). Bannerstones also appear to have had "dual lives" in the sense that they occur in both mortuary and non-mortuary contexts, although this pattern varies considerably with culture-historical context (Sassaman and Randall 2007).

Bannerstones of various shape and raw material type have been recovered from a number of contexts along the St. Johns. All were in finished form. A few have been recovered from apparently non-mortuary contexts, including Dillards Grove (Goggin 1952), Salt Springs Run (8MR1/2) (Neill 1954), Bluffton (Bullen 1955b; Neill 1954), Silver Glen Springs (8MR123) (Neill 1954), Lake Monroe Outlet Midden (Neill 1954), and Groves' Orange Midden (Wheeler and McGee 1994b), and one manufactured from the lip of a *Strombus gigas* shell was identified at Mount Taylor (Moore 1898). All others, however, appear to have been deposited in either burial mounds with individuals, such as at Thornhill Lake (Moore 1894b) and McDonald's Mound (Jones 1995), or in caches (with or without inhumations) as is the case at Coontie Island (Clausen 1964) and Tomoka Mounds (Douglass 1882) on the Atlantic coast. Some stone pendants also appear to be the lateral wings of bannerstones that have been perforated, arguably for adornment .

Because there is no local stone suitable for their production, bannerstones were by necessity exchanged from the lower southeast. Those bannerstones recovered from Florida appear to have originated from the Savannah River Valley, one of several nodes of bannerstone innovation and production in the Southeast (Sassaman 2004b; Sassaman and Randall 2007). Most of the forms are typical of Sassaman and Randall's (2007) "Phase II" types. In the source area they are associated with the Paris Island tradition, and dated between ca. 5200–4700 cal B.P. (Figure 4-3). Within the Savannah River Valley, bannerstones were being manufactured and exchanged, possibly for shell beads, with communities in the lower Coastal Plain (Sassaman 2004b). In these contexts bannerstones do not appear to have been associated with mortuary practices. Dates of mortuary mound construction at Thornhill Lake (Endonino 2008) and Tomoka (Piatek 1994) are roughly coeval with the Paris Island phase as well.

Excluding the mortuary data, evidence for active local participation in the exchange networks outlined above has been difficult to gather. The recent excavations at Lake Monroe Outlet Midden site provide a possible glimpse into local production for exchange (ACI and JR 2001). This site is actually composed of a large shell matrix component that fronts the St. Johns River (although now severely reduced), in addition to shell and non-shell activity areas higher up on the landform. In addition to a preponderance of debitage and other chipped stone tools, the excavators documented a large (n=236) assemblage of microlithic tools (ACI and JR 2001). These microliths are characterized by narrow distal working edges. Their function is not entirely clear, although the excavators argue on macroscopic grounds alone that many may have been used as scrapers. I would like to suggest, however, that these tools may have been involved in the production of shell beads. Elsewhere at the site, a large sample (n=266) beads of unknown shell were recovered. Although no associated shell debitage was recovered, it may be that the shell bead blanks were prepared elsewhere onsite. Lacking detailed microscopic examination of either the tool working edges or the shell beads themselves, it is impossible to know if either was part of a larger exchange economy. I suspect that future research elsewhere in the study region may begin to unravel these patterns of local production.

Mortuaries and Biographies

If there is one attribute aside from shellfish that defines Mount Taylor it is traditions of reverence and respect paid to the dead. Unlike many shellfishing communities throughout the southeastern United States, where inhumations were made within the proximity of, or even underneath, communal areas, Mount Taylor communities separated the dead through inhumation into prepared mounds of sand and shell. While I will examine the details of mortuary mound construction in Chapter 7, I want to briefly follow the thread of the discussion I have started here with regards to the composition of communities and their temporality surrounding ritualized sequences for the dead.

The construction of mortuary mounds in one vein may appear like a radical transformation from the perspective of landscape inscription. Yet even before inhabitants of the St. Johns collected shellfish, the region was already deeply imbued with ancestral presence. Ponds and springs served as the locus of interment. Mortuary ponds have been identified at sites widely distributed throughout Florida, including Bay West (Beriault et al. 1981), Little Salt Springs, Republic Grove (Wharton et al. 1981), and Windover. The majority of these mortuaries date to the middle Holocene, ca. 7600–6000 cal B.P., and are located in the western and southern portions of the state (Doran 2002a). A notable exception, however, is the Windover site located in the upper reaches of the St. Johns basin. Between 9000 and 7900 cal B.P. at least 168 individuals were interred in peat deposits along the margins of this pond (Doran 2002b).

Analysis of the burial patterns indicates a highly structure sequence (Dickel 2002). The deceased were interred rapidly after death, likely on the order a day or two. They were wrapped in textiles and buried in shallow depressions excavated in the underlying peat and sand, frequently flexed on their left sides. Included with some individuals were inclusions of bone, wood, or the occasional stone tool. Frequently wood was piled on top of the burial below the water level. Stakes were placed upright near the bodies, although it is unclear if these would have been visible above the surface of the water. Whether or not a residential area was associated with the Windover mortuary is unknown, although at the later Little Salt Springs mortuary an unexcavated residential area was apparently situated close by (Clausen et al. 1979).

From a historical perspective the significance of place, and arguably its relationship to communities was maintained, if not materially transformed. Based on recent radiocarbon assays detailed above, the transformation to mortuary mound inhumations may be effectively synchronous with the onset of shellfishing, some 7000 years ago. So far, the best evidence for early mortuary practices has been revealed at Harris Creek, where Aten (1999) has reconstructed Jahn and Bullen’s (1978) salvage excavations into an early Mount Taylor mortuary. The mortuary itself was situated at the base of a much larger and multicomponent shell mound. In their excavations of the relict portion of the mound, Jahn and Bullen recovered a minimum of 175 individuals, which was likely less than 25 per cent of the total burial population. The interment of the dead involved arguably small-scale depositional acts, the media of which were materials such as white sand and shell. The presence of both secondary and primary burials, in addition to a possible mortuary structure indicates that the preparation of the dead was an extended performance, which stands in contrast to prior mortuary programs in which the deceased were rapidly interred after death.

Recent stable-isotope studies of Harris Creek burials indicates that those interred in the mound had distinct spatial stories of their own. As reconstructed by Tucker (2009), the majority of individuals interred at Harris Creek were born and spent their childhood years somewhere near the St. Johns, although a few individuals (n=4) were from as far away as Lake Okeechobee to the south and Virginia or Tennessee to the north. Although individuals may have been mostly from the Florida peninsula, a finer-grained isotopic analysis suggests that the biographies of individuals interred in the mound were referenced in burial treatments. Those individuals who spent their childhood years closest to Harris Creek tended to be interred as bundle burials after extended processing, while those individuals from farther afield were interred rapidly after death. The implication is that the mortuary was not constructed for the purposes of territorial marking, but was instead an integrative place. This shifting temporality in the timing of interment, as well as the widespread distribution of these mortuaries suggests that commemorative performances at burial mounds incorporated individuals from throughout the valley, creating collective memories across diverse social fields. Harris Creek remains the only well-documented and radiocarbon-dated example of this mortuary practice. Endonino (2003b) and Beasley (2008) have identified many other likely candidates for early mortuary mounds, including Persimmon, Mulberry, Palmer-Taylor, and Orange Mound.

These smaller sand mounds eventually gave way to new traditions involving the construction of large mounds, typically of brown sand and shell. Based on Endonino's work at Thornhill Lake, this transformation occurred sometime after 5600 cal B.P. Beasely (2008) has argued that in addition to the use of brown sand as a material of internment, later Mount Taylor burials tended to be extended, unlike the previous traditions of flexed or bundled burials at Windover and Harris Creek. Other mounds likely of this era include Tomoka, McDonald's Mound, and the Bluffton Burial Mound based on stratigraphic similarities. The relict mound at DeLeon Springs may also date to this era. Unfortunately, little is known of the life histories of specific individuals interred within later Mount Taylor mortuaries, as no bioarchaeological studies have been conducted. Further, it is unclear whether the density of inhumations identified at Harris Creek is replicated in later mortuary mounds. For example, in his excavations at Thornhill Lake, Moore (1894b) recorded only 50 or so burials. Because he did not excavate either of the mounds in their entirety, we cannot make a direct comparison with the Harris Creek mortuary. Yet places like the Bluffton Burial Mound appear to have been constructed over an isolated individual as well.

While we may never be able to fully reconstruct the differences in burial temporality, a consideration of grave inclusions does provide a sense of the kinds of biographies that were negotiated through mortuary places. Almost all later sand/shell mounds are linked by the inclusion of extralocal objects, including bannerstones, stone and marine shell beads, and stone beads. Although they could occur isolated or in small quantities individuals, there is some evidence to suggest that objects with distinct stories, ranging from throughout the greater Southeast, were interred as bundles, either by themselves or with individuals. For example, Moore (1894b:168–170) discovered one individual at Thornhill Lake who was interred with a bannerstone on either wrist, and many stone beads and small marine shell beads. A similar bundle of a bannerstone and stone beads may have been unearthed at McDonald Mound, interred with an individual (Jones 1995). At Tomoka Mounds, Douglass (1882) discovered a cache of five bannerstones, which were situated approximately a meter above another cache of three bannerstones. No human remains were encountered. Further to the north on the coast at the Coontie Island site, a cache of three bannerstones, red jasper bead and other "hard stone beads," as well as large Archaic Stemmed hafted bifaces was discovered (Goggin 1952). In this case, the objects were found eroding from a beach, and so it is unclear what their association with death or mounds in general may have been. Taken together, these caches or bundles suggest that the combination of objects provided a means through which diverse biographies of exchange and exchangers could be brought together and framed within the context of communal mortuaries (cf. Pauketat 2008).

In the Wake of the Mound Builders

The appearance of pottery in shell matrix sites of the St. Johns River and Atlantic coastal lagoon signals the end of the preceramic traditions and the beginning of the Archaic period pottery producing traditions. Orange tradition fiber-tempered pottery has been dated as early as 4800 cal B.P. in the Lower St. Johns, although pottery does not appear in the Middle St. Johns until a century or so later (Sassaman 2003c). By 3600 cal B.P. fiber-tempered pottery ceases to be manufactured at the end of the Orange period, and is wholly replaced by spiculate-pasted wares of the St. Johns period. As I have noted, many Orange traditions have their origins amongst Mount Taylor communities. As evidenced by subsistence data from Blue Spring Midden B (Sassaman 2003a) and Groves' Orange Midden (Russo et al. 1992), communities continued to exploit aquatic habitats (Quitmyer 2001; Russo et al. 1993; Russo et al. 1992), routinely collecting from local shellfish beds, and capturing fish and turtles.

Given the emergent evidence for increased exchange and the possibility for sedentism towards the end of the Mount Taylor period, one may expect these patterns to be exacerbated or amplified in the Orange period. Quite to the contrary, the appearance of fiber-tempered pottery in shell matrix sites ca. 4700 cal B.P. along the St. Johns resulted in a fundamental change in the structure of extra-regional relationships and local mortuary practice. Unlike the preceding Mount Taylor era, extralocal objects are exceedingly rare. There is an apparent decrease in the use of marine shell along the St. Johns as well (Sassaman 2003a). Perhaps more striking, however, is the lack of credible evidence for the inhumation of the dead in mounds of sand or shell, at least within the Middle St. Johns River region. Moreover, diagnostic Orange period ceramics are rarely recovered from the surfaces of many shell mounds throughout the region, nor are they found in any great frequency upon sand mounds (Endonino 2008; Piatek 1994; Sears 1960). Despite this fact, evidence for Orange occupation is widespread throughout the region, with some researchers suggesting this represents an increase in regional population density (Miller 1998). A full examination of the underlying reasons for this transformation await another study, although I will return to the issue in the conclusion of Chapter 8. For now, however, it is important to remember that there was no inevitable trend towards more centralized or elaborated societies along the St. Johns, and that we need to consider more explicitly the situatedness of traditions and biographies in the ongoing production of place.

A Long Running Record?

If we were to examine “Mount Taylor” as a taxonomic entity, static and situated along the St. Johns, we might be able to make a strong argument for the long-term reproduction of sameness through time. Many of the practices and techniques of Mount Taylor communities had their origins centuries or even millennia later. Between 7300 and 4700 cal B.P. we see some striking similarities as regards subsistence, particularly the importance of both marine and riverine resources. There are of course some transformations in food procurement that may relate directly to the hydrological processes at work described in Chapter 3. In particular, it is unclear whether the seasonal mobility practices of early Mount Taylor communities persisted until 4700 cal B.P. Lacking detailed seasonality data or zooarchaeological analyses from multiple contexts we cannot know for certain.

Despite the appearance of unreflexive subsistence-related practices, however, a consideration of Mount Taylor traditions in a multi-scalar and historical framework reveals transformations, discontinuities, and contradictions in the temporality of experiences and interactions. The incipient use of shellfish did not occur during a period of landscape stability, but likely in the context of landscape instability. Although not necessarily reflected in annual mobility practices or subsistence per se, shellfish consumption and deposition slightly predates the earliest mortuaries, themselves a transformation of an earlier mortuary tradition. By 6000 cal B.P. there is evidence for yet another transition at least as regards increased connectivity to regions farther afield than the adjacent coasts or uplands. These increased distances of exchange may have first extended down to southeast Florida, but eventually would incorporate objects from throughout the lower southeastern United States. Here too there is evidence for a new tradition of mortuary practice that enmeshed the biographies of objects and people.

To reiterate a statement I made at the beginning of Chapter 3, the St. Johns has alternatively been framed as a boundary or a center. In this chapter, I have emphasized instead its relational characteristics. Since at least 9000 years ago, the St. Johns was important not necessarily because of the economic resources that it provided, but instead as an intersection of many different individual and community biographies. What we do not know is how the different temporalities of the taskscape and natural landscape were framed from the perspective of places along the St. Johns. It is to these spatial stories, and the central role that placemaking played in the creation and reproduction of social histories that I turn to next.

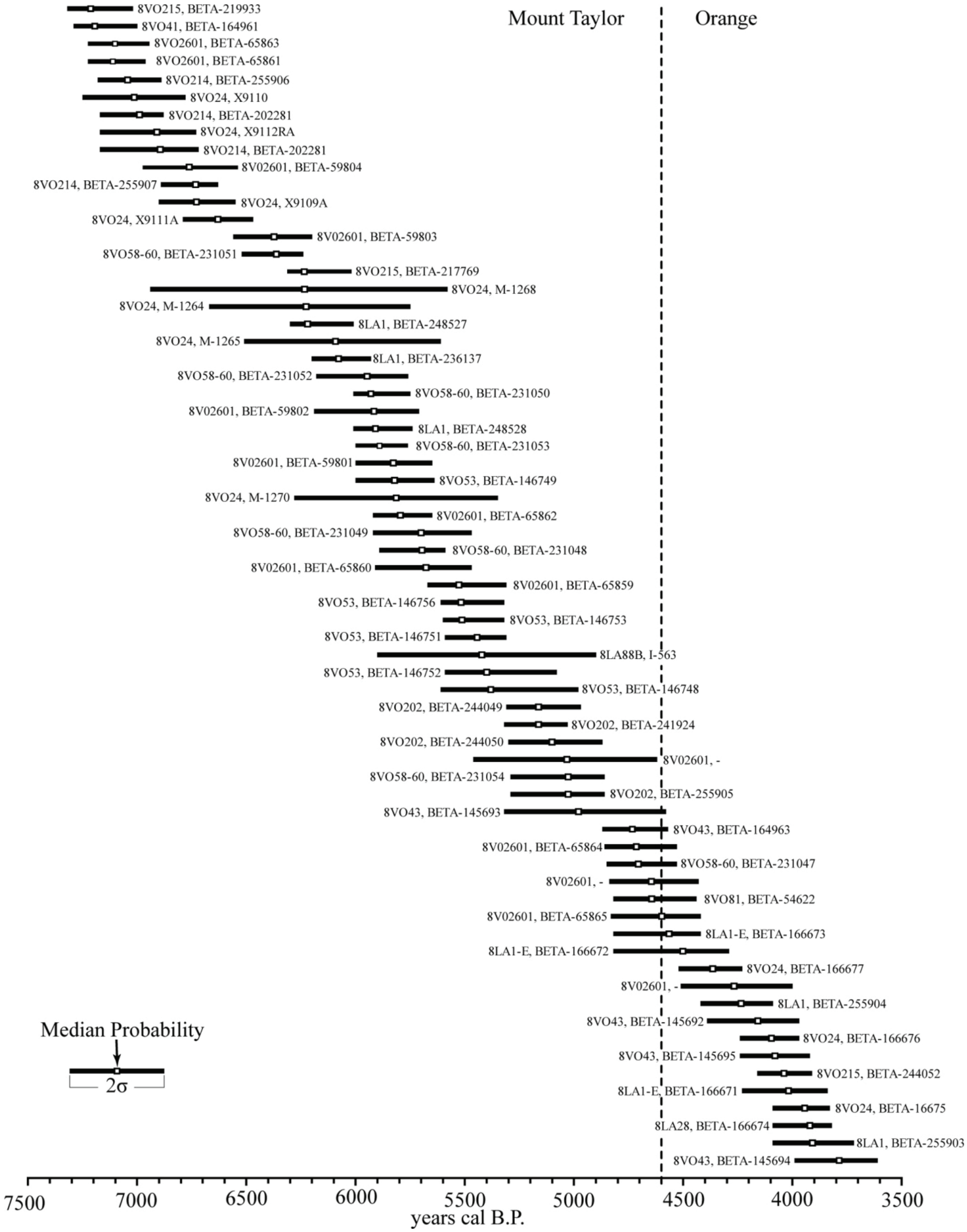

Figure 4-1. Calibrated radiocarbon assays from Mount Taylor and Orange period components. All Mount Taylor samples recovered from shell matrix. Orange period components include shell matrix and vessel soot. Data for each assay provided in Appendix A.

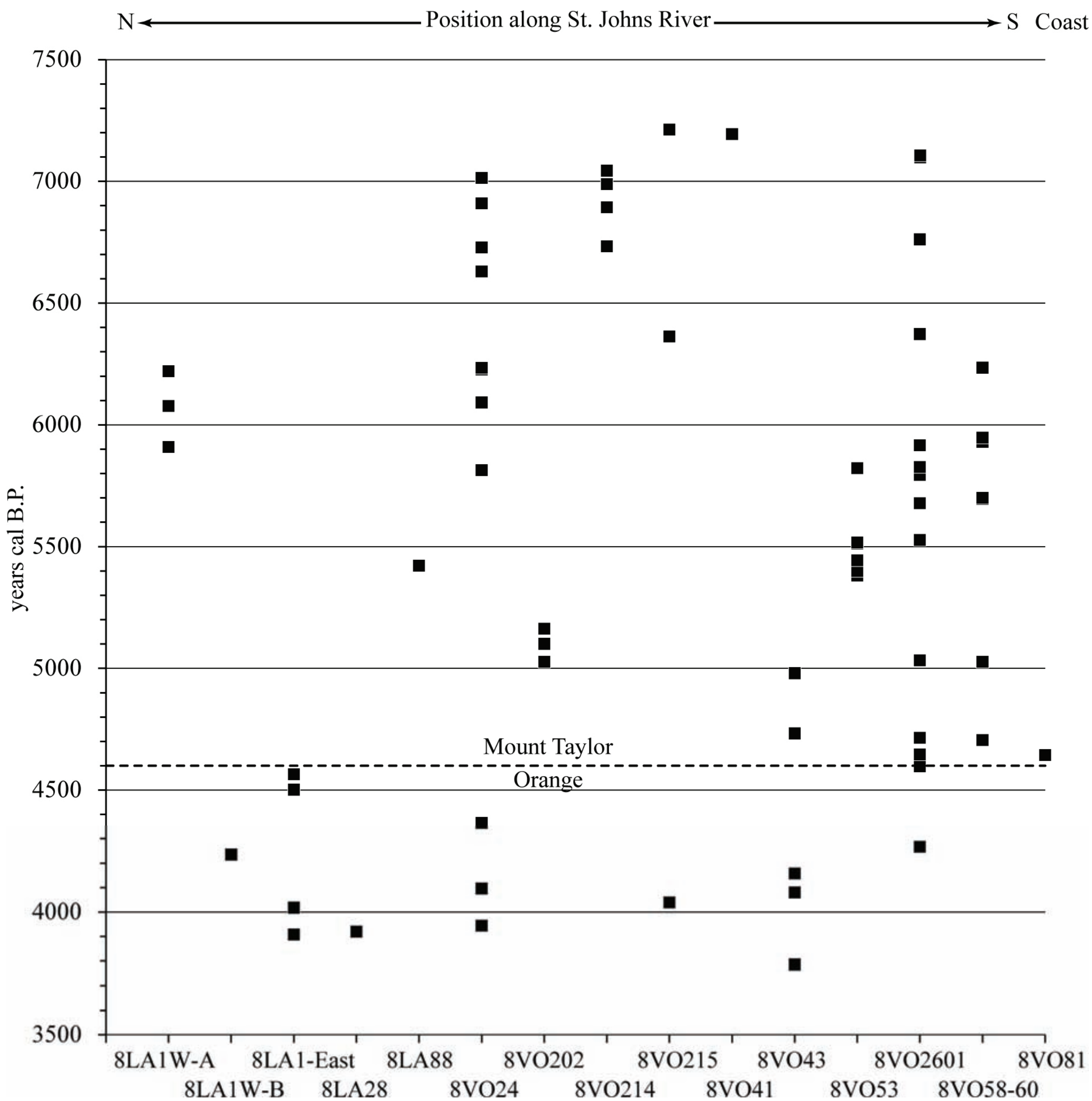

Figure 4-2. Median calibrated age probabilities within shell matrix sites, ordered by latitude. Also included is one date from Tomoka Mounds (8VO81) on the Atlantic coast.

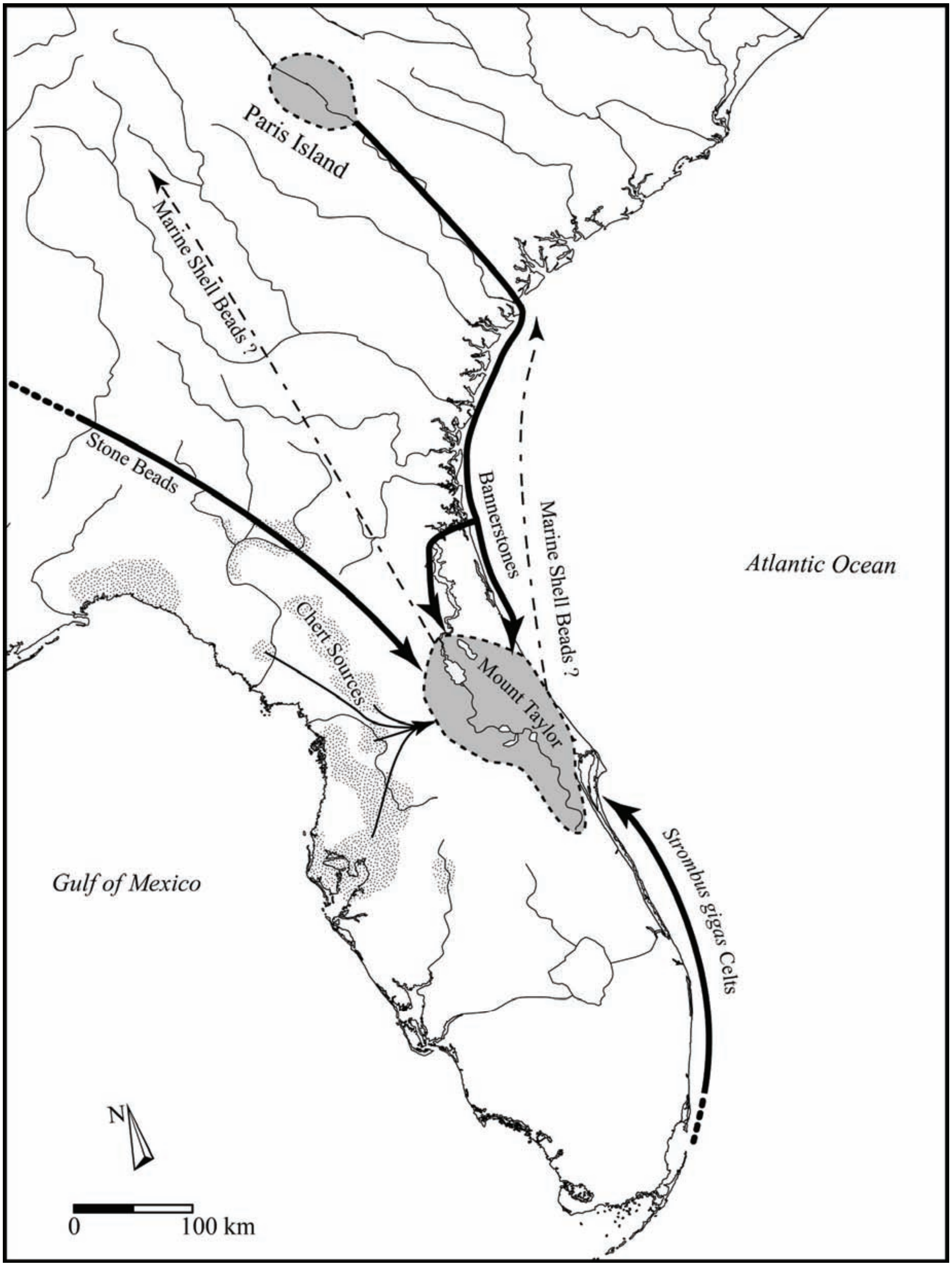

Figure 4-3. Object and raw material source areas in relation to the Mount Taylor region, showing idealized routes of exchange and/or movement. Bannerstone routes adapted from Sassaman (2004b).

CHAPTER 5
DISCERNING MOUNT TAYLOR PLACES

Until now I have avoided discussing the places created and maintained by preceramic Archaic communities, and for good reason. Although shell matrix sites have figured prominently in discussions of Mount Taylor lifeways, there have been few attempts to characterize them. Terms such as *midden, mound,* or *heap*, are generic descriptions that are used to describe shell-bearing deposits. In this study, I have used the term “shell matrix site” because it avoids functional implications. Yet it begs the question, just what do we mean by a Mount Taylor shell matrix site, and are there any differences between Mount Taylor places and those of later inhabitants?

The reasons why we do not have readily available answers to these questions are many, but a few stand out. One is epistemological: if all shell matrix sites are truly palimpsests of long-term occupation, then there is little to gain from comparison (e.g., Cumbaa 1976). Another is the long held belief that hunter-gatherer settlements are unstructured affairs, and that the physical arrangement of space is haphazard. Through time randomized depositional episodes will meld into a complex series of stratigraphic facies (e.g. May 2005; Nodine 1987). The earliest research was also broadly comprehensive. As hubristically argued by C.B. Moore at the end of his own treatise on sand mounds (1894b:246):

> We are of the opinion that no extended notice of the river mounds can ever again be written, and we sincerely hope that others may be induced to take up and to publish reports of the mounds of the east coast, of the west coast, and of the interior, that the archaeology of Florida may be redeemed from the obscurity that has hitherto characterized it.

Moore’s ultimate goal of elevating the visibility of Florida’s cultural resources is admirable, and one with which I agree. However, neither he nor Wyman before him observed all sites within the region, nor did they submit each to the same standards of data recovery. We can point to taxonomic issues as well: many shell matrix sites with Archaic components have been ascribed to later periods simply on the basis of surface finds (e.g., Purdy 1987). Perhaps the most influential reason for a lack of synthesis is also the most mundane. Most shell matrix sites of substantial size were significantly altered or erased and remain faint vestiges of their final configurations. C. B. Moore can be blamed for some of this destruction, as he was fond of noting that the sites he examined were "completely demolished" in the process (Moore 1894b:158). However, it was the pervasive and industrialized shell mining that began in the late nineteenth century and extended into the 1960s that destroyed many shell matrix sites.

Preservation aside, regularities in placemaking traditions should be expected amongst Mount Taylor communities. Amongst hunter-gatherers in general, the arrangement and reproduction of spaces within places is central to community organization. Settlement structure routinely references cosmological principles of how the world is ordered (Grøn 1991; Grøn and Kuznetsov 2003; Jordan 2003; Whitelaw 1983, 1991, 1994; Wilson 2005). For example, Grøn (1991) argued that social structure and ranking can be inferred from the distance between households and their arrangment in space using concepts derived from proxemics. In his model, circular or linear settlements typify egalitarian social relationships, while U-shaped settlements can represent more centralized or hiearchical societies, with the meeting point of the U being the highest status place.

In a cross-cultural analysis of hunter-gatherers, Whitelaw (1991, 1994) identified trends in the arrangment of hunter-gatherer settlements. The physical spacing between co-resident households references the relatedness between household members, the degree of economic cooperation, and the length of residence in any one place. Whitelaw found that random, clustered, and circular arrangments were typical (in his typology) of extended families through multi-band aggregates, while linear settlements typified band and multi-band arrangements. The duration of occupation was an important variable, with extended settlement expressed most robustly in linear settlements. Structuring principles regarding the proper location of disposal, the presence of ancestral beings, resources of economic and symbolic significance, and the situatedness of residences with respect to previous settlements are all incorporated into the physical arrangements of places (Grøn and Kuznetsov 2003; Jordan 2003; Whitelaw 1994).

There is abundant evidence for structuring principles regarding the reproduction of community in place through the deposition of shellfish amongst Late Archaic coastal dwellers who interacted with Mount Taylor communities. Michael Russo (2004, 2008) has used Grøn's model to examine the organization and history of coastal shell rings. Russo has shown that there are two variations on a theme, closed rings and U-shaped rings. Using detailed topographic maps and stratigraphic interpolation he has demonstrated that there are differences in the height and arrangment of depositional episodes. The final forms of the shell rings appear to have resulted from communities either constructing rings *en masse* or routinely renewing the surface. He argues that areas with the highest density of shell represent places of higher status. Alternatively, the arrangement of connected rings may point to the association of multiple lineages. Whether variations in shell density represent hiearcharchy in a socioeconomic sense, or community composition divided along ancestral or internal divisions, is another question (e.g., Sassaman and Heckenberger 2004).

Knowing how past places were physically arranged and where they were located does not provide an unadulterated viewshed into the intents and concerns of past communities. Thomas (1996:88) has argued that archaeologists cannot infer the ways in which places or regions were inhabited solely by reference to the physicality of places, their arrangement in geometric space (see also Barrett and Ko 2009; Whitelaw 1994). Thomas was citing the disconnect between the intents and beliefs of those societies who inhabited places and an archaeologist's contingent and inculcated perspective. All places have social and historical context, and they must be situated with respect to ongoing local and regional inhabitation (Appadurai 1996). This is particularly the case for places inhabited repeatedly. Given long stretches of time, the likelihood of social transformations, and disjointed social memories, the earliest practices in place may have had little in common with those that generated the final disposition of a place (Barrett 1999; Gosden and Lock 1998; Holtorf 1998; Joyce 2004; Meskell 2003). Places of prior practice can also serve as ritualized models for the creation of new social memories, either as a foundation or physical model, such that we must be circumspect when comparing architectural or practical commonalities (e.g., Bradley 1998, 2002).

Shell matrix sites of the Middle St. Johns register these two intercalated aspects of community histories: historically contingent traditions regarding placemaking, and ruptures and disjunctures in frames of reference. If we want to understand how preceramic Archaic communities materialized history as place, then it is necessary to consider what traditions may have been at work throughout the era of shell matrix site inhabitation. In this chapter I delineate some of the primary structuring principles that Mount Taylor communities reproduced in inhabiting places. Of course it is impossible to not consider changing frames of reference either. Some continued to receive shellfish, objects and even inhumations during the subsequent Orange and St. Johns periods. I draw together historic observations, extant geospatial data, and excavation records in order to discriminate the primary structuring principles of preceramic Archaic places. My goal is not to generate a comprehensive tally of preceramic Archaic sites, but to explore variability within a well-documented dataset and develop a working spatial and chronological framework for the analysis of detailed site histories presented in Chapters 6 and 7. I emphasize two axes of variation: site organization and placement.

Modeling Shell Matrix Sites: Data and Methods

The only sites included in this discussion were those that (a) fell within the study area defined in Chapter 3, (b) had documented or strongly suspected preceramic Archaic components, and (c) had sufficient documentation to derive metric and qualitative data. Excluding sites with radiocarbon determinations, the primary source of chronological inference is either the lack of pottery within basal strata or objects of known preceramic Archaic age, including certain projectile point forms, bannerstones, beads, and other diagnostics. A total of 34 sites were selected for further consideration (Figure 5-1).

Archaeological Data

Some of the most important sources of data are observations made prior to widespread mining. For sites that no longer exist, these are the sole source of information for the purposes of reconstruction. Wyman, for example, paid special attention to the size, location, shape and composition of shell matrix sites. As as result we have detailed discussions on the scale and organization of sites in the region, which frequently includes actual on-ground measurements of the shape and depth of deposits. When possible, he would also make notes regarding the depth of pottery or other finds, and the extent of strata. However, he did not consistently report all axes of variation for the sites he observed. Although Wyman did not publish any base maps, his field journals (Wyman 1872) housed at Harvard's Countway Library do contain several hand drawn maps (Figure 5-2A). Recent topographic mapping at Live Oak Mound (Sassaman 2003a) and Hontoon Dead Creek Mound (Sassaman 2005a) have verified the relative accuracy of his measurements. Like Wyman, Moore also provided descriptions of specific localities and the occasional base maps. In this analysis only Moore's published articles were consulted, but his unpublished notes do include a wealth of information.

The period of salvage excavations in the middle twentieth century produced a range of variable quality information. The only detailed topographic maps published include the Bluffton Burial Mound (Sears 1960), which is partially intact, and the Kimball Island Mound (Benson and Green 1962), which remains undisturbed today. Plan view sketch maps, some of which illustrated distributions of surface finds, were published for Harris Creek (Bushnell 1960; Jahn and Bullen 1978), Salt Springs Run-2 and Silver Glen Springs Boil (Abshire et al. 1935). These sites have been mined to varying degrees. There have been large-scale reconnaissance projects consisting of site visits (e.g., Miller and Griffin 1978; Willis 1995, 2004, 2006; Willis et al. 1977), and full coverage survey (Randall and Sassaman 2005).

Recent projects have produced a wealth of plan maps and topographic reconstructions. Most have tested shell matrix sites that were already mined, such as Bluffton and Mount Taylor (Wheeler et al. 2000), Old Enterprise (McGee and Wheeler 1994; Piatek 1984), Lake Monroe Outlet Midden (ACI and JR 2001), Hontoon Island North (Purdy 1987; Sassaman et al. 2005), and the Silver Glen Run Complex (Chapter 7). Investigations have also taken place at shell matrix sites that have only been minimally compromised, including Blue Spring Midden B and Live Oak Mound (Sassaman 2003a), Groves' Orange Midden, Thornhill Lake (Endonino 2008), and Hontoon Dead Creek Mound, Village, and associated shell matrix sites (Randall 2007; Sassaman 2005a). Wheeler et al. (2000) also published reconstructed base maps for Old Enterprise and Bluffton (McGee and Wheeler 1994).

Geospatial Data

A wide array of geospatial data are useful for estimating the length, width, height, and location of shell matrix sites. Nineteenth century GLO maps and Spanish Land Grant survey data may be used to locate unknown sites, but have limited utility for reconstructing the specific arrangement of places. USGS topographic quadrangles are also available for the study region, but are likewise of restricted utility. Many features of interest (i.e. shell mounds) were not visible, or they could not be resolved at the coarse 5-foot-contour interval. Large shell mounds such as Hontoon Dead Creek and Live Oak, which still exist today in mostly unadulterated forms–and eclipse 5 m in height–are not visible on 1:24,000 topographic quadrangles.

Remotely sensed data provide a useful alternative. Traditional remote sensing data record visible or invisible light wavelengths. Variation in light intensity and spectra illuminate features on the ground that can be precisely mapped given the proper resolution. Archaeologists have made extensive use of aerial photography to discover and map large architectural features the are clearly visible in open or parkland vegetation (Barnes 2004; Bewley 2003). When obscured by ground cover, variations in vegetation or moisture content can reveal features of interest. Both aerial photography and multispectral satellite data have been used to infer or delineate features in obscured zones based on changes in vegetation composition and measures of disturbance (Heckenberger et al. 2003; Heckenberger et al. 2008; Neubauer 2001).

Because of the horizontal resolution of many datasets (typically between 1 and 10 m pixel size), these are not necessarily useful for identifying or mapping shell matrix sites. This is not to say this method is infeasible, as shell matrix sites are often hosts to distinctive vegetative communities due to calcium in the shell (Claassen 1998). This possibility has not yet been explored along the St. Johns. Although the precise shape and contours of intact shell mounds cannot be discerned from aerial photography, mounds are highly visible when they have been disturbed and appear as very light-colored non-vegetated zones (Figure 5-2B). Florida is privileged by having a series of aerial photographs dating back to 1937, which were acquired primarily for agricultural purposes (United States Department of Agriculture 2010). Because many were taken during or directly after shell mining operations were underway, they record the horizontal extent of shell mining activities. In this sense, the more recently acquired (and higher resolution) aerial photographs are of less utility for the present study.

A recent and revolutionary development in remote sensing is LiDAR (Light Detection and Ranging), from which high resolution topographic maps can be produced without manual survey. LiDAR datasets consist of elevation values of surfaces that are recorded in high densities and with high precision. As reviewed by Ackermann (1999) this technique uses rapidly fired infrared laser pulses, directed between a stable or moving platform to a surface, to record range values. These range values are then corrected for the distance between the platform and the target area to generate *XY* and *Z* values that can be used to create digital terrain models (DTM) that represent topographic surfaces. LiDAR points are sampled at close intervals, up to 20 points per m^2 depending on the platform and system used. As a result of this very high sampling rate and precision, DTMs can have horizontal errors of less than ± 1 m, and vertical accuracy within ±0.40 m. These high rates of accuracy and density are typical in areas with low or sparse vegetation, much like image-base photogrammetric methods. Unlike traditional methods, however, LiDAR has the advantage in areas like the St. Johns, where forest cover typically obscures points of interest. LiDAR pulses can penetrate forest canopies, with up to 70 per cent return rates (Ackermann 1999). Because of variations in the timing and amplitude of laser pulse returns, those points that record surfaces (including low-lying vegetation) can be used to generate “bare earth” DTMs that represent the ground surface uncluttered by the vegetation canopy. As a result, very detailed topographic maps can be generated of places that are far removed from access, or are so large that it would be prohibitive to map by hand.

There are some caveats with LiDAR data. Because it is a random sample, areas of interest may not have adequate sampling, particularly in wooded areas (Crow et al. 2007; Devereux et al. 2005). Also, because of the standardized rate and geometric footprint of laser scanning, slopes are typically over exaggerated due to under sampling (Aguilar et al. 2005; Harmon et al. 2006). Along the St. Johns, LiDAR coverage is available for Volusia and Lake Counties, although the sampling density of the Volusia coverage is higher. In this study, my use of LiDAR is restricted to the reconstruction of site plans, and the derivation of some basic measurements (Figure 5-2C). However, it also holds potential as a prospecting tool (Humme et al. 2006), in addition to a platform for visualizing and quantifying past landscapes in 3D (Corns and Shaw 2009).

Methods

The geospatial data and archaeological records were integrated through the process of heads up digitizing and georeferencing (Figure 5-2). I first assembled the relevant basemaps and digitally scanned them. Using the locational data provided in the FMSF and published reports, I then generated DTM topographic basemaps using the Volusia County and Lake County LiDAR data. Location data from publication records and the Florida Master Site Files (FMSF) were then checked against the visible surface topography and adjusted to the DTM basemaps. Of the 34 selected sites, 22 of them could be accurately located by visual inspection based on surface expressions. For intact sites, no further map work was necessary.

For those sites in which there were basemaps or descriptions available, it was necessary to georeference and then heads-up-digitize several sources of information. This process is depicted in Figure 5-2 in reference to the Old Town site. In some ways, this is a best-case scenario. The plan map in 5-2A is one of the few base maps produced by Wyman (1872). It is remarkable in that the distances along the river and its orientation closely matches the river channel today (Figure 5-2B). This sketch map is also proof that Wyman was very careful when measuring shell matrix sites, such that his recorded observations should be trusted. Figure 5-2B represents the USDA 1941 aerial photograph which shows a large, white void that I have outlined. This void is typical of sites that have been mined or were in the process of being cleared for mining, and thus the white clearing indicates an area that likely had shellfish remains to be targeted for removal.

The last image provides the local topography based on the LiDAR generated DTM. In it a ridge can be seen that corresponds to the southern extent of the 1941 shell distribution. This is a diagnostic feature of industrialized mining. For reasons unknown to us now, the shell miners would typically leave an escarpment or apron of shell which provides a ghostly outline of the original plan. Typically this escarpment faces the water, but in this case it is on the backside, away from the channel. When coupled with Wyman's descriptions we can derive more specific basic metric attributes. Once sites were incorporated into the geospatial database they could be queried to derive other metric attributes. Although not perfect, it does provide a framework for exploring ranges of variation.

Shell Matrix Site Variation

Since archaeological investigations were initiated along the St. Johns there have been several attempts at creating shell matrix classification schemes. I am not interested in creating a new typology, or testing the extent to which past typologies match current data. However, those typologies that have been created provide avenue through which preceramic structuring principles can be discerned from those of later traditions. The most appropriate starting point is Wyman, who aside from Moore had the most intimate knowledge of the range of variation amongst shell matrix sites of the St. Johns. Wyman's classification scheme can be broadly split into sand/shell mounds, and shell-only sites. He located sand mounds throughout the valley, sometimes associated with shell matrix sites, although in many cases they were not. He also identified two primary shell matrix site types, including “mounds” and “fields,” although he used the term “heap” to describe them inclusively. He found them generally on the river’s edge, although many could be found a hundred or more meters within wetlands. He described shell mounds (1875:10) as:

> in almost every case built on the banks of the river, resting either on one of the ridges of sand and river mud already mentioned, or on land slightly raised…The most of the mounds are in the form of long ridges parallel to the shore, though a few, as Bartram’s and Bryson’s mounds, are, or were before the current encroached upon them, nearly circular. The limits of all are sharply defined, and at a few feet from the base shells cease to be found.

Wyman identified a few select locations that contained multiple ridges and associated sand mounds and shell fields, including Bluffton (8VO22), Hontoon Island North (8VO202), Bluffton (8VO55), and Silver Glen Run East (8LA1E). In contrast to the elevated shell deposits at mounds, he also discriminated shell fields. These he found to be distinct by their lack of elevation or relief (1875:11):

> The “shell fields” differ from the mounds in having their materials more evenly distributed and in a comparatively thin layer, varying from a few inches to two or three feet in thickness. The distinction is, however, arbitrary.

By an arbitrary distinction, Wyman thought that shell fields were simply less well developed mounds. Throughout his monograph Wyman describes shell fields as alternately isolated from mounds, such as the Snake Creek Village site, or associated with mounds, such as at Bluffton. Excluding the occasional mention by Moore, and some recent mitigative work in the past decade, shell fields have largely gone unexamined. In their review of the Mount Taylor period, Wheeler et al. (2000: 145) expanded upon Wyman’s typology arguing that ”similar features occur regularly at different sites, suggesting some intentional construction and shared ideas on village layout, refuse disposal, and mound construction." They suggested a typology of ovoid mounds, linear ridges, shell fields, and multicomponent mounds.

A consideration of the basic typology of "Ridge," "Multi-mound" complex, and "Shell Field" espoused by Wyman and Wheeler et al. indicates that there are some distinctions between places based on overall size (Figure 5-3, Table 5-1). Ridges in this classification are any mounded place with one primary surface feature, "Multi-Mounds" include all sites with at least two distinct mounded features, independent of culture-historical association, and fields are those sites with limited surface expression. A comparison of the recorded height compared with an approximation of their surface area indicates some separation between the different classes. Multi-mounds are consistently the largest in terms of height and they also tend to be situated closest to water. Shell fields were the most discrete of the group in terms of elevation although they vary considerably in terms of their distance to water and total footprint. Starting with this framework, we can examine some of the within-class variation.

Ridges

There were 17 ridges for which basic measurements could be obtained, and they are distributed widely throughout the region (Table 5-1). Because this analysis was not oriented towards examining the finite distribution of places throughout the valley, the absolute distribution and frequency of shell ridges cannot be assessed. I would note that the stretch of river between Hontoon Island and below Blue Spring contains a minimum of five similarly configured ridges, which equates with roughly a ridge per 2 km. However, Bowyers Bluff-1 and -2 are situated roughly 450 m apart, and the ridges at Silver Glen Run are only 400 m distant. There was a significant range between where ridges would be located in relationship to one another. Without radiocarbon dates from both Bowyer Bluff sites it is unknown if they were occupied at the same time, although both Silver Glen Run mounds were apparently coeval. At a smaller scale, most ridges appear isolated without any other shell matrix sites attached to or situated adjacent to them. In the sample considered here, only 3 have known shell fields in association: Blue Spring Oxbow, the Mound at Blue Spring, and the Hontoon Dead Creek Mound. This may be a factor of visibility, however. A reconnaissance survey of Hontoon Dead Creek Mound isolated two shell fields in association with–but spatially segregated from– the mound that would not necessarily be noticed during pedestrian survey (Chapter 6). Another potential source of variation that is not directly related to their original shape is that some places, such as Horse Landing or Blue Spring Oxbow, had been eroded prior to Wyman's observations. As such, these measurements represent minima.

Shell ridges appear to date primarily to the preceramic Archaic. This is suggested by two chronological indicators. Radiocarbon dates at the Hontoon Dead Creek Mound, Silver Glen Run-Locus A, Bowyers Bluff-2, and Live Oak Mound all fall within the range of the Mount Taylor period (Appendix A). However, these determinations do not provide a holistic indicator. Another measure is whether or not pottery has been observed in strata. Of the 17 shell ridges in this sample, 15 are recorded as having pottery only near the surface, within a maximum of 2 feet; and one (Crow's Bluff) has had no pottery recorded at all. The ridge at the Thursby Complex has had pottery found in deep levels. Given that there was a St. Johns period sand mound on the summit, it is not surprising that St. Johns pottery was noted below the surface, particularly along the water front.

Ridges show considerable diversity in scale. They ranged between 61 and 300 m in length, and between 15 and 80 m wide, while their median tendency is 140 m long and 55 m wide. Height, measured as the difference between the ground surface and the top of the mound, varied from a low of 1.8 m at the Thursby Complex to a high of 8.3 m at Mount Taylor. Minimum volume was derived for the five sites which were intact, and was calculated between the maximum surface and the minimum contour interval that bounded a ridge. Volume co-varies with the height and area of of ridges, and ranges between only 376 m^3 at Blue Spring Oxbow to 7602 m^3 at Hontoon Dead Creek.

Despite variations in scale, there are similarities in how ridges are configured. All ridges are longer than they are wide, with a median length:width ratio of 2.7. This should not be surprising as this configuration is the basis for the typological separation. However, some other basic principles regarding the reproduction of localities is hinted at by a comparison of ridge height and cross section. In Figure 5-4 I have plotted the current cross-sections of Live Oak Mound, Hontoon Dead Creek Mound, the basal remnant of Mount Taylor, and a projection of Mount Taylor's pre-mining cross section based on Moore's (1893a:13) description. In all cases, similar angles of repose are evident, with steep slopes present on the upland and swamp facing sides. The upland terrace-facing side tends to have a slightly lower slope, and this may be due to the higher elevation on that side of the ridges. If ridges accumulated from random deposition, then one would expect low, attenuated slopes. Yet Mount Taylor and Live Oak share roughly similar basal widths, but Mount Taylor is 3 m higher. This pattern suggests that an emphasis was placed on maintaining the summit throughout the process of deposition. Although the footprint may have been expanded to allow summits to attain greater elevation (Chapter 7), in general an original basal configuration was kept intact. This accords well with Wyman's comment that shell was rarely found away from the base of shell ridges, and not randomly scattered about.

Another intriguing point of variation is found between the relationship of distance to water and the height of a ridge (Figure 5-5). In the dataset I could assemble there are two clusters of ridges, those that are close to water today and those that are at least 150 m away from an active channel. It should be noted that almost all shell ridges occur at roughly the same elevation today (Table 5-1). LiDAR-derived elevation values show a central tendency towards 0.0 m NAVD88. It would have been ideal to know the minimum elevation of basal components at any given locality. Because many of these places were not subjected to testing the depth of their deposits below ground surface is unknown. There is some deviation from this pattern, as the Silver Glen Run-Locus A ridge is situated at roughly 1.61 m above NAVD88. If the location of different ridges was simply a matter of increased water levels through time, we would expect the earliest places to be surrounded by swamp, away from upland terraces. Yet those ridges that are now situated the farthest distance from a channel are also emplaced on terrace edges on the east and west sides of the basin. The implication is that surface waters, or flood waters at a minimum, were actually higher during early ridge formation as suggested in Chapter 3. Those ridges situated away from the main channel today are statistically larger, $t(16) = -3.70$, $p < .001$, (see also Kimball Island in the following section). Assuming that those sites situated away from the main channel are also the earliest, this would suggest that the earliest mounds are also the largest. This certainly holds for Hontoon Dead Creek Mound and Live Oak Mound, both inhabited 7000 years ago.

More patterning is revealed at the level of individual ridges, in particular the plan and final surface expression. Detailed topography could be developed for the five intact ridges (Figure 5-6, Figure5-7A–B), and footprints could be reconstructed from LiDAR for another four mined ridges (Figure 5-8). Hontoon Dead Creek Mound is characterized by an arcuate or crescentic ridge, oriented parallel to the topography of the eastern terrace edge, which increases in width from north to south (Figure 5-6A). It has abrupt slopes, particularly on the swamp-facing western edge. The summit is not flat, but has an asymmetrical apex at the southern end. It has an almost an inverse twin in the nearby Live Oak Mound (Figure 5-6B), which is characterized by an arcuate ridge that corresponds to the western terrace edge. Unlike Hontoon Dead Creek Mound, however, the asymmetrical apex is situated on the northern aspect of the mound. The Blue Spring Oxbow Mound (Figure 5-6C) is a much smaller linear ridge. The mound is too small to resolve surface features, but a visit there confirmed that the apex is effectively flat (Randall and Sassaman 2005). Blue Spring Oxbow is the smallest ridge recorded. Although the possibility exists that this was its original form, Wyman suggests that it has in fact been eroded by the river. In plan form it is situated adjacent to a lagoon that may correspond with an old channel meander. It is likely then that this is but a faint vestige of its original configuration.

The other two intact shell ridges are situated farther to the north. In comparison with Live Oak and Hontoon Dead Creek both Bowyers Bluff-1 and -2 are much smaller, but show similar principles (Figure 5-7A,B). Their bases are relatively ovoid, but this footprint is surmounted by linear or arcuate ridges. Both Bowyers Bluff ridges have slightly asymmetrical summits, in this case pointing towards the north. Taking this small sample at face value, there does not appear to be a necessary cardinal orientation for the higher apex. Moreover, the chronological association of the apexes are not clear. For example, Sassaman (2003a) identified what may be a St. Johns period mortuary mound at the apex of Live Oak Mound, which suggests that later St. Johns communities appropriated the preceramic Archaic ridges. Although structurally similar, a number of visits to Hontoon Dead Creek Mound has failed to identify any significant surficial St. Johns assemblages or human remains, at least in the quantities identified at Live Oak Mound. Wyman did record a the articulated remains of an individual somewhere on the mound summit. For his part, Moore (1893a:13) indicates that the summit of Mount Taylor, which was 8.3 m above the floodplain, was effectively flat. Thus, the significance and pervasiveness of ridge asymmetry is unknown.

Multi-Mound Complexes

The multi-mound complex category is composed of seven sites, all of which likely eclipse the scale of shell ridges prior to shell mining (Figure 5-8, Table 5-3). Of the sample, only two remain intact today (Thornhill Lake and Kimball Island), likely because of their locations away from the main channel. Four also have sand and shell burial mounds attached to them, or situated near, and I have include what metric information is available for them in Table 5-3 under their corresponding site. Shell fields are likely associated with many of them. Because of the extensive nature of mining there has been little known about the the extent of shared layouts, and whether they were produced by Mount Taylor or later communities. As I will review here, there are several interrelated patterns of placemaking woven amongst them. That is, this type does not register a single process, nor does it represent a gradual increase in the scale of depositional events through time. Excluding Kimball Island, all are located on the water's edge, with deposits existing at or below 0.0 m NAVD88 and are extensive in terms of surface area and height.

The Kimball Island site is one of the few intact mounds left in the river valley (Figure 5-7C), and is also one of the least well known. The site is located 130 m away from a primary channel today, although there are ponds nearby, and is completely surrounded by swamp. As seen in the discussion of ridges earlier, it is more typical for sites away from main channels to be located directly on the terrace edge. The complex has an intriguing plan, and consists of two shell loci: a 5-m high arcuate ridge (roughly the same size as other isolated Mount Taylor ridges) and a 3.5 m high ovoid shell dome to the northwest connected by an apparent ramp. The main ridge has at least two high points on its summit, and western dome has an asymmetrical summit mount as well. The site was first documented by Benson and Green (1962), who produced a topographic map and conducted limited testing. They recovered only three St. Johns sherds in the upper 6 inches of the mound, and continued their test pits down a total of 5 feet. It would seem then that this is likely a Mount Taylor production, but little else can be said of it at this time.

The other intact mound complex is Thornhill Lake, originally documented by Moore (1894b) and recently tested extensively by Endonino (2008) (Figure 5-9). Today the site consists of a 3-m high arcuate ridge, a western ridge or ramp extension, and two lakeside depressions. There are also two truncated-cone sand and shell burial mounds that surmount the center (Mound B) and eastern (Mound A) end of the basal ridge.

Although largely intact, I should say that shell mining may have produced the depressions on the lake side and Moore dug extensively into Mounds A and B (Endonino 2008). As noted by Endonino, Moore reported that the height of Mound A prior to excavation was 3.4 m, while Mound B was 2.7 m high, today (and in Figure 5-9) they both have the same relative height of approximately 1.8 m. This site has provided pivotal information the demonstrates Mount Taylor communities constructed sand and shell mounds, and that individuals and extralocal objects were interred in them (Chapter 4). This complex is also primarily preceramic Archaic, based on the fact that ceramic sherds of the Orange and St. Johns period were limited to near-surface exposures. As reported by Endonino, the basal shell ridge dates at least as early as 6200 cal B.P. Basal dates on the mounds place construction of Mound B as early as 5860 cal B.P., while Mound A was constructed no later than 4600 cal B.P. Because these assays were acquired from the sub-mortuary surface, it is unknown if the mounds were contemporaneous, or constructed serially. Regardless, the data here indicate that the preexisting shell ridge was used as a platform for the construction of paired and structurally similar mortuary mounds (between 27 and 35 m in diameter).

Taking the observations we have of intact and fragmented shell ridges, we can assess the relationship of Mount Taylor communities to the four largest, and mostly destroyed, multi-mound complexes. Each of these places has preceramic Archaic components that have been reconfigured by later communities. We can begin with one of the better known examples, Hontoon Island North (Figure 5-10A). As seen today, the mound complex is characterized by an arcuate ridge, measuring some 300 m in length. The ridge is highlighted by a corresponding interior escarpment and linear depression that terminates in a large depression to the west. This escarpment maps the southern ridge of what was once a complex composed of two ridges and two burial mounds offset on the backside. Wyman (1875:27–28) describes the site as consisting of a large southern ridge with a 7.6-m high asymmetrical summit to the west, and a smaller ridge that rose approximately 4 m high. These were separated by a large valley in the middle, but may have been connected on the eastern end. I have superimposed the likely location of these ridges on Figure 5-10A. Today, the northern ridge has been mined away and is now a harbor for Hontoon Island State Park. Wyman noted that pottery was to be found at all depths in the southern ridge exposed profile, indicating that it was likely an Orange or St. Johns construction.

That this was a place of particular importance to St. Johns communities is attested to by the recovery of wooden effigies from the channel (Bullen 1955a), as well as a St. Johns period sand mound on the opposing bank (8VO2600). In addition, research by Barbara Purdy (1987) on the wetsite deposits on the eastern margin also confirmed that the apex was likely constructed by St. Johns communities. However, reconnaissance and test excavations in the southern ridge escarpment by Sassaman and colleagues (2005) demonstrated that much of that ridge is preceramic Archaic, dating as early as 5200 cal B.P. and likely earlier (see Chapter 7). Finally, Wyman also described two paired and conical mounds on the backside of the southern ridge, the larger was estimated at 7.6 m, while the smaller at 6 m high. The placement on Figure 5-10A is based on McGee's reconstruction. There are no discernable remnants of either mound today. Wyman reported finding pottery and human remains to a depth of 1 m in one of the mounds. Whether these actually date to the preceramic Archaic, however, is unknown. They are consistent with later St. Johns period mortuary mounds elsewhere. Yet based on their paired status (see Bluffton below), and their comparison at least in their basal widths of Thornhill Lake, we should consider a Mount Taylor origin as a possibility. Regardless, as reconstructed today (red line on the map), the mound complex approximated a U-shape, which apparently post-dates the Mount Taylor inhabitation there.

The Harris Creek site is best known for the early Mount Taylor mortuary that was exposed during shell mining and initially documented by Jahn and Bullen. Like Hontoon Island North, the center of the complex was mined out, leaving a ca. 150 m long and 90 m wide depression, in addition to miscellaneous shell extensions (Figure 5-10B). This ridge is consistent with the Mount Taylor shell ridges described above. It was at the base of this shell ridge that Jahn and Bullen discovered the Mount Taylor mortuary. The specific configuration of the site prior to destruction was never properly recorded. Moore (1893b:606) describes the complex solely as “acres of shell ridges.” He excavated a 3 m deep test pit in one ridge, and recovered abundant Orange fiber-tempered Incised sherds. In all subsequent tests he noted Orange pottery, in addition to St. Johns pottery, across the complex’s surface. Bushnell (1960) noted that Orange sherds were largely absent from on top of the main ridge, but present on the western and southern shell extension.

More recently Aten (1999) reconstructed the history of excavations. He provided an illustration showing the likely configuration of the ridges prior to mining. This reconstruction was based on a 1961 sketch map and 1941 aerial, which I have superimposed on the LiDAR DTM in Figure 3-10B. Although not entirely clear, the imagery and topography suggests that there were two ridges that joined at the Mount Taylor shell ridge. These extensions appear to have formed a U-shaped shell ring, with the Mount Taylor ridge forming much of the northern half of the ring. Abundant Orange sherds were noted everywhere except for on top of the Mount Taylor ridge. On these grounds it would appear that the multiple ridge configuration post-dates the Mount Taylor ridge. A similar sequence, consisting of a Mount Taylor mortuary beneath strata containing abundant Orange Incised sherds, was identified by Moore at the Orange Mound. In this case there were apparently no shell ridge extensions approximating a U-shape.

Just 7 km to the northeast lies Bluffton (Figure 3-11). Much of the site was mined below grade, and so all that is left is an elongated and low-lying ridge of shell. Wheeler et al. (2000) have reconstructed the topography of plan of the site, which I have superimposed over the DTM. The site was described by Moore (1894a) and Wyman (1875:37) as consisting of a great shell "dome," 7.6 m high, and an associated shell ridge. It is unclear if the dome and ridge were attached at one time. No work was conducted on the shell ridge fronting the water, but Bullen (1955b) performed salvage excavations in the dome to the north as it was being mined. In a 5-m deep, 7.6-m long trench he recorded a sequence spanning a basal Mount Taylor component (over 4 m thick) and an Orange component. To the southern and landward side of the southern ridge Moore (1894a:48) identified abundant sherds of unknown type in a large shell field.

In addition, Moore (1894a:46–47), Wyman (1875:37), and Sears (1960) identified a conical sand and shell mound, and an elongated sand and shell mound on the eastern terrace edge of the complex. Excavations in the southern mounds demonstrated that it was constructed rapidly of shell, sand, and muck over an individual (Chapter 7). Although there are no radiocarbon assays published for this mortuary mound, it is consistent with those identified at Thornhill Lake and Tomoka in terms of structure, content, and size. Thus it is more than likely Mount Taylor in age. As to the sand mound to the north, little is known about its content, but the fact that there are two mortuary mounds, much like Thornhill, suggests that they represent paired mortuaries. The extent to which Bluffton was configured like a U is unknown, but it would appear that an extensive Mount Taylor ridge underlies much of the river side complex.

The northernmost multi-mound complex is situated at the confluence of Silver Glen Springs Run (Figure 3-12), and is known as 8LA1-East. It is part of a much larger assemblage of ridges and shell fields that are situated to the west along the spring run (Chapter 7). The Mount Taylor shell ridge (Locus A) is visible to the west in Figure 3-12, and is separated from 8LA1-East by a large seep spring. Today, 8LA1-East has almost no surface expression. However, Wyman described it as one of the largest mound complexes on the St. Johns. This site was completely mined in 1923. Probate documents show that a contract of $17,000 was made for the removal of the shell, with a fixed price of $0.15 per yard. Assuming this was a cubic yard, it would translate into 113,333 yards^3 of shell, or 86,649 m^3. This estimate may also have included the Locus A shell ridge that was also mined. Regardless, it was a massive quantity of material that was removed. It was upon this mound that Wyman contemplated the significance of origins and significance of shell mounds, as discussed in Chapter 1. Wyman (1875:38–39) described a large U-shaped complex at the mouth of the Spring Run, roughly 300 m long on a side, and upwards of 10 m high. Although he did not publish a map of the site, he did sketch one in his journal, which together with recent excavations and surface surveys conducted by Sassaman and colleagues (2010) served as the basis for the boundaries reconstructed in Figure 3-12. Although there is little left on the site today, excavations on the southern ridge identified basal shell deposits dating to the late Orange period. Beneath the northwest corner of the mound, and fronting Lake George, many decorated and plain Orange sherds have been recovered.

There can be no doubt that much of this place was constructed during Orange times in a shape approximating a U-shaped shell ring. However, there is anecdotal evidence that suggests the front ridge, particularly the portion near the seep spring to the west, may have been inhabited during the Mount Taylor period, and a portion of the site may have been a mortuary. The basis for this inference is the combination of skeletal remains found eroding from the surface, and concreted shell. Concreted shell is shell-bearing matrix that has been cemented together. Although the precise formation process is unknown, Palmer and Williams (1977, cited in Wheeler et al. [2000]) have argued that concreted shell forms as calcium carbonate in superimposed strata percolates downward and eventually precipitates. Many of the Mount Taylor ridges have basal strata composed of concreted shell, although it does occur in non-basal contexts as well (Wheeler et al. 2000:145). I will return to the significance of concretion in the subsequent chapters. Regardless, there may be a Mount Taylor ridge here as well.

The final multi-mound complex under consideration is the Old Enterprise complex. Today, virtually nothing is left of the terrestrial component (Figure 3-13A). Wheeler et al. (2000) and Piatek (1984) have attempted to reconstruct its size and shape based on historic observations. Towards the end of the nineteenth century, Old Enterprise was very much a tourist destination, there was a hotel on its summit, and perhaps one of the most famous shell mounds along the St. Johns (Figure 3-1A). When Wyman visited the site he noted that it was mostly eroded on the lake side, but was characterized by a high central dome with two ridges, one extending perpendicular to the shore, and another irregular one along Lake Monroe. Surrounding the complex were shell fields. Virtually nothing is known of the complex's culture-historical association. However, Wyman (1875:20) does indicate that in his examination of the eroded mound profile:

> Pottery was found in considerable quantities, mostly ornamented with tracings in straight lines; but few of the pieces were stamped. Palmetto fibre [sic] was largely used, mixed with the clay, in the making of the vessels.

This description of recovered pottery is consonant with the Orange Incised variety. While it is unclear how the complex's basal components were related to Mount Taylor communities, it would appear that as with Harris Creek, Hontoon Island North, and Silver Glen Run-East, a multi-ridge complex, possibly a U-shaped shell ring, was constructed in this locality.

The Old Enterprise complex is the terrestrial component of the Groves' Orange Midden wet site that spans the entirety of the Mount Taylor period. While not included in the traditional classification scheme, wet sites are prominent—albeit typically obscured—aspects of regional shell mounds (Wheeler et al. 2000). A minimal definition of wet site deposits are those in which anthropogenic matrices are situated below the current water table. Largely owing to its pervasive wetlands and low relief, the state of Florida is home to some of the most abundant and chronologically diverse wet site deposits in the world (Purdy 1991). Along the Middle St. Johns River, wetsite deposits have been identified that span the preceramic Archaic through St. Johns II periods. As discussed in Chapter 4, excavation these permanently inundated resources have provided crucial details on rarely-preserved botanical and other perishable assemblages. At Groves' Orange Midden the researchers also used a piston core rig to map out the distribution and thickness of shell matrix that extended out into lake Monroe (Figure 3-13B). They found that anthropogenic deposits could be located up to 30 m away beneath the lake, which was likely a function of the bathymetry. However, shell matrix and other materials were actually thickest within a linear depression running perpendicular to the shoreline (highlighted in Figure 3-13B at the -0.90 m isopach). The excavators argue that this was a paleochannel that was infilled by shell and other materials. Although it is unknown if Mount Taylor communities filled this channel in during periods of low water, the repeated deposition of materials within a wetland may have harkened back to the pond burials of old. At the very least, Mount Taylor communities apparently inscribed landscapes in ways that would be obscured or forgotten as much as they materialized social histories in shell matrix places.

Shell Fields

Ridges and multi-mound complexes were clearly places of intensive deposition. But there were many other places through which spatial stories were written. Shell fields remain the least understood of all shell matrix sites along the St. Johns, but they are arguably one of the most pervasive manifestations of inhabitation. They show an incredible range of variation, save for the lack of dense or thickly accumulated shell (Table 5-1). They are found at all elevations, from the floodplain up to 13 m high on terraces. They can be isolated, or adjacent to ridges or multi-mound complexes. Some appear to have been residential loci. For example, Sassaman (2003a) isolated an

Orange period semi-circular compound at Blue Springs Midden B. The deposits there actually spanned the Mount Taylor/Orange interface. The compound was identified on the basis of a discrete distribution of crushed shell patches. Others appear to register discrete loci of inhabitation. At the Lake Monroe Outlet Midden, the excavators identified discrete depositional episodes on the upper terrace as well, some of which only involved the production of lithic tools (ACI and JR 2001; Scudder 2001).

The absolute distribution of shell fields is also unknown. However, a recent reconnaissance survey of the margins of Hontoon Island suggests that shell fields were literally everywhere (Figure 5-14). Over the course of five seasons, the University of Florida St. Johns Archaeological Field School surveyed the interior and margins of the island (Endonino 2003a; Randall and Hallman 2005; Randall and Wallis 2007). Methods were designed to identify, characterize, and delimit site boundaries. A total of 10 shell matrix sites were identified, eight of which contained, or were suspected to contain, preceramic Archaic components. The most visible features on the island are the Hontoon Dead Creek Mound to the south and the Hontoon Island North complex to the north. However, these are situated amongst a diverse non-mound-scape composed of shell matrix sites found at low elevations and at the intersection with wetlands.

The western and eastern flanks of the island are characterized by two elongated sites (Indian Mound Trail and Hontoon Hammock). They share some internal similarities, including discrete shell-bearing deposits, some of which yielded concreted shell. In contrast to the shell, the majority of each site is composed of more diffuse anthropogenic deposits which contained only traces of vertebrate faunal remains. Neither site yielded substantial pottery inventories. Although quite similar, there are important differences. Tests at Indian Mound Trail recovered a relatively large lithic assemblage, composed of stemmed hafted bifaces, modified flakes, and lithic waste flakes. At least two bone pins and other modified bone artifacts were recovered. The limited presence of Orange and St. Johns sherds suggests that these sites were occupied only intermittently during these later periods. On the balance their use occurred during the preceramic Archaic.

In stark contrast to the eastern and western margins, the three bounded sites to the south (Hontoon Dead Creek Village, Snake Creek Village, and South Hontoon Midden), reflect regularized plans. Each is characterized by one or more centralized nodes of elevated shell. At least two of the sites, Hontoon Dead Creek Village and Snake Creek Village, have varied surface topography suggestive of discrete, and potentially routinized depositional practices (Chapter 6). Hontoon Dead Creek Village in particular has been demonstrated to span the entire culture-historical sequence starting with Mount Taylor. Evidence for all ceramic periods was present among these three sites, with St. Johns Plain and Orange Plain sherds dominating. This pattern is actually quite surprising. The prevalence of Orange habitation contrasts with Hontoon Island North and Hontoon Dead Creek Mound where very limited evidence for Orange components has been documented. While surprising at Hontoon Island, these sites actually share some similarities with Blue Spring Midden B at Blue Spring State Park.

At a minimum the patterns identified at Hontoon Island suggest that any consideration of regional inhabitation must take into account the collective assemblage of spatial practices. The smallest, or least obvious, archaeological sites today were likely the means through which the broader patterns of landscape inhabitation were articulated as spatial stories. We should also be suspicious of viewing non-mounded places as fundamentally opposed to those occurring at shell ridges or multi-mound complexes. That the social contexts may have been different does not mean that practices, and their significances, could not be transposed and transformed across fields of practice.

The Structure of Regional Inhabitation

The reconstruction of Mount Taylor places enables us to consider some of the larger principles at work that structured the distribution and disposition of inhabitation throughout the Middle St. Johns. This analysis was not based on a complete population sample. However, it should be obvious by now that the Middle St. Johns was rife with the accumulated materiality of preceramic Archaic practice. In a consideration of place-making, several patterns have emerged (Figure 5-8). Most notably, Mount Taylor communities routinely created linear places. The significance of the linearity is not evident from a regional sample, but it is fundamentally distinct from the later U-shaped multi-mound complexes. The limited data at the regional scale suggests that once ridge ground plan were established they were reproduced through depositional practices that emphasized the ridge summit. This is not to say that bases did not expand, but they appear to have done so only to allow higher summits.

Contradicting the presumption that these places were "unstructured," the GIS-based analysis has shown that in fact there was a basic plan and footprint that was reproduced many times over. In terms of situatedness, most Mount Taylor ridges were located nearby sources of water, including channels, lagoons, and springs as well. Given that ridges are composed of shellfish derived from the water, this should not come as a surprise. However, I would note that no one has yet determined whether shellfish deposited on ridges were derived from local contexts. Other patterns regarding the placement and relationality of later-Mount Taylor mortuary mounds are also evident. In at least two cases paired sand and shell mounds were emplaced either on top of or adjacent to preexisting shell ridges. Whether or not these were constructed in a serial fashion, their duality is contradictory to the isolated linear places they reference. These data suggest the importance of ridges, and likely shell fields as well, lay not only in their economic potential, but in the significance woven through practices in place.

One might be lulled into thinking that linear ridges all emerged in the same social and ecological contexts, much like Cumbaa, and that each place was repeatedly inhabited over the course of millennia. Alternatively, one might suppose that shell mounds were constructed for the purposes of elevating a residential space out of rising water. Both of these assertions can be tested with a combination of the LiDAR elevation data and radiocarbon assays. During the process of georeferencing site plans, I calculated absolute elevations relative to NAVD88 for a series of assays distributed throughout the river basin (Figure 5-15). These assays are derived from terrestrial and subaqueous contexts. In Figure 5-15A I have graphed the median intercept and absolute elevation of each assay. Also shown on the graph is the maximum span of peat deposition at Groves' Orange Midden, argued to represent high water tables and a stable hydroperiod. I also graphed the elevation range of the minimum flows and levels (MFLs) for the Deland gaging station (Table 3-1). MFLs are typical flow conditions of the river, from the frequent low to the minimum frequent high. They represent the river stages that inhabitants could be expected to experience along the contemporary St. Johns within a 3 year time span. In order to examine potential differences in stage values throughout the basin, in Figure 5-15B I normalized the elevation values by the maximum recorded flood stage at the nearest gaging station. For sites near Deland this equates with the 50-year flood. Elsewhere, the local gages had less than 50 years of data, and thus the highest magnitude flood event does not necessarily have a similar return probability. Regardless, these values help show the relationship of places to infrequent but high magnitude events.

A consideration of the elevations of occupation through time reveals several important patterns. From the inception of shellfishing 7300 years ago through the onset of the Orange period 4600 years ago, no terrestrially deposited contexts are below current MFLs. As discussed in Chapter 3, the current MFLs are likely at or near their highest stages in the history of the St. Johns. Shell matrix site minimum elevations have thus remained effectively unchanged over the course of the Mount Taylor period. The location of terrestrial deposition is in contrast to pattern of the subaqueous contexts, which show an overall increase in elevation through time. I would note that except for one assay, all subaqueous dates are from the Groves' Orange Midden site. Thus, their higher elevation through time reflects a process of deposition, and does not necessarily reflect increased water levels through time. Regardless, the lowest subaqueous deposits are also the earliest. There is no clear trend in an increase in elevation until ca. 6000 cal B.P. when assays are clustered between roughly -0.5 and -1.5 m NAVD88. This cluster of assays is coeval with the deposition of peat at Groves' Orange Midden, and appears to reflect a period of aggradation and higher surface waters.

Despite the potential increase in stage ranges through time, there is not a concomitant increase in minimum terrestrial elevations. This point is driven home when one considers the flood-normalized distributions. Some terrestrial contexts would be submerged during infrequent flood events. That these differences in location (by elevation) do not simply reflect rising water levels through time, however, is evidenced by terrestrial deposits at the chronologically young Hontoon Island North site (8VO202) at relatively low elevations. The terrestrial pattern suggests that throughout the Mount Taylor period places were always maintained above today's typical flood stages, and thus the deposition of shellfish and other materials on top of ridges cannot be explained by the need to elevate places out of rising water.

As to the long-term rhythm of inhabitation, the clusters of assays for specific localities imply differing intensities of local inhabitation, contra Cumbaa. Most places, if not all, appear to have emerged rapidly, and were subsequently decommissioned or abandoned. This is certainly the case with Hontoon Dead Creek Mound, where upwards of three meters of deposition occurred over the course of several centuries. The similarity in overall site plans though time cannot be reduced to a long-standing pattern of unreflexive site occupation. As demonstrated in Chapter 3, Mount Taylor communities experienced widely differing ecologies and hydrological conditions over the course of the Mount Taylor period. Thus, even though Mount Taylor places superficially share similar organizational plans, the experiences of the inhabiting communities would have been framed by different temporalities of the landscape. For example, the earliest shell ridges were produced at a time of lower water, but more frequent flood events. The distribution of shellfish may have also varied considerably from year to year.

In contrast, by 6000 cal B.P. many places that were once directly associated with channels, such as the Hontoon Dead Creek Mound, were orphaned by floodplain aggradation and infilling. New places were apparently established elsewhere, but with respect to fundamentally different hydroperiods and concomitant ecological distributions. In this context of change, the continued production of localities with shared structuring principles over the long term emerges as a central question to be addressed. It is the histories of inhabitation at the local level that will enable us to untangle the different ways in which the reproduction of places through time enabled social memories and spatial stories as a historical process. In Chapters 6 and 7 I will examine the specifics of place-making, and trace out the genealogies of these practices.

Table 5-1. Metric attributes of shell matrix sites based on typologies of Wyman (1875) and Wheeler et al. (2000)

Type	Mean	Median	Std. Dev.	Min	Max
Ridge (n=15)[1]					
Length (m)	144.4	140.0	71.6	45.7	300.0
Width (m)	52.1	54.9	19.5	15.0	80.0
Height (m)	4.3	4.0	1.5	2.1	8.3
Distance to Water (m)	87.5	29.4	102.1	0.0	288.0
Multi-Mound Complex (n=7)					
Length (m)	316.8	330.0	154.4	134.1	589.0
Width (m)	192.4	200.0	108.0	48.8	349.0
Height (m)	6.6	7.6	1.5	4.6	8.2
Distance to Water (m)	30.6	0.0	53.9	0.0	130.4
Field (n=10)					
Length (m)	268.4	173.5	229.6	58.0	725.0
Width (m)	111.1	69.5	110.9	38.0	400.0
Height (m)	1.1	1.0	0.3	0.8	1.9
Distance to Water (m)	67.6	11.2	98.9	0.0	241.5

[1]There were two ridges that lacked one dimension of variation, and were excluded from this summary.

Table 5-2. Metric attributes of shell ridges

Number	Name	Length (m)	Width (m)	Height (m)	Volume (m^3)	Min. Elev.[1] (m)	Water[2] (m)	Source[3]	Status
8LA1W-A	Silver Glen Run-Locus A	200.0	75.0	3.0	-	1.61	29.0	Ex, LiDAR	Mined
8LA21	Above Manhattan Landing	61.0	-	3.7	-	0.0	37.0	Ex	Mined
8LA29	St Francis/Old Town	274.3	61.0	4.0	-	0.1	0.0	Ex, LiDAR	Mined
8LA32	Crow's Bluff (Osceola)	76.2	30.5	4.0	-	-	0.0	Ex	Mined
8LA88A	Bowyer's Bluff 1	45.7	24.4	4.2	2011.0	0.5	288.0	Ex, LiDAR	Intact
8LA88B	Bowyer's Bluff 2	115.8	30.5	5.4	4613.0	0.5	246.0	Ex, LiDAR	Intact
8MR123	Silver Glen Boil	300.0	75.0	3.7	-	0.0	0.0	Ex	Mined
8MR2	Salt Springs Run 2	131.0	67.1	2.1	-	0.1	0.0	Ex, LiDAR	Mined
8PU27	Horse Landing	114.3	53.3	4.6	-	-	56.0	Ex	Mined
8VO7	Morrison's Creek	106.7	54.9	3.6	-	0.6	28.0	Ex, LiDAR	Mined
8VO19	Mount Taylor	152.4	53.3	8.3	-	-0.2	171.0	Ex, LiDAR	Mined
8VO41	Live Oak	140.0	80.0	5.3	6730.0	0.5	180.0	Ex, LiDAR	Intact
8VO43A	Blue Springs	152.4	45.7	4.0	-	-	0.0	Ex	Mined
8VO44	Blue Spring Oxbow	47.0	15.0	3.4	376.0	0	9.0	Ex, LiDAR	Intact
8VO162	McDonald (Paramore)	155.5	61.0	3.1	-	-0.4	68.0	Ex	Mined
8VO214	Hontoon Dead Creek	155.0	55.0	5.5	7602.0	0.0	214.0	Ex, LiDAR	Intact
8VO2600	Thursby Complex	182.9	-	1.8	-	0.0	0.0	Ex	Mined

[1]Minimum elevation observable from LiDAR coverage (NAVD88)
[2] Distance to water, either major lake, main channel, or tributary
[3]Source of metric observations. Ex = published account or excavation record.

Table 5-3. Metric attributes of multi-mound complexes.

Number	Site	Length (m)	Width (m)	Height (m)	Volume (m^3)	Min. Elev. [1] (m)	Water[2] (m)	Source[3]	Status
8LA1-East	Silver Glen Run - East	400.0	250.0	8.2	-	0.0	0.0	Ex, LiDAR	Mined
8LA89	Kimball Island	213.4	109.7	5.2	25707.0	0.0	130.0	Ex, LiDAR	Intact
8VO22	Bluffton	589.0	349.0	7.6	-	0.0	0.0	Ex, LiDAR	Mined
(8VO23)	Burial Mound A (attached)	30.5	30.5	4.9	-	-	-	Ex	Mined
-	Burial Mound B (attached)	32.0	20.0	-	-	-	-	Ex	Mined
8VO24	Harris Creek	330.0	280.0	7.6	-	0.0	0.0	Ex, LiDAR	Mined
8VO55	Old Enterprise	134.1	48.8	4.6	-	0.0	0.0	Ex	Mined
8VO58–60	Thornhill Lake	191.0	109.0	5.3	8366.0	0.0	0.0	Ex, LiDAR	Intact
-	Burial Mound A (attached)	35.0	35.0	3.4	-	-	-	Ex, LiDAR	Disturbed
-	Burial Mound B (attached)	27.0	27.0	2.7	-	-	-	Ex, LiDAR	Mined
8VO202	Hontoon Island North	360.0	200.0	7.6	-	0.5	0.0	Ex, LiDAR	Mined
-	Burial Mound A (attached)	30.0	30.0	7.6	-	-	-	Ex	Mined
-	Burial Mound B (attached)	20.0	20.0	6.0	-	-	-	Ex	Mined

[1]Minimum absolute elevation observable from LiDAR coverage (NAVD88)
[2]Distance to water, either major lake, main channel, or tributary
[3]Source of metric observations. Ex = published account or excavation record.

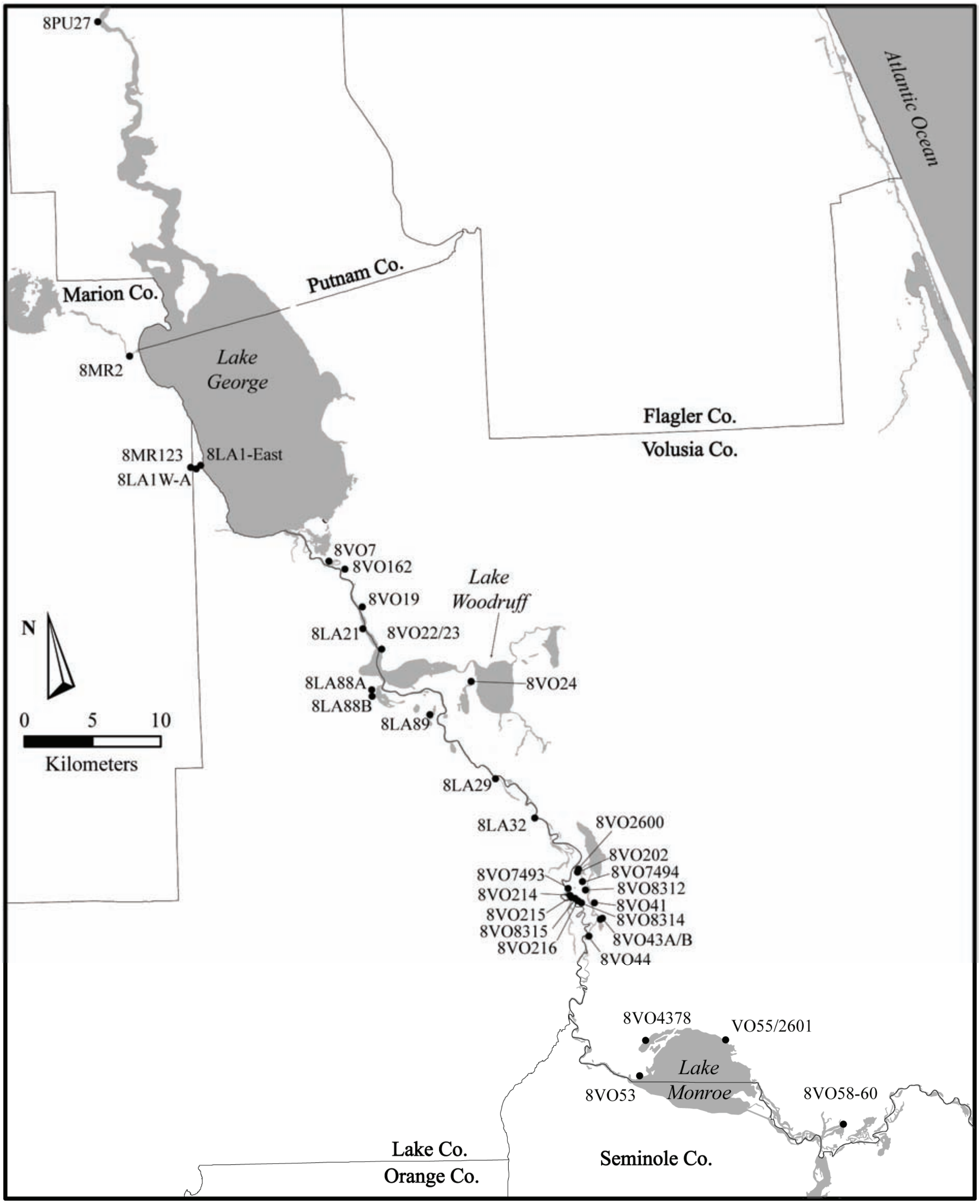

Figure 5-1. Shell matrix sites considered in Chapter 5.

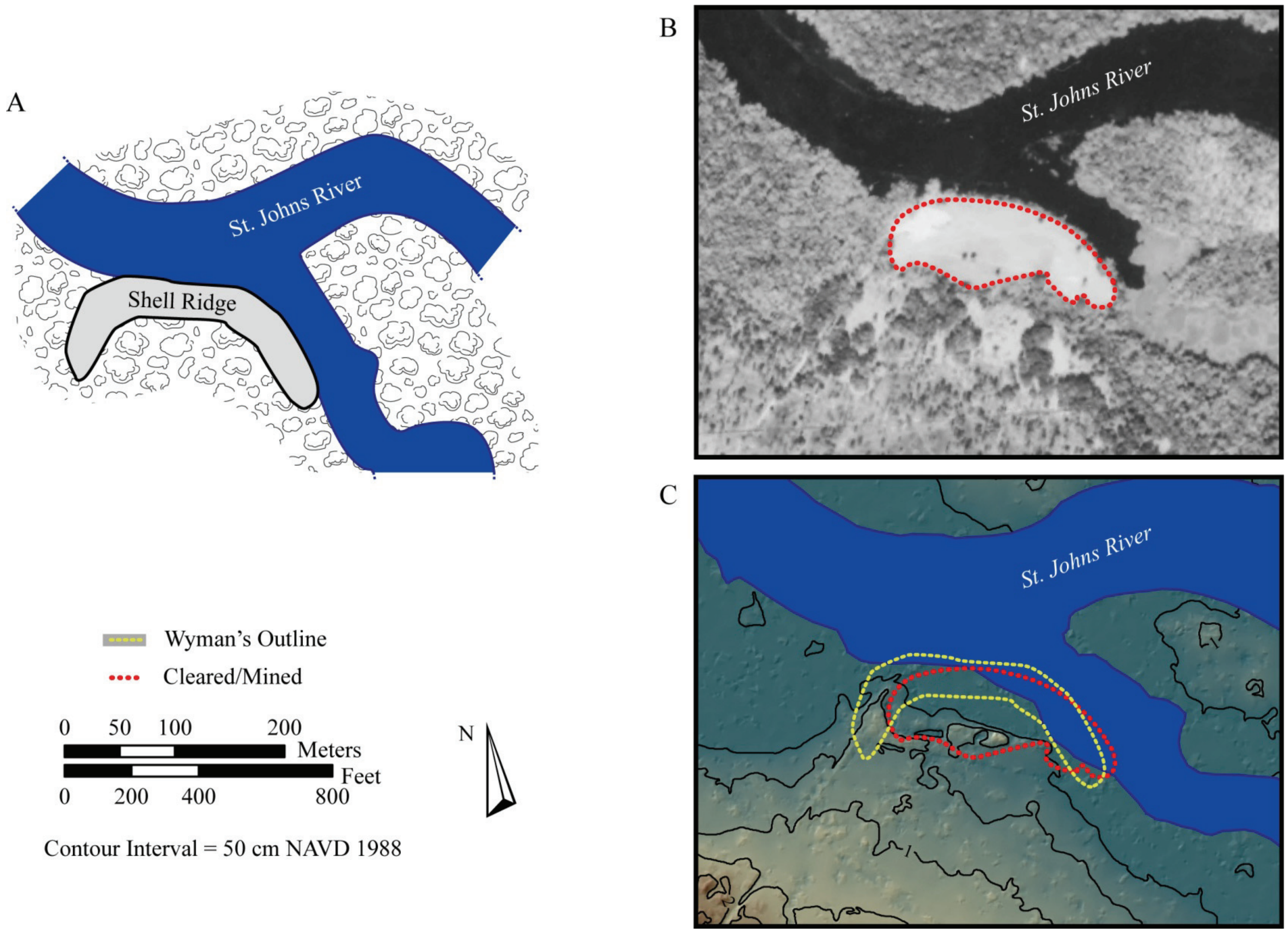

Figure 5-2. Comparison of site plans for the Old Town/St. Francis Mound (8LA29). A) Sketch composed by Jeffries Wyman, scaled approximately (redrawn from Wyman's Unpublished Journal, courtesy of Harvard's Countway Library of Medicine). B) USDA aerial photograph from 1941 with mined area highlighted. C) LiDAR-derived false-color and hillshaded topography with 1941 clearing and Wyman's sketch map superimposed.

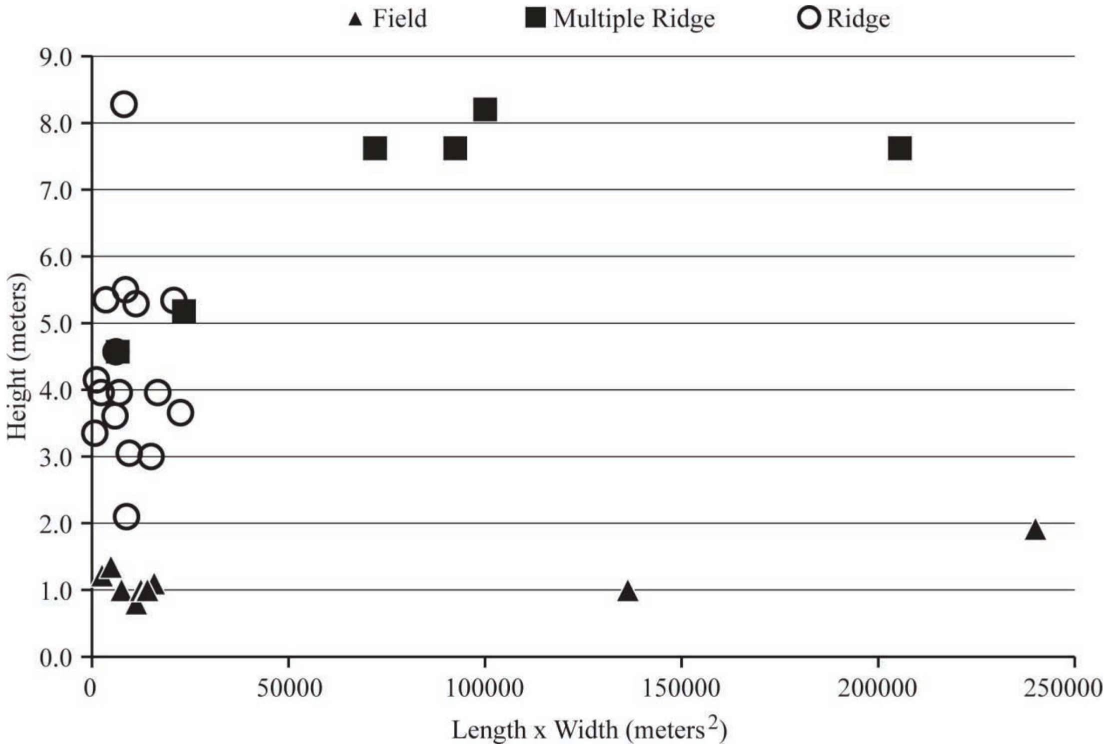

Figure 5-3. Scatter plot of measured height compared against the product of measured length and width for shell matrix site “types.”

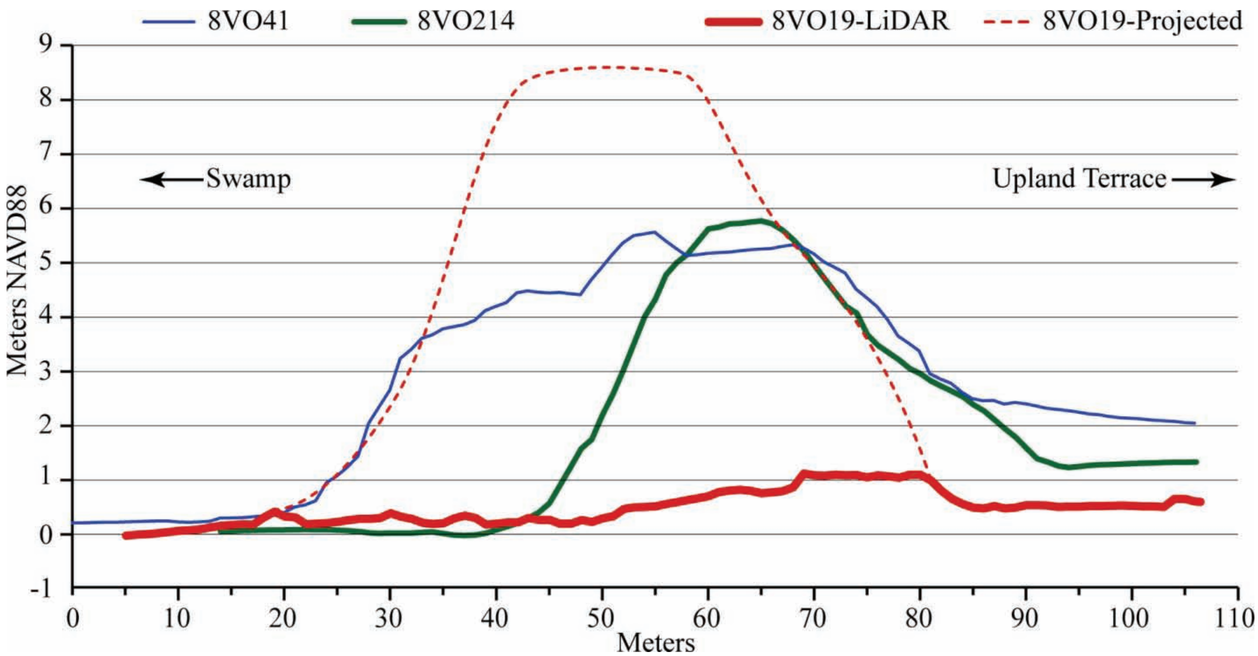

Figure 5-4. LiDAR-derived cross sections of ridges. The projected height and configuration of 8VO19 is based on Moore's (1893a:13) description and the remnant basal escarpment. The vertical exaggeration is approximately 5x.

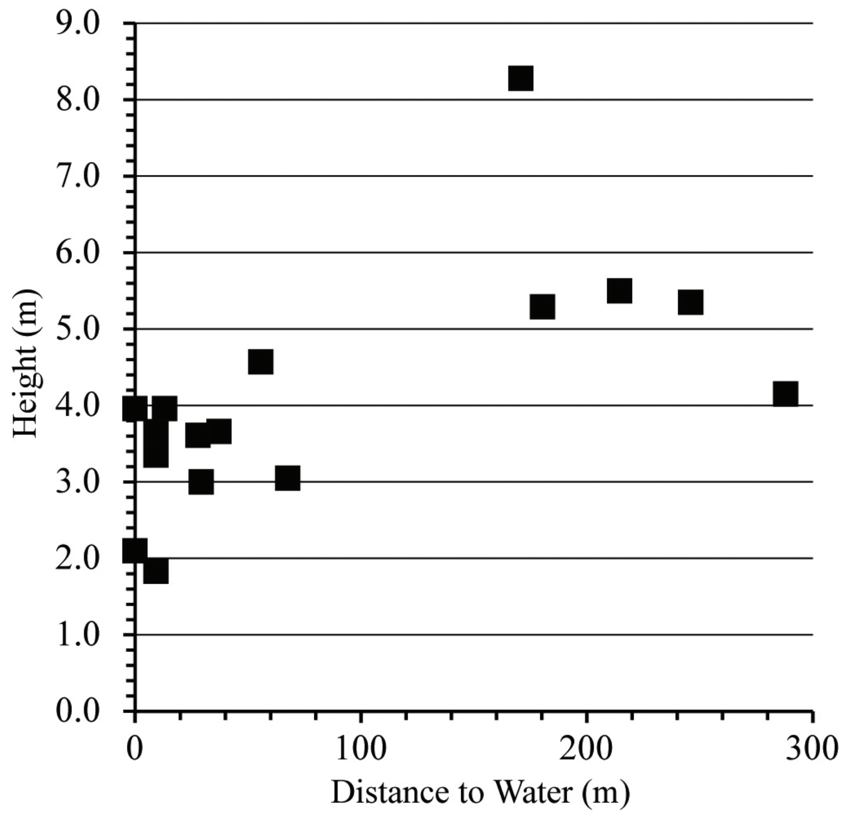

Figure 5-5. Comparison of shell ridge height and distance to water.

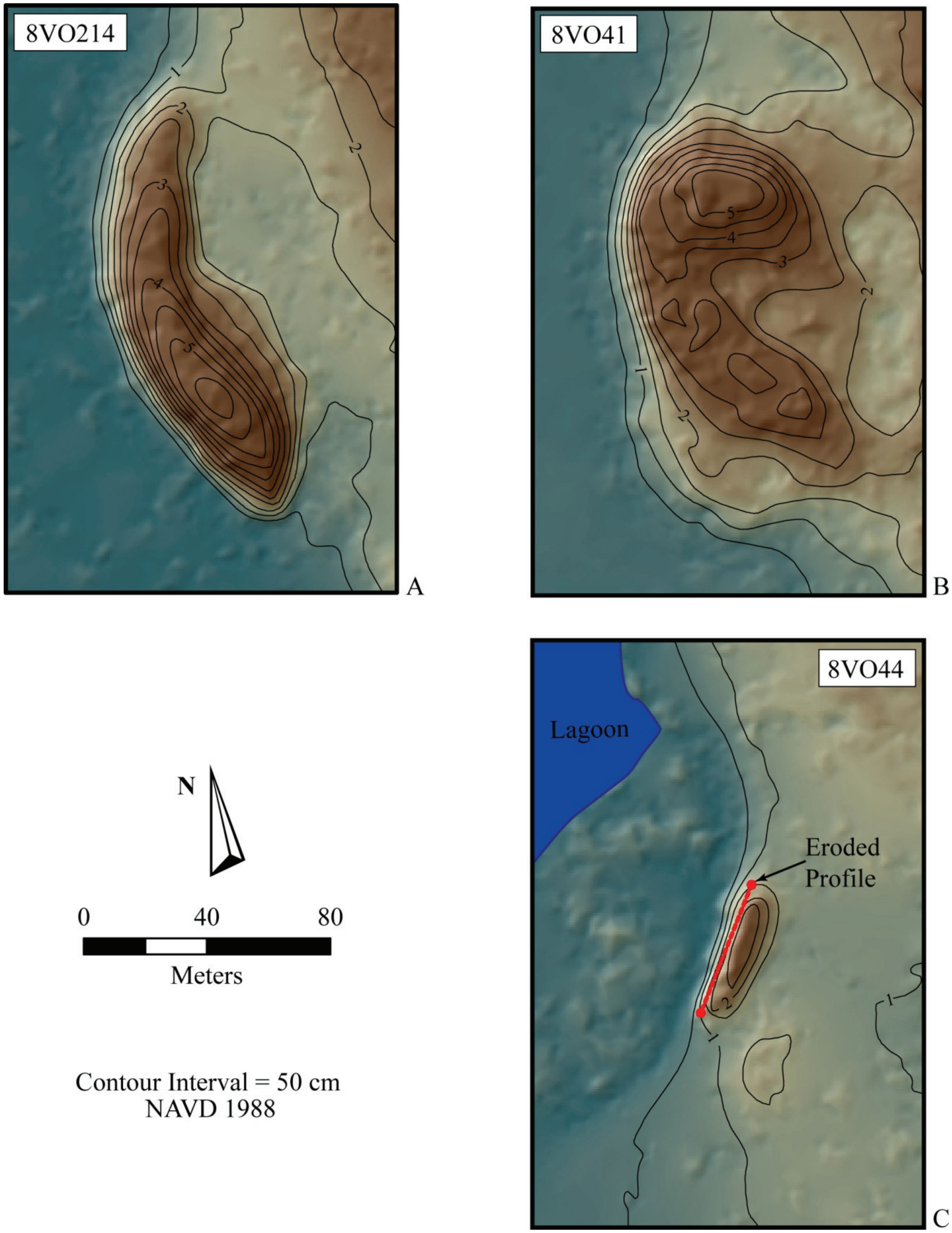

Figure 5-6. False-color and hillshaded topographic maps of intact shell ridges. A) Hontoon Dead Creek Mound. B) Live Oak Mound. C) Blue Spring Oxbow Mound.

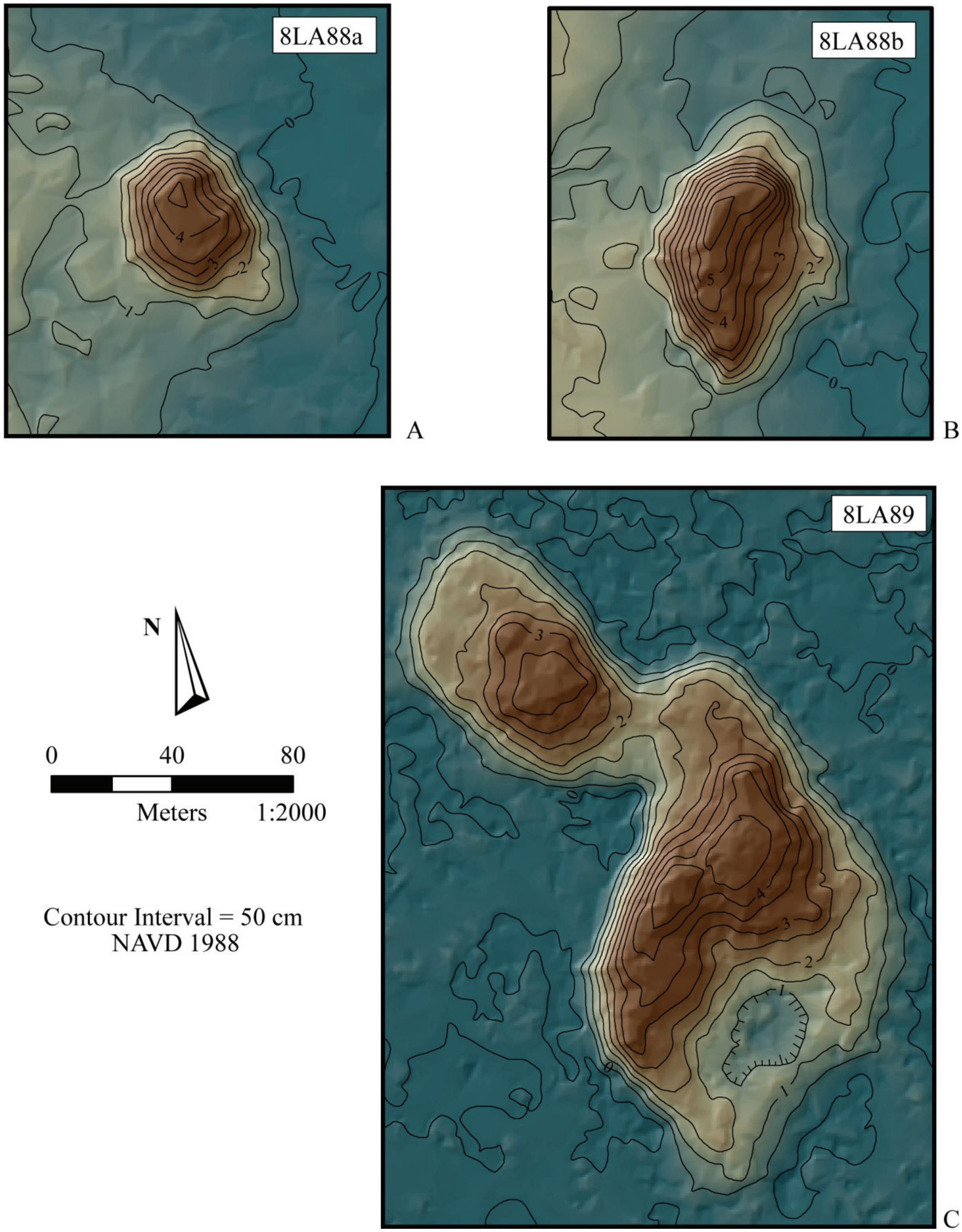

Figure 5-7. False-color and hillshaded topographic maps of intact shell ridges. A) Bower's Bluff 1. B) Bower's Bluff 2. C) Kimball Island Mound.

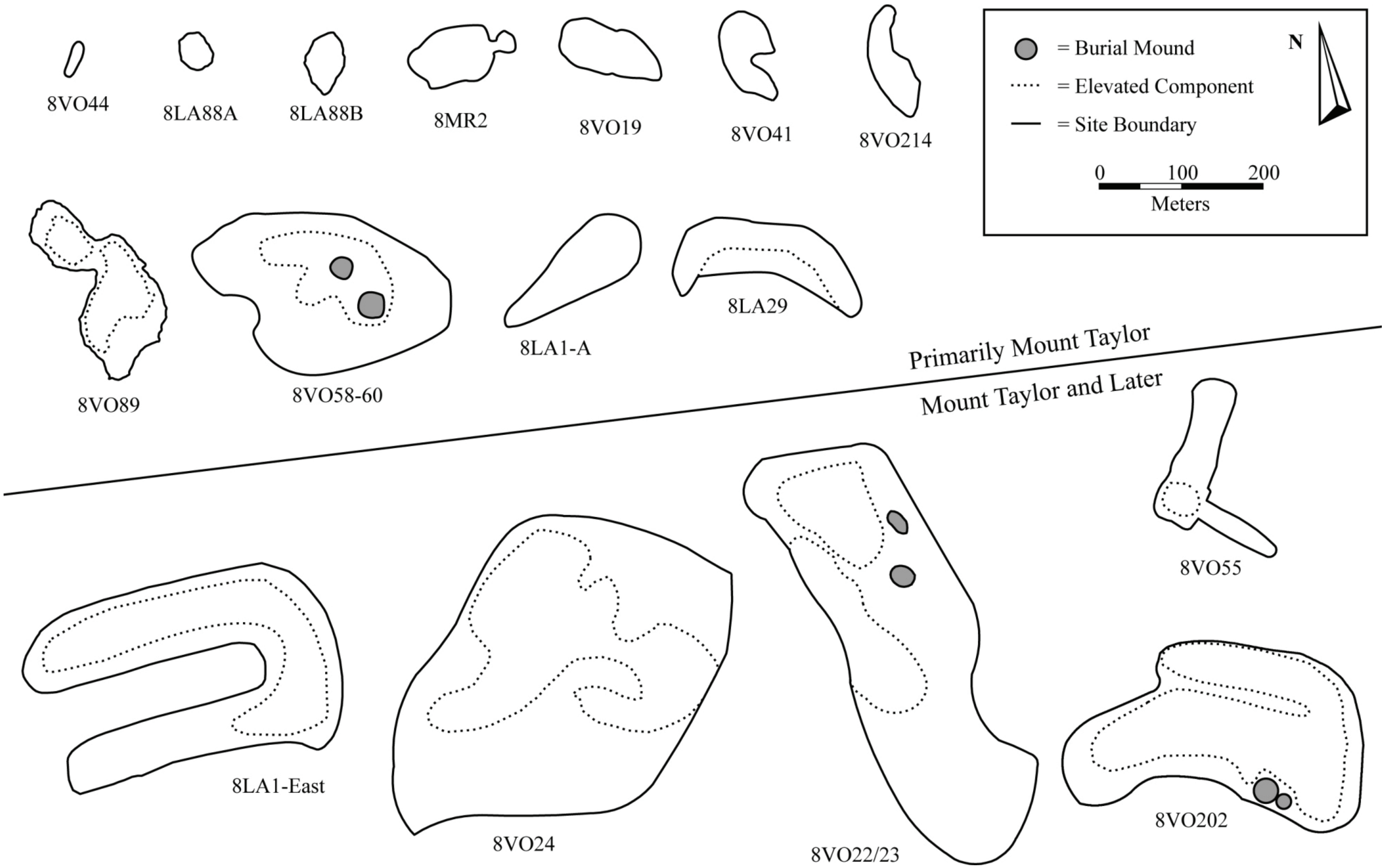

Figure 5-8. Footprints of ridges and multi-mound complexes.

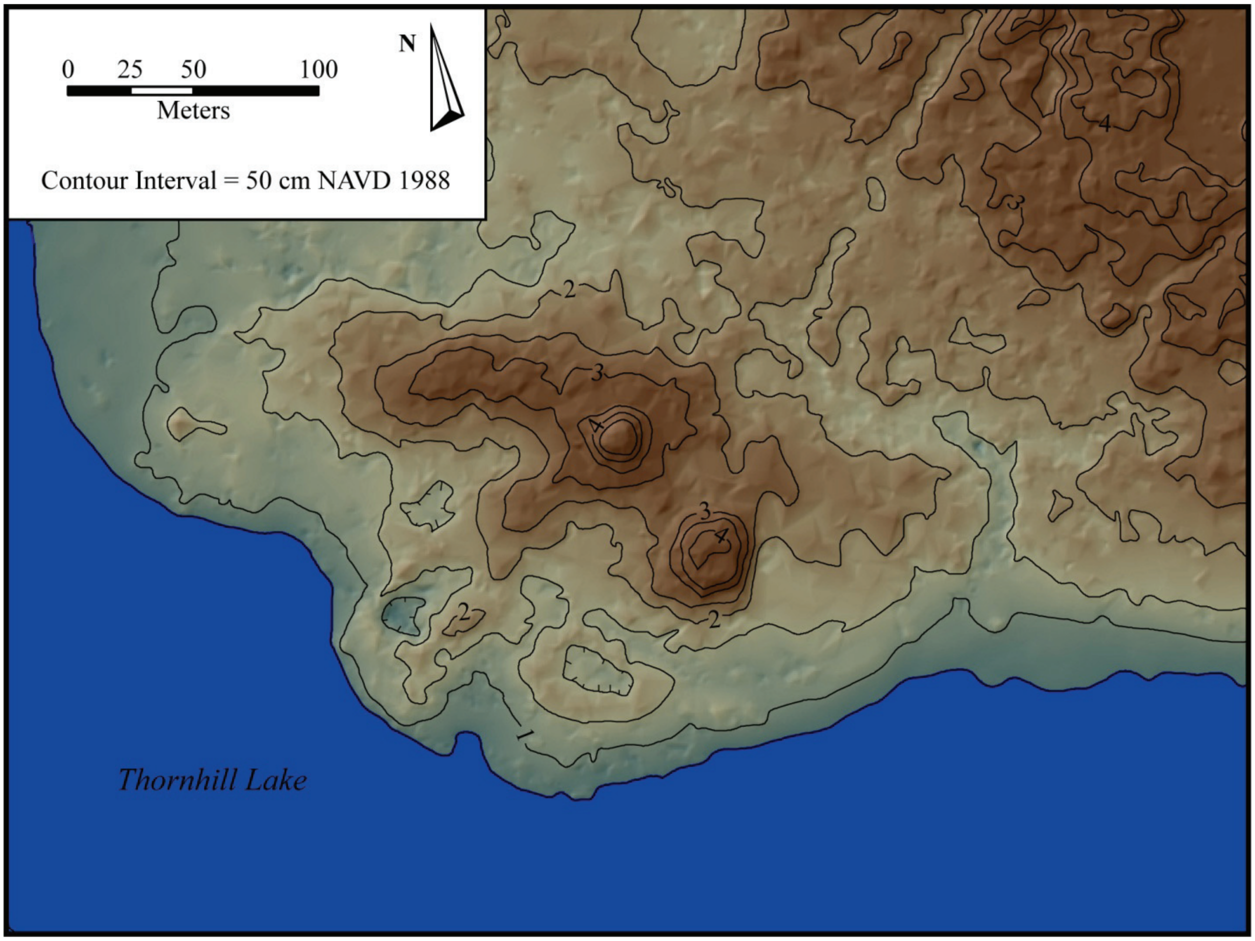

Figure 5-9. False-color and hillshaded topographic map of the Thornhill Lake Complex (8VO58–60).

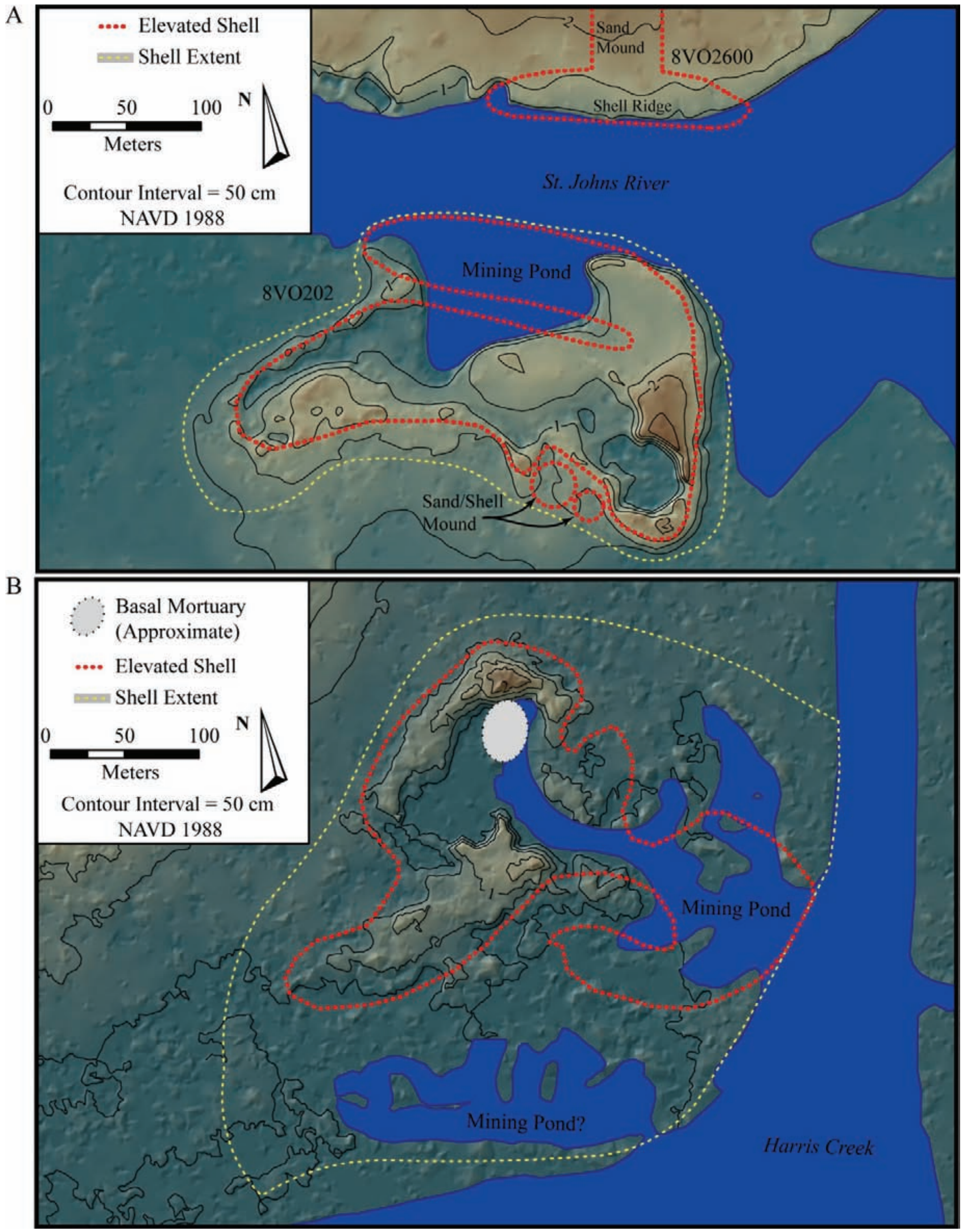

Figure 5-10. False-color and hillshaded topographic maps of mined multi-mound complexes. A) Hontoon Island North (8VO202) and the Thursby Mound/Hontoon Island Parking Lot Complex (8VO2600) (modified from Purdy [1991:Figure 35B]). B) Harris Creek (8VO24) (after Jahn and Bullen [1978]) and Aten (1999).

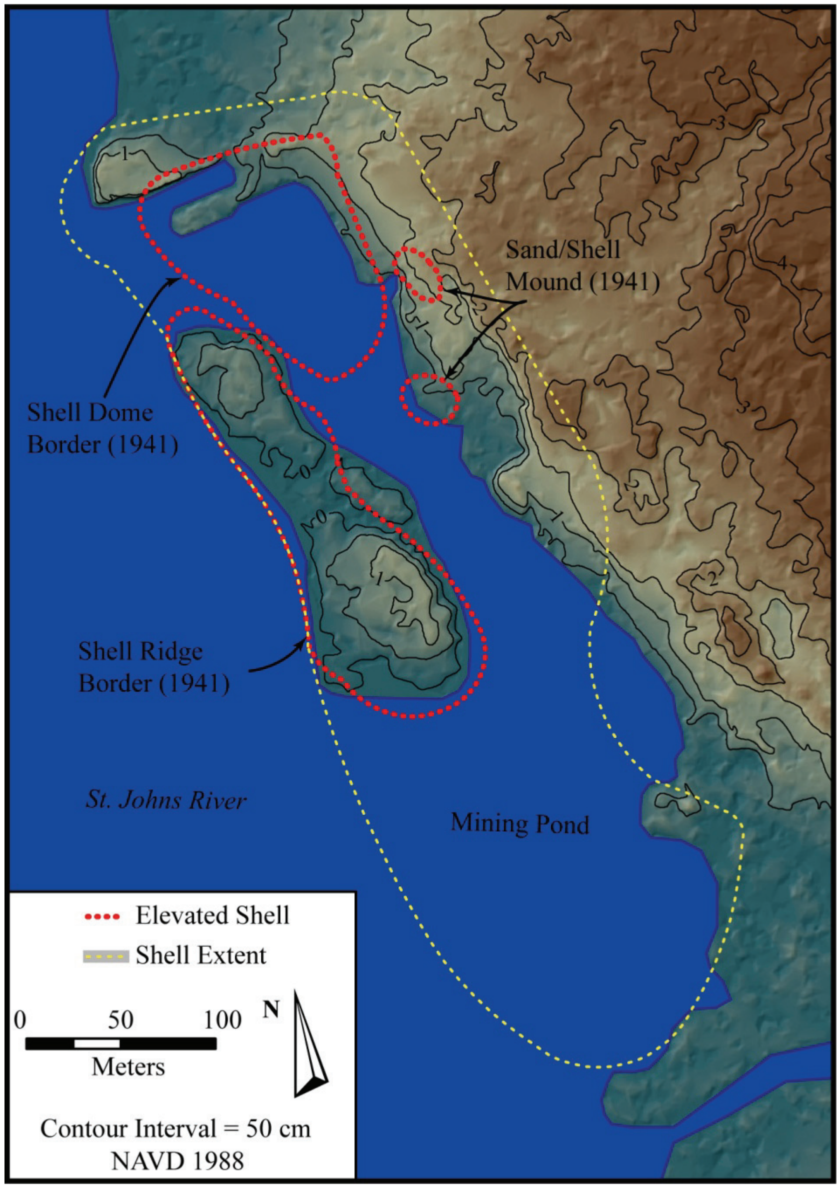

Figure 5-11. False-color and hillshaded topographic maps of the mined Bluffton Complex (8VO22, 8VO23) (after Wheeler et al. [2000]).

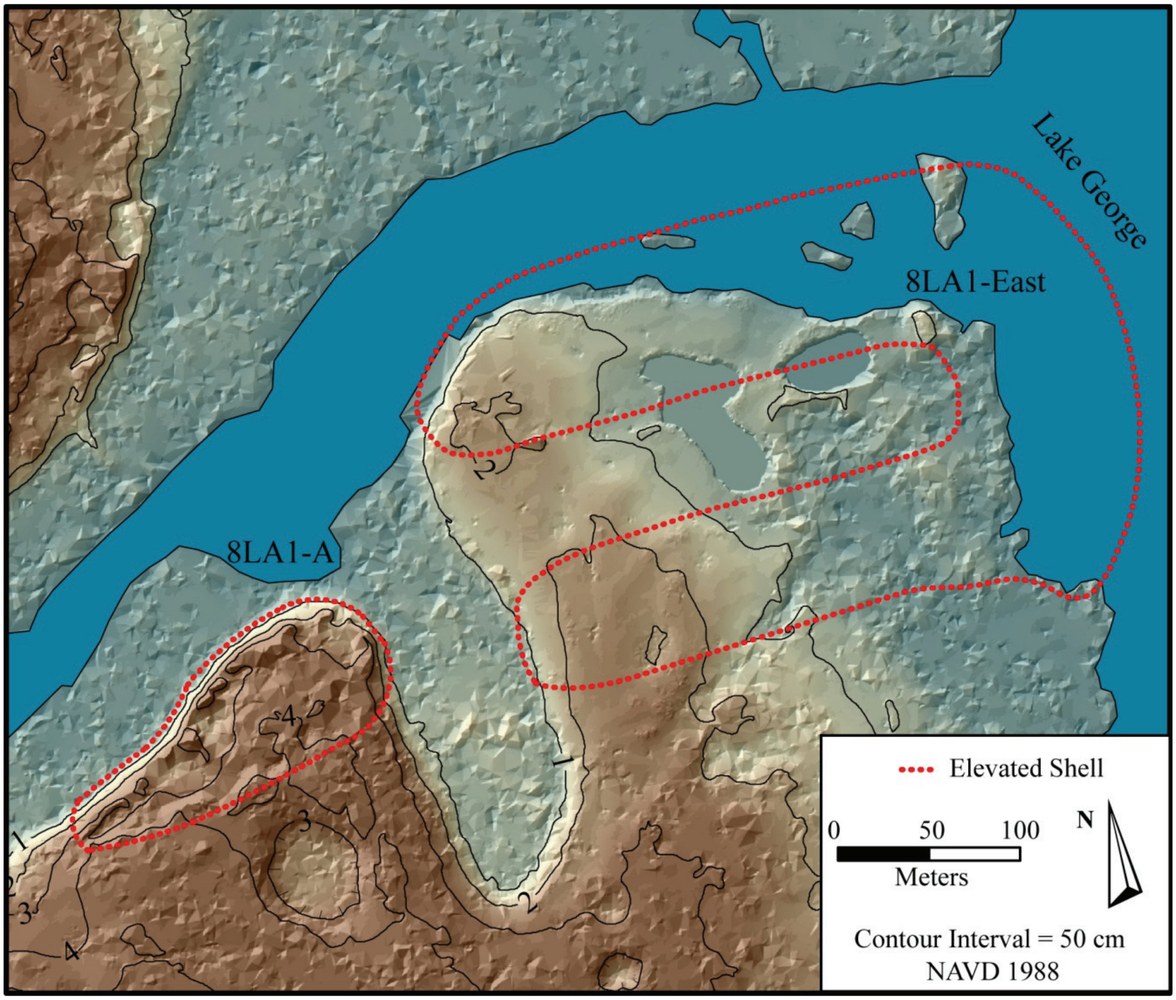

Figure 5-12. False-color and hillshaded topographic map of the mined Silver Glen Run Complex, showing the linear ridge (8LA1-A) and ring (8LA1-East).

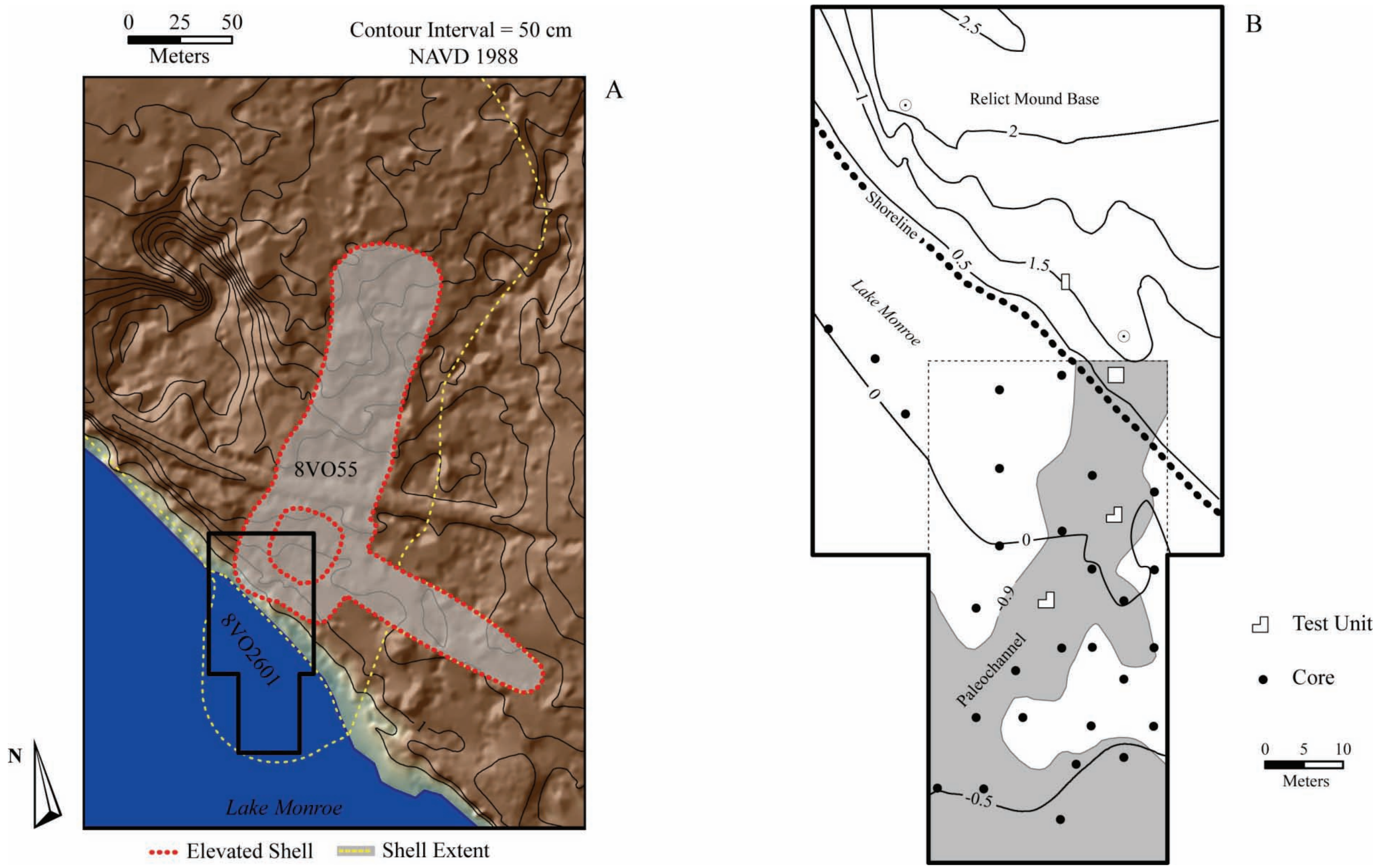

Figure 5-13. Old Enterprise Complex. A) False-color hillshaded topographic map (after Wheeler et al. [2000]), showing shell complex in relationship to the Groves' Orange Midden wetsite component. B) bathymetric contour of the surface of the wetsite component, with the paleochannel highlighted. Entire region to the east of the shoreline is saturated shell matrix deposits (after McGee and Wheeler [1994]).

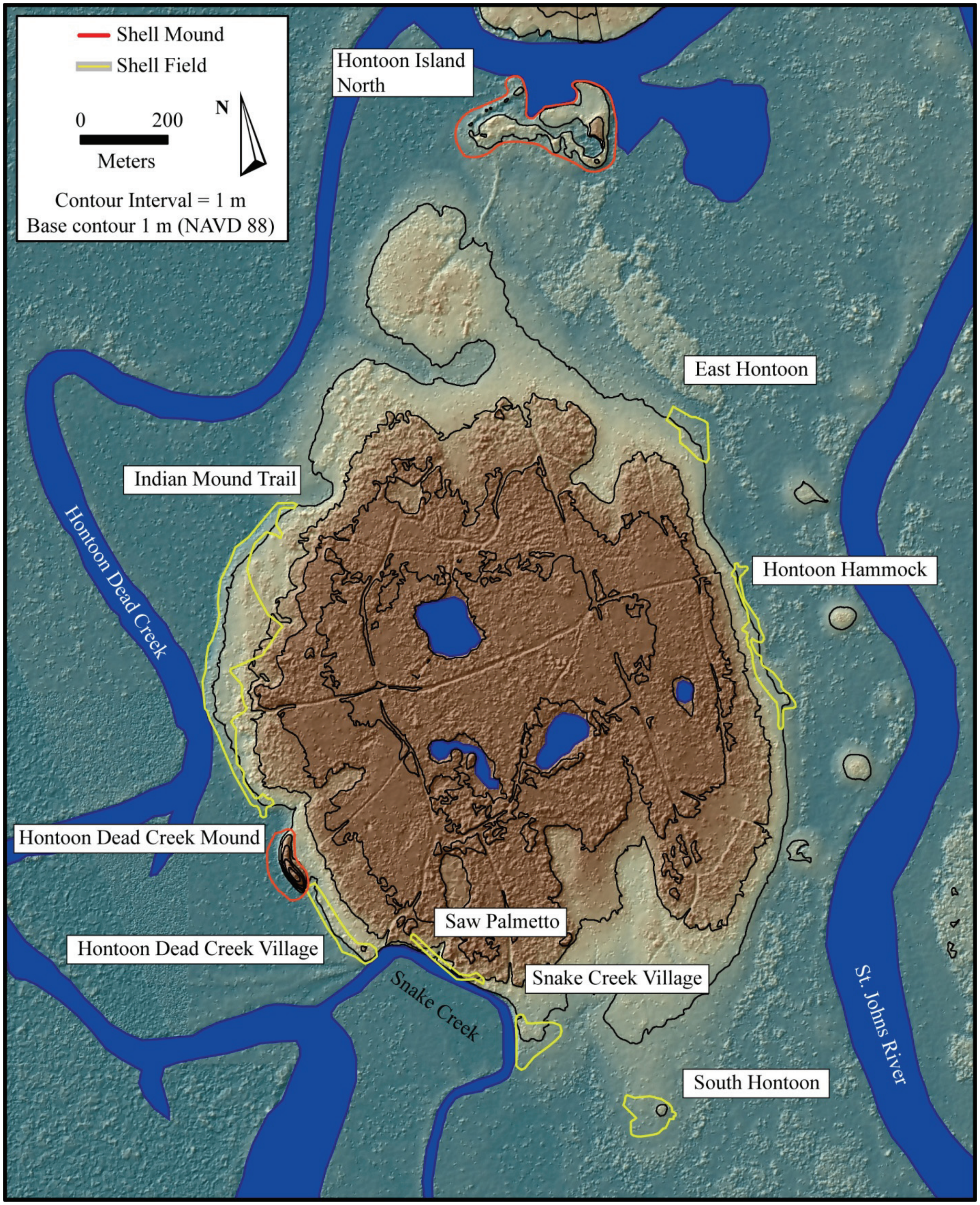

Figure 5-14. Sites with documented or suspected Mount Taylor components on Hontoon Island.

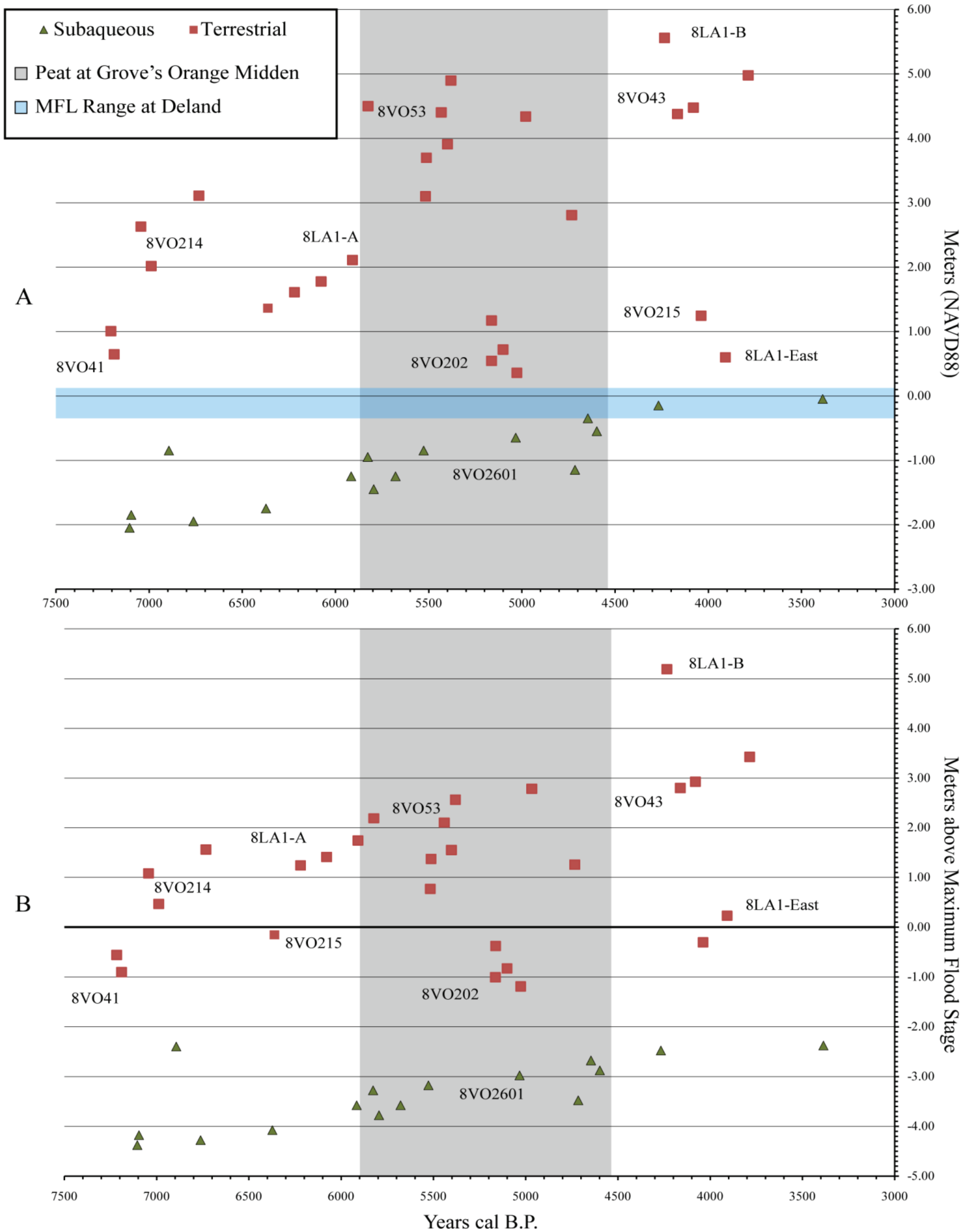

Figure 5-15. Median calibrated age probabilities and elevations of radiocarbon assays from terrestrial and subaqueous contexts. A) Absolute elevation. B) Elevation relative to maximum flood recorded at nearest USGS stream gage.

CHAPTER 6
MOUNT TAYLOR IN MICROCOSM

The world of Mount Taylor communities was inscribed at the regional scale in a series of shell ridges and fields linked by the flow of the river. The distribution and layout of shell matrix sites and their relationship to hydrology sheds light on long-term structuring principles. Without further context, this pattern remains a *map* (see Chapter 2), a totalized representation of the cumulative actions of Mount Taylor inhabitants (e.g., Barrett 1999:255; de Certeau 1984:119). In order to understand how communities emerged as a historical process, it is necessary to shift from the macroscale of regional inhabitation to the microscale of everyday paths and traces. In this regard, three related questions are of interest: (1) what traditions (sensu Pauketat [2001b]) did Mount Taylor communities generate and reproduce to appropriate existing places and define fields of practice; (2) how did the temporality and situatedness of these traditions frame the ongoing flow of inhabitation; and (3) how were these various practices and their referents reconfigured, transposed, and revalued to either accommodate or effect change? In this chapter I focus on the first question, while Chapters 7 and 8 will explicitly examine placemaking as a historical process.

How is it then, that Mount Taylor communities were reproduced through the routinization of shellfish collection and deposition in place? Although the details of place-making are often treated as epiphenomena, day-to-day practices and their material referents form the basis for community identity, often in unconscious ways (Lightfoot et al. 1998; Pauketat and Alt 2005). It is through small-scale, seemingly inconsequential depositional acts and their organization as spaces that fields of practice are defined. The resultant physicality not only structured subsequent inhabitation but provided material referents that could be manipulated (de Certeau 1984:118; Robin 2002:249–250). Although many traditions are enacted non-discursively, acts of settlement (re)creation inherently invoke memories of past places and peoples (Ingold 2000a:189; Pollard 1999). Thus, the (re)production of place provides a model for how the world composed of different peoples and places should be organized. Along the St. Johns, the deposition of shellfish and other materials are the most visible evidence of Mount Taylor community traditions. Minimally, acts of deposition were the final movement of materials in the flow of dwelling. However, the emplacement of materials implies a chain of prior actions involving collection, processing, and in some cases consumption. After deposition, these materials and their distributions provided material referents that structured how inhabitants subsequently experienced and interpreted biographies in place.

As I will detail here and in the subsequent chapter, the system of reference established in the construction of local biographies formed the basis of regional economies of memory. These economies were variously reconfigured and deployed as the system of local and regional referents changed. Thus, the only way to understand large-scale regional inhabitation, ritualization, and transformation amongst Mount Taylor communities is to detail the routinization and reproduction of communities in place. To date, there is no better context than the Hontoon Dead Creek Complex to examine–in microcosm– traditions of Mount Taylor place-making. The complex is situated on the southwest corner of Hontoon Island, midway along the Middle St. Johns valley. The locality is composed of a shell field (Hontoon Dead Creek Village, site 8VO215) and Mount Taylor ridge (Hontoon Dead Creek Mound, site 8VO214). The ridge figures prominently in the history of Mount Taylor communities as a memory place, and I will discuss its history in Chapter 7. Here, however, I will focus on the Hontoon Dead Creek Village, the details of which will serve as the basis for an explicitly diachronic and historical examination of Mount Taylor places in the next chapter.

In brief, my field research demonstrates that the Hontoon Dead Creek Village is characterized by discrete shell deposits (herein referred to as shell nodes) registering nearly 7000 years of repeated inhabitation spanning the Mount Taylor, Orange, and St. Johns periods. Internal divisions within nodes are indicative of differentiated activity areas, and in some cases may reflect coeval and equally spaced residential compounds. Time-transgressive trends are also evident. The earliest deposits are coeval with Mount Taylor basal strata at the adjacent Hontoon Dead Creek Mound. Later Orange and St. Johns period inhabitation is situated away from the mound, a pattern that reflects the cessation of activities at the mound and localized hydrologic change. Despite the time span involved, and the regional transformations in community histories, the patterning between discrete shell nodes indicates that there were long-reproduced traditions regarding the proper partitioning of spaces to maintain places.

History of Investigations

Details of the Hontoon Dead Creek Complex emerged first from Wyman's observations, and then from reconnaissance and stratigraphic excavations by the University of Florida St. Johns Archaeological Field School. Wyman (1875:26–31) described two shell mounds and two shell fields on Hontoon Island. The shell mounds include Hontoon Island North and the Hontoon Dead Creek Mound, situated on the northern and southwestern aspects of the island respectively. Adjacent to the southwestern shell ridge Wyman (1875:26) noted:

> At the point where Huntoon Creek enters this lagoon is the remnant of a small shell field, and a second was found a quarter of a mile higher up. Both show signs of having been largely destroyed; from each, pottery, bones of animals, worked bones and shell tools were obtained, and from the heap last mentioned an arrowhead. Leaving the first mentioned shell field and following the edge of the swamp in a northwesterly direction for about a quarter of a mile, a large and conspicuous mound is reached.

While frustratingly short, this passage reveals several key aspects of the village's location and disposition. The lagoon Wyman mentions is today situated just south of the intersection of Hontoon Dead Creek and Snake Creek (Figure 6-1). Collectively these water bodies shape the western and southern boundaries of Hontoon Island. On the basis of this description, John Goggin entered the two shell fields into the FMSF as 8VO215, the "Middle Midden" situated on the lagoon, and 8VO216, the "Southern Midden" situated above or "upstream" on Snake Creek, to the south. Of the structure of site 8VO215, Wyman suggests that 8VO215 was largely destroyed. Although he does not offer any further detail, a consideration of his descriptions of other sites along the St. Johns indicates he frequently referred to sites as "destroyed" when there was evidence for river-bank erosion. It would appear from his description that he considered the site to not be horizontally extensive, and confined to the southern terrace edge approximately one quarter mile south of the Hontoon Dead Creek Mound.

The extent and nature of subsurface deposits at the complex were initially characterized during reconnaissance survey by the St. Johns Archaeological Field School (Endonino 2003a:102–103; Randall and Hallman 2005). The site was relocated and bounded with shovel test pits (STPs). Cultural deposits were confined to an area measuring 50 m east-west and 100 m north-south along Hontoon Island's southwest terrace edge. Orange and St. Johns sherds, some marine shell, and vertebrate faunal bone were found concentrated in the southern two-thirds of the site. Shell was encountered across much of the bounded site area and consisted of strata dominated by *Viviparus* shell, ranging from 30 to 50 cm in thickness.

The field crew also identified shell and concreted sands eroding from the southern edge of the terrace that fronts Snake Creek. It is presumed that it was this same cut-bank that suggested to Jeffries Wyman the site was mostly destroyed, and is the likely location from which he collected materials. In contrast, shovel testing on the eastern back side of the ridge determined that shell does not extend past the visible topographic margins of the mound. This is consistent with Wyman's observation that the boundaries of ridges are discrete and shell was not randomly scattered. A casual surface survey of the site was also conducted after the active 2004 hurricane season. Shell was noted on the surface, but did not appear to be a recent disturbance. However, three discrete and subtle topographic "anomalies," higher than the surrounding terrain, and deviating from the slope of the terrace were observed. Because of dense ground cover, it was not possible to determine their orientation. They appeared to be arranged in a linear or curvilinear fashion along the terrace edge, spaced approximately 30 m apart. Their location was generally conformant with the distribution of shell identified through previous shovel testing.

Additional field work was conducted by the field school at the adjacent Hontoon Dead Creek Mound. A comprehensive review of this work is provided by Sassaman (2005a), and I will present the implications of stratigraphy and chronology there in Chapter 7. However, three observations do warrant mention. Stratigraphic excavations provided evidence that the mound emerged rapidly, over no more than several centuries (7170–6640 cal B.P., 2σ). In addition to massive lenses of freshwater shellfish—lacking abundant vertebrate faunal remains—the mound is composed of routinized couplets of burned and unburned shell matrices. Collectively, these patterns attest to moments of rapid, staged construction of the platform. There is little evidence to support the conclusion that the ridge was a place of habitation. Most of the deposits are characterized by shell lacking abundant vertebrate fauna or objects indicative of daily life. Because excavations did not intercept the base of the mound, such deposits may be internally present at lower elevations. Regardless, the bulk of the mound appears to date to the Mount Taylor period. While sherds of the later Orange and St. Johns period were recovered in the trench, they were restricted to surface exposures and disturbances.

A final key detail was revealed through bucket augering. Today 8VO214 is located some 200 m from permanently standing water, and is thus a significant distance from shellfish habitat. However, bucket augering in the cypress swamp west of the mound demonstrated that 8VO214 was once situated immediately adjacent a stream channel or lagoon. Wetsite deposits extending 30 m out from the base of the mound were identified under upwards of 1 m of muck (Figure 6-1). The distribution of shell matrix was found to mirror that of the mound from north to south. These deposits became increasingly thinner away from the mound, and terminated abruptly in a 2-m thick sequence of shell-free muck 30-m east of the mound. This sequence likely reflects an in-filled paleochannel or lagoon of Hontoon Dead Creek. An AMS date on uncharred hickory from the saturated matrix yielded a conventional age estimate of 6040 ±70 ^{14}C yr (7150–6710 cal B.P.). Similar patterning was identified at Groves' Orange Midden on Lake Monroe (McGee and Wheeler 1994).

Site Organization

A primary goal of my field research was to map the surface and subsurface extent of shell-bearing deposits at 8VO215. In order to determine the surface expression of shell, a detailed topographic map of 8VO215 was generated. Hereafter, all measurements will be referenced to the local arbitrary datum.[1] The resultant topographic map including sites 8VO214 and 8VO215 is presented in Figure 6-1, projected with 25-cm contour intervals. Most obvious on this map is the 5-m high Hontoon Dead Creek Mound to the north. To the west of the mound is the cypress swamp, and to the east is a low zone leading up to the pine/palmetto flatwoods above 8 m in elevation. This latter area lacks any subsurface shell as determined by reconnaissance survey. South of the mound, the terrace edge extends some 220 m in a southeasterly direction until its abrupt intersection with Snake Creek. This zone encompasses the known boundaries of site 8VO215. The locality is generally characterized by a noticeable slope trending 0-5%, down from 8 m in the east to 6.5 m to the west. This slope is typical for Hontoon Island and similarly configured landforms along the St. Johns . However, between elevations of 7 and 7.75 m there are deviations from the general slope of the terrace edge, and are evident as high-points, typically 25 to 50 cm above the surrounding terrace.

A higher-resolution topographic map of only 8VO215 is presented in Figure 6-2, projected with 10-cm contours. This resolution provides more detail on the structure of surface features. At least five nodes are evident. Just to the south of the mound is a small node, approximately 30-cm high and 10-m wide. Roughly 20 m to the south is a

[1] Topographic mapping of the complex was accomplished with a Nikon DTM-310 total station prior to the local availability of LiDAR.

larger, ovoid area. It is characterized by a central elongated node, approximately 40-cm high, with subtle extensions to the north and east. A more extensive circular node is evident 30-m to the south of this point, again about 40-cm higher than the surrounding terrain, and 20-m in maximum extent. Like the area just to the north, it has an attenuated slope to the west along the swamp margin, but extends further to the east. Some 40 m to the south of this area is a smaller and lower node, 20-cm higher than the surrounding terrain. Moving south again another 30 m is an extensive area of higher topography. This locale is composed of at least two domes 1 m higher than the surrounding terrain, and is characterized by highly variable boundaries to the north and east. The southern edge is abrupt, ending in a near-vertical slope into Snake Creek. Topographic mapping confirmed the presence of discrete nodes at site 8VO215. They are aligned in a linear array along the terrace edge, spaced 30 to 60 m apart, and situated 7 m to 8 m above datum. Each node is characterized by a central elongated dome, although there is significant variation in the overall size, height, and structure of each.

The distribution of shellfish relative to topographic variation was revealed through a subsurface survey. Testing was conducted with a bucket auger to gather baseline data on shell and non-shell matrices. Subsequently, a close-interval soil core survey was performed to test whether surface features co-varied with shell deposits, and to determine shell density and thickness when possible. Similar procedures have been used by Russo et al. (2002) and Heide (2002) at coastal shell rings to delimit the extent of shell matrices relative to topographic expression.

Limited testing was conducted with a 4-inch bucket auger. A total of 17 auger tests were completed along four east-west transects perpendicular to the terrace. Within transects, auger-tests were placed at roughly 10-m intervals. Grid coordinates and elevations above datum were recorded for only augers extracted along Transect-2 (Figure 6-2). However, this transect's profile can be generalized because other augers yielded similar results. Bucket augering along Transect-2 revealed five distinct matrices (Figure 6-3). Higher elevations on the eastern terrace edge yielded sand, underlain by concreted hard pan. At lower elevations to the west a thin lens of organic muck overlay shell or sand. Shell matrix of varying density was identified in Augers 6-8. Because of the limited scope of the bucket auger survey, little can be said about the distribution of shell across the site.

Bucket augering does, however, provide a key insight into the broader geomorphic context of anthropogenic deposits. Higher elevations are characterized by sand with an underlying hardpan, typical of Florida soils subject to frequent water table fluctuations within flatwoods. A surprising result of this survey is that neither shell or muck was encountered in appreciable quantities to the west of 8VO215. At 8VO214, thick muck deposits underlain by dense shell deposits were encountered upwards of 30 m to the west of the mound. At 8VO215, however, lower elevations are characterized by a 20 to 25-cm thick deposit of muck with limited shell. This suggests that there is not an early, inundated component to the west of 8VO215. By extension, the lagoon or channel that is implied by the stratigraphic sequence west of Hontoon Dead Creek Mound was not present to the west of 8VO215.

The results of topographic mapping and bucket augering guided a close-interval core survey of 8VO215. The survey was conducted with a 1-inch Oakfield soil probe, which enabled rapid assessment of subsurface matrices. Cores were extracted at 2-m intervals across the site. Notes were recorded for each extracted core, including a description of matrices and their depth below surface. Matrices were broadly classified by the presence or absence of shell. Non-shell matrices were typically categorized as terrace sand. Occasionally, non-shell anthropogenic matrices were identified by the presence of bone or pottery fragments. Shell-bearing matrices were divided into two categories based on relative density. Matrices dominated by soil interspersed with shell were classified as "sparse" or "low-density shell." Matrices dominated by shell were characterized as "dense shell."

The distribution of shell-bearing deposits superimposed on the contemporary topography of the site is presented in Figure 6-4. Shell matrices are tightly restricted to a swath expanding from 10-m wide in the north to 40-m wide in the south, and follows the curvature of the terrace edge. Shell-free anthropogenic deposits were encountered in isolated cores throughout the site, although they tended to cluster on the lower western edge of the shell deposits. In general, anthropogenic deposits closely overlap the surface features identified through topographic mapping. There is a distinct north-south trend of increasing surface elevations associated with shell. Adjacent to the mound, shell is found only at elevations 20-30 cm above the terrace surface. In contrast, the highest elevations associated with shell are found in the southern aspect of the site, and rise upwards of 50 cm above the terrace. As noted through surface survey, shell was encountered up to the edge of Snake Creek, where it was visibly eroding out of the bank.

Variability in the density and presence of shell is also evident. The eastern edge of shell deposits is the most distinct, where the contact between shell and shell-free cores is closely associated with abrupt topographic breaks with few exceptions. Isolated shell deposits were rarely encountered along this margin. Cores were most frequently characterized by “dense” shell, further suggesting a difference between shell and non-shell deposits. This pattern contrasts starkly with the western edge, which generally conforms to the slope of the terrace. Diffuse and isolated shell and non-shell deposits are more frequent and widely distributed at lower elevations on this western trailing edge. Coring did not follow all western deposits to their maximum extent, and it is unknown how far to the west the trend of isolated deposits may continue. Judging by the distribution of such deposits at the south end of the site, it is unlikely that they continue below elevations of 6.5 m. The western edge is also dominated by “sparse” shell, characterized by a low abundance of shell in a sand or muck matrix. The underlying cause of the differential disposition of the eastern and western margins of shell is not directly evident from the core survey. This will be more fully discussed in the following section on the results of test unit excavation. Shell free zones are also present between shell clusters. These zones tend to correlate with small depressions or gullies. From north to south there is also a general trend for decreasing distinctiveness between shell and shell-free zones. At the northern edge of the site, there is a clearly defined zone separating the toe of the Hontoon Dead Creek Mound and 8VO215.

Shell deposit thickness values were derived by subtracting the depth below surface at which shell was first identified by the maximum depth of shell encountered. These data should be considered “minimum” thickness values because cores could be extracted to a maximum depth of only 40 cm below surface. Moreover, cores frequently could not penetrate through dense shell deposits, resulting in only the top of the surface identified. The resultant interpolated shell deposit thicknesses greater than 5 cm are plotted in Figure 6-5B. For comparative purposes the distribution of all identified deposits is presented adjacent in Figure 6-5A.

As suggested by topography and the distribution of shell, discrete shell deposits are evident within the site boundaries. The smallest and most discrete is the northernmost, just south of the mound. South of this cluster the next cluster is composed of both thick shell to the east, and shallower shell on the downslope western edge. A small patch of shell is evident on the southern edge of this cluster, but is not evident on the surface of the site. Another discrete cluster centering at N825.00/E1060.00 is characterized by thick deposits to the east with less dense deposits to the west. As indicated by the distribution of shell, the southern half of the site contains generally diffuse (less than 15-cm thick) shell, terminating in a large elongated dome of thick shell deposits.

Subsurface survey determined that shell deposits within 8VO215 are generally conformant with elevated surface topography. The density and distribution of shell within the site boundaries further indicates that shell is present in discrete clusters that are typically separated by low-density or shell-free zones. In some cases, internal divisions within these clusters may be present. The eastern, terrace margins of clusters tend to be characterized by abrupt changes in elevation associated with dense shell. Western edges are typified by diffuse and thin shell deposits trailing into the wetlands. Based on these patterns, at least five shell "nodes" can be identified within the site, presented in Figure 6-5C. The term node is used to refer to discrete clusters of elevated shell. Surface topography and shell presence, thickness, and density were considered when delimiting the boundaries of each node. While the boundaries of Nodes 1-3 are distinct, the division of Nodes 4 and 5 are less clear. In this case, the distinctiveness of the surface topography was given more weight in making such a division. These nodes serve to organize the results of test unit excavations discussed in the following section.

Node 1

Node 1 is situated approximately 10 m south of 8VO214 (Figure 6-6). It is the smallest and most discrete shell deposit within 8VO215, and is separated from both 8VO214 and Node 2 by shell-free matrices. This is an early Mount Taylor component, based on stratigraphy, a lack of pottery, and a radiocarbon assay dating as early as 7300 cal B.P. The node is ovoid in shape, and measures 13 x 10-m in maximum dimension, and is only 50 cm high on the surface. The margins are characterized by sparse shell, between 5 and 10-cm thick, as determined through coring. Cores within the apex of the node consistently encountered dense and impenetrable concreted shell below a 5 to 10 cm thick organic mantle. Investigations initially targeted the relatively flat apex with TU3, a 1 x 2-m unit. Excavation of this unit ceased after two levels because concreted shell was encountered, approximately 15 to 20 cm BS. Subsequently TU3A, a 1 x 1-m unit, was placed to the west of TU3. Descriptions of identified stratigraphic units are presented in Table 6-1, and a tabulation of recovered material culture is presented in Table 6-2.

Three distinct strata were revealed in TUs 3 and 3A. Stratum I is a black/dark brown silty fine sand encountered immediately in Level A across both test units. This is a unique stratum, the characteristics of which were not encountered anywhere else during excavations. It is possible that the upper 5 cm are non-anthropogenic, as few cultural materials were encountered in this upper matrix. However, as excavation proceeded towards the base of Level A, increasing quantities of vertebrate fauna and large fragments of charred wood were recovered. A ^{14}C assay of this charred wood showed that at least the wood fragments were related to a recent surface fire. The trend of increased particulate organic matter coupled with abundant vertebrate fauna and large charred wood fragments continued with the excavation Stratum I in Level B. Material culture recovered from Stratum I included three lithic waste flakes and four fragments of modified bone, two of which may be a bone awl.

Lying unconformably below Stratum I is concreted shell, designated Stratum II. Based on the core survey results, this dome-like shell deposit forms the core of Node 1. Excluding a few pockets of partially disaggregated shell at the contact with Stratum I, the shell was too concreted to excavate with trowels or shovels. In order to determine the thickness and composition of the matrix a test pit measuring approximately 30 x 30-cm was excavated in the center of TU3 with the aid of chisels, hammers, and a large pick-axe. This test pit encountered approximately 30-cm of wholly concreted shell lying on top of culturally sterile sand (Stratum III). In order to further characterize the structure of the deposit, and collect materials for a radiocarbon assay, a large block of material was removed from the profile of the test-pit and returned to the lab (Figure 6-7).

Closer examination of the sample reveals it is composed of tightly packed crushed and whole *Viviparus* and bivalve shell in an ashy fine sand matrix. Small fragments of vertebrate fauna and charred material are evident throughout. There is also a trend towards increasing bivalve shell with depth, evident in the photograph as the lighter lower half of the block. The base of the block is dominated by mostly whole bivalve with abundant fragments of charred material distributed throughout. Whether or not this represents a discrete lens or feature cannot be determined from the available data. A sample of charred material from the base of the block (ca. 44 cm BS) was submitted for AMS radiocarbon assay, and returned a corrected age estimate of 6280 ±40 ^{14}C yr (2σ calibrated range of 7310–7030 cal B.P. [Beta-219933]). This age estimate is the earliest published assay for freshwater shell deposit within the St. Johns region. However, this assay falls within the 2σ range of assays derived from the wet site deposits to the west of the adjacent Hontoon Dead Creek Mound, as well as the base of the nearby Live Oak Mound (8VO41) on the eastern terrace of the St. Johns (Sassaman 2003a).

Excavations of TU3 and TU3A revealed a sequence composed of dense concreted shell capped with an organically-enriched shell-free matrix. These deposits suggest at least two different depositional processes are responsible for their formation. In many respects Stratum II shares commonalities with deposits of similar age at nearby shell mounds, characterized by concreted and fragmented shell associated with ash and other materials. Varying hypotheses have been offered on the origins of concreted shell, although it is generally thought that a combination of burnt shell, ash, and fluctuating water levels are needed for concretion to form (Wheeler et al. 2000). Regardless, concreted shell is typically restricted to the base of shell mounds, although it can also occur as lenses within sites. Stratum II is unique in that it is lying relatively unprotected on the surface.

Node 2

Node 2 is evident on the surface as an elongated ridge that rises 40 cm above the surrounding terrain (Figure 6-8, 6-9). It measures 25-m long and 8-m wide along a north/south axis, and is situated 20 m south of Node 1. The ridge has a generally flat summit, except for an apex above 7.7 m on the northern aspect. Based on surface survey, this apex likely reflects upheaval of underlying matrix from a large tree positioned on the ridge, and not the differential deposition of shell across the surface. The downslope edge west of the ridge is evident only as a subtle bulge topographically. Coring indicated that the central ridge is composed of dense shell that terminates abruptly to the east in organically enriched non-shell terrace sands, and trails off to lower elevations in the west as low density shell. Test Unit 2 was positioned on the eastern edge of the central ridge with the goal of penetrating thick shell deposits and documenting the relationship between shell and non-shell matrices. Eight stratigraphic units were identified during excavation. All strata are Mount Taylor in age based on a near-surface radiocarbon assay and recovered objects. Composite profile drawings and photographs of TU2 are presented in Figure 6-10, and descriptions of identified stratigraphic units are provided in Table 5-3. Tabulation of recovered material culture is presented in Table 5-4, and photographs of selected artifacts are presented in Figure 6-11.

The most significant result of TU2 excavations was the identification of a stacked sequence of shell situated adjacent to unconsolidated shell-free deposits above culturally-sterile basement sands. These strata indicate that shell was routinely emplaced on top of a preexisting shell surface, while at the same time a shell-free zone was maintained at higher elevations on the terrace side. Lying below Stratum I in the western 180 cm of TU2 is a stacked sequence of shell lenses lying more or less horizontal, excluding the basal Strata V and VI. In profile, no less than five ca. 10-cm thick shell-matrix strata are discernable based on the relative abundance of whole and crushed shell. These strata alternate between primarily whole and primarily crushed shell. The mechanical taphonomic process responsible for crushed shell lenses is not known. They are considered as a proxy for post-depositional trampling, and indicative of heavily used activity areas (Randall and Sassaman 2005; Sassaman 2003a). Others have suggested that they result mostly from bioturbation (Beaton 1985). While it is currently not possible to rule out either of these factors, both are indicative of a hiatus between depositional events and post-depositional mechanical alteration. The implication is that inhabitants routinely emplaced shell in the same location after a period of abandonment. In the case of TU2, at least three such surfaces are present (Strata II, IV, IV). In each case a roughly flat lying crushed shell lens is superimposed on a stratum composed primarily of whole *Viviparus* and some crushed and burned bivalve shell. A fragment of marine shell recovered at ca. 9 cm BS was submitted for a radiometric assay which returned a conventional age estimate of 5950 ±60 ^{14}C yr (6480–6260 cal B.P. [Beta-217769]). This age estimate falls well within the accepted range of the preceramic Archaic Mount Taylor period, and provides a useful termination date for preexisting deposits.

Shell tapers out into a shell-free component to the east. In the eastern edge of the unit, approximately 15 cm BS, Stratum I grades into VIII, a dark grayish brown fine silty sand that appears to be an organically enriched pedon lacking any clear vertical divisions in profile. Stratum VIII was virtually shell free and contained occasional vertebrate fauna that decreased in abundance with depth. At approximately 40 cm BS Stratum VIII grades into Stratum VII, a dark brown loamy fine sand with occasional mottling and mineral concretions throughout. This was excavated as Zone C. Excluding the contact between the overlying shell in Strata V and VI, this basal sand deposit is free of shell and vertebrate fauna. Excavation ceased at the base of Level H (80 cm BS) due to water.

Diverse, if low density, artifact assemblages suggest a wide range of activities occurred on site. Relatively abundant faunal remains were recovered from throughout the sequence, although there is a trend of decreasing faunal remains by depth, particularly below 40 cm BS (Level D). Paleofeces were also recovered, although it is unknown if these are of human origin. Excluding a biface fragment from Stratum I (Level A/Zone A), all material culture was recovered from the shell deposits. The lithic assemblage includes two chert flakes and a small medial fragment of a biface. Three modified bone fragments were recovered throughout the strata. These all appear to be portions of cut and ground bone awls (Figure 6-11A). Marine shell was recovered, including fragments and tools. Modified fragments in the assemblage include a columella with a bitted siphonal canal (Figure 6-11B), an *Oliva sp.* shell with a fractured apex (Figure 6-11C) and a battered fragmented apex of a *Busycon* sp. Figure 6-11D). This latter fragment was the marine shell submitted for radiometric assay from Stratum II.

In summary, excavations of TU2 identified a preceramic Archaic Mount Taylor sequence of shell deposits in primary context, associated with a shell-free, organically enriched matrix. Judging from stratigraphic superposition, Stratum VII is the original, sloping terrace surface upon which shell was initially deposited. Over the course of at least three depositional events, shell was successively added to this surface in ca. 20-cm thick lenses, the surfaces of which were either trampled or bioturbated resulting in crushed shell. A separate prepared area to the east of the shell is implied by the presence of vertebrate faunal remains in a shell-free, organically enriched matrix. The sharp contact between shell and non-shell matrices suggests the eastern edge of the node was routinely kept clean of shell debris. Further testing would be necessary to determine whether there are domestic features such as posts or hearths associated with the shell. Finally, limited sediment deposition is implied by the lack of interstitial sand within the shell, and the relative elevation of eastern non-shell deposits.

Node 3

The center of Node 3 is located approximately 50 m south of Node 2. Evident as a sub-triangular dome on the surface, Node 3 measures 25-m long and 20-m wide, and is centered between 7.5 and 7.9 m in elevation (Figure 6-12). Coring within this central dome encountered both dense and low-density shell on the terrace. Coring also identified a low-density shell deposit extending along the western slope, above 6.6 m in elevation. Bucket augering along the southern edge of Node 3 encountered a 10 to 20-cm thick low-density shell stratum at lower elevations. Like Node 2, the eastern boundary was discrete. Test Unit 1 was situated on a noticeable ridge that extended out from the southern edge of Node 3. As the first test unit of the field season, placement was guided by the presence of shell on the surface, derived from a nearby uprooted palm. The unit was oriented parallel to the slope of the ridge. A total of seven shell and non-shell stratigraphic units were identified. Based on the distribution of diagnostic ceramic sherds, the ceramic Archaic Orange period is well represented. A Mount Taylor component may be present based on the lack of pottery at depth. Profile drawings and photographs are presented in Figure 6-13, with stratigraphic descriptions presented in Table 6-5. Tabulations of recovered material culture by level are presented in Table 6-6, while photographs of selected objects are presented in Figure 6-14.

Test Unit 1 revealed a sequence reminiscent of TU2 in Node 2. The northern, higher half of the unit is characterized by dense shell which decreases in thickness to the west, and terminates in an organically enriched shell-free sand. Despite general similarities with TU2, there are a number of important differences. Most notable is that Orange period fiber-tempered sherds were recovered throughout the shell and non-shell matrices. Secondly, only one or two depositional events are suggested by the sequence in TU1. Stratum I and II developed post-occupation. A small amount of vertebrate fauna and one Orange crumb sherd were recovered; these were derived from the contact with the underlying Stratum III shell. Below this sterile overburden the unit is characterized by shell in the north half of the unit, and shell-free matrix in the south. In the northern half of the unit is Stratum III, a 20-cm thick shell deposit (Levels A, B, and C). The shell matrix is composed primarily of whole and crushed *Viviparus* shell, with bivalve and *Pomacea* shell occurring in small quantities throughout. The matrix is relatively homogeneous, although slightly more crushed shell was evident at the contact with the overlying Stratum II. The base of the Stratum III is essentially lying flat above shell (Stratum IV) to the north and sand to the south (Stratum VI). Beneath Stratum III in the north half of the unit is Stratum IV, a fine gritty sand with moderate amounts of whole and crushed *Viviparus*, bivalve, and *Pomacea* shell. Shell abundance is considerably lower than the overlying stratum. The cultural contents of this stratum (excavated as Level D) were similar to Stratum III. In the southern half of TU1, excavations encountered a buried A horizon contemporaneous with the Strata III/IV shell deposits in the northern half of the unit.

The recovered cultural assemblages were diverse and consistent with Late Archaic Orange period residential occupation, like that documented at the nearby Blue Spring Midden B (Sassaman 2003a). Within shell matrices (Zone B), vertebrate fauna was found in moderate abundance, with density increasing with depth. Two small fragments of unidentified marine gastropod shell were also recovered. Orange plain sherds were present throughout the deposit, but were found in greatest abundance towards the base of the shell strata. Two fragmentary hafted bifaces manufactured from chert were recovered within the subsistence column, lying adjacent to each other (Figure 6-14D,E). Both are consistent with Late Archaic stemmed varieties. Vertebrate fauna was recovered in abundance throughout the non-shell anthropogenic strata at lower elevations. In addition, a large Archaic stemmed chert hafted biface was recovered (Figure 6-14G). The distal end of the biface has evidence of double-patination, suggesting it may have been scavenged from a preexisting deposit and subsequently resharpened. Also recovered from the shell-free matrix were two distal bone tool tips (Figure 6-14A–C).

Test Unit 9 was emplaced on the western edge of Node 3 to intercept the contact between shell and non-shell matrices. Coring in this upslope component encountered an uneven pattern of low- and high-density shell deposits interspersed with the occasional core lacking shell altogether (Figure 6-5). Contrary to expectations based on coring, excavation of TU9 exposed a complex sequence characterized by a dichotomy between flat-lying shell and non-shell deposits in the northern half of the unit, and dense shell in the southern half of the unit. In contrast, the east and west profiles contain discontinuous and interbedded lenses of shell and non-shell matrices. The structure of this unit registers at least one shell-filled pit associated with a non-shell matrix. An Orange period component is indicated by the presence of plain and engraved fiber-tempered pottery. A lower preceramic Archaic component may also be present, but could not be delineated.

Inhabitation of Node 3 occurred principally during the Orange period. Excavations of TU1, TU9, and associated coring suggest that Node 3 is composed of discrete activity areas. Two depositional events and a possible living surface were exposed along the western, swamp-facing shell escarpment in TU1. The shell matrix contained two macrostratigraphic deposits of shell likely representing two periods of deposition. The lower shell-free surface of TU1 appeared to contain a buried A horizon with lithic artifacts and Orange sherds. Whether this horizon represents an occupational surface is unclear. Coring identified a flat surface with low-density shell a few meters to the southwest. This extension of shell may represent yet another activity surface, but this cannot be verified with the current data. Upslope on the terrace edge, TU9 encountered at least one large shell pit truncating a shell and shell-free sequence. The lower strata may actually date to the Mount Taylor period. Like TU1 the upper shell matrix was situated immediately adjacent to an organically enriched horizon that contains vertebrate fauna in addition to Orange pottery. Other features in the vicinity are suggested by the generally hit-or-miss results of coring in this upslope component of Node 3. It is likely that other features are present on this landform, and may provide evidence for a residential structure.

Node 4

Node 4 is a diffuse shell deposit located immediately south of Node 3. Coring in this locality identified widespread high and low-density shell across the terrace. In maximum dimensions the node is 48-m long and 20-m wide (Figure 6-15). Like other shell nodes it is characterized by a centralized dome. Within Node 4 this dome is relatively small at 15-m long and 6-m wide, and rises 20 cm above the surrounding terrace surface. Excavation of Test Unit 4 yielded a convoluted picture of deposition. One component dating to the Orange period was identified by a few Orange crumb sherds. A sequence composed of developed soil horizons superimposed on shell was documented. Profile drawings and photographs are presented in Figure 6-16, with stratigraphic descriptions presented in Table 5-7. Tabulations of recovered material culture by level are presented in Table 5-8.

As seen in profile, Stratum III is a moderately dense shell matrix that decreases in thickness, from 24 cm to 10 cm towards the western, downslope edge of the unit. This stratum is characterized by whole and crushed *Viviparus* shell, with bivalve and *Pomacea* occurring in lower frequencies throughout a tan/brown fine sand. Possible animal burrows were noted during excavation, and are the likely source of shell matrix disturbance. Moderately dense vertebrate faunal bone was recovered throughout this stratum, in addition to two fiber-tempered crumb sherds and one non-diagnostic biface fragment. Underlying all shell deposits is a gritty fine sand (Stratum IV) that graded into a concreted sand (Stratum IVa). These strata represent the original, pre-habitation terrace surface. Stratum IV was first encountered in Level D, where it was treated as Zone C. The contact between this gritty sand and the overlying shell undulated, and pockets of concreted gritty sand were found within the shell. Excavation in Level E was restricted to a pocket of non-concreted Stratum IV sand in the northwest component of the unit, as seen in profile. As was the case with Stratum III, it appears that there has been significant biogenic reworking of these deposits.

Node 4 shell matrix strata were generally thin and without clear internal structure. Moreover, widespread evidence for post-depositional disturbances, including animal burrows and possible tree-throws in antiquity were evident. However, the characteristics of this component of Node 4 provide some perspective on thin and diffuse downslope deposits elsewhere at 8VO215. Test Unit 4 documented that at least in this vicinity, western edges of shell nodes do not appear to have been intensively used, as is evident in the lack of well-defined crushed shell lenses.

Node 5

Node 5 is coterminous with the shallow southern deposits of Node 4, as defined through coring (Figure 6-17). At a maximum the node measures 50-m long and 40-m wide. Like other locales within 8VO215, the eastern margin is marked by an abrupt shift between topographic relief and non-shell deposits. The southern margin is characterized by a steep escarpment, reflecting bank-erosion from Snake Creek. The western margin is characterized by low-density shell deposits that are diffused within the swamp. Sub-areas differentiated by micro-topographic variations are evident within the boundaries of this node. These are labeled areas “A” for the north and “B” for the south in Figure 6-17. The division between areas is formed by the 7.9 m contour interval. Locus A is the center of Node 5, composed of a central dome 20 m in diameter that rises 50 cm above the terrace. A semi-circular depression is also evident on the northern aspect of Area A. This depression is bordered on the east and west by arcuate extensions of shell matrix. Area B to the south is a more typical central dome of shell, measuring 15 m in diameter, and separated from Area A by a slight depression.

Four test units excavated within Areas A and B in Node 5 demonstrate that it is principally shell matrix deposited during the St. Johns I period. The structure of deposition as best revealed in a 6-m long trench (TUs 5–7), where shell was emplaced, apparently in several depositional episodes, to extend the upslope node (Figure 6-18, Tables 6-9, 6-10, 6-11, 6-12). In profile, shell dips down to the west and north, suggesting deposition occurred from near the top of Area A (Figure 6-19). This sequence is different from other nodes in that Node 5 is has a wide summit. It may be that any residential structures were emplaced on top of the apex, and not adjacent to the node as is likely the case in Nodes 1, 2, and possibly 3. Alternatively, such features, if they exist at all, may be present in the non-shell upslope component of the terrace where shovel testing recovered St. Johns sherds. Testing between the apexes in TU8 failed to identify any clear evidence for habitation features such as differentiated shell strata, post holes or pit features. Those features identified were apparently small discontinuous lenses of charcoal or crushed shell. Finally, a preceramic component may be present at the base of Node 5 as suggested by low density shell below the concreted sand zone. Radiocarbon determinations may help resolve this issue in the future.

Microscale Histories

The methods used to delineate the history of the Hontoon Dead Creek Village demonstrated that it is composed of discrete shell deposits registering nearly 7000 years of repeated inhabitation, spanning the Mount Taylor, Orange, and St. Johns periods. In terms of size and apparent significance, the Hontoon Dead Creek Village is at first glance dwarfed by the adjacent shell ridge (Table 6-18). The seemingly mundane character of deposits within the confines of 8VO215 is overshadowed by the quantity of shell and implied significance of large-scale activities at the ridge. The details of inhabitation in the microscale, however, reveal how communities reproduced traditions of settlement through the routinized deposition of shellfish. These principles were not limited to the establishment of new places, but were enacted to renew preexisting referents. The emphasis on partitions of places and the renewal of surfaces appear to have been the central structuring principles through which communities reproduced and transformed social histories. Not only were the practices of moving through and inscribing habitation sites the likely the way in which day-to-day senses of place were created, but practices and their material referents served as metaphors for community and history.

Disregarding intrasite temporal patterning, the shell nodes at 8VO215 share several characteristics in structure and placement. Comparative metric data on shell nodes are presented in Table 6-13. The western, swamp-facing aspects of nodes are characterized by low-density shell along the slope, indicative of disposal activities oriented preferentially towards the water, and away from other upslope components. Shell nodes all terminate on the western edge at elevations between 6.65 m and 6.8 m above datum, and there is only limited evidence for deposition within the swamp itself. In most cases, the northern and southern lateral margins were diffuse, with little evidence for an organized use of space based solely on shell deposition. The eastern, upslope components are defined by abrupt topographic relief and a discontinuation of shell. Shell was routinely deposited on the gently sloping terrace edge, which was visible at the base of most test units. In each case the net effect was to create a linear or dome-shaped ridge of higher ground, and in some cases may have provided a foundation for architectural features. Finally, shell nodes are roughly equally spaced at intervals between 27 and 57 m, measured between the geographic center (centroid) of each node. Taken together, the shell nodes likely represent discrete residential localities differentiated into multiple, prepared activity areas. While no architectural features such as post-holes were observed, the totality of the evidence points towards shell nodes representing organized residential compounds of unknown duration, but which were nonetheless returned to repeatedly.

Today the village is arranged in a linear array, but there is not enough evidence to demonstrate the contemporaneity of Mount Taylor nodes or the presence of Mount Taylor components at the bases of nodes to the south. A much more complex perspective on the long-term history of inhabitation emerges when the shell nodes are considered in spatial and temporal contexts. Illustrated in Figure 6-20 are two cross-sectional profiles of sites 8VO214 and 8VO215 with the distribution of culture-historical components detailed at the bottom of the figure. The upper profile depicts the surface topography, with the presence of near-surface shell deposits shown. As has been detailed in this report, elevated surface topography is the result of shell deposition. Also depicted in the lower profile are the swamp surface and subsurface stratigraphy.

Most notable in figure 6-20 are saturated shell matrix deposits fronting the Hontoon Dead Creek Mound and radiocarbon dated to 7150–6710 cal B.P. The matrix is thickest along the western edge of the mound, and trails off to the north and south. More importantly, the contact with the underlying sand can be seen dipping in front of the mound, and increasing in elevation to the north and south. Muck deposits are again thickest in front of the mound, and thinnest in the north and south. This distribution of muck, wet site deposits, and sand suggests that there was once a lagoon or channel that has been infilled since 7100 cal B.P. (Figure 6-21). In the LiDAR DTM a series of weakly developed linear formations are seen at the confluence of Snake Creek and Hontoon Dead Creek. These suggest that the sand body in front of Hontoon Dead Creek Village has migrated to the south through time. When these features began to form is unknown, but their shape and amplitude are similar to others that have formed around embayments and lagoons elsewhere along the St. Johns. Through time, the lagoon or channel filled in through the aggradation of organic sediments, likely from the formation and repeated oxidation of peat deposits, similar to Groves' Orange Midden.

The body of evidence indicates that inhabitation was established as early as 7300 cal B.P., adjacent to a lagoon or river channel. The incipient occupation involved localized deposition at Node 1, which created a low mound around which activities were centered. Within a century or two, the area to the immediate north (i.e. the Hontoon Dead Creek Mound) became the focus of community activities. A suite of radiocarbon assays indicate that as much as 3 m of shell were emplaced on top of the mound between 7150 and 6640 cal B.P. We do not know when deposition on the mound surface was terminated, nor do we know if places like Node 1 were subsumed under the mound (see Chapter 7). However, by 6400 cal B.P. a new area of inhabitation was established to the south of the mound. Inhabitation continued, and reproduced the same depositional and spatial principles, but on a much smaller scale. Inhabitants may have referenced the mound in the plan of Node 2, although it is likely that the significance of this configuration has its origins at the beginning of the Mount Taylor period. Importantly, the existing footprint of shell was maintained as a model around which subsequent inhabitation could be ordered. These small-scale practices draw our attention towards those moments when practices were decidedly of a larger scale, potentially for a larger number of people, and referenced different times. Within these subtle acts we can see the possibilities of how communities were structured with reference to existing material conditions, and how inhabitation was framed by material referents and social context.

Like ridges at the regional scale, explanation for the location and scale of nodes cannot be reduced to changing water levels through time. That is, the height of shell deposition cannot be used as a proxy for rising water levels. In Figure 6-22 I have digitally "flooded" the LiDAR DTM based on the elevation of the minimum frequent high flood (which can be expected to occur every 3 years) (Figure 6-22A), and the 50-year flood (Figure 6-22B). These are the same hydrological patterns examined at the regional scale in Figure 5-15. Today all nodes and the ridge are above the elevation of the three year flood, suggesting that inhabitants were well aware of the hydrologic regime and emplaced their nodes accordingly. During a 50-year flood event, portions of 8VO215 are submerged, and the ridge is partially an island. Although one might take this as evidence for the need to “build up” floors to rise out of the water (thus looking at shell deposits solely in functional terms), I would note that it is only a short 50 m walk to be outside the danger of an extreme flood event. What was important was the nearby lagoon and the social histories that could be emplaced and negotiated in ridge-top performances. It is in this frame of reference that the structure, scale, and histories of practices at ridges need to be problematized.

Table 6-1. Stratigraphic units of Test Units 3 and 3A, Node 1, 8VO215

Stratum	Max. Depth (cm BS)[1]	Munsell Color	Description
I	15	10YR2/1	Organically enriched very silty fine sand; abundant palm roots throughout; large and small charcoal clasts throughout; increasing amount of vertebrate fauna with depth, some degraded shell fragments at undulating contact with Stratum II. (80 ± 50 [BETA-244053])
II	45	10YR6/2	Concreted whole and crushed *Viviparus* and bivalve, with very ashy fine sand; charcoal flecks and pea-sized clasts are apparent throughout; increasing bivalve with depth; base is situated above unconsolidated terrace sands (not encountered in profile)
III	45+	n/a	Fine sand; culturally sterile

[1]maximum depth in east profile below surface at southeast corner (N904.29 E1037.57 Δ7.36)

Table 6-2. Cultural materials recovered from Test Units 3 and 3A, Node 1, 8VO215

Level	Lithic Flake	Modified Bone	Vertebrate Fauna (g)
Test Unit 3			
A	1	1	176.4
B - Zone A	2	1	849.2
B - Zone B			7.8
Test Unit 3A			
B		2	125.8
C			245.7
Total	3	4	1404.9

Table 6-3. Stratigraphic units of Test Unit 2, Node 2, 8VO215

Stratum	Max. Depth (cm BS) [1]	Munsell Color	Description
I	4	10YR2/1	Organically enriched loamy fine sand with abundant palm roots; trace amounts of crushed shell.
II	16	10YR3/1	Very abundant crushed and some whole *Viviparus* and bivalve, occasional *Pomacea*; crushed at contact with Stratum I; limited non-shell ashy very fine sand in shell matrix. (5950 ± 60 [Beta-217769])
III	35	10YR3/1	Abundant whole and crushed *Viviparus* and *Pomacea* with some crushed bivalve; notable concentrations of whole *Pomacea* and other areas of crushed bivalve; slightly more sand in matrix than overlying Stratum II; zones of concreted shell throughout
IV	48	10YR4/1	Very abundant crushed and whole *Viviparus*, bivalve and some *Pomacea*; more crushed shell and very fine sand than Stratum III; some concretion in horizontal layers
V	61	10YR3/2	Abundant whole and crushed *Viviparus* and bivalve; some crushed *Pomacea*; some bivalve appears to be burned; increasing sand in matrix with depth; concreted in some portions
VI	55	10YR3/1	Very abundant crushed and whole bivalve, in addition to abundant whole and crushed *Viviparus*; some *Pomacea*
VII	75+	10YR4/2	Fine silty sand; occasional palm toots throughout; shell only occurs in trace amounts
VIII	75+	7.5YR3/2	Loamy fine sand, some roots throughout, shell free

[1]maximum depth in west profile below surface at southwest corner (N870.757 E1047.19 Δ7.69 m).

Table 6-4. Cultural materials recovered from Test Unit 2, Node 2, 8VO215

	Lithic		Marine Shell		Modified	Paleo-	Vertebrate
Level	Flake	Biface	Fragment	Modified	Bone	feces	Fauna (g)
A							15.9
A - Zone A		1					120.0
B	1		3				288.2
C					1		461.2
D			2		1	2	294.6
E - Zone A							31.8
E - Zone B	1				1		46.9
F				1			
F - Zone A							30.7
F - Zone B				1			3.4
G							20.4
H - Zone C							2.6
Total	2	1	5	2	3	2	1315.7

Table 6-5. Stratigraphic units of Test Unit 1, Node 3, 8VO215

Stratum	Max. Depth (cm BS) [1]	Munsell Color	Description
I	10	10YR5/1, 10YR2/1	Organically enriched fine loamy sand with abundant palm roots and detritus
II	21	10YR5/3	Fine silty sand with moderate amount of palm roots; small flecks of charcoal throughout
III	38	10YR3/1	Fine silty sand with abundant whole and crushed *Viviparus*, moderate whole and crushed bivalve, occasional *Pomacea*
IV	57	10YR5/1	Fine silty/gritty sand with moderate amount of whole and crushed *Viviparus*, occasional bivalve and *Pomacea*; shell appears to decrease with depth, no lenses of crushed shell apparent
V	62	10YR2/2	Organic very fine silty sand with occasional roots throughout; buried Organic A horizon associated with Stratum III/IV deposits
VI	62	10YR4/2	Sterile gritty silty fine sand; very rare shell fragments throughout
VIa	75+	10YR4/2	Sterile concreted silty fine sand with occasional calcreted root casts and gleying throughout basal depths; contact with parent Stratum VI undulates

[1]maximum depth in west profile below surface at northwest corner (N820.87 E1060.69 Δ7.85 m)

Table 6-6. Cultural materials recovered from Test Unit 1, Node 3, 8VO215

	Orange Sherd		Lithic					
Level	Plain	Crumb[1]	Flake	Hafted Biface	Marine Shell rag.	Mod. Bone	Paleo- feces	Vertebrate Fauna (g)
A - Zone B	1	11				1		77.1
B - Zone A								20.9
B - Zone B	1	26		2[2]	1			178.4
C - Zone A		1						24.4
C - Zone B	7	22			1			290.1
D - Zone A	7	33		1				195.9
D - Zone B		26			1		2	376.2
D - Zone C								6.5
E - Zone A	1	11	3			2		251.1
E - Zone C								22.7
F - Zone C								5.2
Total	17	119	3	3	3	2	2	1448.5

[1]Any sherd that is less than 1/2-inch in minimum dimension
[2]Recovered in adjacent subsistence column (Stratum III)

Table 6-7. Stratigraphic units of Test Unit 4, Node 4, 8VO215

Stratum	Max. Depth (cm BS) [1]	Munsell Color	Description
I	14	10YR5/1	Organically enriched fine sand; abundant palm roots and detritus
II	25	10YR5/3	Fine sand; occasional palm roots and charcoal flecks; contact with Stratum III undulates
III	40	10YR4/2	Abundant whole and crushed *Viviparus*, some crushed bivalve and *Pomacea*; shell appears more crushed at the contact with Stratum II; matrix is a fine ashy sand
IIIa	48	10YR3/2	Fine loamy moist sand with moderate amounts of whole and crushed *Viviparus*, occasional crushed bivalve and *Pomacea*; appears to be organically enriched low shell density zone associated with Stratum III, possibly a buried A horizon; only present in south wall
IV	54	10YR5/3, 10YR7/3	Moist gritty fine sand with occasional shell fragment; occurs as either unconsolidated matrix or as small clasts
IVa	54+	10YR5/3, 10YR7/3	Concreted gritty sand; surface undulates with Stratum IV; concreted terrace sands

[1]maximum depth in north profile below surface at northeast corner (N774.64 E1082.65 Δ7.59 m)

Table 6-8. Cultural materials recovered from Test Unit 4, Node 4, 8VO215

Level	Orange Crumb Sherd	Biface Fragment	Vertebrate Fauna (g)
A			65.6
B - Zone A	1		59.1
B - Zone B	1		288.2
C - Zone A	1		116.5
C - Zone B			187.6
D - Zone A			52.1
D - Zone B	1	1	106.4
D - Zone C			7.6
D - Zone D			2.5
E - Zone C			0.2

Table 6-9. Stratigraphic units of Test Units 5, 6, and 7, Node 5, 8VO215

Stratum	Max. Depth (cm BS) [1]	Munsell Color	Description
Ia	42	10YR6/1, 10YR2/2	Organically enriched fine sand; abundant palm roots and organic detritus
Ib	60	10YR4/2	Organically enriched fine sand; moderate palm roots
Ic	52	10YR3/2	Organically enriched fine sand with few roots
II	78	10YR2/2	Abundant whole and crushed *Viviparus*, some bivalve and *Pomacea* in greasy fine sand
IIa	30	10YR4/1	Abundant whole and crushed *Viviparus*; some *Pomacea* and bivalve; in TU7 west profile only
IIb	16	10YR4/2	Abundant crushed *Viviparus*; occasional crushed bivalve; significantly less sand in matrix than Stratum II; localized lens in TU7 south profile.
III	40	10YR4/2	Silty fine sand with some shell fragments and occasional fauna; appears intrusive in east, west, and south profiles in TU5; likely animal burrow
IV	78	10YR4/1	Moderate amount of whole and crushed *Viviparus*, bivalve and *Pomacea* in silty/loamy fine sandy matrix; significantly more sand in matrix than Stratum II
IVa	58	10YR3/2	Moderate amount of crushed and whole *Viviparus*, some bivalve and *Pomacea*, in fine ashy sand; occasional concreted clasts
IVb	68	10YR2/2	Moderate amount of crushed and whole *Viviparus*, some bivalve and *Pomacea*, in fine ashy sand; occasional concreted clasts
IVc	78	10YR3/2	Moderate amount of crushed and whole *Viviparus*, some bivalve and *Pomacea*, in fine ashy sand; occasional concreted clasts; more silt than Strata IVa and IVb; present only in north profile.
V	55	10YR4/2	Gritty fine sand, grit consistent with Stratum VIIII (concreted sand); appears mostly devoid of shell and fauna; likely disturbance
VI	50	10YR3/1	Loamy fine sand; no shell; localized zone below Stratum I in north profile of TU6
VII	82	10YR5/2, 10YR5/3	Gritty fine sand; concreted and mottled; upper contact with Strata II and IV contains occasional shell fragments; increasingly concreted with depth
VIII	82+	10YR7/1, 10YR5/1, 10YR5/4	Concreted gritty fine sand, highly mottled; root casts present throughout; contact with overlying shell strata contains cemented shell

Table 6-10. Cultural materials recovered from Test Unit 5, Node-5, 8VO215

	Ceramic Sherds		Lithic			Marine Shell			
Level	St. Johns	Crumb	Flake	Uni-face	Hafted Biface	Frag.	Tool	Bone Tool	Vertebrate Fauna (g)
A									85.6
B			2		1		1		281.7
C	5		1	1				2	519.8
D									20.3
D - Zone A	5	2	3					1	462.6
D - Zone B									26.3
E - Zone A			2			1			222.2
E - Zone B									26.8
E - Zone C									96.6
F - Zone A			1						116.6
F - Zone C									16.9
G - Zone A									45.4

Table 6-11. Cultural materials recovered from Test Unit 6, Node-5, 8VO215

	Ceramic Sherds				
Stratum	St. Johns Plain	St. Johns Crumb	Orange Plain	Marine Shell Fragment	Vertebrate Fauna (g)
I	6	16		2	170.0
II	2	7	3	2	302.7
VII	2	4		1	42.3

Table 6-12. Cultural materials recovered from Test Unit 7, Node-5, 8VO215

	Ceramic Sherds			Lithic		Marine Shell		
Level	St. Johns Plain	Orange Incised	Crumb	Flake	Hafted Biface	Frag.	Tool	Vertebrate Fauna (g)
A							1	73.8
B		1			1			182.0
C	2		3*			1		272.4
D	8							428.9
E	1			1		2		148.7
F								140.2
G - Zone A				1		1		82.8
G - Zone B								34.2

*1 crumb Orange Plain, 2 St. Johns Plain

Table 6-13. Comparison of the size, spacing, and culture-historical associations of discrete shell deposits at 8VO214 and 8VO215

	8VO214	Shell Node				
		1	2	3	4	5
Minimum Elevation (m)[a]	6.17	6.87	6.80	6.65	6.86	6.67
Maximum Elevation (m) [a]	12.21	7.37	7.78	7.96	7.82	8.25
Thickness (m) [b]	7.34	0.40	0.60	0.50	0.20	1.00
Length (m)	155.00	14.00	25.00	38.00	46.00	50.00
Width (m)	60.00	8.00	18.00	30.00	22.00	41.00
Area (m^2)	6607.00	90.00	342.00	669.00	883.00	1594.00
Distance to Previous (m) [d]	-	50.00	27.00	50.00	57.00	45.00
Distance from Mound (m)	-	16.00	43.00	93.00	150.00	195.00
Culture-Historical Association [e]	MT/O?/SJ?	MT	MT	O/MT?	O	MT?/O/SJI/ SJII

[a] measured surface elevation
[b] based on test unit data
[c] minimum estimate based on core and test unit data
[d] distance to nearest northern node center
[e] MT=Mount Taylor, O=Orange, SJ=St. Johns, SJI=St. Johns I, SJII=St. Johns II

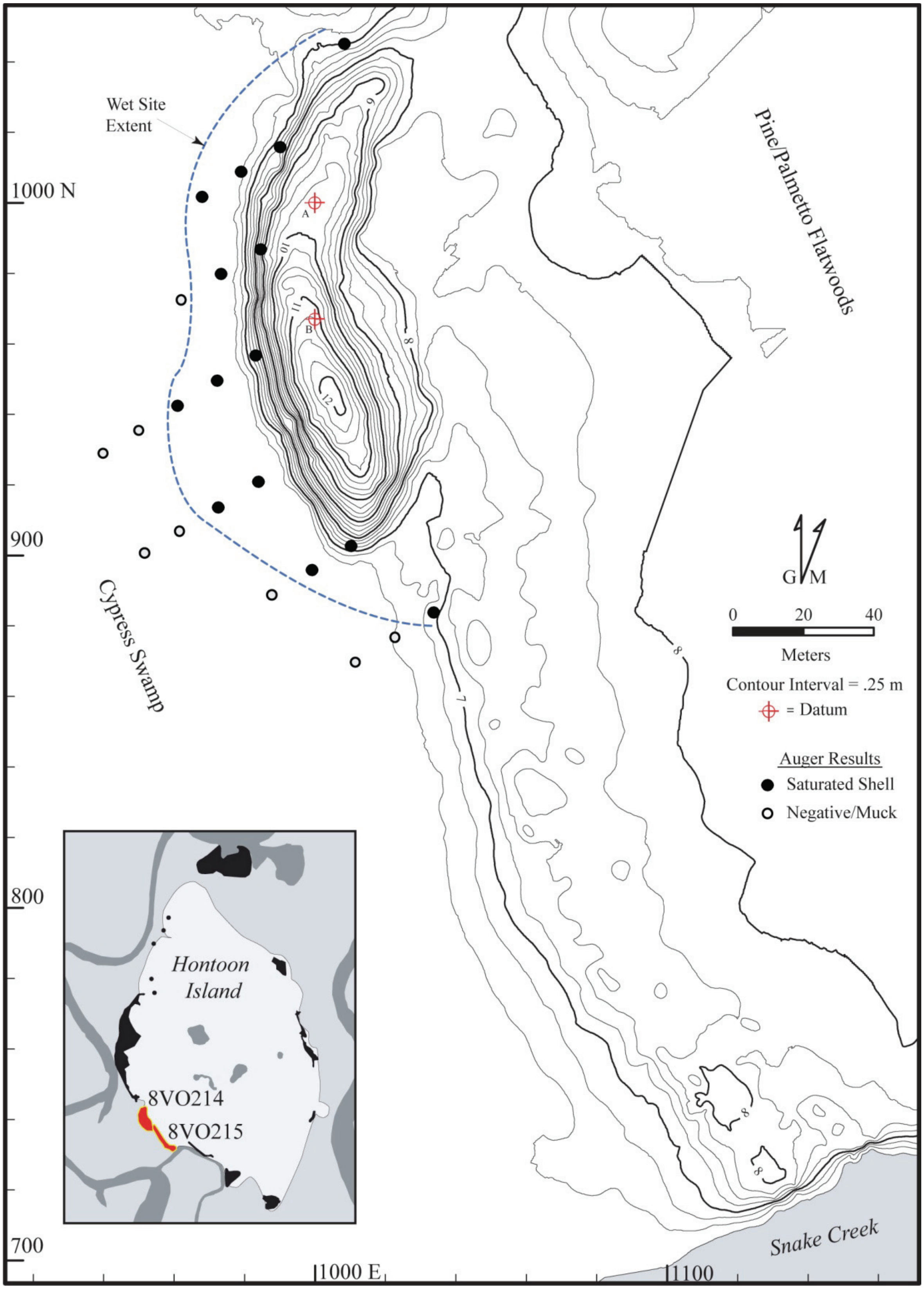

Figure 6-1. Hontoon Dead Creek Complex topographic base map.

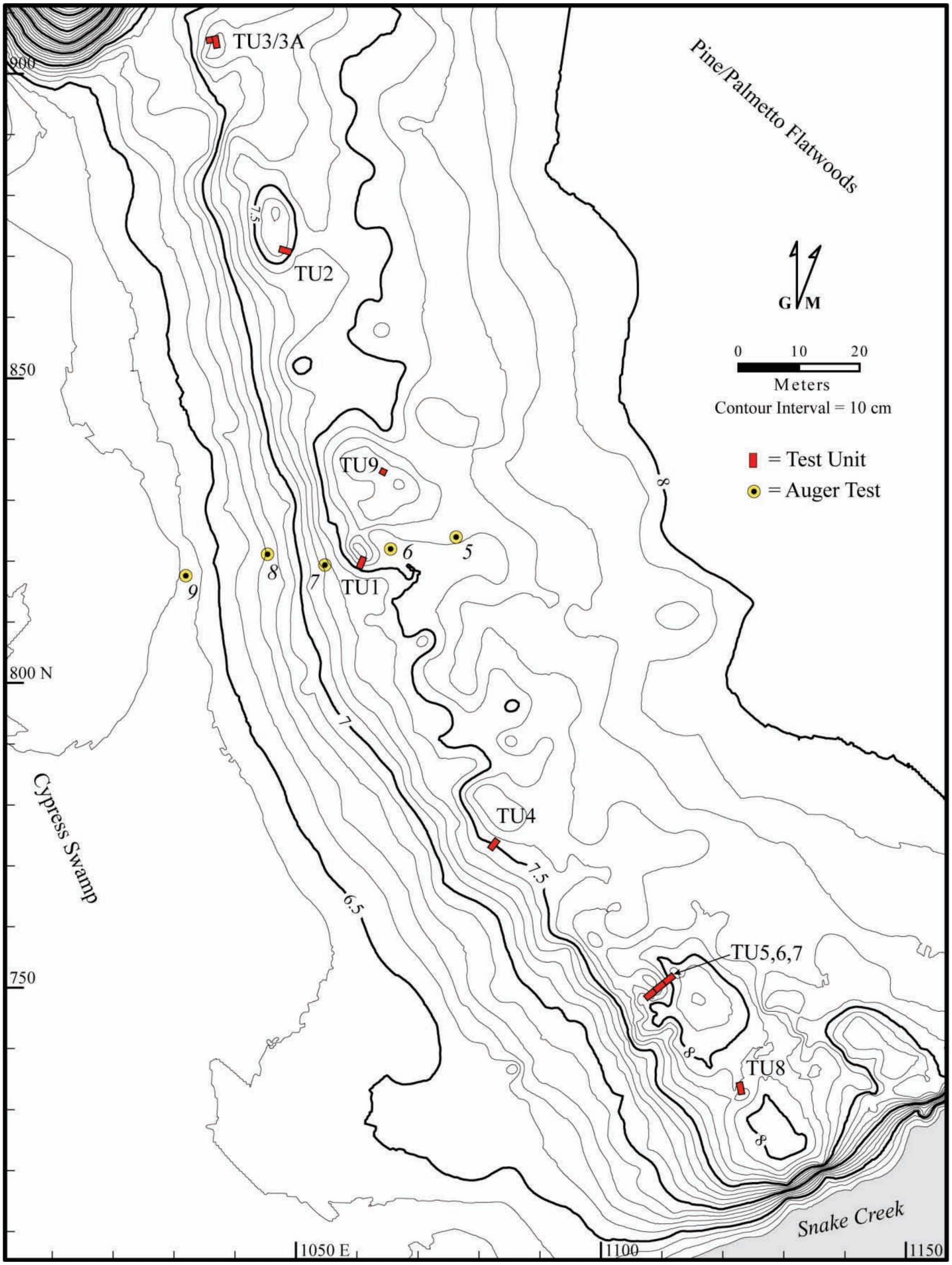

Figure 6-2. Hontoon Dead Creek Village topographic base map.

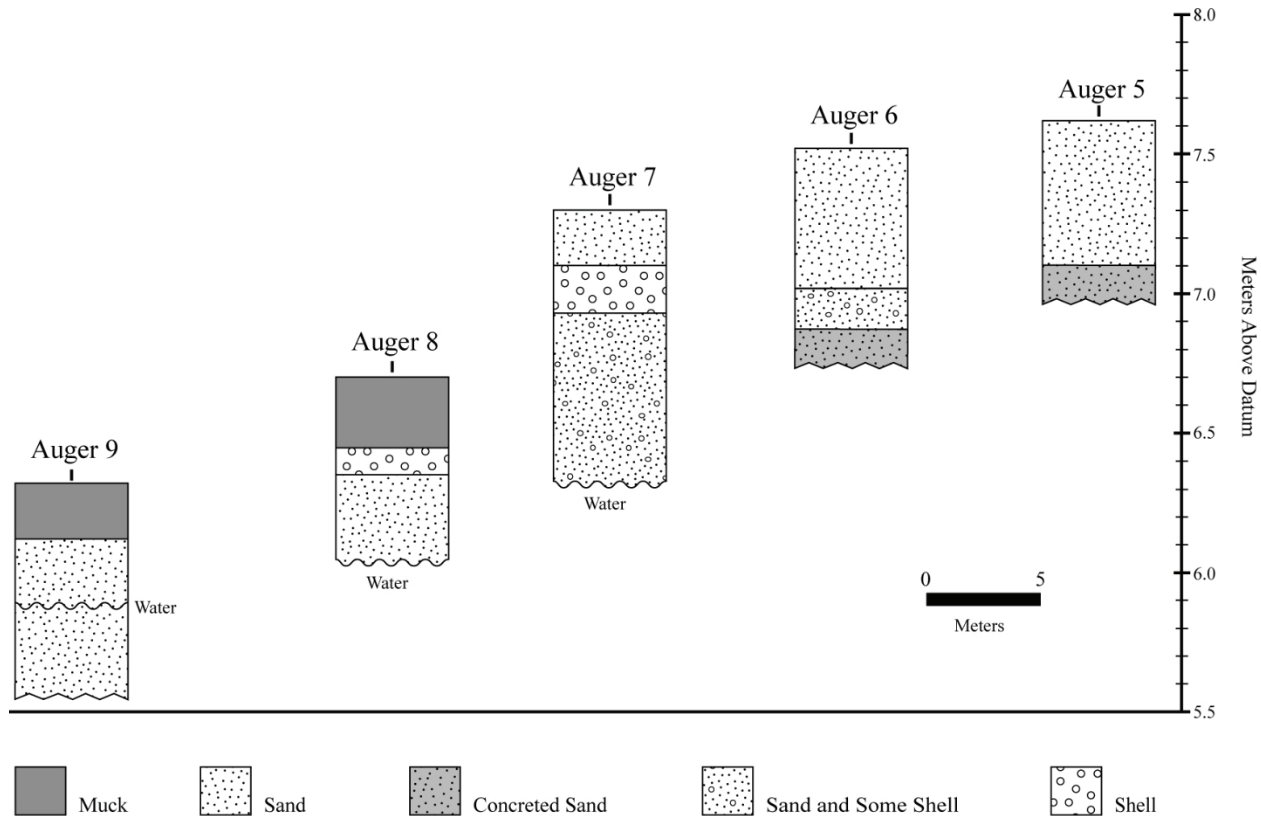

Figure 6-3. Cross section profile of the Hontoon Dead Creek Village based on bucket auger testing.

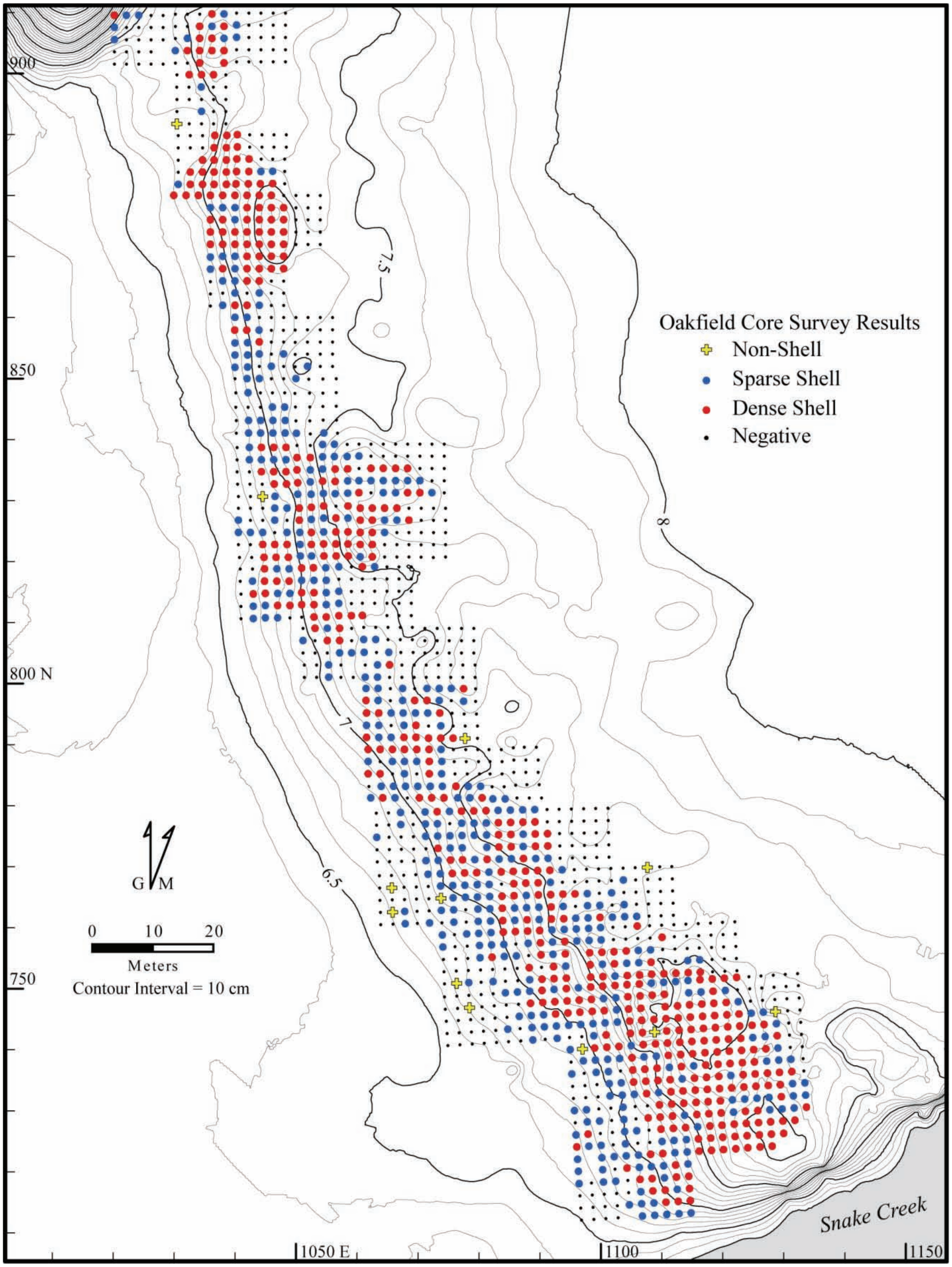

Figure 6-4. Distribution and density of shell matrix at the Hontoon Dead Creek Village site.

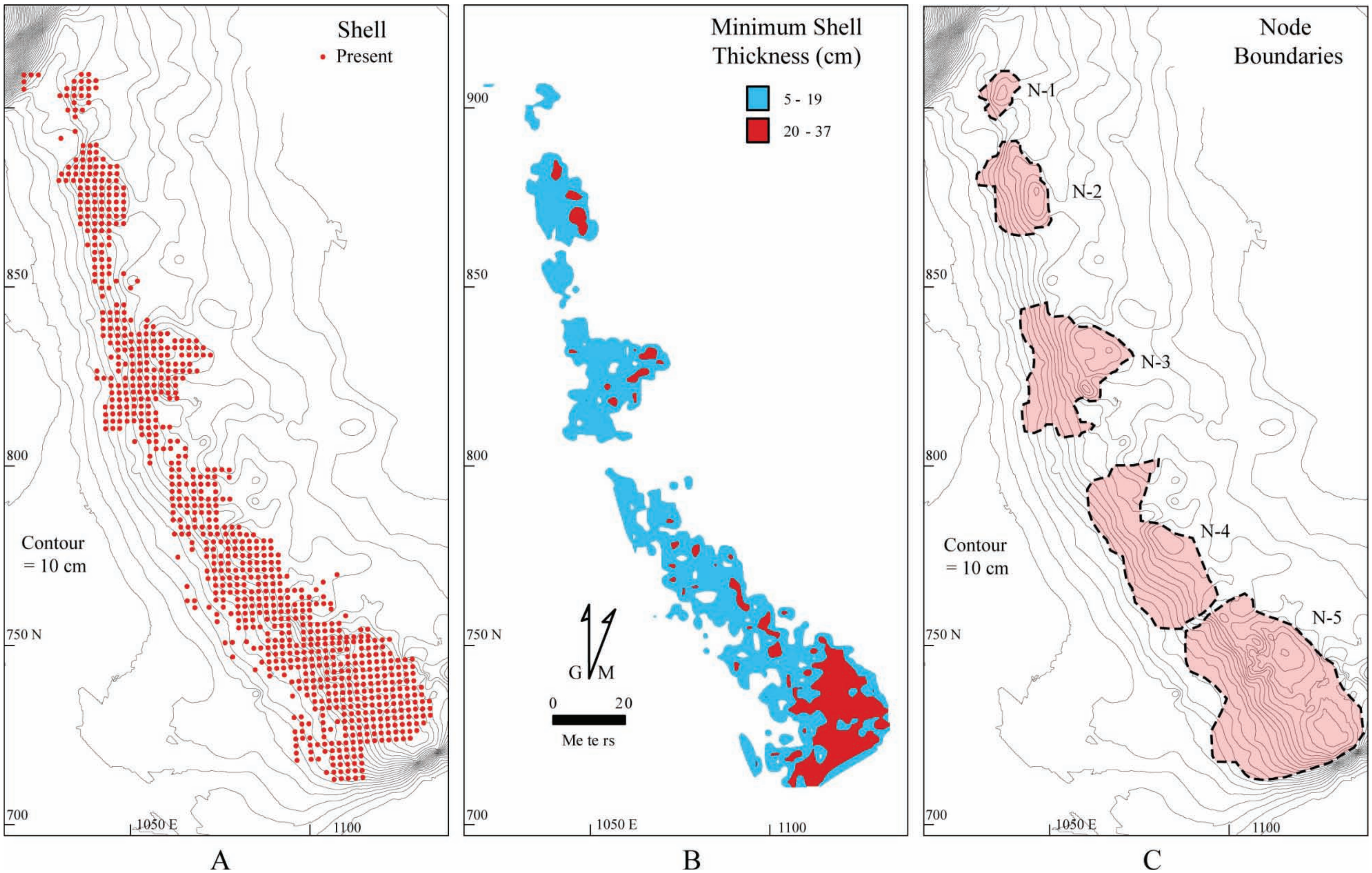

Figure 6-5. Shell node delimitation at the Hontoon Dead Creek Village. A) presence of shell. B) minimum shell thickness. C) shell node boundaries.

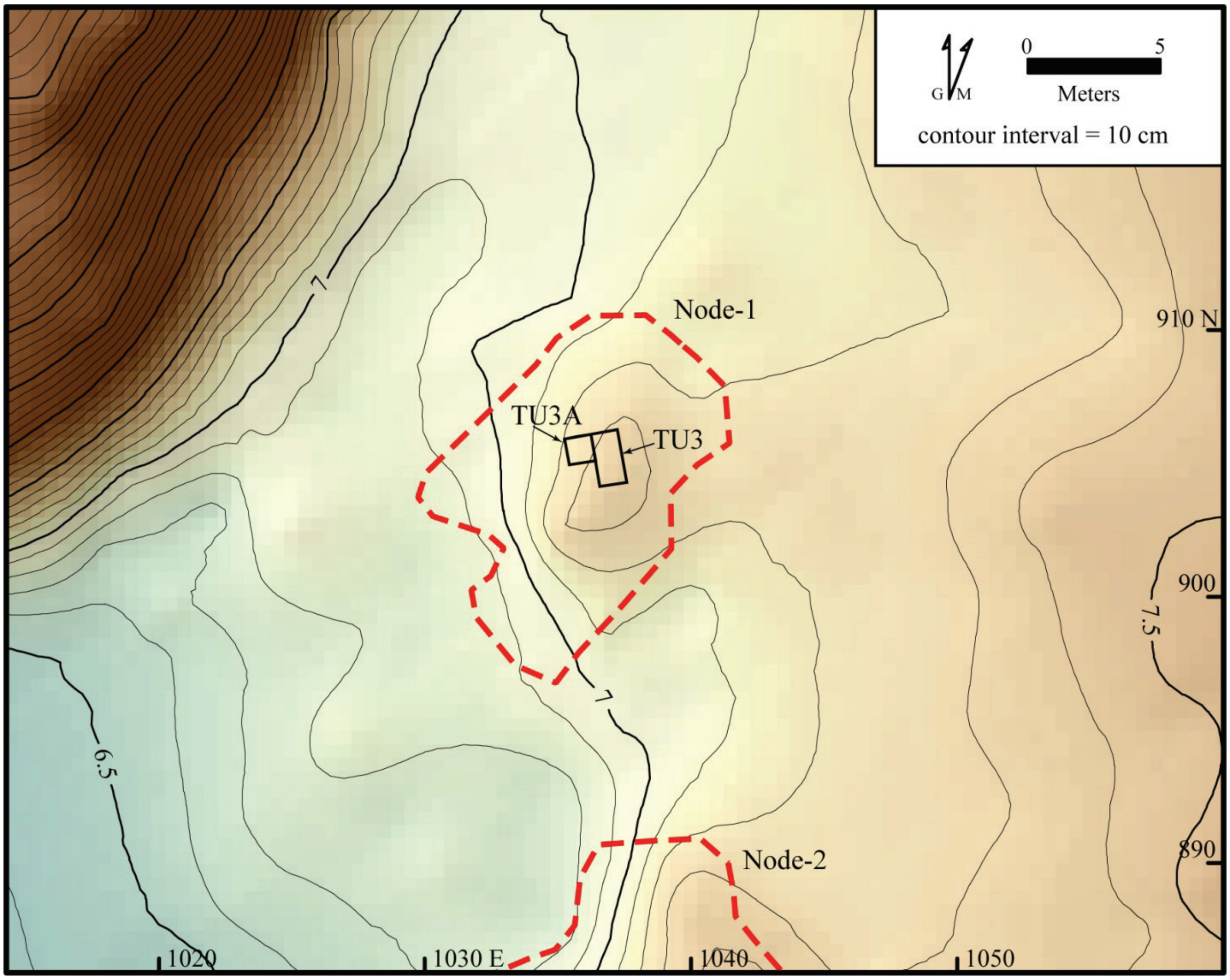

Figure 6-6. Topography and boundaries of Node 1 at the Hontoon Dead Creek Village.

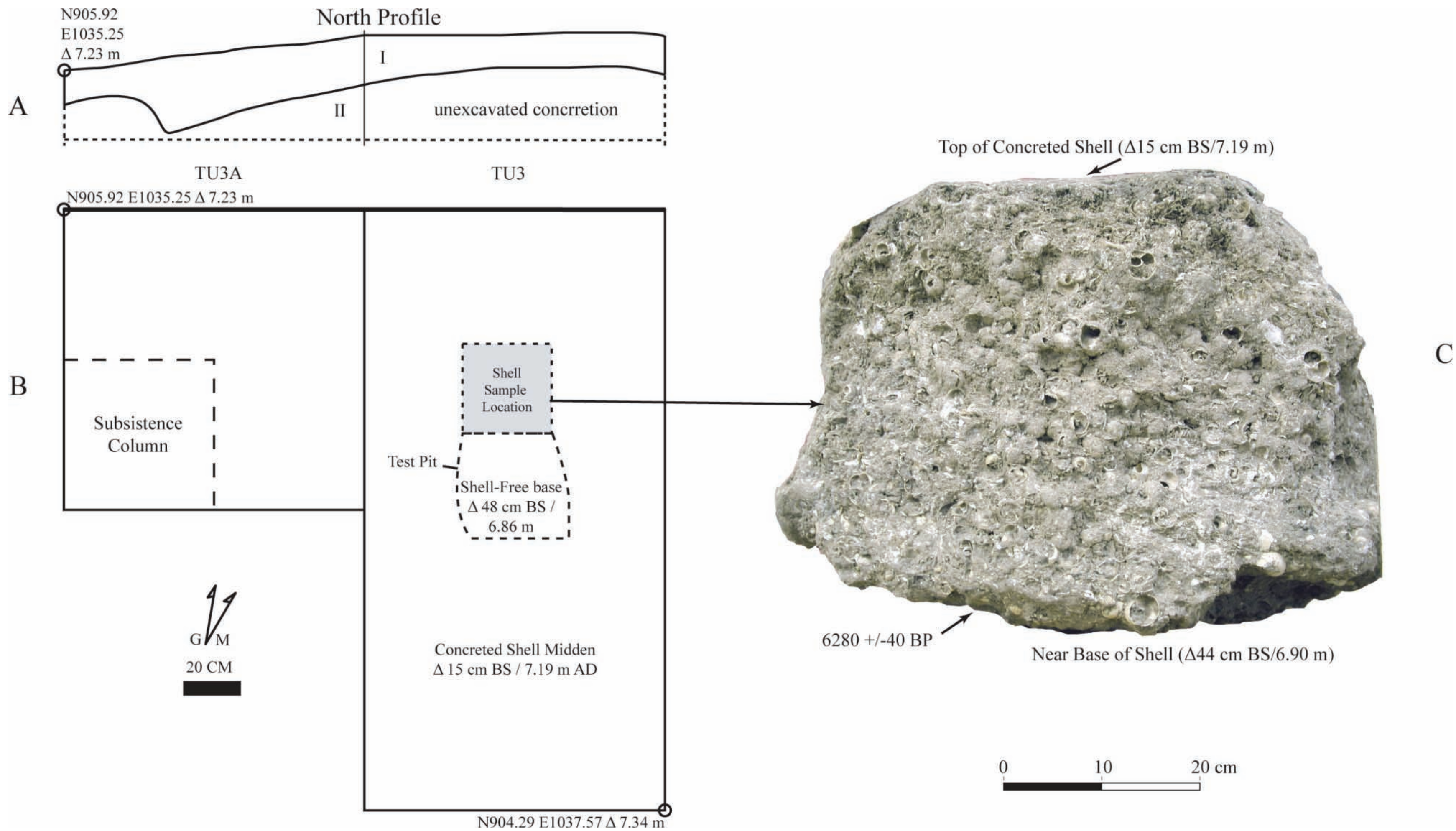

Figure 6-7. Node 1 stratigraphy and composition. A) north profile. B) plan view of excavations. C) extracted concreted shell block.

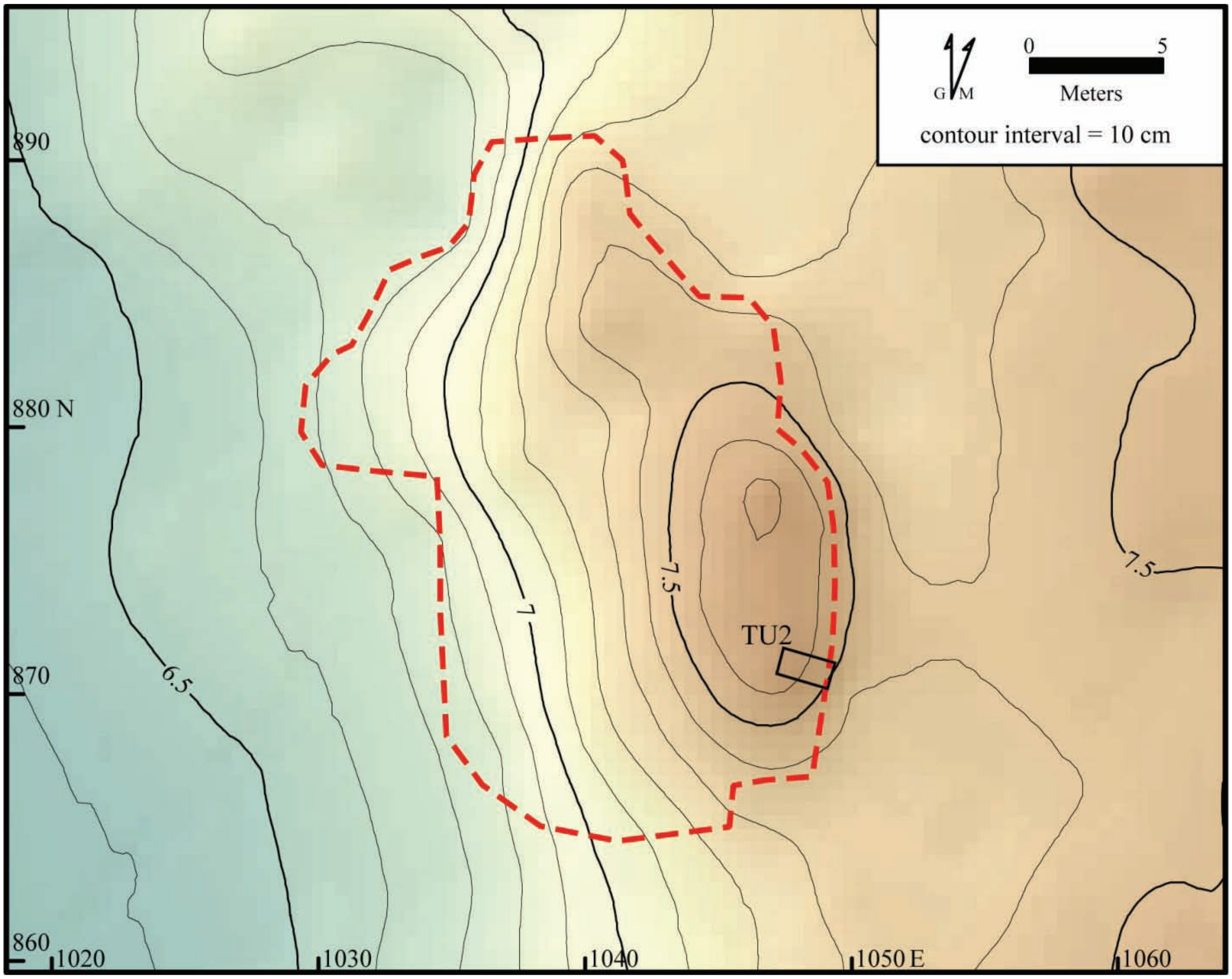

Figure 6-8. Topography and boundaries of Node 2 at the Hontoon Dead Creek Village.

Figure 6-9. Photograph of Node 2 excavation, facing southwest. Pin flags denote the boundary of the shell node.

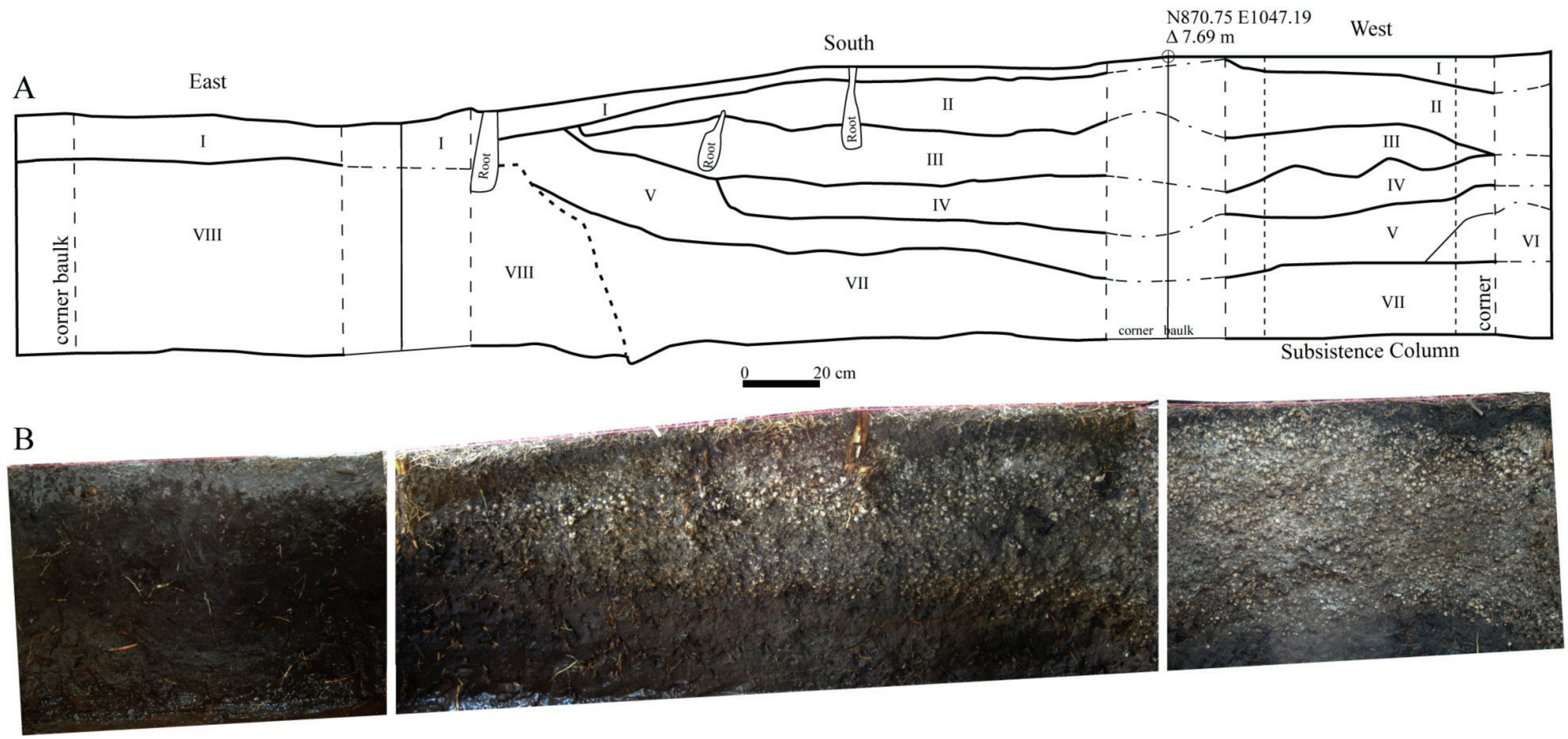

Figure 6-10. Stratigraphy of Test Unit 2, Node 2, the Hontoon Dead Creek Village. A) Profile drawing, and B) photograph.

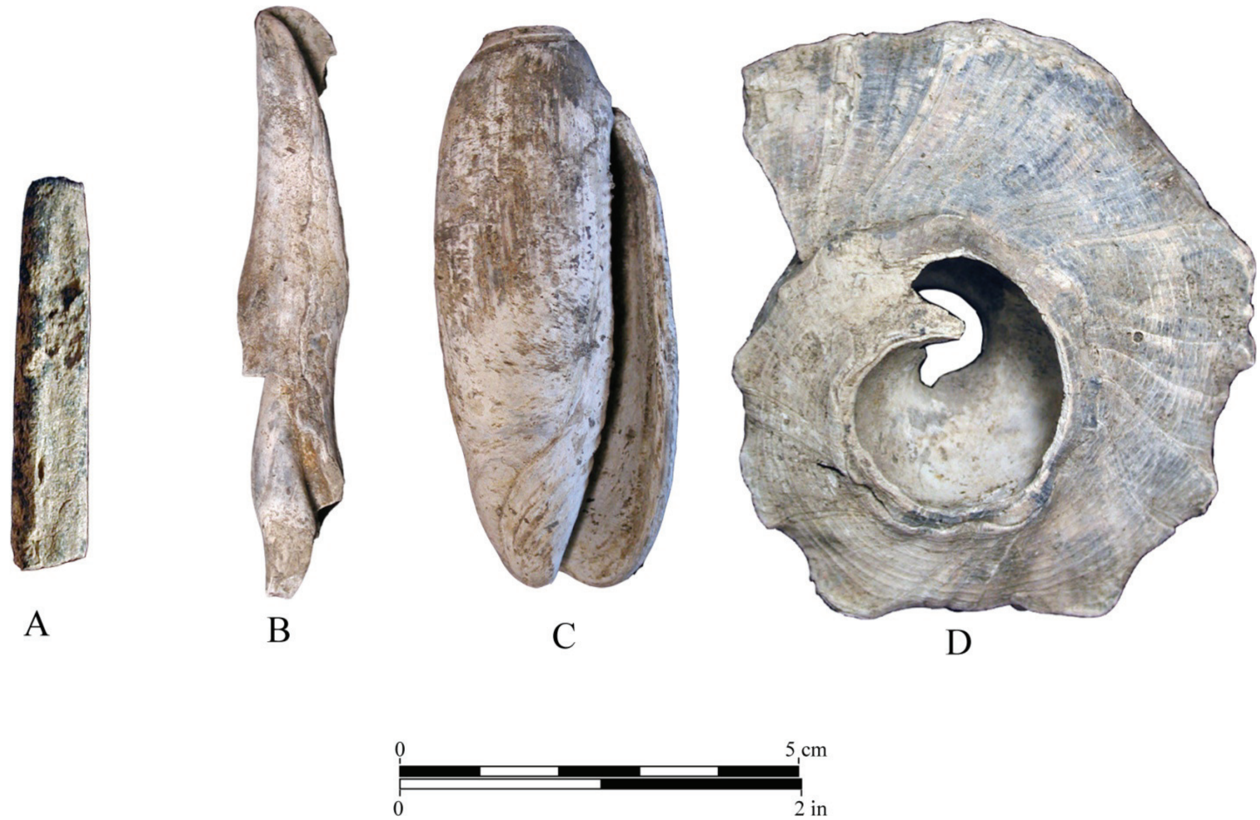

Figure 6-11. Objects recovered during Node 2 testing. A) modified bone (possible awl). B) marine shell gouge/chisel. C) modified *Olivella sp.* shell. D) *Busycon* sp. battered apex fragment.

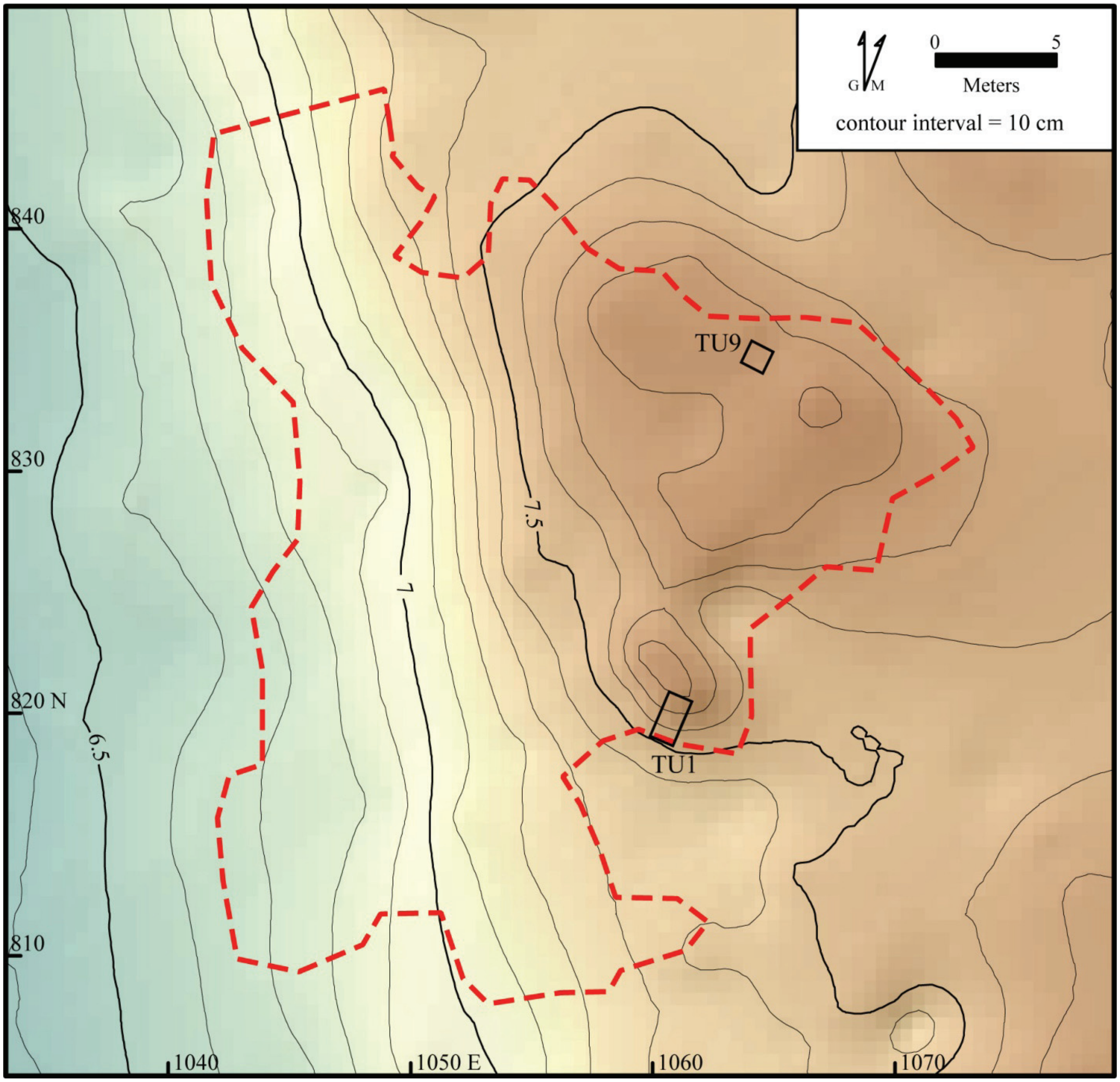

Figure 6-12. Topography and boundaries of Node 3 at the Hontoon Dead Creek Village.

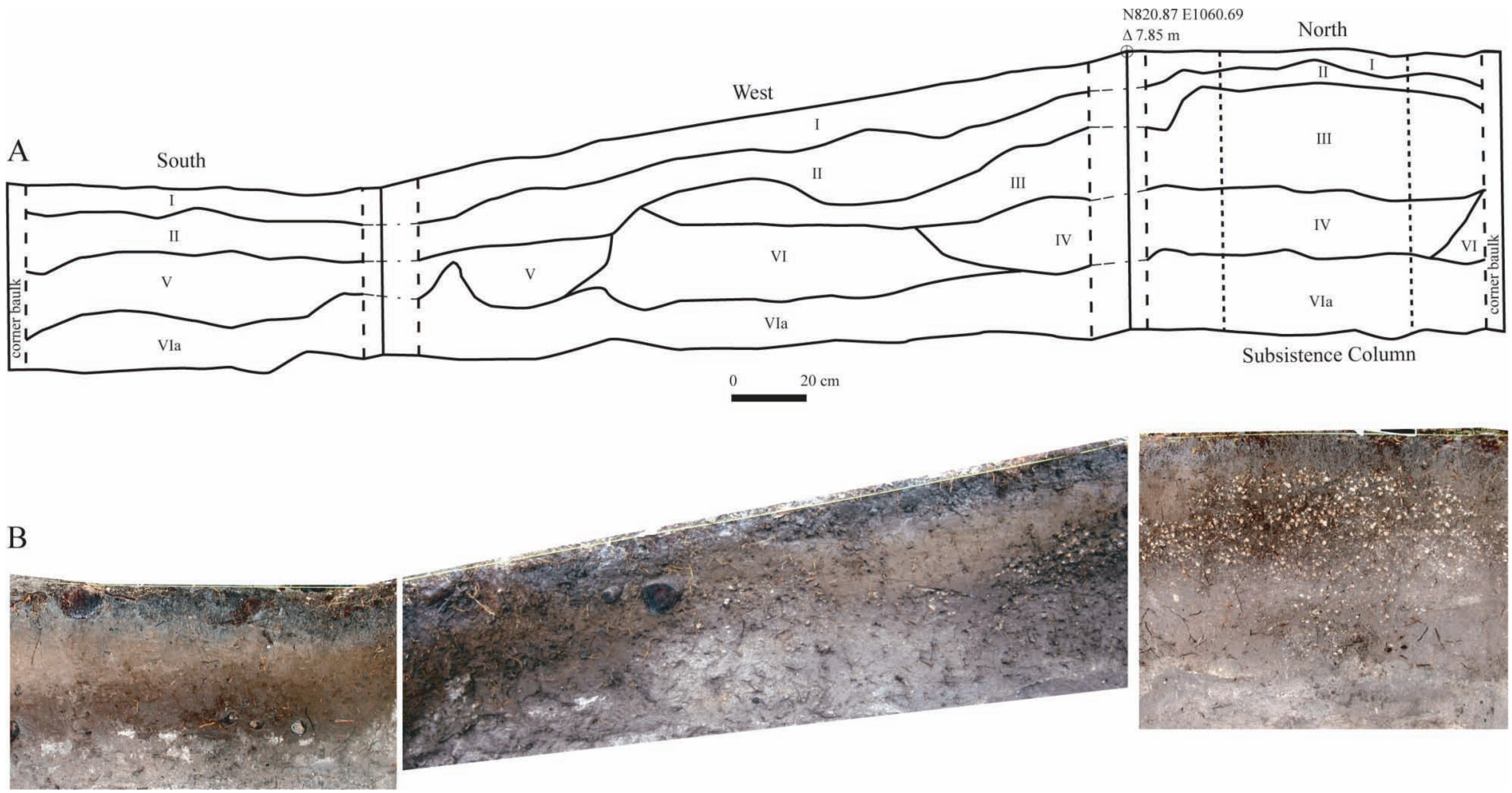

Figure 6-13. Stratigraphy of Test Unit 1, Node 3, the Hontoon Dead Creek Village. A) profile drawing. B) photograph.

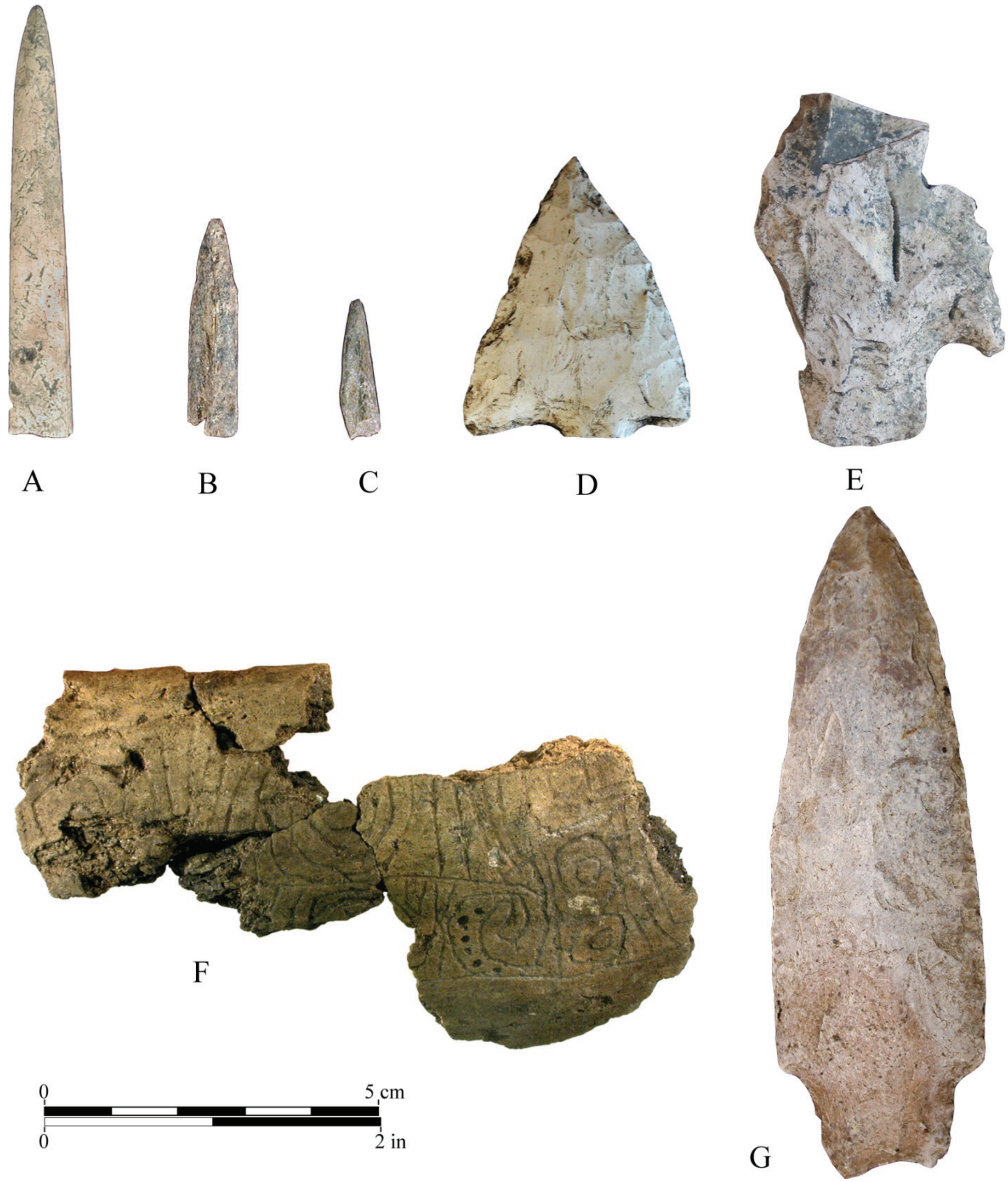

Figure 6-14. Objects recovered during Node 3 testing. A-C) modified bone (possible awls). D-E) hafted biface fragments. F) reconstructed Orange Incised/Engraved rim sherd. G) hafted biface.

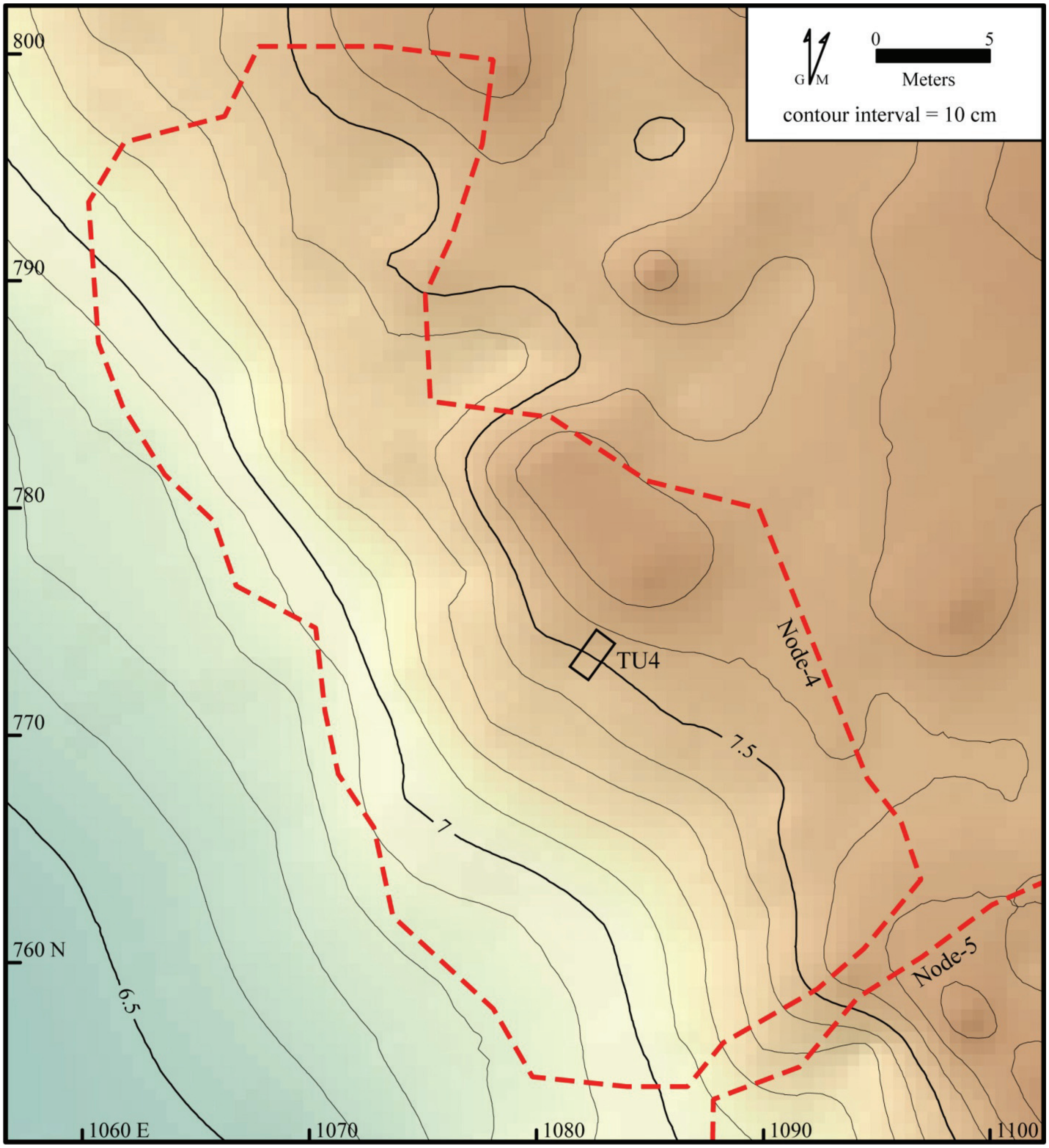

Figure 6-15. Topography and boundaries of Node 4 at the Hontoon Dead Creek Village.

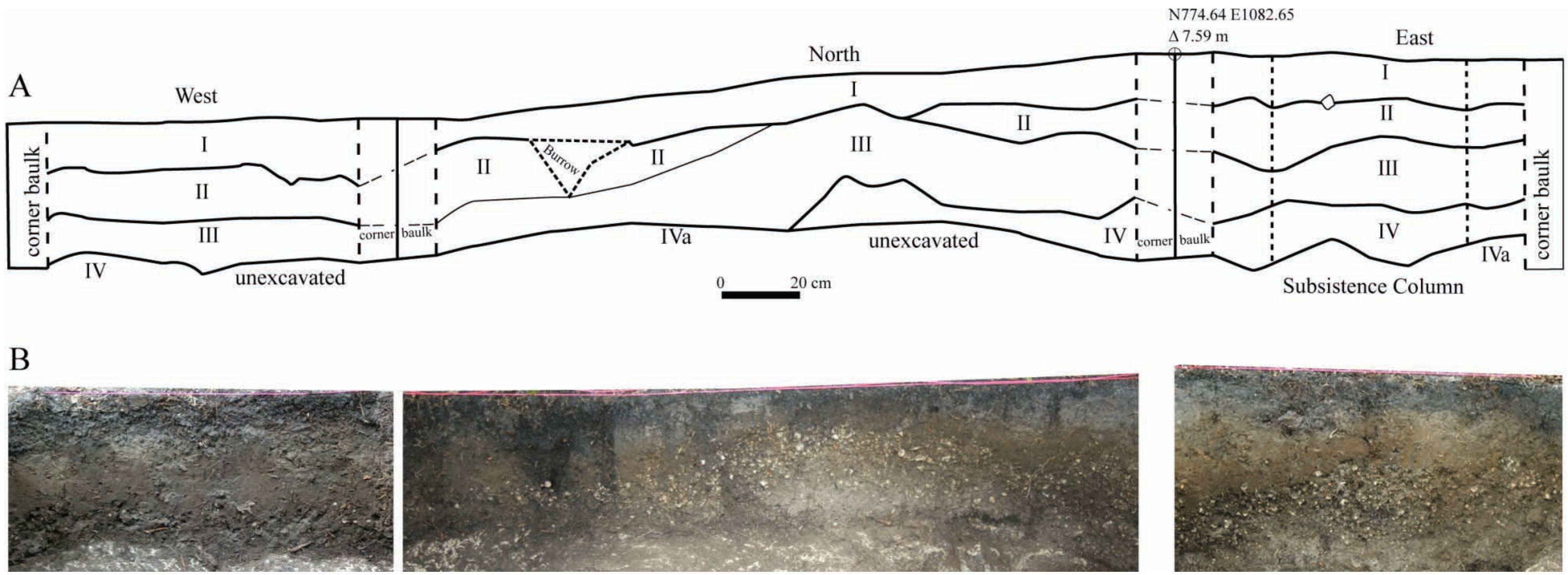

Figure 6-16. Stratigraphy of Test Unit 4, Node 4, the Hontoon Dead Creek Village. A) profile drawing. B) photograph.

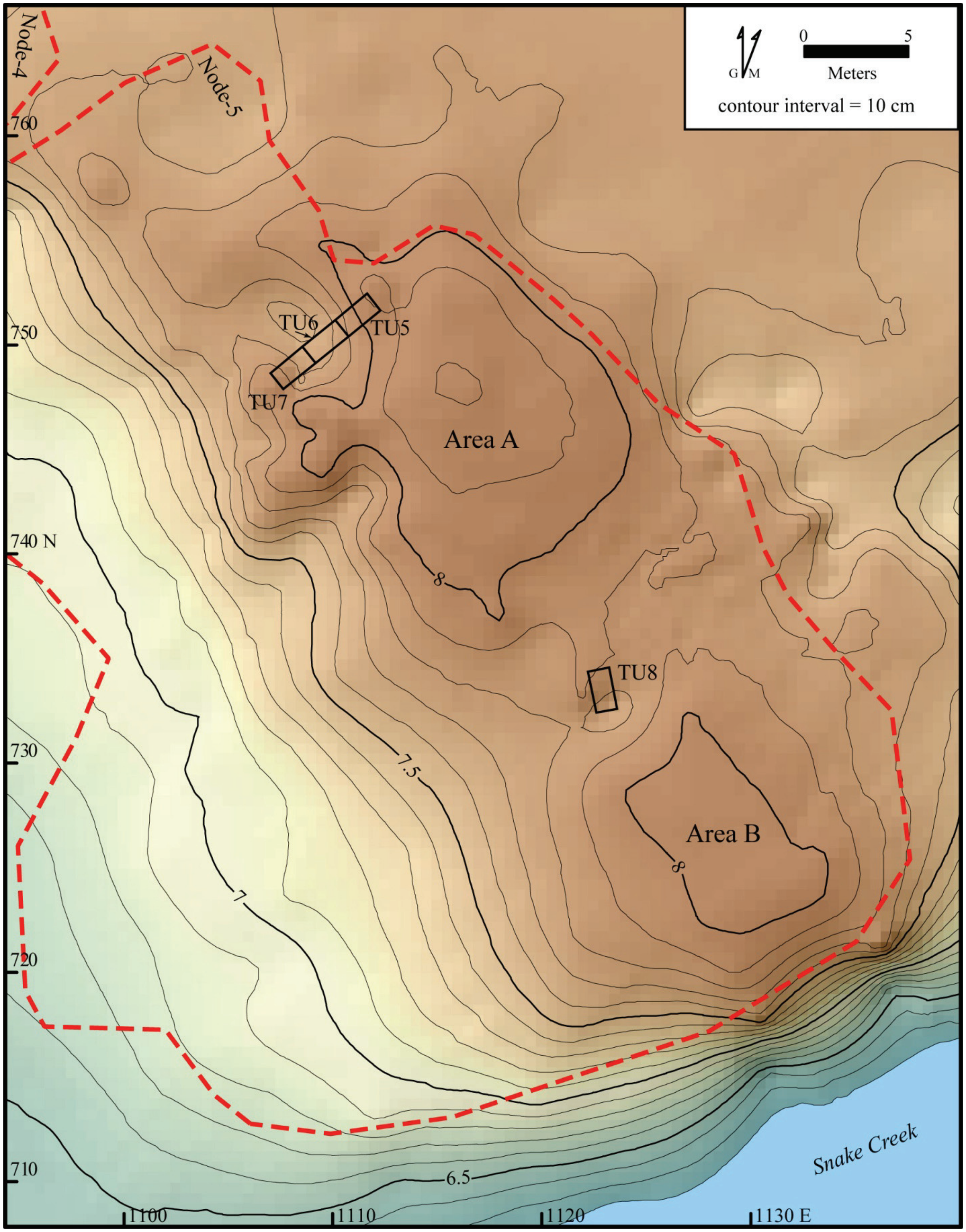

Figure 6-17. Topography and boundaries of Node 5 at the Hontoon Dead Creek Village.

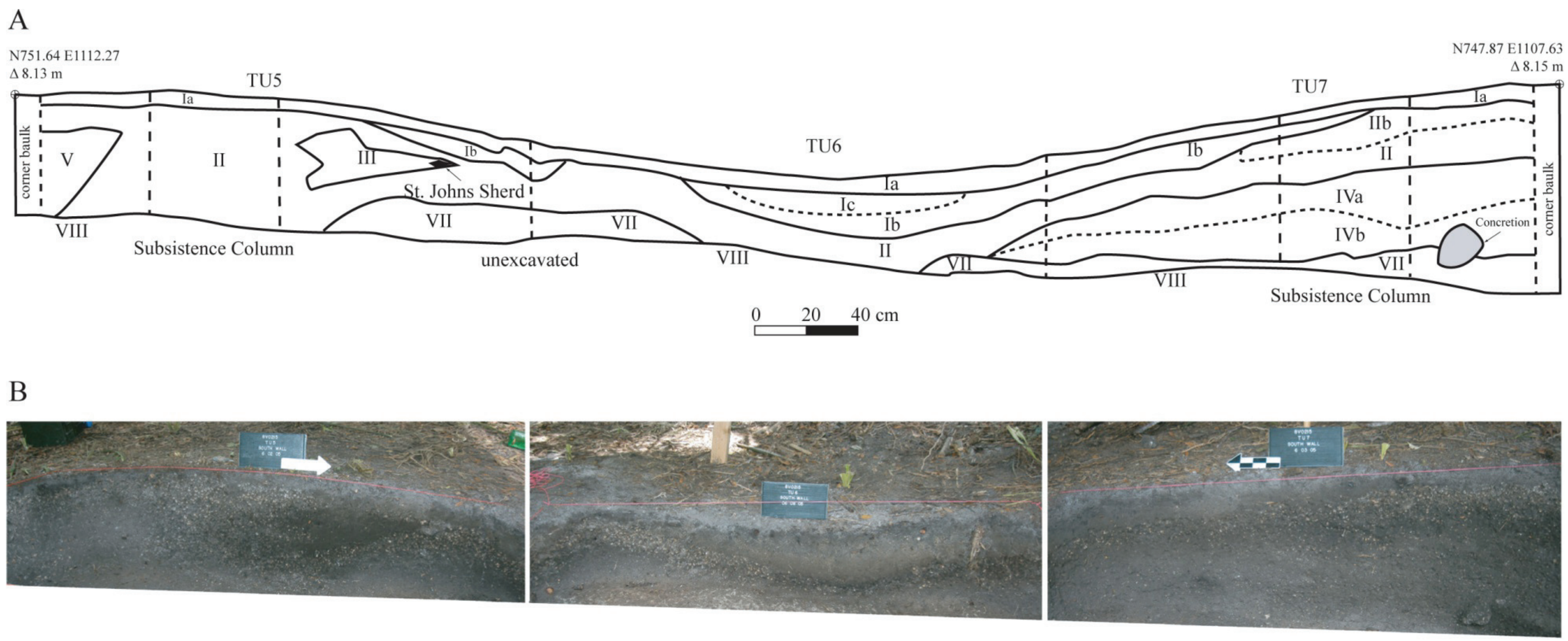

Figure 6-18. Stratigraphy of Test Units 5–7, Node 5, the Hontoon Dead Creek Village. A) profile drawing. B) photograph.

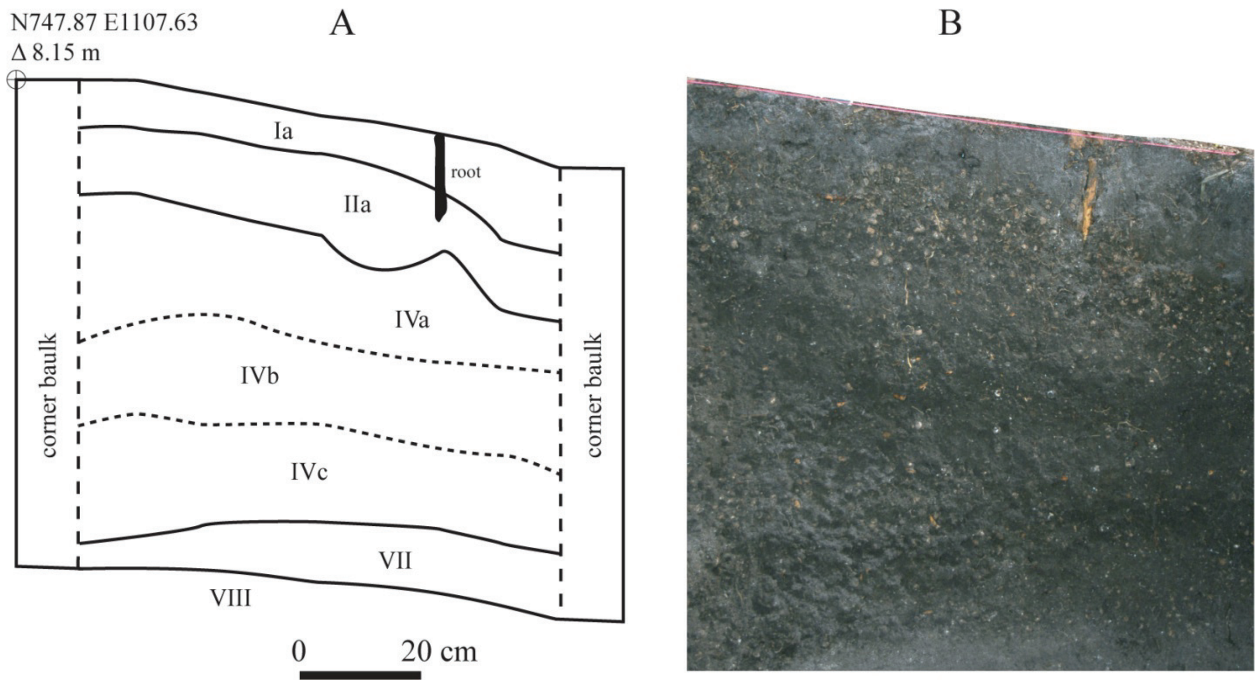

Figure 6-19. Southern profile of Test Unit 7, Node 5, the Hontoon Dead Creek Village. A) profile drawing. B) photograph.

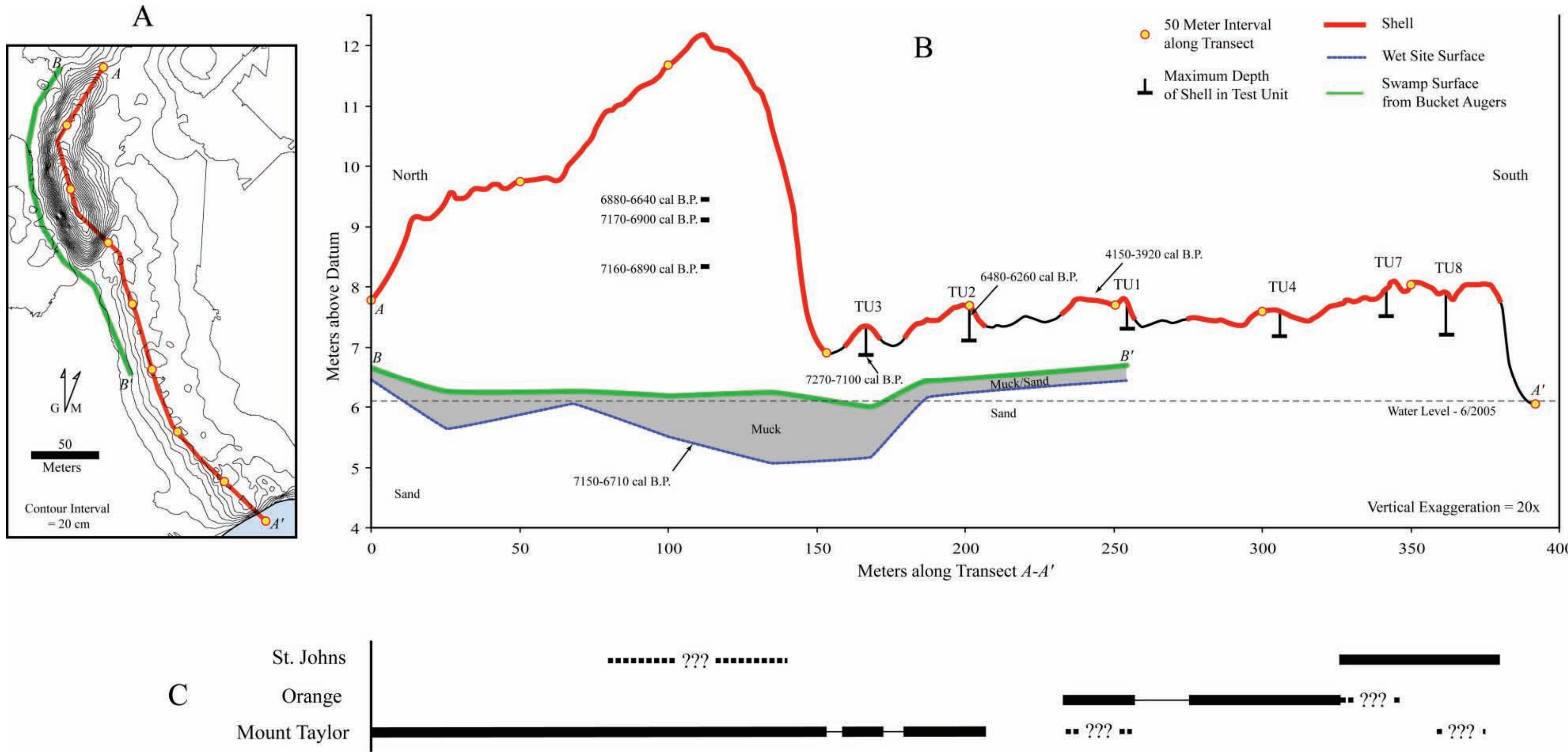

Figure 6-20. Cross section of the Hontoon Dead Creek Complex. A) location of transects used to extract elevation profiles. B) elevation profiles of surface shell deposits, swamp surface, muck surface, and wet site component. C) culture-historical periods represented in each of the shell ridge and nodes.

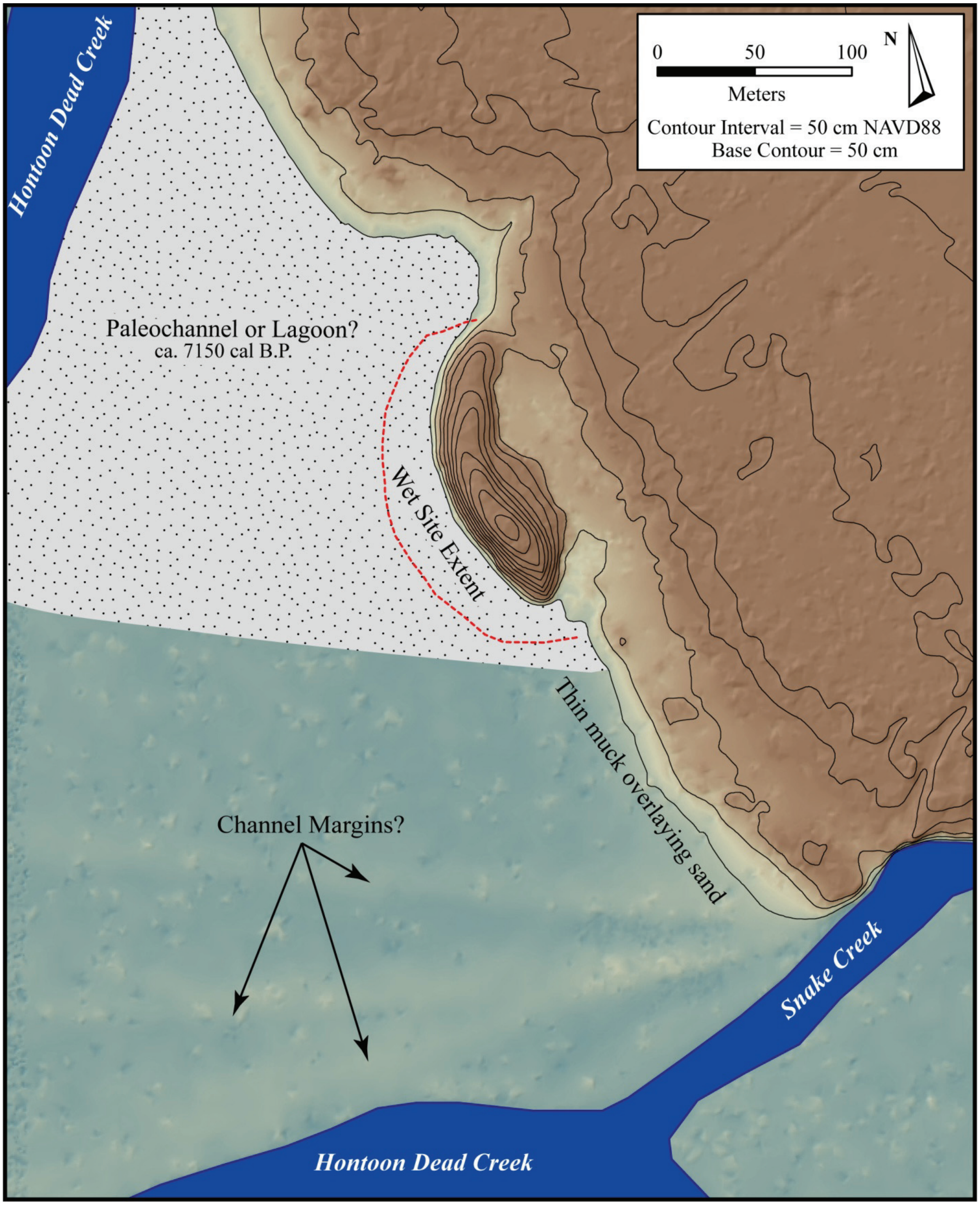

Figure 6-21. Paleohydrological context of the Hontoon Dead Creek Village.

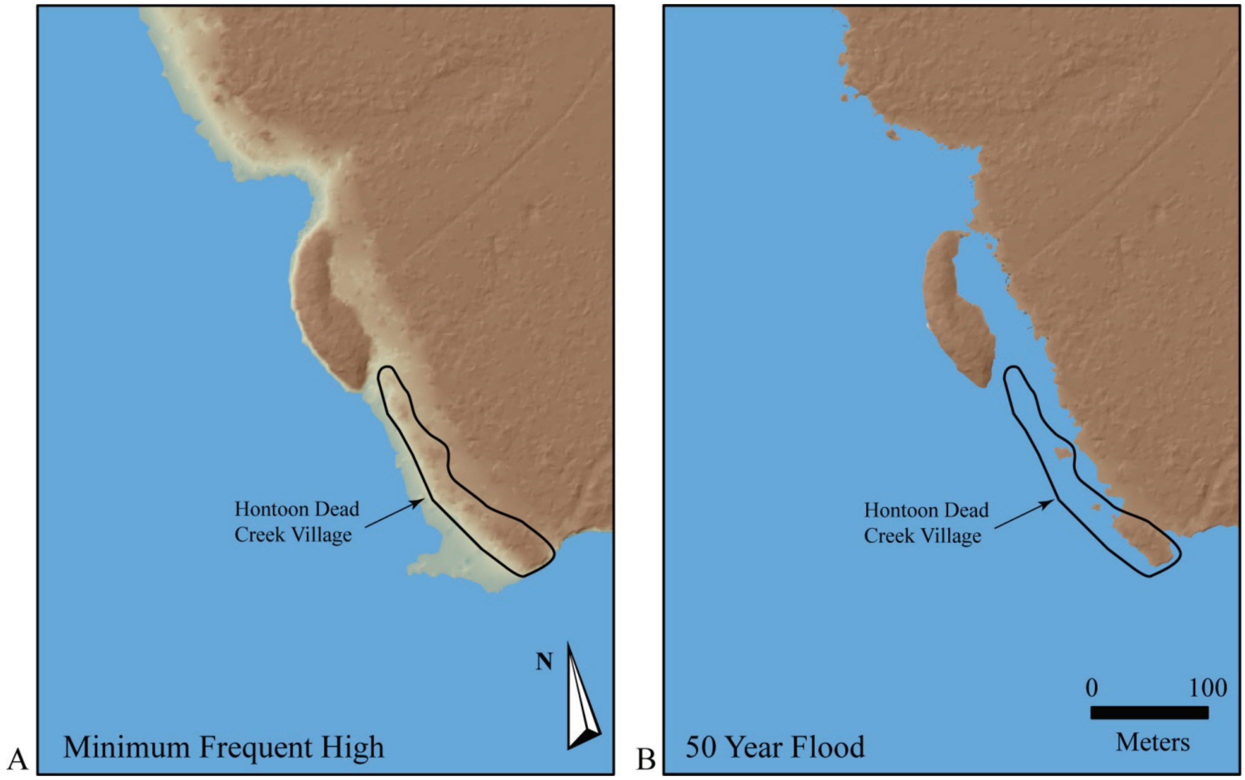

Figure 6-22. Areas of the Hontoon Dead Creek Complex submerged during flood events. A) minimum frequent high flood (recurring every 3 years). B) 50-year flood event.

CHAPTER 7
DIVERGENT HISTORIES IN PLACE

At the microscale, as the Hontoon Dead Creek Village revealed, Mount Taylor communities were reproduced through partitioned and discrete spatial practices. These material and practical referents imply memories of place and person as communities returned to the St. Johns. The lack of significant shell deposition atop nodes at the Hontoon Dead Creek Village enabled the discrimination of Mount Taylor traditions in microcosm. However, the site's final disposition makes it unlike most documented Mount Taylor places that are characterized by deep stratigraphic sequences composed of shell and earth. As discussed in Chapter 1, the reoccupation of places was taken in local orthodox thought as the gradual and unreflexive deposition of shellfish and other materials at ridges. To be sure, similarities in site layout and depositional content at the largest and smallest scales imply that communities generated a sense f continuity in place through reoccupation. However, Mount Taylor inhabitation occurred in the context of changing structural conditions: the river and associated ecologies were variable, the networks of peoples and places outside of the St. Johns were constantly in motion, and inhabitants within the St. Johns were faced with an ever-emergent materiality of their own making as they deposited shellfish and other materials in place. We must seriously consider the possibility that in spite of continuity in site (re)occupation, communities manufactured alternative social memories through practical traditions to make new social and ecological contexts meaningful.

In this chapter, I problematize the repeated occupation and modification of places during the Mount Taylor period by considering two interrelated issues. The first regards the situatedness of Mount Taylor communities as they would have been understood within the larger flow of regional inhabitation. As Appadurai (1996:186) notes, processes of locality-making "seem paradoxical because they both constitute and require contexts." As discussed in Chapter 2, practices and material referents in particular social contexts gather their significance in relation to other times, places, and ways of being (Barrett 1999, 2001; de Certeau 1984). Other times include the temporalities of experience within a place as well as the sedimented ancestral or mythical pasts referenced in their inhabitation. As suggested by Barrett (1999:260), moving spatially between different frames of reference is equivalent to moving between alternative temporalities, from the biographies of communities in the routinization of the day-to-day to the "social rhythms of institutional activity and the timeless continuities of cultural order." As argued in Chapter 2, these different temporalities comprise economies of memory, in which peoples, places, and things are drawn together and histories are asserted or subverted. These various practices can become doxic through reproduction, as commemorative economies are routinized, and may remain unreflected upon because they work within the structural conditions of the time (Barrett 2001:154).

However, it would be a mistake to reduce social reproduction to a passive process. As discussed by Weiner (1992:150) and Morphy (1995), social reproduction is not something that just happens. Amongst societies with a "cold" historicity, the paradox of reproduction is how a sense of continuity in place is maintained in terms of significance and meaning, while at the same time social relationships and the material conditions of life change. In this mode of historical consciousness, change is effectively denied by the assertion of "the way it has always been" (Pauketat 2001a). At Çatalhöyük ,for example, the obsessive cleaning and wall painting within houses, as well as the emplacement of buildings on top of defunct structures may reflect such an economy of memory (Hodder and Cessford 2004). However, Gillespie (2008:135) and Barrett have suggested that we pay attention to those moments when “practioners stood apart from the world of their actions and looked in upon that world discursively” (Barrett 2001:154). Such moments would be expected when the system of referents changed, and routine and ritualized inhabitation as it had been known was no longer possible (Gosden 1994:18; Sahlins 1985:xiv). It is on these occasions that long-reproduced schemata and referents could be revalued as they they were transposed into new social fields to accommodate or interfere with social or ecological variation.

In the following sections I examine the evidence for the changing situatedness and temporalities of Mount Taylor places through a consideration of biographies of shell ridges. These biographies are reconstructed by detailing sequences of depositional practices. Using the Hontoon Dead Creek Village as a model for the organization and reproduction of places, I trace how communities established and transformed shell ridges as a process. I pay particular attention to macro-stratigraphic units which represent changes in the overall intensity and temporality of inhabitation.

The following discussion is grouped around shell ridges that evince different kinds of temporalities. The first section considers those ridges that were constructed primarily out of shell. The second considers how some places were transformed from residential contexts to mortuaries. The final section examines those places that were characterized by residential social fields, but whose histories of transformation indicate that the traditions of ancestral temporalities were extended to settlements as well. In each case, I will emphasize how communities appropriated material traces and practices and reconfigured them to produce alternative pasts in place.

Renewing Community

A consideration of chronologically early ridge biographies indicates they were rapidly configured as platforms within a few centuries of shellfish exploitation. Once emplaced, ridges were the locus of shellfish deposition that renewed the mound surface. Based on the paleohydrological reconstruction at Hontoon Dead Creek Mound, these places were situated with reference to wetland localities and inhabitation there was enabled by local embayments and shellfish colonies. However, communities mobilized places as historical resources that could be referenced in the course of large-scale commemorative events. This process has been documented by Sassaman's stratigraphic excavations at the Hontoon Dead Creek Mound (Sassaman 2005a) and Live Oak Mound (Sassaman 2003a). At Hontoon Dead Creek Mound, the testing program involved excavation of a 9 m-long, 1 m-wide trench on the west side of the ridge (Figure 7-1A). The upper trench was located approximately 2 m below the apex, and so the structure and culture-historical associations of the most recent depositional episodes are unknown. At the lower end, the basal stratigraphy was only observed in cores due to the water table. Because of the unconsolidated and loose shell within the mound, excavation in the upper test units was terminated 2.5 m below surface for safety concerns. In total, a profile spanning 4.3 m of vertical relief and 9 m in horizontal extent was exposed. Four stages that differ in terms of temporality, shell composition, and fragmentation were documented within the trench (Figure 7-1B).

Stage 1 was observed only in cores extracted from the lower basal units. Underlying thin shell matrix deposits was a developed soil that dips gently down to the west, and is generally conformant with the slope of the terrace. This is the pre-mound surface upon which shell, vertebrate faunal bone, and charcoal was deposited. In its composition it is similar to the shell matrix recorded for Node 1 and Node 2. This initial depositional unit is laterally extensive, and increases in thickness to the east. It may be isomorphic with the saturated shell matrix within the swamp (Sassaman 2005a). It may also be analogous to the diffuse downslope deposits identified in shell nodes to the south. No developed A horizon was identified above this basal unit. There was little time between the cessation of small-scale deposition and the creation of a large shell ridge and platform.

Sometime prior to 7170 cal B.P. communities began amassing shellfish adjacent to the lagoon. Where inhabitants had once maintained vertically and horizontally discrete places they constructed a platform mound of shell. This process is manifest in the structure and composition of Stage 2 (Figure 7-1B), which rises 1.6 m above the preexisting shell. Based on the angle of the upper depositional unit of the Stage 2 ridge, the summit was relatively flat, although its apex was not exposed. Unlike Stage 1 which contained abundant vertebrate fauna and charcoal, stages 2 through 4 are characterized by low frequencies of non-shell materials. For example, the vertebrate fauna is one-third to one-sixth the relative abundance documented at residential contexts elsewhere. The implication is that a very restricted range of practices occurred here, and appear to have been limited to the processing and mounding of shell on the surface. The constituent stratigraphic units that differ in composition and fragmentation are: (1) whole *Viviparus* shell, and (2) whole and crushed shell lenses with observable sediment. The whole shell is indicative of rapid deposition, while the crushed shell and sediment are characteristic of surfaces that may have been exposed and walked upon over a period of time.

Sometime after the establishment and enlargement of the Stage 2 shell platform, a large quantity of crushed shell interspersed with fragments of concreted shell was deposited on the western margins of the platform. In Figure 7-1B this is Stage 3, which is stratigraphically superior to Stage 2. There are multiple lines of evidence that indicate this lens was placed here as an expansion of the preexisting mound. The constituent shell is finely crushed, implying a mechanical process for its formation. Large—sometimes greater than 30 cm in diameter—fragments of concreted shell are situated throughout. As discussed before, concreted shell forms either at the base of shell matrix sites through percolation of calcium carbonate, or in lenses composed of burned shell. In this case, the fragments are disaggregated and of a different composition than the underlying surface, suggesting they are allocthonous. They are not only distributed throughout the layer, but are found lying flat against the underlying mound. They were likely positioned to keep shell in place. Lacking a natural origin for shell and concretion in this quantity and configuration, it would seem that this entire macrostratigraphic unit was emplaced adjacent to and on top of the lower shell ridge to expand the footprint of the mound. Where these materials came from is another question. Given that concreted shell was encountered in Node 1 at 8VO215, inhabitants may have mined preexisting shell matrix for construction material. This practice has been identified in mortuary contexts at Tomoka (Piatek 1994), Harris Creek (Aten 1999), and the Bluffton Burial Mound (Sears 1960). Having used picks and chisels to excavate concreted shell at other localities, I can attest that this would have been a labor-intensive activity.

The expansion of the basal platform margins established a wider summit upon which a new depositional regime was deployed (Figure 7-1B, 7-2). Based on a radiocarbon assay at the contact between the Stage 2 and Stage 4, this process occurred between 7170–6900 cal B.P. As a macro unit, Stage 4 is characterized by alternating layers that vary in terms of species composition, the application of fire, and fragmentation. One type of load was composed of whole gastropod shell, typically *Viviparus* but occasionally *Pomacea*. These lenses are unburned and rarely fragmented. They have very little non-shell matrix, making them susceptible to collapse when exposed in trenching. The alternative depositional unit is composed of burned and crushed bivalve frequently concreted together. In this case, concretion is likely due to the burning process and the addition of ash to the matrix. Some of these burning events may have occurred on the summit, but the origins of much of the burned shell is unknown. The two depositional loads are not emplaced haphazardly, but occur in pairs or couplets (Figure 7-2B). Whether the burned or whole shell was deposited first is unknown, and not self evident from the documented stratigraphy.

Covering the Stage 2 ridge is an extensive lens of burned, concreted, and crushed *Viviparus* and bivalve shell. This layer was emplaced above whole, unburned, and very loose shell. If the whole shell was the initiatory event, then inhabitants would have accumulated and emplaced whole shell atop the mound summit. Following this depositional event, bivalve was burned and spread over the whole shell. In addition to the act of burning and covering the platform, the bivalve likely stabilized the surface. Based on stratigraphy alone this sequence of couplet deposition cannot be untangled. Over time, however, this structure of whole shell and burned shell is repeated at least eight times within the trench. The short-term temporality of deposition is unknown. The lack of sand or humic development on any surfaces suggests any abandonments were of short duration. In the longer term, however, the summit of the mound was constructed rapidly. A radiocarbon assay on the fifth burned shell lens was statistically contemporaneous with the first burned shell event, and an assay from the seventh burned shell layer falls just outside of the 2σ range of the lower event.

Hontoon Dead Creek Mound was not alone. Just a few kilometers away lies the similarly configured Live Oak Mound, which was the subject of stratigraphic testing by Sassaman (2003a). Unlike Hontoon Dead Creek, the Live Oak Mound has been significantly damaged by looting, likely due to the presence of St. Johns interments with grave inclusions at its apex. Sassaman targeted looter pits, which provided an opportunity to examine basal deposits within the core of the mound. Two test units placed 90 m apart yielded similar basal profiles. In both cases low density shell was emplaced upon the underlying terrace. A near-basal radiocarbon assay was obtained from one of these lenses and returned an age estimate between 7300–7000 cal B.P., coeval with Node 1 at 8VO215 and predating the Stage 2 platform at Hontoon Dead Creek Mound. The basal sequence in both test units at Live Oak were characterized by lenses of whole shell alternating with crushed, burned, and charcoal-rich layers. Unlike Hontoon Dead Creek, there was not enough stratigraphic visibility to discern an analogous platform towards the base. Thus, it is unknown if the burned-shell events were laterally extensive.

The sequence of stages at Hontoon Dead Creek and Live Oak mounds demonstrate that depositional events at some ridges were not small in scale (relative to the site). Moreover, they occurred over a relatively short time span (relative to the Mount Taylor period). After being established as a residence ca. 7300 cal B.P., a place of prior inhabitation was rapidly transformed into a platform through the bulk loading of shell. This platform was then laterally fortified with mined matrix to expand the summit. At Hontoon Dead Creek Mound, the time between the first occupation and its transformation into the 1.6 m high Stage-2 ridge has not been established. The base of Node 1 adjacent to the mound, the first burned shell stratum, and the fifth burned shell stratum all fall within a 2σ range, although the Node 1 median probability intercept is earlier. While the Stage 2 construction was rapid, involving mostly loads of whole and unburned shell, it was replaced with a new tradition of couplet deposition. Unlike the lower stage, these new depositional episodes were scattered across the surface of the mound.

With the details of early mound construction at hand, we can consider how the deposition of shellfish at early shell ridges framed the ongoing production of communities. From a practical standpoint, the net effect of shell deposition was the accretion of the mound summit. One might be tempted to argue that increasing the height of the mound, say for competitive or prestige-gaining purposes, was the ultimate goal of deposition. However, such an argument would place undue weight on the final configuration of the place, and negate the importance of the actual history of deposition. While the mound may have been constructed rapidly with respect to the Mount Taylor period, it nonetheless emerged through the labor of several generations. Instead of the final form being the intent of deposition, I would suggest that the practices of collection, processing, and deposition of shell atop the mound were acts of renewal in which communities negotiated and reasserted social memories in place.

As Pauketat (2000:118–122) has noted with respect to Mississippian communities, the staged construction of earthen mounds followed a variety of tempos and scales. Major construction episodes at mounds likely signal the death or ascendance or particular persons, or other moments of variable or irregular timing. Yet mounds and other spaces provide evidence for regular construction cycles, perhaps even annual in some cases. Frequent communal depositional practices include the addition of sediment mantles to mounds or the reconstruction of public buildings. In these cases, Pauketat argues that communities came together to ritually purify places prior to construction or to renew places in accordance with a ritual cycle. To be sure, the specific meaning of these Mississippian acts of renewal, or their associated political economy, have no relationship to Mount Taylor practices. Where these cases are similar, however, is that the act of renewing mounds provided a context in which diverse participants could (re)create regional community identity. It is through such collective practices that orthodox systems of meaning could be constructed and reproduced (following Pauketat 2000:122).

Indeed, one possible temporal analog is provided by Morrison (2003) in his discussion of shell mound construction along Australia's Cape York Peninsula. This coastal region contains a number of small and large (over 13 m high) mounds composed of *Andara* shellfish remains, a marine species. Like shell mounds of the St. Johns they have typically been interpreted in terms of function. In particular, it has been argued that mounds would have provided dry ground during the wet season, although many of the mounds are situated on dry land or well above annual flood ranges. Internally the shell mounds are composed of thick lenses of *Andara* shell, separated by lenses of crushed shell and organic matter suggestive of periods of abandonment. *Andara* can be found in very large quantities but the distribution varies annually. Morrison suggests that local abundance of the species enabled large gatherings in which marriages and various ceremonies could be held. In the Cape York case, shellfish were consumed as part of feasting, and the deposition of shell on mounds was encompassed within a larger tradition that incorporated diverse communities across the country. Morrison argues that mounds and the practices occurring at them likely provided a framework for the politics of lineage alliance-building. Today, the mounds have obtained significance within larger cosmogonic narratives on the landscape. Although shellfishing is not a component of contemporary community lifeways, inhabitants have actively incorporated mounds as ancestral traces into spatial stories (Hiscock and Faulkner 2006).

With specific reference to the Mount Taylor period, we have seen in microcosm that communities renewed residential spaces through the deposition of shellfish and other materials in residential middens. These small-scale practices provide an analogue for the routine resurfacing of shell ridges, which were conducted at a much larger scale and likely with more participants. If it is the case that multiple communities were responsible for the deposition of couplets at Live Oak and the Hontoon Dead Creek mound, then resurfacing shell ridges may have been a central component to social commemoration and integration as communities returned to the St. Johns during annual rounds. In this early context, the depositional practices at work along the St.

Johns appear to have been transposed from residential contexts and elevated to large scale commemorative ceremonies aimed at renewing mound surfaces, and by extension, the social relationships involved in mound maintenance.

Further research will be necessary to detail the tempo of these practices (e.g., Blessing 2009), although a leading hypothesis is that ridge-top deposition coincided at times of periodic resource abundance. These ridges emerged at a time of greatest ecological instability and social diversity, as documented in Chapter 3. In contrast to the regional variability, however, ridges provide a picture of stability. In this context, ridges may have been renewed as acts to intervene with change on the broader horizon of social experience, and to create orthodox systems of reference in an otherwise diverse and changing world. Oyuela-Caycedo (2004) has described a process in which dances are performed during periods of resource abundance. These dances take the form of mythical narratives using ecological metaphors that bring outsiders into the local community as process of difference recognition and subversion. If a similar process was afoot along the St. Johns at this time, periodic collapses and abundance of symbolic and subsistence resources would have provided a powerful political economy that at a minimum would have sedimented communal identities throughout the basin.

Ancestral Temporalities

Many of the depositional practices at early shell ridges reference an economy of memory oriented towards the living. The preparation and potential consumption of shellfish, and the deposition of shell atop shell ridges provided an arena for gatherings that referenced the physical arrangement of communities. The temporality of these events was no doubt tied to local availability of shellfish. As suggested previously, however, depositional practices may have emphasized the renewal of peoples and places as an ongoing process. At both Live Oak and Hontoon Dead Creek, no evidence for mortuary practices has been observed in basal strata, although sub-mound coverage is admittedly limited. Other places, however, demonstrate that the commemoration of death and community integration was yet another rhythm interwoven through landscape inhabitation.

Wyman and Moore noted the presence of inhumations at the base of shell ridges. For example, at the eroded Crow's Bluff (Osceola) in the Middle St. Johns, Wyman (1875:33) documented two "mingled" skeletons at the base of the shell ridge within "consolidated shells and mud" (Figure 7-3). These were situated beneath ca. 2.4 meters shell. Wyman described massive, whole *Viviparus* layers alternating with thin bivalve/*Pomacea* lenses. His description suggests that a mortuary was eventually transformed into a platform for shellfish deposition. A similar sequence was identified by Moore (1893b:622) at the base of Orange Mound in the Upper St. Johns. The most vivid details of early Mount Taylor mortuary practice come to us from the Harris Creek mortuary. A consideration of the construction history of this place suggests that communities appropriated a preexisting residential locality and transformed it into a mortuary mound. Like the ridges just discussed, the depositional emphasis was directed towards referencing the physical arrangement of communities. At mortuary mounds, however, shellfish and sand deposition was transposed and revalued across social fields of practice to enable the commemoration of the dead and the integration of the living through place.

As described in Chapter 5, the Harris Creek mortuary was part of a U-shaped complex of ridges and shell fields that covered five acres prior to its destruction.

Salvage excavations were conducted by Jahn and Bullen (1978), who documented a Mount Taylor mortuary at the base of shell ridge (Figure 5-10B, 7-4). Because of extensive mining, they were only able to excavate the northern and southwestern portions of the basal mortuary. However, the mining also left a long escarpment which cross-cut the mortuary (Figure 7-4, 7-5A). Jahn and Bullen were unable to accept that a prepared mortuary mound could be Archaic in age, even though they recovered Mount Taylor objects in association with the inhumations. However, Aten (1999) has recently reconstructed the history of the mortuary based on Jahn and Bullen's field records. He demonstrated that it is Mount Taylor in age, and was built in several stages. My discussion here is based on his reconstruction and observations.

The foundation of the mortuary (Layer 1) was saturated and not excavated. It appears to have been between 1 and 1.5-m thick, and composed of heterogeneous shell matrix. Because it was not consistently observed it is unknown if the surface was flat or node-like. After a period of indeterminate abandonment, inhabitants returned and constructed a low shell ridge (Layer 2) (Figure 7-5). The base was composed of shell and brown sand matrices (Layer 2a), but the central core of the mound was constructed of "clean shell," likely all *Viviparus* (Layer 2b). These materials were emplaced on top of the preexisting shell floor. Collectively, these two depositional matrices comprise Layer 2. In plan view this structure is a linear ridge, measuring approximately 1-m high, 15-m wide and 30-m long (Figure 7-5, 7-6B). Aten suggests that these materials may have been emplaced to accentuate a preexisting ridge in this location, but that could not be verified from the field records. In both structure and shape Layer 2 is similar to the low-lying ridge identified at the Hontoon Dead Creek Village site (Figure 7-6A). It is unknown what the temporal relationship of the Layer 2 event was to either earlier habitation or later monumentality, but these actions do not appear to be associated directly with mortuary activities. The implication is that the mortuary was literally and figuratively founded on a preexisting habitation space.

The Layer 2 surface was then used as a foundation for the construction of two successive mortuaries, into which over 150 individuals were interred (Figure 7-6C,D). As discussed in Chapter 4, there is some uncertainty over the precise chronology of the mortuary. If Tucker's (2009) assays are correct, then the Harris Creek Mortuary is coeval with events at the Hontoon Dead Creek Mound and Live Oak. If not, then the mortuary likely dated somewhere between 7000 and 6000 cal B.P. Regardless, the tightly clustered radiocarbon assays on human bone and charcoal suggest that this mortuary was short lived and active for a period of a few centuries at most. The lower mortuary (A) corresponds with Layer 3, and lies unconformably on Layer 2. Mortuary A is characterized by allocthonous white sand deposits interspersed with clean shell and dark soil (Figure 7-5A). The geologic origin of the white sand is currently unknown, but it had to be brought in from outside the boundaries of the mortuary.

The depositional structure of inhumations in Mortuary A were of two types. In many cases, tightly flexed single and multiple interments were placed into piles of sand less than a meter high and several meters wide. Alternatively, pits were dug into the basal Layer 2, and white sand was used as burial pit fill. Eventually this mortuary covered the entire basal sub-mound. A series of superimposed post holes were located near the burial area, which may reflect the repeated erection of a structure. Jahn and Bullen argued that the posts may be related to a charnel house. A lens of black soil adjacent to the post holes was also identified, and has been referred to as the "Black Zone" (Figure 7-5B). Taken together, the post holes and organically enriched sediment suggest that suggest that at least some of the deceased were processed at the mortuary for some time prior to their inhumation. Regardless of the function, this feature remains the only known non-shell architecture of Mount Taylor age in the Middle St. Johns.

Above this layer was Mortuary B (Layer 4 [Figure 7-5A, 7-6D]). Like Mortuary A, deposition was oriented towards accentuating the underlying ridge, and maintaining a stable surface. Practices continued to emphasize the original structure of the mound, but did not appear to include white sand as a burial medium. Instead, the burial matrix and mound fill was composed of brown sand and shell. One deposit with abundant vertebrate fauna was also noted, which Aten argues may register feasting associated with mortuary activities. The possible charnel house or structure that was emplaced on top of the mound in Mortuary A was no longer reproduced, and was covered over with the Layer 4 sand and shell. Aten notes that the transition to this new depositional mode was accompanied by a reduction in grave inclusion diversity as well. This process of decreasing diversity may register new categories of person which were still referenced with respect to the past in place.

Communities ceased routinely interring the dead atop the mortuary after a century or two. Although occasional burials were noted by Jahn and Bullen emanating from these upper layers, most activities at the mound in later periods do not appear to have been mortuary related. This is not to say that ancestral presence was not recognized in this place, but only that burials were not routinely emplaced here. Based on the composition and distribution of sand and shell layers, Aten argues that efforts were oriented towards increasing the width of the summit platform, typically by emplacing shell and other materials on the east and west margins of the mortuary (Figure 7-6E). At least one layer (8) involved the excavation of existing Layers 3-6. Some of the excavated fill may have been emplaced on the summit. However, massive lenses of whole, clean shell attest to shell mounding here as well. Otherwise, many circular patches of shell and vertebrate faunal remains attest to small-scale primary deposition on the mound surface. The Mount Taylor era ridge was eventually capped with organic muck at the onset of the Orange period (Layer 9). The mound platform continued to receive the occasional shell and sediment load throughout the subsequent millennia, likely up until the colonial period.

The sequence and structure of construction at Harris Creek demonstrates that Mount Taylor communities replicated a ridge conformant with residential spaces elsewhere. Practices within the mortuary may have been similarly partitioned. Burials were restricted to the northern and eastern aspect of the ridge. Because of the recent extensive shell mining, it is unknown whether burials were present along the western edge, while anecdotal evidence indicates many burials were present in the core of the mound. Aten argues that because no burials were observed in the dragline pond, that it is likely they were spatially segregated. I would note that the eastern side of the ridge today faces Lake Woodruff, and a similar body of water was likely present there as well. In contrast, the western aspect faces the terrace. As documented at the Hontoon Dead Creek Village, the western/terrace side of shell nodes appears to have been where activities not involving the deposition of shellfish were occurring. It is tempting to suggest that in the case of the Harris Creek Mortuary, the microcosm of the residential "shell node" was also a model for the living and the dead. That is, the mortuary mound was effectively a model of community structure.

At the scale of individual burials, there is considerable diversity in the matrices and objects included. Some individuals were placed in pits and then covered in sand, while others were placed on the mound surface and covered with sand or shell. Some interments involved fire, wherein a fire was started within a burial pit or on top of the surface. The deceased (single or multiple individuals) were emplaced on the hot coals, and then covered in white sand. These are not true cremations, but demonstrate fire was at times integral to the construction of memory surrounding the transformation of the deceased in place. This practice has analogs to the burning of bivalve shell and its emplacement above the summit at the Hontoon Dead Creek Mount.

Although there was significant diversity in the specific materials and methods of inhumation at Harris Creek, interments were structured along temporal axes that suggest distinctions in commemorative events were made based on origins. It is worth restating an observation I made in Chapter 4. As discussed by Aten, burials were of two types. The majority (60 per cent) were vertical and tightly flexed, suggesting bodies were processed for an extended period of time prior to inhumation. In contrast, another 38 per cent were loosely flexed, suggesting that the bodies were emplaced within the mound soon after death. As demonstrated by Tucker (2009), different modes of interment are closely associated with either local or non-local points of origin. So-called delayed or flexed burials tend to be associated with individuals who spent their childhood years in the vicinity of the mound, while immediate or "primary" burials are associated with individuals who spent their childhood years away from the St. Johns. The implication is that the timing of burials, and by extension, the co-presencing of living individuals, was central to the ordering, juxtaposition, and subversion of regional differences. Delayed burials would have provided the opportunity for multiple gatherings, likely drawing in kin and allied groups from throughout the basin, possibly in the context of recently deceased.

Early Mount Taylor mortuaries appear to be open and integrating affairs that incorporated inhabitants from throughout Peninsular Florida. The materials of shell and earth were transformative media by which biographies of the deceased and the living could be worked out and sedimented in place. Based on the temporality and structure of interments and depositional episodes, these mortuaries were maintained over generational time. Whether similar mortuaries were maintained throughout the Mount Taylor period is not clear. Late mortuary mounds such as Thornhill Lake contained a smaller number of individuals, but this lower interment frequency may reflect the absolute amount of time in which the mortuary was active. However, there is evidence that at least some later mortuaries were constructed for individuals or objects during the later Mount Taylor period.

A consideration of the Bluffton Burial Mound demonstrates that mortuary mound building events fixed places on the landscape through new traditions of mortuary practice. The Bluffton Burial Mound (8VO23) is one of two paired mortuary mounds situated behind the Bluffton dome and ridge complex (Chapter 5). Nothing is known of the other mound, other than it appears to have been constructed of sand. The details of the construction of 8VO23 are provided by Wyman (1875:37), Moore (1894a:44–47), and Sears (1960). There are no published radiocarbon assays for this mortuary. However, no pottery was found within the core, and the mound is similar in composition and structure to other late Mount Taylor mortuaries elsewhere, such as Tomoka and Thornhill Lake (Endonino 2008; Mitchem 1999; Piatek 1994; Wheeler et al. 2000).

The mound is described by Moore as a slightly elongated dome with a flat summit, measuring 4.2-m high and 30-m wide. This general configuration was mapped by Sears (1960) as part of his investigations there (Figure 7-7C). The topography in 1959 reflects the destruction of the southern margin by the excavations of Moore and other parties. Moore (1894b) placed an 11.5-m long trench in the eastern aspect of the mound (Figure 7-7C), and documented a well stratified construction sequence. The upper mantle of the mound had been disturbed by previous excavators, including Wyman, and so he could not profile the extent of layers across his excavation unit. He noted that the base of the mound was a shell matrix deposit. At the center of the base was a shell ridge, roughly 3-m wide and 1-m high. This shell ridge (in his terms) shares a similar size and shape to Node 2 at the Hontoon Dead Creek Village. Above this was a 1-m thick layer of sand with some shell mixed in, with successive layers of shell, black organic muck, sand, and brown sand with shell at the surface. Moore did not encounter burials within the basal component, but did identify several intrusive burials. Pottery was discovered only on the surface.

Sears (1960) made a more complete investigation of the mound as the complex was being mined for shell in 1959 (Figure 7-7B). His results mostly replicated and expanded upon Moore's work. Unlike Moore, Sears did not encounter a central shell ridge underlying the mound, but did identify an individual interred on top of the preexisting shell floor. Sears suggested the following sequence of construction. First, a fire was started on top of the existing shell, resulting in the thermal alteration of the underlying shell floor. The individual was placed on the “old shell midden,” and covered with an organic material that may have been alligator feces. Thereafter, a series of layers were added atop the mortuary. First, basket loads of sand were emplaced above the individual, followed by alternating sand, shell “midden,” sand, a layer of black “gumbo” or organic sediment, sand, and then a large deposit of shell again. Prior to this last deposit another individual was emplaced on the edge of the mound. Sears argues that the layers were emplaced rapidly, as there was no internal evidence for erosion. Finally, several individuals of the later St. Johns period were interred within surface deposits. These intrusive grave pits were also noted by Wyman in his superficial examinations there.

A review of Mount Taylor mortuary places suggests several commonalities and divergences as regards temporalities and larger economies. In both cases, the past as a preexisting settlement node was appropriated as a model for ancestral transformation. It is unknown if the basal shell nodes were truly preexisting on the landscape, or if they were recreated for the act of interment. Bradley (1998:46; 2002:Chap 2) has discussed how Linearbandkeramic communities in Europe constructed long houses which may have been referenced in the architectural principles of long barrow mortuaries. In this case, abandoned houses and the biographies of their communities were memorialized through the construction of permanent houses for the dead. Lacking radiocarbon assays from basal, pre-mortuary layers at these places along the St. Johns, we cannot currently decipher the chronology of mortuary foundation and subsequent interment. At

Thornhill Lake, two mortuary mounds were constructed directly on top of a preexisting shell ridge, lending credence to the idea that these basal nodes were already present on the landscape. Regardless, communities appropriated and transformed the past in place by bringing together sand, shell, and other materials drawn from the surrounding landscape to emplace the dead within this new frame of reference.

However, a consideration of the temporality of commemorating the dead, and the life histories of the mortuaries themselves, indicates different kinds of social memories may have been constructed in these places. At Harris Creek, the mortuaries were experienced for extended periods of time. Although memories of the deceased may have been completed during the extended mortuary treatment, the spaces created through interments maintained an active ancestral presence. After Harris Creek was discontinued as a mortuary, it was reconfigured as a locus of large-scale shellfish deposition and remained within the spatial stories of Mount Taylor communities. In contrast, the construction of the Bluffton Burial Mound was an event. The mortuary constructed rapidly and for a single person. More importantly, however, the emplacement of sand, shell, and muck recapitulated the sequence of the Harris Creek mortuary in terms of deposition and the materials used. In the case of Bluffton, however, all layers were emplaced at the same time. The specific sequence of this depositional narrative may have recreated a cosmogonic myth whose specific meaning is unknown to us today.

I would point out again that the Harris Creek mortuary was actually excavated by Mount Taylor inhabitants during the construction of Layer 8. This moment may have afforded inhabitants an opportunity to see the sequence of construction there. Whether or not this sequence was translated into the mortuary at Bluffton is unknown, but its an idea worthy of testing through chronological correlation. Regardless, Bluffton was not only built as an event, but the memories and meaning inherent in its construction were apparently restricted, such that limited modification could occur there. While an individual was interred on top of the mound (in addition to the founding burial) prior to the completion of the mound, no further individuals were interred during the Archaic period. This restriction no doubt reorganized the system of references that framed community commemorative practices in that place. Such finishing work may have also created a new spatial and historical distinctions between ancestral or mythic time (Gosden and Lock 1998; Rumsey 1994). Moreover, the new temporality surrounding death would have framed new ways in which inhabitants within and outside of the region could be drawn together.

The Life and Death of Settlements

Through depositional acts involving shellfish and sand, I argue that the deceased were transformed into ancestors in some places. In this sense, a structural link was established between the communal performance of venerating the dead and the act of capping or emplacing materials on places of everyday practice. These acts were truly monumental, in that they revalued places with new dominant narratives and restricted the range of practices that could occur on them. These ritualized modes of transformation, however, were not restricted to monumental places. As illuminated in the biographies of two shell ridges, Silver Glen Run-Locus A and Hontoon Island North, the act of resettling or abandoning a locality required similar reconfigurations. That is, new temporalities and domains of practical experience were possible only when the underlying system of referents was transformed. These transformations were enabled by the transposition of depositional practices between mortuary and residential fields.

Locus A is a preceramic Archaic single ridge that was mined for shell, presumably with the rest of the 8LA1 complex, starting in 1923. The current surface configuration of the mound reflects the mining operations (Figure 7-8). There are no known historic descriptions of the ridge, and it remained undocumented until the 2007 season of the University of Florida St. Johns Archaeological Field School (Sassaman et al. 2010). Today the ridge is evident topographically as a tear-drop or elliptical feature 200-m long and 75-m wide. The ridge is oriented parallel with the spring run, and is separated from the run by a hydric swamp to the north. A relict seep spring frames the eastern border. It is unknown if there are wetsite deposits along either margin, but they would not be unexpected if found.

The most defining feature of the ridge is an intact escarpment that at its highest point is approximately 4 meters above the floodplain along its northern border. The mound's height prior to mining is unknown, although a total of 3 m of intact deposits remain (1.5 m above and below the current interior escarpment surface). Based on the relict slope, and the fact that the ridge was not identified in the nineteenth century, the ridge may have only risen a meter above its current surface (Figure 7-8). Although destructive, shell mining had the unintended effect of exposing basal deposits that would otherwise be inaccessible. Stratigraphic testing in three loci (Figure 7-8) involved cleaning exposed profiles and testing the subsurface extent of intact deposits along this interior mining escarpment. Test Unit s 5 and 8 were emplaced on the highest relict escarpment, while Test Units 9, 10, and 15 (hereafter the "trench") were positioned perpendicular to the ridge's longitudinal axis. Test Unit 6 was situated on a lower swamp-facing margin, and will only be discussed in brief below.

The ridge underwent at least two transformations over its documentable lifetime, and these are expressed in all stratigraphic tests (Figure 7-9, 7-10, 7-11). Locus A was established as a place to dwell through the deposition of thin layers of shell across a ca. 90-m long segment of the landform. For example, the basal 80 cm of TU5 to the east contained anywhere from three, four, or five occupational episodes, while at least two were evident at the base of TU6 approximately 90 m to the west. These are characterized by highly fragmented bivalve shell, charcoal, ash, and other constituent shell fragments. The basal unit in TU5 is covered by a sterile sand that may exhibit some soil development, suggesting a period of abandonment in this locus. It is unknown what kinds of activities were occurring when the settlement was established, but they apparently involved the processing of mussels and the cleaning out of hearths. This last inference is based on the abundant ash and semi-concreted nature of the strata. An assay of 6190–5940 cal B.P. was obtained from TU5 in near basal strata (Figure 7-9). Unlike the eastern and western aspects of the ridge, these surfaces were not documented at the base of the trench. Instead the basal deposits here are characterized by concreted shell filled pits (Figure 7-10). These may have been related to early occupation, but may have also truncated the earliest depositional units. Elsewhere, basal surfaces were exposed for extended periods of time. This inference is based on the extremely fragmented nature of the shellfish. In addition, root casts indicative of post-abandonment vegetation growth were identified at the base of TU6, while incipient soil development between crushed shell surfaces at the base of TU5 attest to a period of non-use. Collectively, these data indicate that initial occupation was sporadic but routinized.

Sometime between 6300 and 5940 cal B.P. inhabitants emplaced a mantle of tan/brown sand across the entire ridge. This transformation is visible in all test units, although is most evident in the trench and TU6. Roughly 10 to 20 cm of tan brown sand were emplaced on top of the preexisting surface. It is unclear if this cap was truly a homogeneous layer across the landform, or was deposited in smaller scale depositional events. Much of this sand cap was subsequently altered by extensive burning, as indicated by thermally-altered or oxidized sand in the trench and lenses of charcoal impregnated sand in TU5. Numerous overlapping pits were identified in the TU6 and TU5 surface of the sand mantle, often associated with shellfish remains.

It would seem then that this transformative event was coincident with the mass processing of shellfish and other materials in place. That these capping events across the ridge were coeval is suggested by statistically overlapping radiocarbon assays from sub-sand lenses at TU5 (6190–5940 cal B.P.) and a sample from just superior to the sand in the trench (6290–6020 cal B.P.). Once this cap had been emplaced upon the ground surface, a layer of crushed shell developed above it. How the shell was crushed is unknown, although post-depositional trampling by the site's inhabitants is one possibility. Alternatively, the shell may have been crushed prior to deposition. Unfortunately, it is not possible to articulate the order of events here. While the sand may have been emplaced as a capping event, after which time the site was abandoned, the sand may have also served as an initiatory cleansing of the surface. Regardless, the emplacement of sand reconfigured the surficial referents of practice.

Given the preexisting link between sand, death, and community renewal it is not out of the realm of possibility that this stratum marks the “death” of the settlement, while at the same time opened the space up for new traditions. Once the sand was emplaced it apparently provided an arena for intensive habitation activities. Although the viewshed is limited, data from the trench and TU5/8 suggest that a series of shell nodes were emplaced across the ridge surface, and that they were routinely reproduced over the succeeding centuries. For example, the trench above the sand mantle is characterized by two different, but superimposed stratigraphic sequences. The southern (to the left in Figure 7-10A) is characterized by successive lenses of whole shell, interspersed with crushed shell layers. In contrast, the northern (to the right in Figure 7-10A) unit is characterized by more homogenized sand and shell. Unfortunately, there is a large disturbance in the middle of the trench, likely a tree-throw, and so the specific stratigraphic relationship between the two is unknown. However, based on the Hontoon Dead Creek Village model, I would argue that earlier living surfaces were replaced by depositional practices that effectively created new micro-mounds on the surface. The recreation of shell nodes is best seen in the TU5/8 sequence (Figure 7-9, 7-11). Overlying the sand mantle in this unit are a series of depositional episodes of shell and sand, interspersed by surfaces that contained burned and fragmented crushed shell, in addition to ash. The slope and inflection of these deposits is reminiscent of the household clusters identified at the Hontoon Dead Creek Village. At Silver Glen, once the lower shell nodes were created, their form was maintained through time as new loads of shell were deposited on the surface, and then covered with burned materials.

It is important to note, however, that inhabitation here was not "continuous," in the sense that the ridge underwent apparently numerous abandonments and reoccupations. For example, at least one of the lower shell units in TU5/8 contains large root casts, indicative of long-term abandonment. Whether the entire settlement was abandoned is not known. However, a similar sequence of abandonment and surface renewal is evident in the southern end of the trench (Figure 7-10). This area is characterized by abundant whole, uncrushed shell, which is superficially similar to the depositional couplets at the Hontoon Dead Creek Mound. Also similar are interstitial lenses of crushed shell and charcoal that appear to represent burning events separating periods of deposition. Yet unlike the Hontoon Dead Creek Mound, soil is present between the whole shell, and there are root casts emanating from surfaces throughout the sequence.

The development of such layers has been identified in shell mounds in Australia, where Beaton (1985) has suggested they represent periods of abandonment (see also Morrison [2003]). The implication is that the ridge at Silver Glen Run was framed by a fundamentally different temporality of experience than the earlier ridges composed primarily of shellfish remains. In this place, communities routinely reproduced the spatiality of shell nodes, but they did so over extended and interrupted sequences of time. Taken together, the structure and composition of depositional histories at Silver Glen Run appear to represent new temporalities in daily practice, which may indicate an increasing occupational duration at these places. At the same time, however, the presence of root casts indicates that even these established places could be abandoned and reestablished over extended durations with feelings of continuity.

When the Silver Glen ridge was ultimately abandoned is unknown, because the apex was destroyed. During testing the occasional Orange or St. Johns sherd was encountered, but only in disturbed contexts. Given the widespread mining across the landform, these may have come from another locality.

A brief consideration of the biography of the Hontoon Island North site indicates that the abandonment of some residential localities may have been enabled by the capping and obscuring of prior material referents as well. As detailed in Chapter 5, the Hontoon Island North site is a multi-mound complex located on the northern boundary of the Hontoon Island. The site was mined for shell in 1935, leaving only an escarpment and basal components from the southern ridge (Figure 7-12A). Due to historical circumstances surrounding the location and scale of archaeological investigations, Hontoon Island North has been considered a St. Johns period construction (e.g. Purdy 1987). As documented by Sassaman et al. (2005), however, much of the southern ridge was laid down by Mount Taylor communities. Like the ridge at Locus A, shell mining removed and disturbed a large amount of material, but also provided an unrivaled opportunity to examine basal deposits that would have typically been obscured beneath meters of later deposition.

Excavations in four places by the University of Florida St. Johns Archaeological field school targeted the interior of the surviving deposits and demonstrated that upwards of 2 m of intact shell matrices dating to the preceramic Archaic remain (Sassaman et al. 2005). We argued that the different stratigraphic sequences revealed throughout suggest that a settlement composed of spatially segregated zones, including a mortuary, was capped off with shellfish upon its abandonment. That the ridge included a number of distinct areas is revealed through a consideration first of the easternmost test units. For example, the base of Test Unit 1 was characterized by a homogenous shell matrix the contained abundant vertebrate fauna, paleofeces, and bone and stone tools. This deposit would appear to be true secondary midden, deposited outside of activity areas. It may be that this component is analogous to the water facing slope of residential units at Silver Glen and the Hontoon Dead Creek Village.

In contrast, the base of Test Unit 3 to the west was composed of alternating lenses of whole apple snail, *Viviparus*, and bivalve shell that were separated by crushed shell lenses. As seen in profile (Figure 7-12C) these lenses share formal properties with the trench excavations at Silver Glen as well, suggesting a similar routinized rhythm to surface creation and renewal. Radiocarbon assays from the base and top of each sequence within Test Units 1 and 3 demonstrate that they are contemporaneous, and that deposition was rapid. All assays statistically overlap at 2σ. Elsewhere, in TU2, excavations intercepted a partially articulated inhumation. This burial was within a brown sand and shell matrix consistent with the Harris Creek Layer B mortuary. Shovel testing and augering in the vicinity of the unit isolated sand/shell deposits within the vicinity of the burial. Abiding with legal protection for burials, all excavation in the area was stopped, and so it is unknown if more burials are present. However, given the sand, human remains, and even concreted shell in the area, it is likely that a mortuary was emplaced here.

Lacking radiocarbon assays from the mortuary, it is unknown whether it is contemporaneous with the residential area to the east. Regardless, stratigraphic evidence from nearby Test Unit 4, in addition to the upper strata in Test Units 1 and 3 suggests that some time after being established as a locus of settlement, the entire shell ridge was capped with shell. This shell cap is best seen in Test Unit 4, which exposed over a meter of shell (Figure 7-12B). Thick strata here were composed primarily of whole *Viviparus* shell, and lacked abundant vertebrate fauna or sand within the shell matrix. As argued by Sassaman et al. (2005), the dip of the deposits indicates they were down slope from a higher summit which has since been removed (Figure 7-12B). The implication is that a large cap was emplaced over this area, which likely included a mortuary. Stratigraphic evidence from the eastern units is also consistent with a shell cap. The diversity of secondary midden and prepared surfaces were both replaced sometime after 4800 cal B.P. Thereafter, only undifferentiated lenses of shell were emplaced on the surface. Although vertebrate fauna and some objects were recovered from these strata, the lack of abundant ash and restricted evidence for a wide range of activities suggests that the shell was emplaced on the surface to cap it off.

A similar pattern of capping was seen at the earlier Hontoon Dead Creek Mound, as well as the post-mortuary surfaces at Harris Creek. Taken together, the evidence for transformation at the scale of the ridge suggests communities literally replaced the diversity of material referents that comprised the settlement with a layer of shell. This action not only obscured prior traces, but effectively provided a completely new frame of reference upon which new social memories could be constructed. Because we do not know how the post-capping surface was configured, it is unknown what kinds of practices may have occurred there. On one hand, a new depositional regime that only renewed the surface, much like that seen at the Hontoon Dead Creek Mound, may have been instituted there. Alternatively, the entire locality may have been abandoned. The sub-capping radiocarbon assays in Test Units 1 and 3 place them at the cusp of pottery production. However, little evidence for Orange period practices have been recovered from the site. It may be that Hontoon Island North was effectively killed as a memory place towards the end of the Mount Taylor period. Future research there, including radiocarbon assays of the shell cap, will be needed to further articulate these practices.

Transposing Histories

In this chapter I have examined the biographies of six ridges. All are nominally composed of shellfish, earth, and other materials stratigraphically emplaced upon and in association with one another. It is this superposition upon which an inference of "continuity" through time has been based in prior analyses (e.g., Goggin 1952, Milanich 1994). Many places were repeatedly inhabited, with depositional practices highly routinized. Yet neither places nor depositional events were created or experienced equally. That is, shell ridges emerged as different temporalities and fields of practice were woven together and translated between places. What did remain constant, however, was the ways in which Mount Taylor communities referenced existing places.

In my discussion here, I initially emphasized those places that emerged as distinctive foci of community operations. At places such as Hontoon Dead Creek Mound, Live Oak, Harris Creek, and Bluffton, communities emphasized the background or horizon of how the world should be, and as such were not social fields that constituted day-to-day residential life. My reasons for starting with these places were two-fold. The first was to demonstrate that seemingly "mundane" practical acts such as shellfish deposition were not gradual or unchanging in their deployment, but varied by social context and the underlying commemorative strategy. My second reason was to examine how Mount Taylor communities would transform places in order to allow new temporalities and histories to be experienced in place. At Hontoon Dead Creek Mound and Live Oak, the construction of basal platforms provided a new system of reference for the renewal of communities in times of widespread ecological and social change.

In the case of the construction of mortuaries, Mount Taylor communities situated the dead with respect to the living by emplacing them on top of, and in the same configuration as, prior settlements. Mortuary practices were not unchanging either. While some mortuaries could be continually experienced and reworked, others were fixed on the landscape during Mount Taylor times. These ways of transforming fields of practice were transposed between ancestral or community monuments to places of residence. At both Hontoon Island North and Silver Glen-Locus A, communities reorganized existing referents in order to make new ways of being in place meaningful. Arguably, foundational and transformative acts were routinized as inhabitants returned to these ridges. Taken together, these different ways of being in place underwrote alternative economies of memory through time. It is to these histories that I now turn.

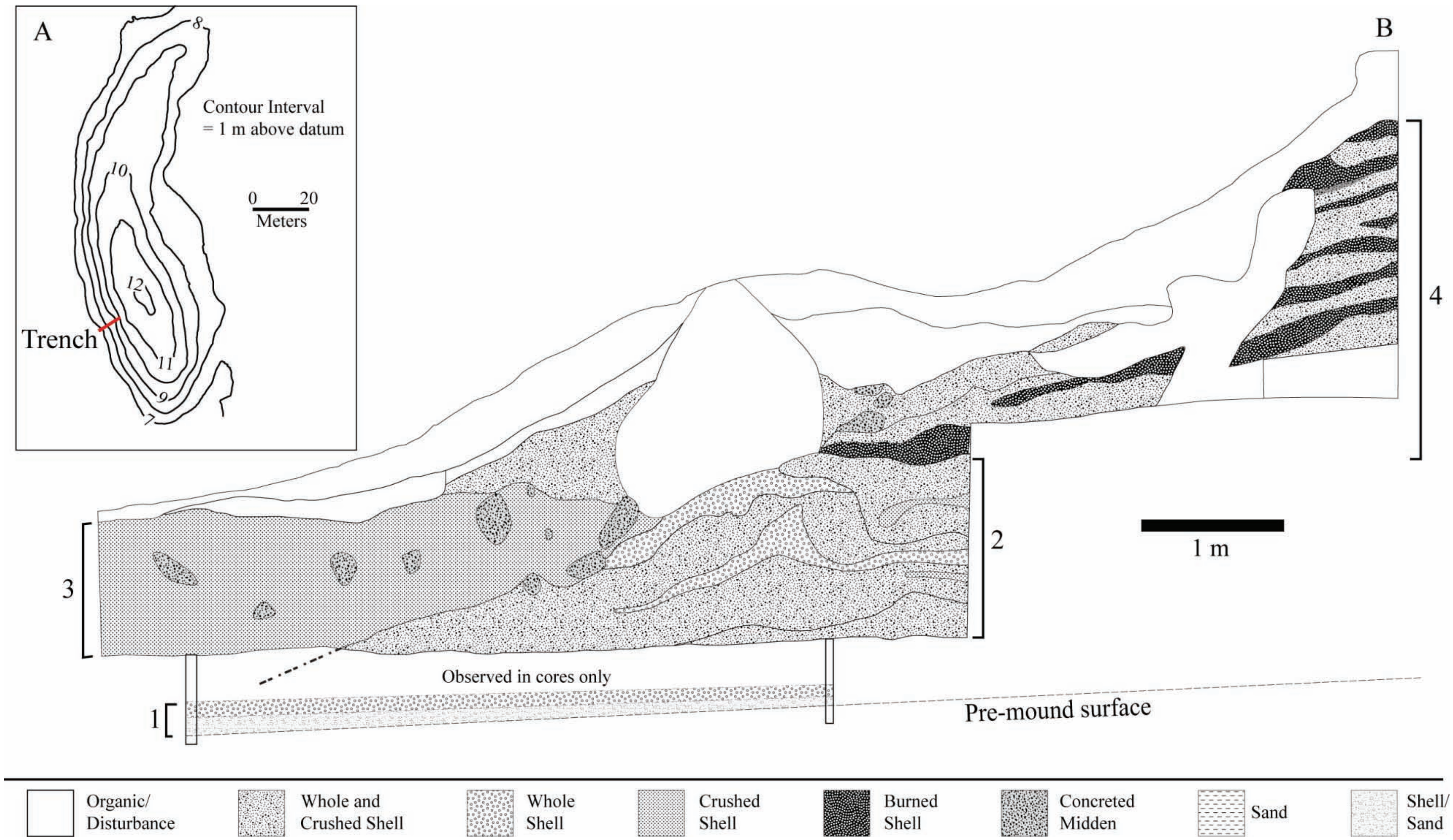

Figure 7-1. Stratigraphic profile and stages of the Hontoon Dead Creek Mound (modified from Sassaman [2005a:Figure 4-5]). A) topographic map showing location of the excavated trench. B) west trench profile.

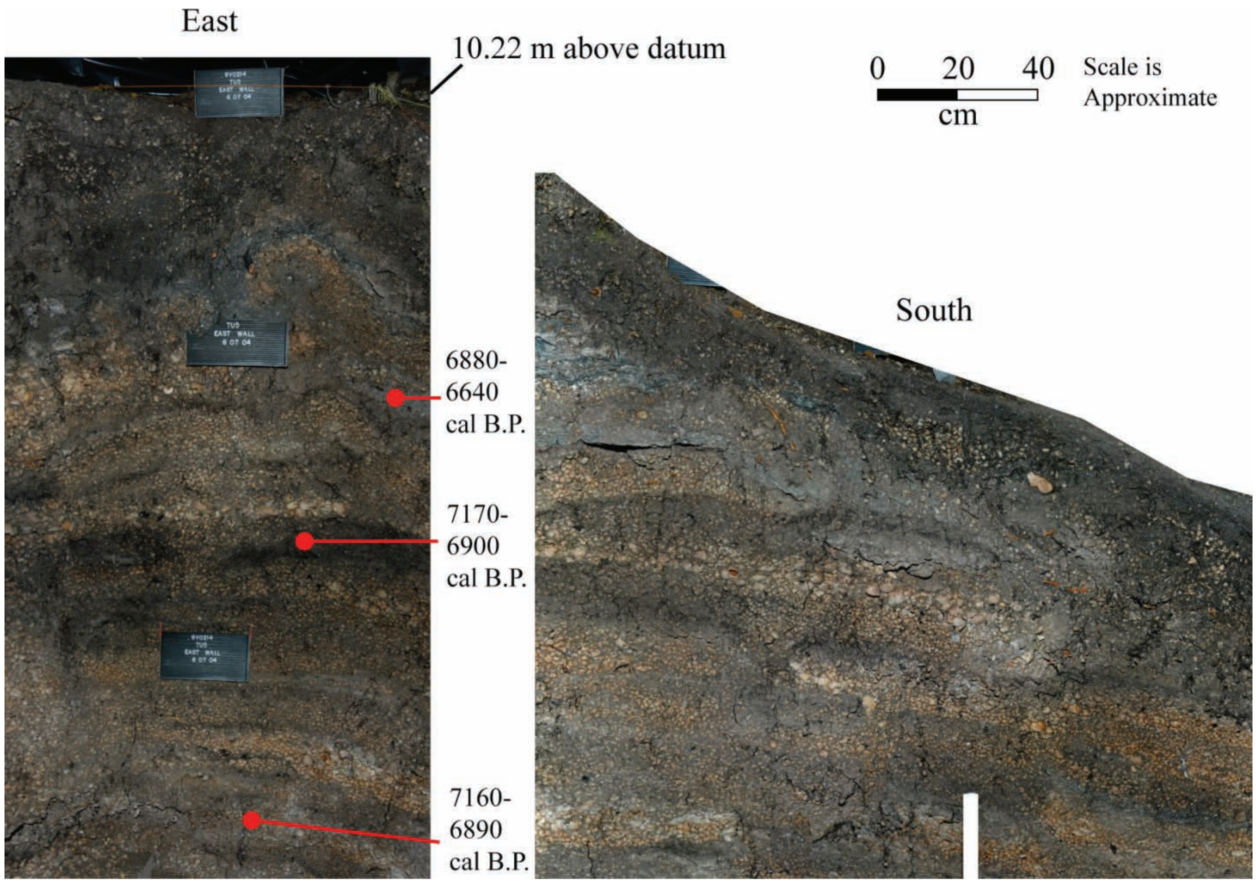

Figure 7-2. Composite photograph of Stage 4, Hontoon Dead Creek Mound, showing the location of radiocarbon assays.

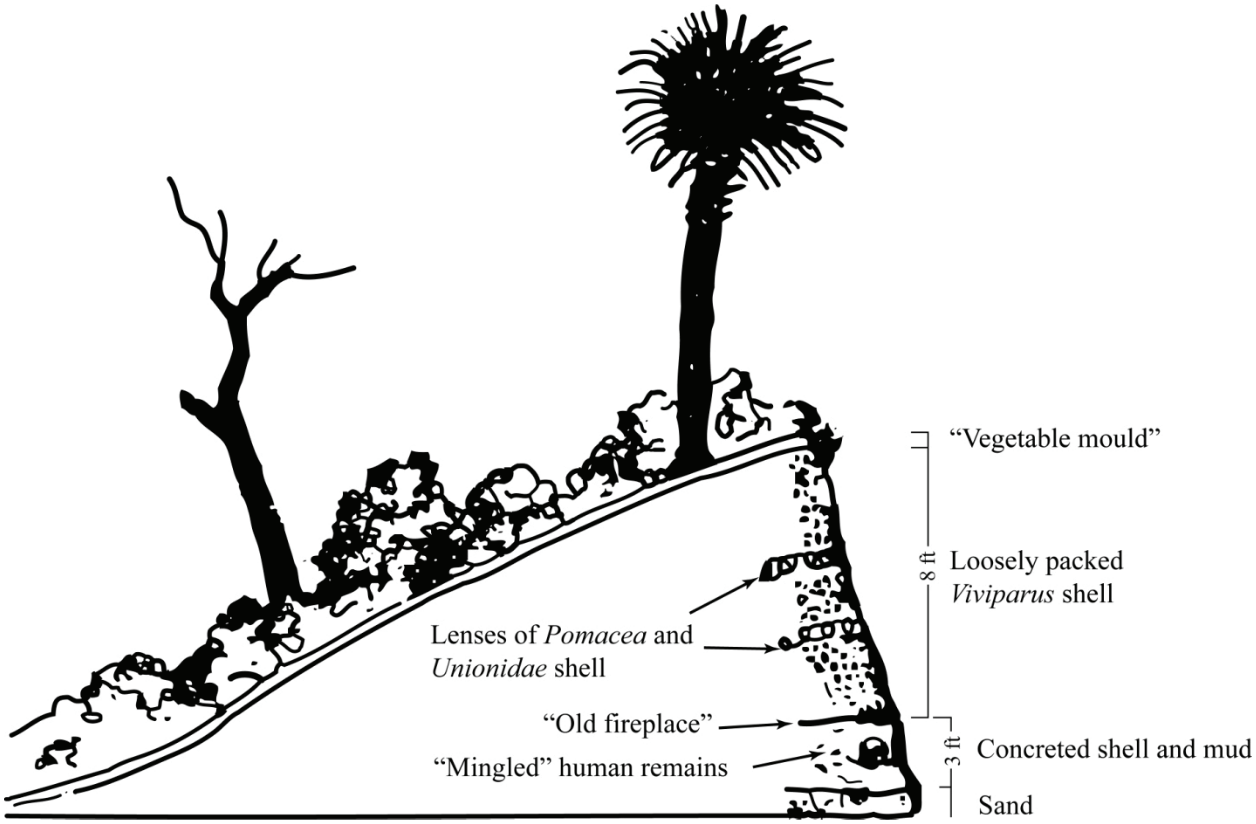

Figure 7-3. Crow's Bluff (Osceola) mound profile redrawn from Jeffries Wyman's journal (1872).

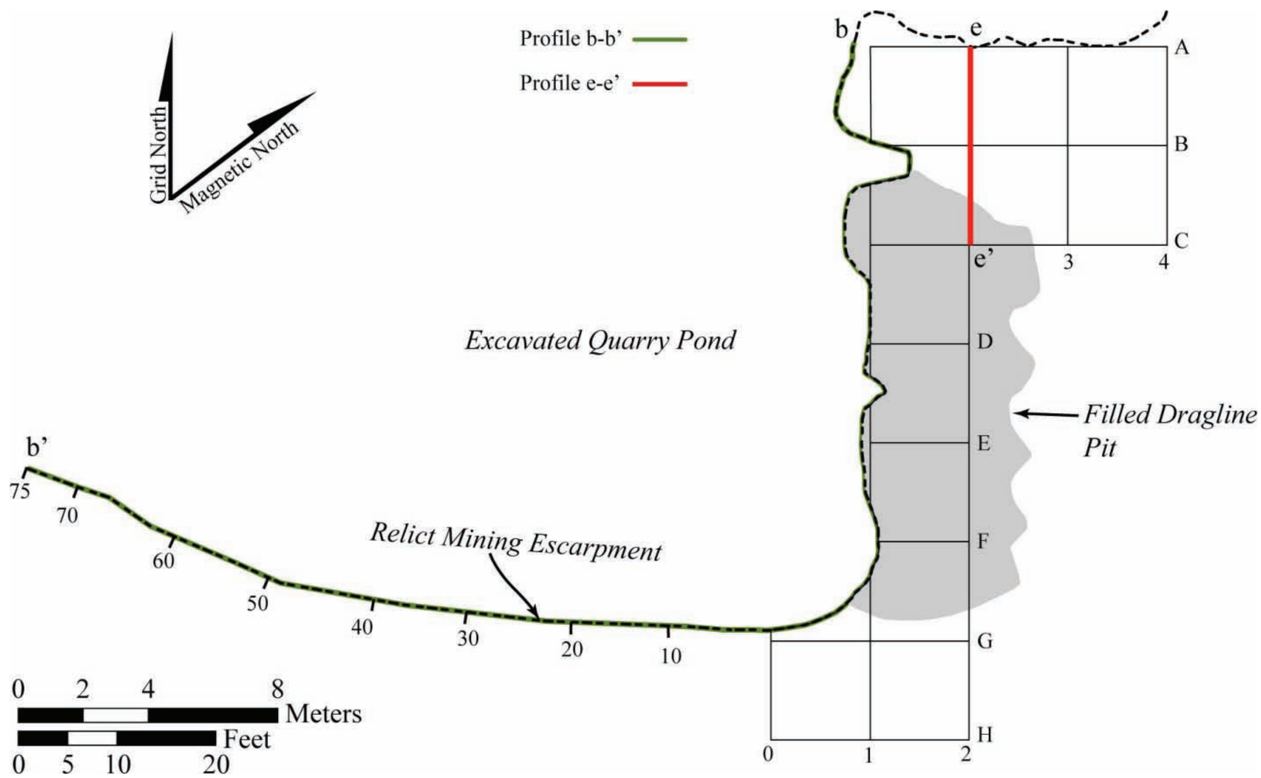

Figure 7-4. Harris Creek Mortuary base map, showing the location of profiles (after Aten [1999]).

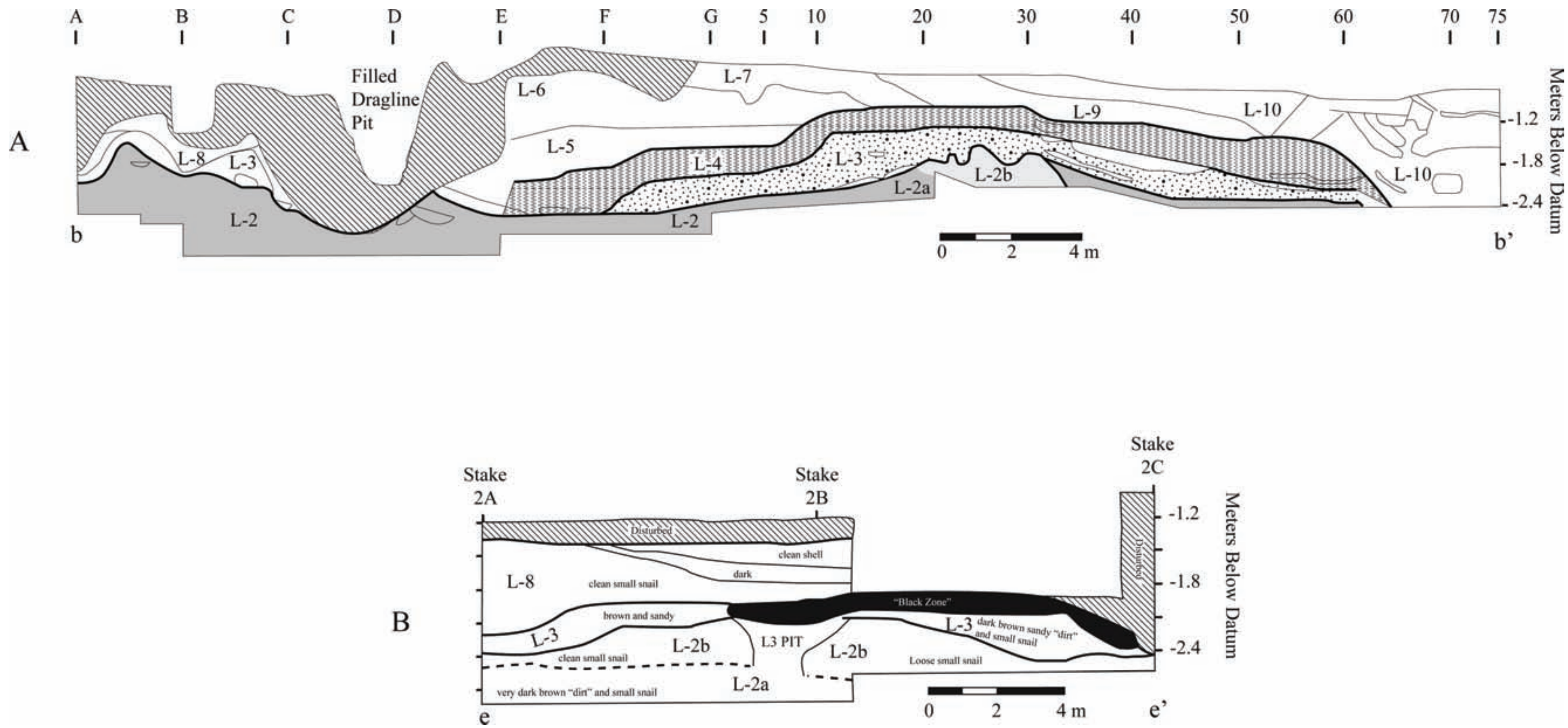

Figure 7-5. Simplified profiles of the Harris Creek Mortuary (modified from Aten [1999]). A) profile b-b'. C) profile e-e'.

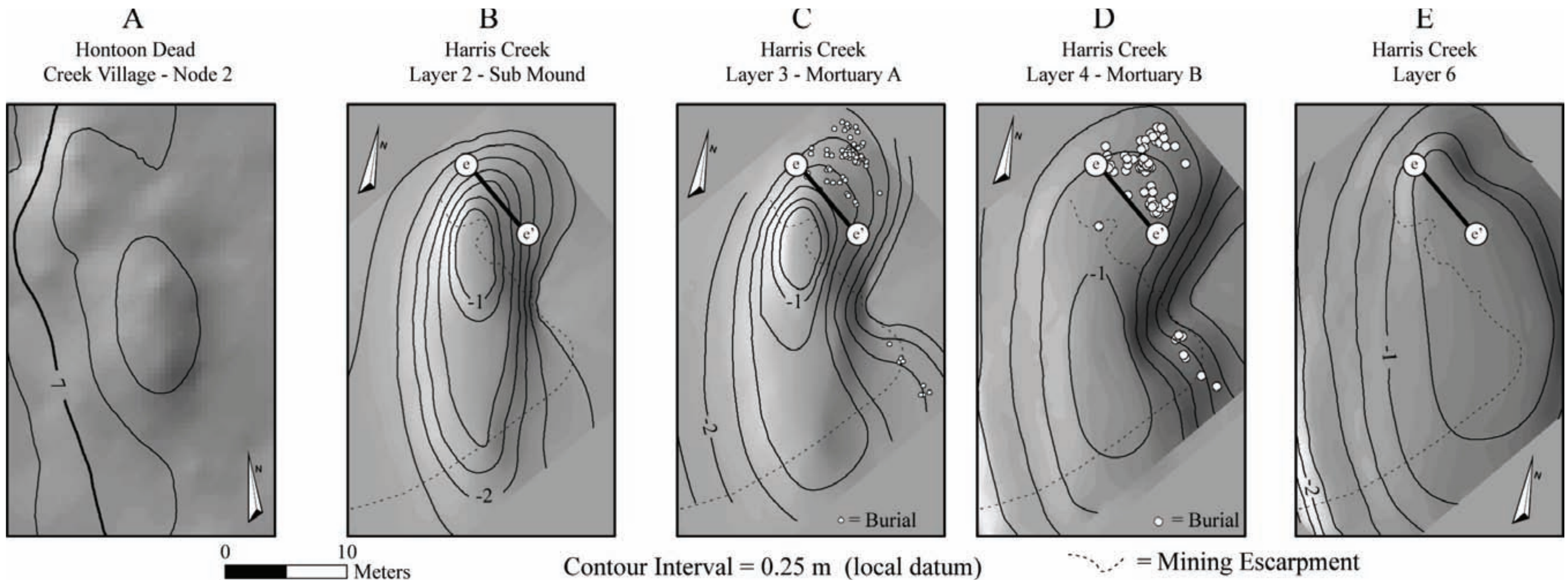

Figure 7-6. Comparison of residential and mortuary mounds (all Harris Creek data modified from Aten [1999]). A) Hontoon Dead Creek Village, Node-2. B) Harris Creek, pre-mortuary Layer 2. C) Harris Creek Mortuary A, Layer 3. D) Harris Creek Mortuary B, Layer 4. E) Harris Creek Mortuary Layer 6.

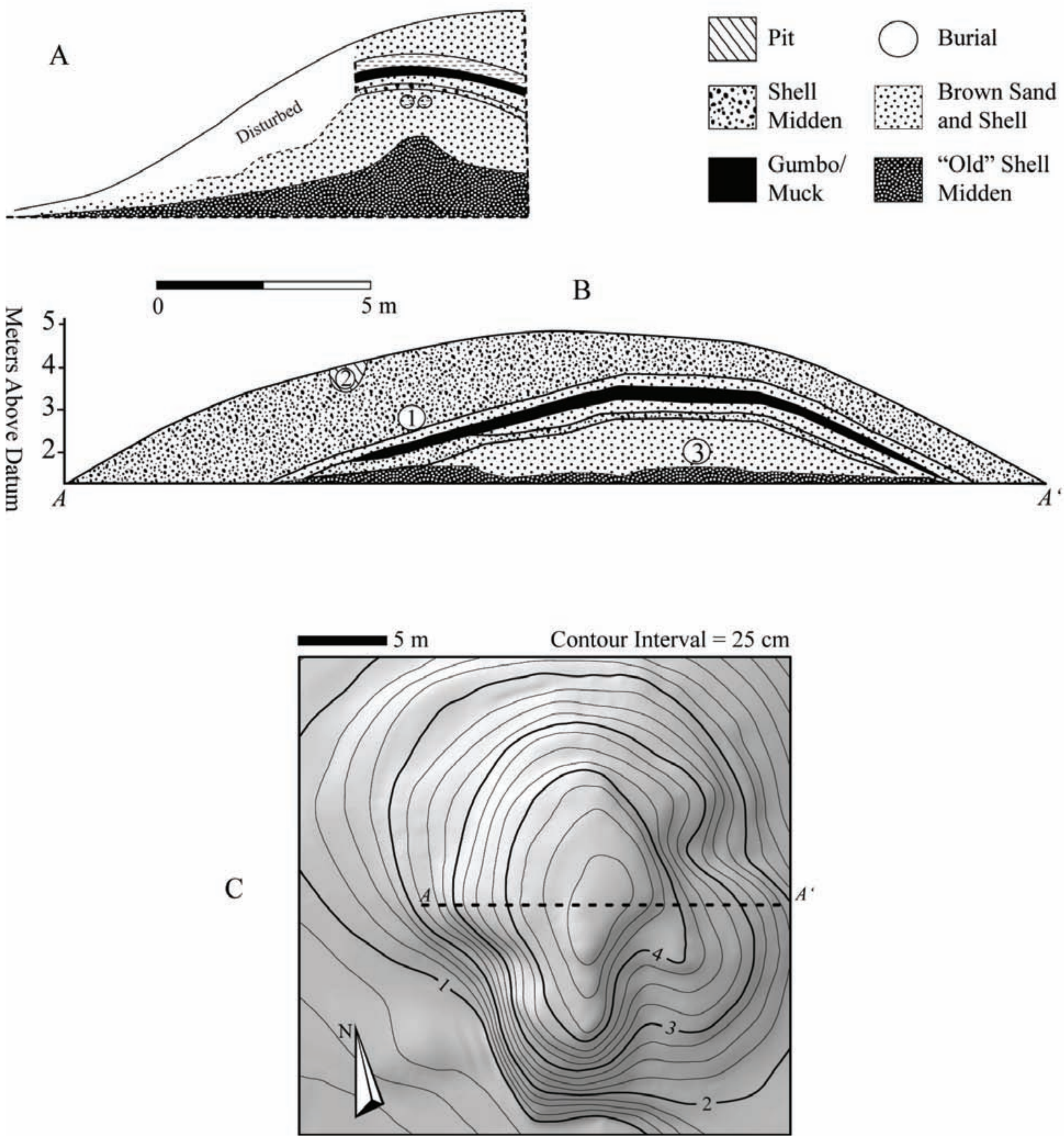

Figure 7-7. Bluffton Burial Mound shaded relief topographic map and cross-sections. A) C.B. Moore's (1894a:47) excavation profile. B) Sears' (1960:56–57) excavation profile. C) Sears' (1960:55) topographic map.

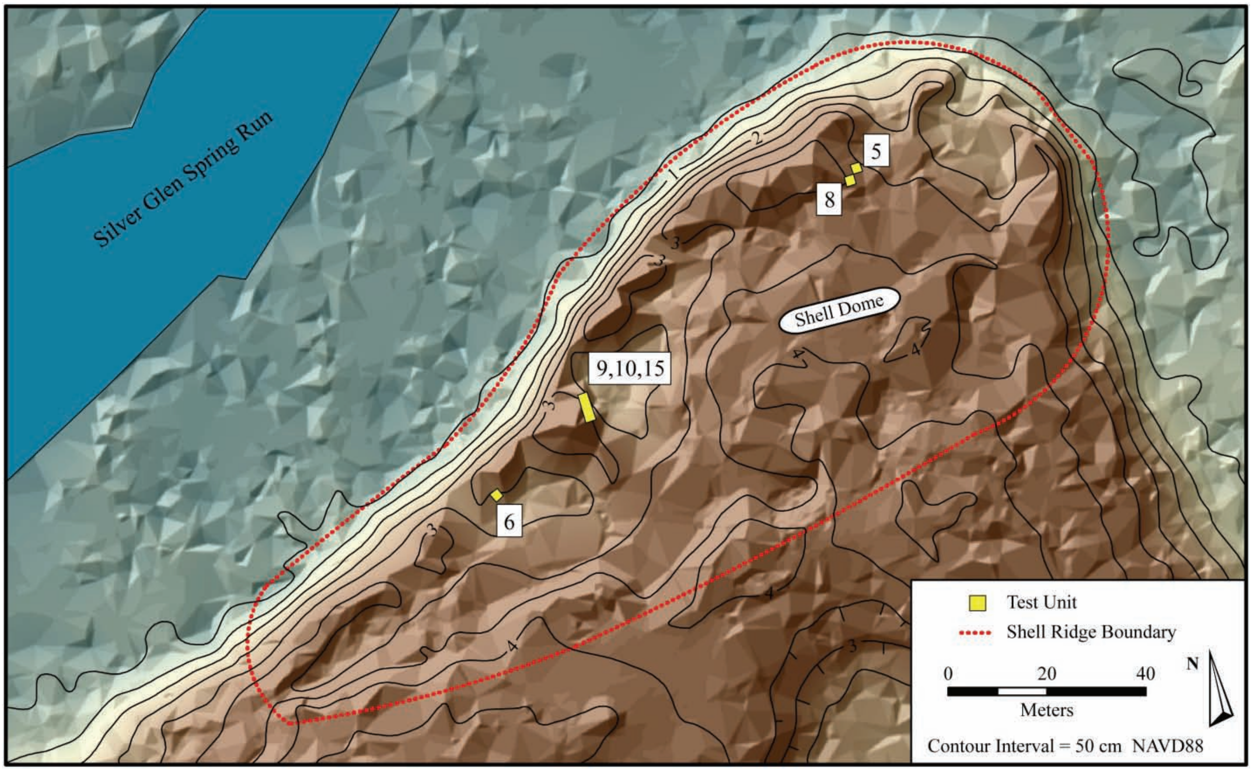

Figure 7-8. False-color shaded relief topographic map of the Silver Glen Spring Run Ridge (8LA1W-A).

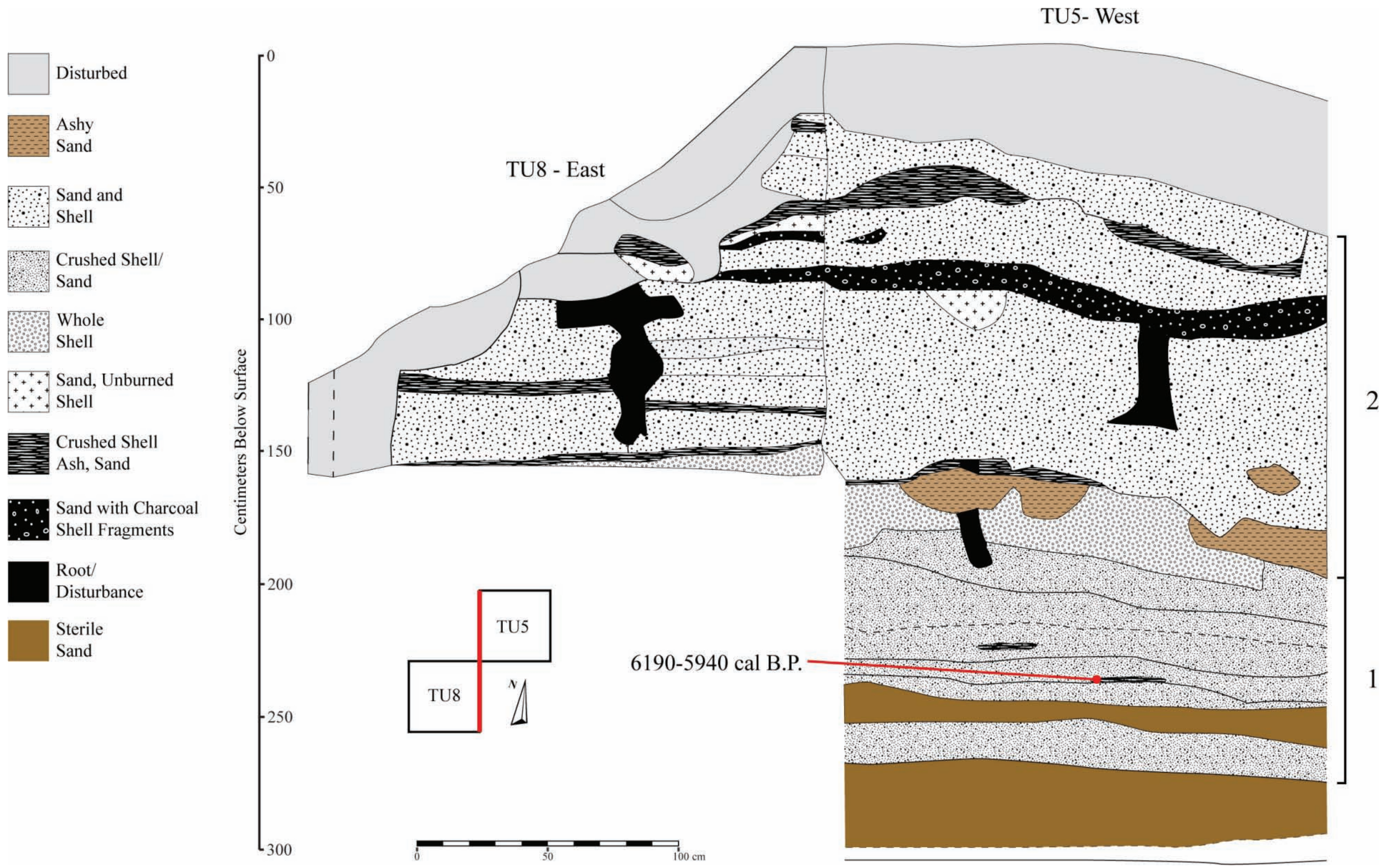

Figure 7-9. Simplified composite profile of Test Units 5 and 8, Silver Glen Spring Run Ridge (8LA1W-A).

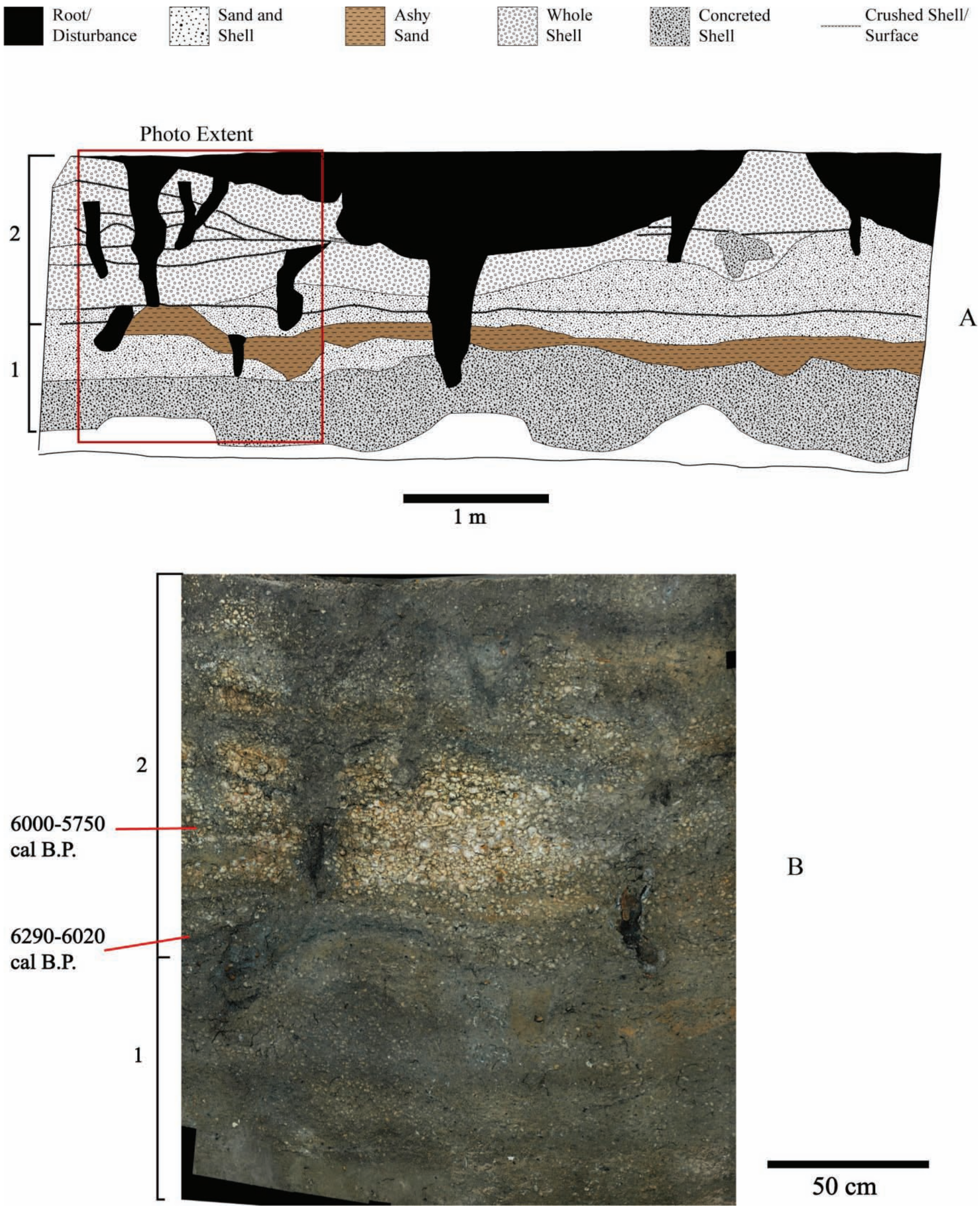

Figure 7-10. Macro-stratigraphic units within the “Trench” (TU 9, 10, 15) at the Silver Glen Spring Run Ridge (8LA1W-A). A) simplified west profile. B) composite photograph of TU 9A (approximate scale).

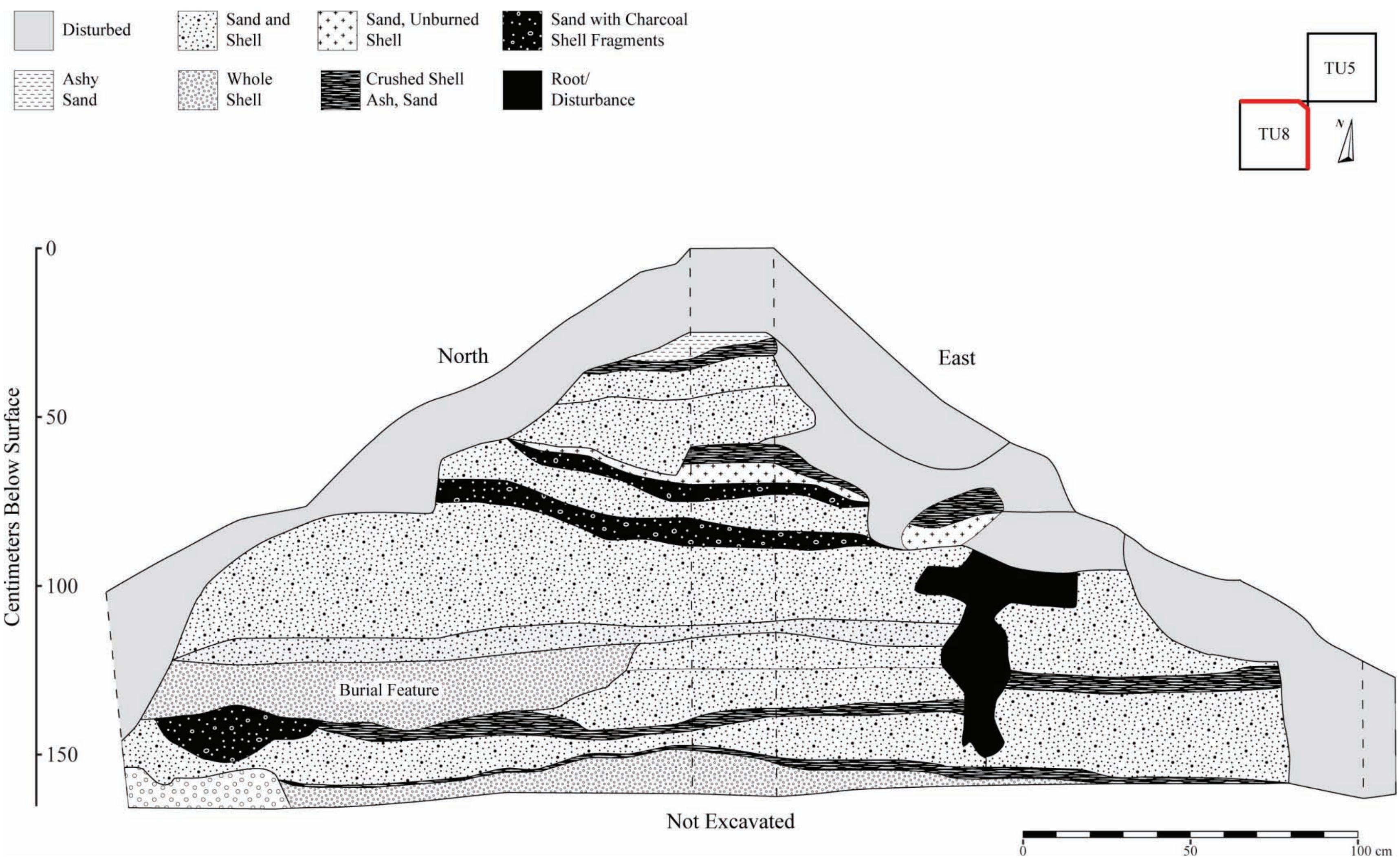

Figure 7-11. Simplified composite profile of Test Unit 8, Silver Glen Spring Run Ridge (8LA1W-A).

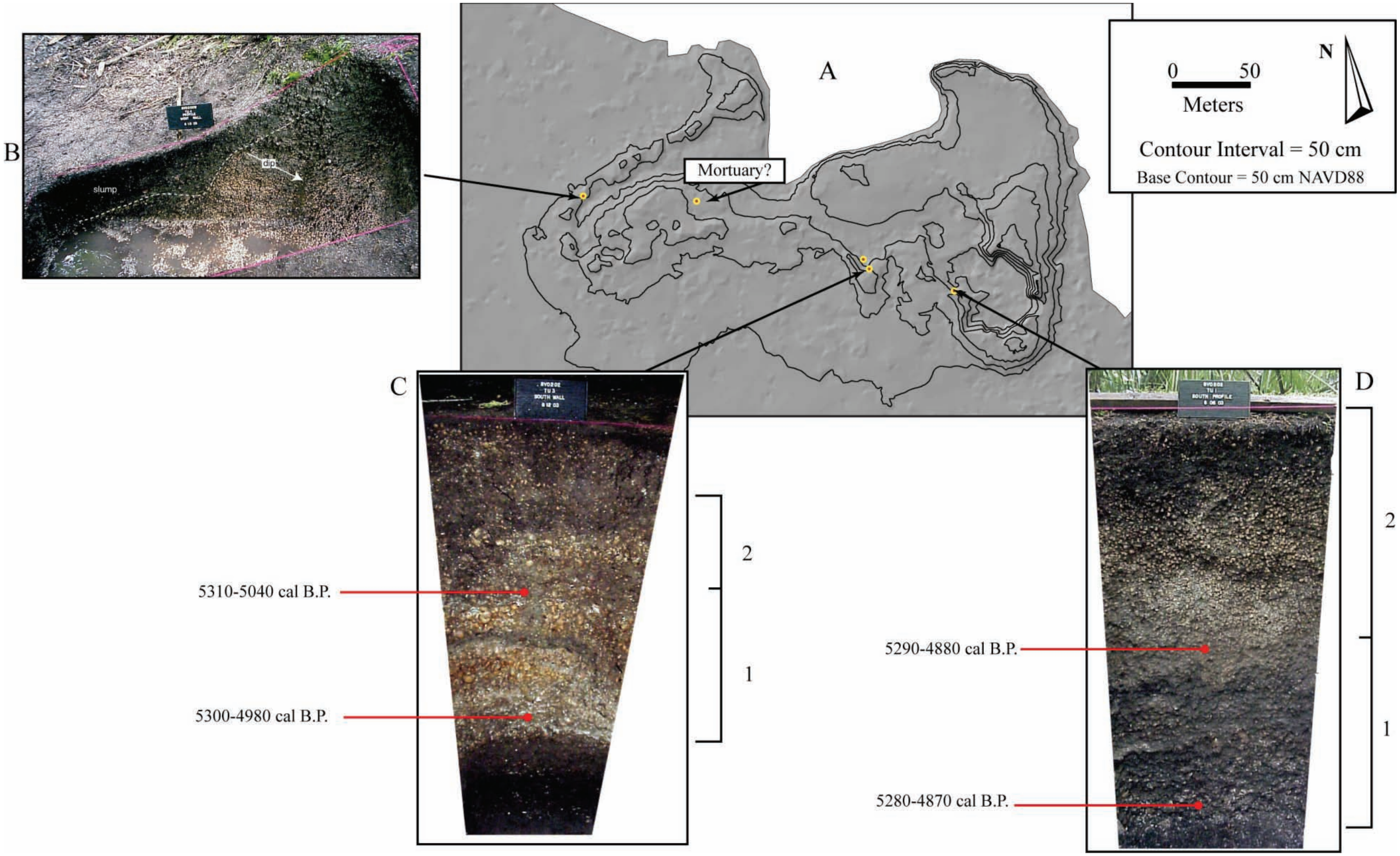

Figure 7-12. Topography and excavations at the Hontoon Island North site. A) hill shaded topographic map. B) photograph of Test Unit 4 west profile (from Sassaman et al. [2005:Figure 3-24]). C) Photograph of Test Unit 3 south profile (from Sassaman et al. [2005:Figure 3-13]). D) Photograph of Test Unit 1 south profile (from Sassaman et al. [2005:Figure 3-10]).

CHAPTER 8
THE CONSTRUCTION OF MOUNT TAYLOR COMMUNITIES

I began this study with the premise that shell matrix sites and the practices occurring within them were a central component of Mount Taylor history-making. I contrasted this possibility with conventional approaches to hunter-gatherer settlement and social change that foreground biological reproduction and gradual social evolution. As revealed through a consideration of the distribution, structure, and biographies of Mount Taylor places, shell matrix sites along the St. Johns cannot simply be reduced to refuse or unreflective sameness. If there was one aspect of Mount Taylor lifeways that remained unaltered over the course of three millennia, it was that communities routinely emplaced shellfish and other materials in or with reference to places of prior inhabitation. As a generalized sequence, these inscriptive practices constituted "technologies of remembrance" (Jones 2003). With their resulting materiality distributed across the landscape, such spatial stories (following de Certeau 1984:Chap 9) provided a framework for the production of social histories. Mount Taylor depositional practices were not static, but were actively transposed and reproduced across fields as structural conditions varied. In this chapter, I review how Mount Taylor communities inhabited and transformed the St. Johns River through depositional practices that gathered the histories of persons, places, and things and reordered them within emergent economies of memory. I conclude with some observations regarding inhabitation in the post-Mount Taylor world.

Inhabiting the St. Johns

Seen with the advantage of hindsight, the incipient exploitation of shellfish by Mount Taylor communities 7300 years ago appears as a fundamental transformation in the structure of regional inhabitation. Within the bounds of current chronological precision the onset of shellfishing along the St. Johns was eventful, as registered by coeval radiocarbon assays at widely separated shell matrix sites. The significance of this tradition and its implications for subsequent history-making along the St. Johns would be obscured if we focused on shellfishing as an economic indicator. This has been the approach of previous analyses of the Mount Taylor period, which emphasize the importance of shellfishing in subsistence terms alone (e.g., Cumbaa 1976, Goggin 1952; Milanich 1994; Miller 1992, 1998). These models are based on an apparent lack of intensive occupation of the St. Johns prior to the Mount Taylor period. The reduced archaeological visibility may be due to rising water tables, or a true lack of on-the-ground presence. Economic models also rely on the establishment of near-modern hydrological conditions that would have provided new opportunities for exploiting aquatic resources. While new water budgets clearly influenced the distribution of wetland resources, it is unknown to what extent shellfish were available prior to their earliest exploitation. Were we to take the local evidence at face value, we might suppose in an ahistorical framework that the first Mount Taylor communities colonized a largely vacant landscape, bereft of significance aside from new subsistence resources (e.g., Binford 1968; Miller 1992). In such a view, Mount Taylor communities targeted the St. Johns River for its economic potential, which provided the basis for gradual social evolution through time.

Quite to the contrary, on theoretical and empirical grounds it is unlikely that Mount Taylor communities entered an “empty” landscape. All communities inhabit worlds that are filled with habitual and mythical significance that make reference to a background of possibilities of how the world works (Barrett 1999; Bourdieu 1977:Chap 3; Gosden 1994:16). As Barrett and Ko (2009:289) argue: “people have to be in the world before they can objectify it.” That is, communities understand the world as a system of naturalized (i.e. objectified) relationships between humans, things, and places (Bourdieu 1977:164). It is in the deployment of practices in a range of contexts that this order is reproduced and subject to transformation. As discussed in Chapter 2, such systems of reference are inculcated at birth (Bourdieu 1977:85), and emerge through experiences of dwelling, or being in the world (Gosden 1994:16–17; Ingold 2000a:186). Thus, communities know a landscape prior to its inhabitation (Ingold 2000a:208), and it is through inhabitation that material referents and collective biographies structure and are structured by rhythms of taskscapes. At the level of discourse the order of the world is reproduced through cosmogonic and ancestral narratives that interanimate (sensu Basso 1996:55) ecological and material referents with the movements and histories of persons, communities, and other beings (Howey and O'Shea 2006; Jordan 2003; Morphy 1995; Oetelaar and Oetelaar 2008; Santos-Granero 1998; Wilson 2005). We should expect that what we refer to as early Mount Taylor communities entered the St. Johns with a preexisting system of reference in which the world was ordered and valued. It would only be through the deployment of extant practices within different structural conditions that new traditions emerged. Thus, the significance of the shift towards shellfishing must be contextualized within the set of spatial stories that were constructed prior to the Mount Taylor period.

I argued in Chapters 3 and 4 that Florida’s inhabitants during the late Pleistocene and early Holocene experienced landscapes that were in some ways fundamentally different than those of the middle Holocene. Interior Florida was characterized by drier-than-present conditions ,which may have partially constrained inhabitation to well watered localities. Along the St. Johns, first and second order springs or perched water sources were likely important localities that would be revisited (Thulman 2009). That such water sources cannot be reduced to economic "tethering" is demonstrated quite well by the details of the Windover mortuary pond. Over the course of several centuries, communities returned to this locality in the Upper St. Johns. The repeated inhumation of the recently deceased indicates that water, ancestors, and the temporality of death were closely interwoven within the biographies and social histories of at least some of these communities. Given the evidence that the dead were interred rapidly after death (Dickel 2002), it is possible that many other ponds of similar age exist elsewhere within the annual range of Windover's inhabitants. That this mortuary tradition persisted outside of the St. Johns after shellfishing was initiated underscores the importance of water as a symbolic resource. That is, the new mortuary mounds in the St. Johns did not result in a Florida-wide abandonment of earlier traditions.

At the regional scale community biographies were not necessarily tethered either. While evidence within the St. Johns is depauperate, late Pleistocene and early Holocene communities outside of the St. Johns wrote diverse spatial stories that ranged geographically throughout Florida. Movement between or social interaction throughout the interior is evidenced by chipped stone tools far from their geological sources. Details from the Windover mortuary also highlight the fact that even before Mount Taylor times, Florida's inhabitants were making annual excursions to the coast. These practices are demonstrated by the presence of marine shell objects in the mortuary, in addition to Tucker's (2009) dietary reconstructions. We currently do not know what kinds of marine resources were exploited. However, Faught's (2004) discovery of a possible inundated coastal shell matrix site in the PaleoAucilla indicates the ancestors of early Mount Taylor communities already had long-reproduced traditions of exploiting and depositing shellfish, just not along the St. Johns.

When situated within unfolding social histories, the incipient exploitation of shellfish along the St. Johns at places such as the Hontoon Dead Creek Complex, Live Oak Mound, and Groves' Orange Midden could have initially been a nonevent. Given the prior evidence for marine, and possibly shellfish exploitation, early Mount Taylor communities may have attached no otherworldly or transformative significance to processing freshwater shellfish. Following the example developed by Joyce (2004), the creation of new material referents in previously uninhabited places by Mount Taylor communities was likely an unintended consequence of communities extending traditional practices to new fields. Although an unintended consequence, the deposition of shellfish fundamentally altered the material referents that could be objectified by subsequent communities (see also Gillespie 2008; Pauketat 2000). All future generations who experienced these places would encounter the materiality of past agencies distributed throughout the emerging taskscape (Barrett 1999:258). No doubt, these referents structured the tempo of the landscape, as inhabitants incorporated their persistence and reproduction (Joyce 2004:20). On this basis, new kinds of histories could be asserted through place, and what may have been an unintentional act (creating a shell field) could subsequently have become an intentional practice.

This line of thought needs to be expanded with the observations of Appadurai and de Certeau regarding the establishment or "colonization" of place. In particular, the creation of new places necessitates a founding spatial story. For de Certeau (1984:125), founding stories involve ritualized, embodied sequences that reenact the initial colonizing acts of a place. Such spatial stories "open a field," or enable continued social practices in those places. At the same time, they provide a basis for the construction of genealogies of place and person as communities structure and are structured by the materiality of their surroundings. Appadurai (1996:183–184) extends de Certeau's discussion, and suggests that:

> All locality building has a moment of colonization…The transformation of spaces into places requires a conscious moment, which may be subsequently remembered as relatively routine…The anxiety that attends many rituals of habitation, occupation, or settlement is a recognition of the implicit violence of all such acts of colonization.

The establishment of any new place involves the habituation and routinization of communities with respect to a potential failure of inhabitation. These foundational practices are ritualized and drawn from the many acts that constitute placemaking (e.g., Bell 1992). The colonization of place is thus an appropriation and manifestation of what were once values "previously immanent in the world" (Barrett 1999:255). It is important to note, however, that the establishment of new places not only rearranges local social fields, but by necessity opens the opportunity for other places to be revalued. In this frame of reference, both Western and non-Western patterns of land use are colonizing processes in which pre-established traditions recursively impose order and are altered through experience (cf. de Certeau 1984:121).

Where the earliest expressions of Mount Taylor placemaking have been exposed, they were organized, discrete, and repeatedly inhabited. Upon close inspection, the earliest practices at would-be mound sites appear mundane and indicative of daily, routinized tasks that occurred in the course of resettlement. For example, at both the saturated components at the Hontoon Dead Creek Complex and Groves' Orange Midden, the excavators uncovered objects, food remains, and shell that could easily be interpreted as true midden deposits representing a wide array of activities. The material culture inventory at the Hontoon Dead Creek Village did not match Groves' in terms of abundance or diversity, but an examination of the concreted shell at Node 1 identified episodes of shell and vertebrate fauna deposition. The Hontoon Dead Creek Complex also offers tantalizing evidence for multiple residential nodes or house mounds oriented in a linear array. As discussed in Chapter 5, linear settlements tend to be characteristic of longer-duration encampments by multiple family groups. Whether linear, multi-household settlements are situated beneath later shell ridges is a problem that needs to be addressed in subsequent research.

As detailed in Chapter 6, these initial depositional episodes had the net effect of transforming anthropogenically sterile localities into practiced places. Shell nodes were rapidly incorporated into structure as inhabitants drew on traditional notions of place in reorganizing their movement through the landscape. From the beginning, the deposition of shell was referentially important. That these places were rapidly incorporated into memory is evidenced by repeated deposition that appears to have been similarly partitioned. Resettling places, collecting and preferentially depositing materials, and the eventual abandonment of encampments together framed a body of traditions within which biographies and memories of daily life were intricately enmeshed. While not monumental in scale, the cyclical renewal of past places was the basis for their ongoing significance. Mount Taylor settlements were no less “domesticated” than those of farmers. Although experienced through different temporalities, and likely different recognition of the significance of subsistence resources, Mount Taylor communities inscribed and renewed social memories through place.

One might surmise that once established as places to dwell, early Mount Taylor places were reproduced in an unending cycle. Yet one of the unexpected finds of this study is that within a century or so of initial “colonization,” inhabitants rapidly rearranged the social and ancestral geography of the St. Johns. This transformation is evidenced by the mounding of shell at ridges such as Hontoon Dead Creek and Live Oak, in addition to the construction of mortuaries such as Harris Creek. In each case, communities asserted temporalities that enabled new economies of memory. They repositioned inhabitants within multiple, overlapping fields of practice that drew connections between biographies, communities, and ancestors.

These traditions did not emerge as a consequence of stable social or ecological structural conditions. As reviewed in Chapter 3, the St. Johns had begun to experience high water tables and longer hydroperiods, and in this sense was “near modern.” The extent to which pre-Mount Taylor places may have been inundated in this process is unknown. It is important to remember that what was once a region characterized by low flow and shallow ponds was being replaced by deeper and more abundant waters. Springs were still not flowing at a modern rate, and were likely more vulnerable to periodic droughts. The entire floodplain was situated at least a meter, if not more, below its current configuration, and may have had a significantly different channel arrangements and vegetation structure. Higher magnitude flood events would not have submerged inhabitable landforms, but could have reconfigured or displaced channels, oxbows, and lagoons. At the scale of Peninsular Florida, sea levels were still rising rapidly and swamping the coast. As demonstrated by Tucker's (2009) isotopic studies at Harris Creek, many Mount Taylor inhabitants were still making an annual trip to the coast. However, new biographies from throughout Florida and the southeast were also incorporated into the St. Johns. Despite the regional variability in social composition of communities, the spatial stories that were generated in these contexts referenced an earlier historical mode and created new domains for the incorporation of inhabitants across diverse social fields. In particular, Mount Taylor inhabitants projected a new background that stressed a sense of continuity and an invariant horizon (e.g., Barrett 1999).

Some places appear oriented towards the living. At Hontoon Dead Creek Mound and Live Oak Mound inhabitants capped existing settlements. Currently, these two places are the only two shell ridges that have been dated to the period between 7100 and 6900 cal B.P. This new configuration was structured by the materiality of the preexisting settlement, as well as the social relationships that were enmeshed in its reproduction. Inhabitants opened up this place for ritualized performances involving the preparation and deposition of shellfish and other materials in massive quantities. However, I would argue that the founding acts of place-making were transposed into strategic acts that renewed the surface of the mound. That is, routinized depositional practices were intentionally directed at increasing the height of the mound summit. Mounds themselves may have become imbued with agency that effectively enmeshed practioners with the identities sedimented in the mound. The underlying politics of memory remain unknown to us, although following Morrison (2003) I find it likely that ridge-top performances involved marriages or other alliance-building practices. They would have been enabled by and coincident with locally abundant resources. Given the volume of shellfish, however, we should not be surprised if freshwater shell was brought in from elsewhere. We also do not know the short-term frequency and temporality of mound summit maintenance. Based on the lack of soil development, resurfacing occurred with enough pace that vegetation could not take hold.

It is notable that these two early ridges are situated at least 200 m from running water today. As argued in Chapter 5, the Bowyers Bluff ridges, Mount Taylor ridge, and others that are also positioned away from the main channel may have been initiated during this initial period. A future avenue of research should be directed towards establishing the contemporaneity of these places on the landscape. At any point in time more than one ridge may have been actively accreting. The final forms of these places today may reflect different communities within the valley hosting commemorative ceremonies. At the microscale of everyday life shell nodes were likely residential spaces situated with respect to others in linear encampments. These microscale oppositions may have been turned outwards onto the entire basin through ridge-top ritualization.

Not all places of this age were oriented towards the living, however. As detailed in Chapters 4 and 7, early Mount Taylor communities constructed mortuaries of sand and shell that appear to have been modeled on the spatiality of residential spaces. If Appadurai and de Certeau are correct regarding the importance of reproducing founding events, then the construction of mortuaries on top of, and in the same arrangement as, shell nodes suggests that the dead were situated with respect to community origin myths. Aten's reconstruction of the Harris Creek mortuary demonstrates that depositional practices at early Mount Taylor mortuaries were markedly conservative and small-scale once the burial surface was established. Interments may have altered the surfaces, but throughout the lifespan of mortuaries A and B the overall arrangement and size of the mortuary was maintained.

This persistence in mortuary mound architecture stands in marked contrast to the active performance and resurfacing of shell ridges. Taking Hontoon Dead Creek Mound as an example, inhabitants reengineered them to allow for an increase in overall height. Regardless of the specific intent of referencing the past in these ways, it is clear that mortuary practice provided yet another temporality of experience for Mount Taylor inhabitants. The presence of both secondary and primary burials, in addition to a possible mortuary structure, indicates that the preparation of the dead was an extended performance, which stands in contrast to prior mortuary programs in which the deceased were rapidly interred after death. This shifting temporality in the timing of interment, as well as the widespread distribution of these mortuaries, suggests that commemorative performances at burial mounds incorporated individuals from throughout the valley, creating collective memories. In this sense, neither mortuaries nor ridges can be reduced to territorial markers. Community movements between places would have constituted a repeated transcendence of times, from the permanent and ancestral to the routine of public and private lives.

The landscape composed of mortuaries, ridges, and settlements became routine over the course of several centuries. However, beginning sometime after ca. 6200 cal

B.P. (based on assays at Silver Glen Run), the region underwent yet another transformation in the structure of Mount Taylor place-making. From a hydrological perspective, this period is characterized by a deceleration in sea level rise, the onset of ENSO events, and the decreased probability of major storm events. The modern hydroperiod was established within the Middle St. Johns around this time as well. One of the consequences of this floodplain stability, however, was the infilling of lagoons and channel segments that once fronted active shell ridges. From a purely economical standpoint, wherein sites are important only as “entry points” to riverine resources (e.g., Binford 1990), an aggrading floodplain would be expected to have little effect on social reproduction. Given what we know about the kinds of political and commemorative economies that were enabled by collective ridge-top performances, I find it probable that abandonments of ridges due to infilling were major events. Lacking assays from early ridge tops, we do not know when these early ridges were abandoned. Not only were the material referents within the St. Johns changing, but new exchange networks would have resulted in the emergence of differentiated biographies locally (following Gosden and Marshall 1999). These networks are evidenced by extralocal objects such as bannerstones, *Strombus* celts, and beads.

Writing about the early establishment of states, Yoffee (2005: 91–92) notes that one of the most fundamental shifts in the organization of politics and ritual was the reduction or simplification of numerous identities and histories through centralized laws and commemorative practices. While there is no evidence for kings, chiefs, or other like social categories, the St. Johns provides evidence for simplified commemorative strategies after 6200 cal B.P. Variations in practice that emerged amongst these new structural conditions register new temporalities of experience that contradicted earlier naturalized orders. The depositional narratives created at this time appear to have been strategically deployed to make novel scenarios meaningful in ways that at once obscured, and in some cases eradicated, past places to make them newly relevant. For example, residential domains were either created anew, or maintained at loci that were less vulnerable to floodplain aggradation. However, these residential places were recreated on a scale and intensity not seen before. In ridges such as at Silver Glen Run and Hontoon Island North, formalized settlements were reproduced above more ephemeral habitation traces. As argued in Chapter 7, inhabitants treated old settlements with the same veneration as they did for the dead. In the case of Silver Glen Run, the community appears to have capped and obscured all traces of preexisting material referents. In re-colonizing the place, alternative spatial stories were enabled on the ridge. Once the sand cap had been laid down, a linear settlement composed of multiple households was constructed there. Although it was abandoned for extended periods of time, communities did return and remake the settlement in ways that conformed with the new layout. Communities also capped the Hontoon Island North site, apparently to open up the space for alternative practices.

The extent to which communal mortuaries continued to be maintained is unknown. The body of evidence, such as that documented at Bluffton and Thornhill Lake, indicates that later Mount Taylor inhabitants may have fundamentally altered the commemorative and political significance of ancestry. In the case of Bluffton, an individual was interred within a depositional sequence that arguably recapitulated the founding myths of earlier communities. Yet in this case, the mortuary mound was excluded from further modification. At Thornhill Lake, burial mounds were emplaced upon what had been an active shell ridge. Although habitation near the ridge may have continued after the mounds were constructed, they changed the physicality and significance of the place. The generation of these new mortuary mounds, which are paired in some cases, suggests that the singularity of linear places that had been reproduced throughout the Mount Taylor period was ruptured. The dual mortuary mounds at Thornhill Lake and Bluffton, as well as the possibility of them at Hontoon Island North, suggests a fundamental transformation in how regional identities were inscribed at the local level. That is, there would appear to be a new coming together of distinct identities, possibly based on ancestry but also based on the biographies that could be traced to the coast through exchange networks.

Post-Inscription

I have restricted my examination of social histories along the St. Johns from the first visible manifestation of shellfishing until the end of the preceramic Archaic period. As detailed, I argue that shell mounds and their significance were routinely constructed over the course of this period, although the act of shellfishing and the medium of place-making (i.e. depositing shellfish remains and other materials) remained constant. Just as Mount Taylor communities had to incorporate the past into contemporary frames of reference, so too did their descendants of the Orange and later St. Johns periods. Mount Taylor communities “made available the conditions” (Barrett 1999:264) through which Orange and St. Johns communities could politicize their own histories. As a consequence, much of the presumed continuity and increase in social complexity that has been attributed to later communities on the basis of site size and evidence (or lack thereof) of monumentality has to be reframed. These communities were living in a landscape already sedimented with ancestral presence. In the course of investigating Mount Taylor traditions, in fact, several patterns have emerged that warrant a brief mention.

We have seen that by 5000 years ago, the Mount Taylor period culminates in the production of a number of loci inscribed with mortuary mounds into which persons and objects with arguably diverse biographies were interred. In this landscape, community identity was apparently negotiated through performances at mortuary mounds, wherein ancestors and the threads linking them with spatial stories outside of the St. Johns were incorporated. Contrary to the expectations of social evolution arguments, all of the diversity of monumentality, exchange, and mortuary treatment collapses at the close of the Mount Taylor period. As briefly discussed at the conclusion of Chapter 4, diagnostic artifacts of the Orange period are typically found situated away from shell ridges, even though Orange settlements were emplaced nearby. Radiocarbon dates from below near-surface mounded shell at the Hontoon Island North site indicate the site was capped and abandoned sometime after 4800 years ago, and apparently remained unoccupied until the later St. Johns period. Orange period ceramics are rarely recovered from the surfaces of shell ridges throughout the region, nor are they found in any great frequency upon sand mounds (Endonino 2008; Piatek 1994; Sears 1960). One caveat, of course, is that many ridges have had their apexes removed. Regardless, evidence for mortuaries anywhere in the interior during the Orange period is spotty at best. Yet, as discussed in Chapters 3 and 4, there is no evidence for a regional population collapse.

What happened? We can start with the observation that Orange period pottery has its origins a century earlier on the coast of Florida, and its introduction was likely facilitated by preexisting exchange networks (Sassaman 2004b). Although this process is currently modeled as an *in situ* evolutionary progression, pottery production in Florida in fact signals a major restructuring of domains of practice, the scale of which is only coming to light now. For example, at the Blue Springs Midden B site (8VO43), Sassaman (2003a) documented the presence of a semi-circular Orange Period compound, characterized by four crushed shell floors, measuring 4 to 6 m in diameter, and spaced approximately 8 m apart. These clusters were oriented in an arc, approximately 34 m in diameter, facing the St. Johns and adjacent to Blue Spring Run. This organization of space is arguably new to the region. However, circular villages and monuments are well documented in coastal groups arguably historically affiliated with those of the interior (Russo and Heide 2001; Sassaman et al. 2006).

As a further contrast to Mount Taylor inhabitation, Orange compounds were routinely sited near, but noticeably away from, preexisting shell ridges, which were apparently avoided. As noted above, this observation has to be tempered by the fact that many of the summits of the largest sites have been removed prior to modern investigations. Regardless, this pattern is evident at Blue Spring Midden B, the Hontoon Dead Creek Village, and Locus A at the Silver Glen Run Complex. It would be a mistake, however, to conclude that Orange communities did not engage in large scale gatherings and monumental construction. In this regard, the distribution of Orange period pottery wares provides some clues. Most Orange residential spaces in the middle St. Johns are dominated by plain wares. In contrast, incised and technologically distinct Orange pottery is largely restricted to four locations in the valley: the Silver Glen Run Complex, Harris Creek, Old Enterprise, and Orange Mound. These localities are situated some 20 to 30 km apart along the St. Johns River. A similar spatial division in the deposition of plain pottery at small scale residential sites and decorated pottery at large scale aggregation places (such as shell rings) has been identified along the coast. This pattern arguably represents a new division between commemorative and residential spaces (Sassaman 2003c; R. Saunders 2004).

Recent excavations at the Silver Glen Run Complex East site are now providing a context for interpreting this emergent pattern. As discussed in Chapter 5, prior to its destruction in 1923, Wyman described the site as a U-shaped amphitheater, upwards of 300 m long on a side, rising to a height of up to 8 m, with a deep valley between the ridges. In Figure 8-1 I have reconstructed the surface topography of this shell mound, in addition to the primarily Mount Taylor-aged Locus A shell ridge (situated to the west) as Wyman would have seen it. I have superimposed Wyman's description (based in part on an unpublished sketch map he made) over the existing surface topography. The mound is scaled to the distribution of shell present at the site identified during subsurface testing, which is largely conformant with Wyman's description (Sassaman et al. 2010). If these dimensions are even close to correct, this mound is the largest in northeast Florida.

Although the mound shares design principles with Orange period rings elsewhere, the multi-mound complex at the mouth of Silver Glen was not constructed *de novo*. Not only was the Orange period mound situated in opposition to a large shell ridge to the west (Locus A), but it appears Orange communities grafted a new monument on top of a preexisting Mount Taylor ridge in a way that referenced both coastal and interior ancestries. This configuration shares a pattern with the Harris Creek complex, where Orange pottery is found in shell ridges extending from the Mount Taylor shell ridge. Moreover, at Silver Glen there is some suggestive evidence for within-site differentiation in the production and disposal of pottery. Incised wares, found in great abundance, are largely restricted to the periphery of the mound's water-facing sides. In the terrestrial portion of the rear ridge, however, excavations uncovered Orange plain wares. Yet even in these contexts, there is little to suggest that shell accumulated here through acts of daily settlement. To the contrary, in the Orange period inhabitants dug large pits (upwards of 2-m wide) and filled with clean, mounded shell. Future research will examine whether the two ridges actually represent the constructive efforts of two distinct ancestries. Regardless, the current data suggest that Orange communities, like their Mount Taylor ancestors, constructed their own histories by creatively combining and reworking the past in place through depositional practices.

Crafting Histories across the Divide

When viewed through the lens of subsistence and repeated use of place, the practices that resulted in shell matrix sites of the Middle St. Johns River could easily be mistaken for unreflexive continuities. There is little evidence for significant variations in subsistence throughout either the Mount Taylor or Orange periods. Where shifts in settlement location are present, they rarely involved the wholesale abandonment of large swaths of territory. Yet, we must be circumspect when examining continuities, as they may be more apparent than real (Bradley 2003; Gosden and Lock 1998). As shown along the St. Johns, over the course of three thousand years, communities were variously reproduced through an ongoing historical production of biographical and ancestral spatial stories in place. While altered through the recognition and incorporation of different kinds of events and others, the past as place and process was recursively referenced and drawn upon in creative ways.

The results of my investigations into shell matrix site histories indicate that traditions of routine and commemorative practice emerged in the context of new ecologies and social interactions. Such places of past practice rapidly emerged as central foci for return visits and local interaction as inhabitants returned repeatedly from throughout the state. This potential diversity appears to have been negotiated through veneration of the dead in highly public acts. The primary inscriptive practice here was not necessarily the interment of the deceased and construction of the mound. Instead, it was the striking replacement of settlements with sacred places emplaced and modeled on those structures, as is commonly found throughout the world (e.g., Bradley 1998:Chapters 3–4; Johansen 2004; Jordan 2003; Joyce 2004). These central metaphors for referencing community, and for negotiating contemporary social relations, were continuously reworked throughout successive millennia. During times of considerable ecological and social upheaval, some settlements were abandoned, others became intensive loci of daily practice, and still others were maintained as commemorative venues. Yet throughout, communities mobilized the past to write histories that either accommodated contemporary concerns or countered change. In this frame of reference, landscape use as traditions of ecological exploitation, residential spaces, commemoration of ancestral and mythic orders, and interactions with “others” emerges as the central method through which these hunter-gatherer communities wrote their own histories. In fact, this historiographic method would seem to be present in most societies, irrespective of their particular subsistence economy.

Writing over a century ago, Jeffries Wyman (1875:11) commented that anyone seeing the St. Johns shell mounds for the first time "might well be excused for doubting that such immense quantities of small shells could have been brought together by human labor." While Wyman accurately recognized mounds as anthropogenic, questions of agency still surround their origins and histories. Decontextualized and repositioned along a complexity continuum, shell matrix sites and the practices with which they were reproduced rapidly fade as epiphenomena of a mode of production or an ecological adaptation. However, a consideration of the social contexts of their construction indicates that these places, whether they were early settlements, dedicated mortuaries, or ritualized platforms structured and were structured by the complexities of community history-making in place. In this frame of reference, the density and distribution of Archaic shell matrix sites along the St. Johns is not a reflection of abundant aquatic resources. Instead, the St. Johns was relationally ranked as the center of the world because of the histories that could be negotiated through place.

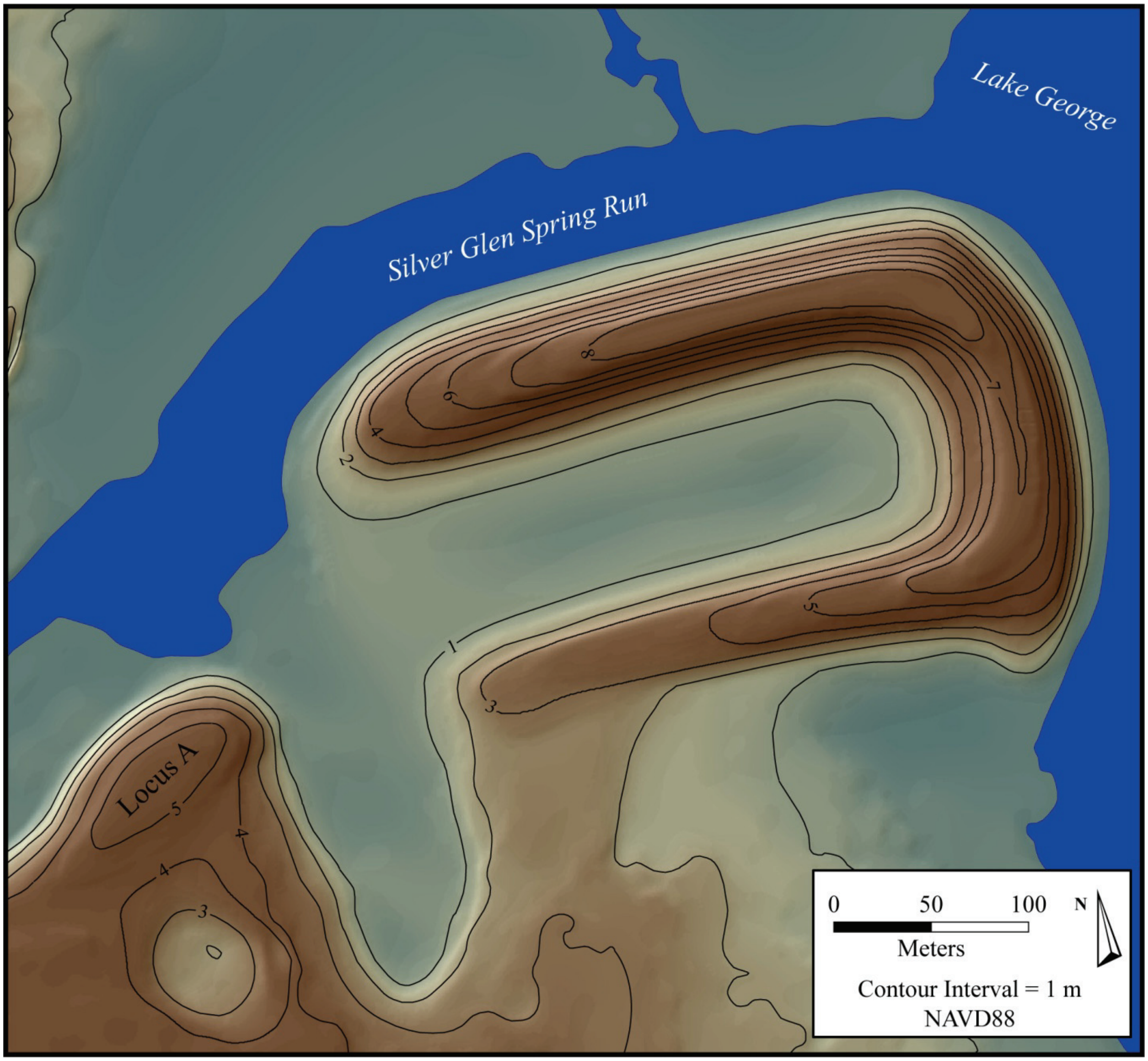

Figure 8-1. Reconstructed Silver Glen Run Complex.

APPENDIX A
RADIOCARBON DATA

Table A-1. Radiocarbon assays from Mount Taylor and Orange components

Site Number	Site Name	Sample	Method	Material	Measured ^{14}C Age B.P.	$^{12}C/^{13}C$ Ratio	Conventional ^{14}C Age B.P.	2σ cal B.P.	Provenience	Source
8LA1-E	Silver Glen Run Complex - East	BETA-255903	AMS	Charcoal	3610 ± 40	-25.8	3600 ± 40	4080–3730	Feature 1	Sassaman et al. (2010)
8LA1-E	Silver Glen Run Complex - East	BETA-166672	AMS	Soot	4020 ± 60	-25.2	4020 ± 60	4810–4300	Vessel 6	Sassaman (2003c)
8LA1-E	Silver Glen Run Complex - East	BETA-166673	AMS	Soot	4060 ± 40	-24.4	4070 ± 40	4810–4430	Vessel 27	Sassaman (2003c)
8LA1W-B	Silver Glen Run Complex - Locus B	BETA-255904	AMS	Charcoal	3820 ± 40	-24.3	3830 ± 40	4410–4100	Feature 15	Sassaman et al. (2010)
8LA1W-A	Silver Glen Run Complex - Locus A	BETA-248528	AMS	Charcoal	5160 ± 50	-25.4	5151 ± 50	6000–5750	TU10A, (C14-4)	This Report
8LA1W-A	Silver Glen Run Complex - Locus A	BETA-236137	AMS	Charcoal	5290 ± 40	-24.7	5290 ± 40	6190–5940	TU5E, Stratum XXII	This Report
8LA1W-A	Silver Glen Run Complex - Locus A	BETA-248527	AMS	Charcoal	5390 ± 40	-24.5	5400 ± 40	6290–6020	TU10A, (C14-3)	This Report
8LA1W-E	Silver Glen Run Complex - East	BETA-166671	AMS	Soot	3690 ± 60	-25.8	3680 ± 60	4220–3850	Vessel 12	Sassaman (2003c)
8LA28	Mosquito Inlet	BETA-166674	AMS	Soot	3600 ± 40	-24.6	3610 ± 40	4080–3830	Vessel 2	Sassaman (2003c)
8LA88B	Bowyers Bluff 2	I-563	Radio-metric	Charcoal	4725 ± 180	-25.0*	4725 ± 180	5890–4910	33-inch depth	Bullen and Bryant (1965)
8V02601	Groves' Orange Midden	-	AMS	Charcoal	3850 ± 70	-25.0*	3850 ± 70	4500–4010	Stratum II, Level 3	McGee and Wheeler (1994)
8V02601	Groves' Orange Midden	BETA-65865	AMS	Hickory nut	4080 ± 60	-25.0*	4080 ± 60	4820–4430	Stratum II, Level 7	McGee and Wheeler (1994)
8V02601	Groves' Orange Midden	-	AMS	Charcoal	4115 ± 75	-25.0*	4115 ± 75	4830–4440	Stratum II, Level 5	McGee and Wheeler (1994)
8V02601	Groves' Orange Midden	BETA-65864	AMS	Hickory nut	4190 ± 60	-25.0*	4190 ± 60	4850–4540	Stratum II, Level 13	McGee and Wheeler (1994)

Table A-1. continued

Site Number	Site Name	Sample	Method	Material	Measured ^{14}C Age B.P.	$^{12}C/^{13}C$ Ratio	Conventional ^{14}C Age B.P.	2σ cal B.P.	Provenience	Source
8V02601	Groves' Orange Midden	-	AMS	Charcoal	4400 ± 125	-25.0*	4400 ± 125	5450–4630	Stratum II, Level 8	McGee and Wheeler (1994)
8V02601	Groves' Orange Midden	BETA-65859	AMS	Wood Charcoal	4810 ± 70	-25.0*	4810 ± 70	5660–5320	Stratum IV, Level 10	McGee and Wheeler (1994)
8V02601	Groves' Orange Midden	BETA-65860	AMS	Hickory nut	4930 ± 80	-25.0*	4930 ± 80	5900–5480	Stratum IV, Level 14	McGee and Wheeler (1994)
8V02601	Groves' Orange Midden	BETA-65862	AMS	Hickory nut	5040 ± 60	-25.0*	5040 ± 60	5910–5660	Stratum IV, Level 16	McGee and Wheeler (1994)
8V02601	Groves' Orange Midden	BETA-59801	AMS	Hickory nut	5100 ± 70	-25.0*	5100 ± 70	5990–5660	Stratum IV, Level 11	McGee and Wheeler (1994)
8V02601	Groves' Orange Midden	BETA-59802	AMS	Hickory nut	5160 ± 80	-25.0*	5160 ± 80	6180–5720	Stratum IV, Level 14	McGee and Wheeler (1994)
8V02601	Groves' Orange Midden	BETA-59803	AMS	Hickory nut	5580 ± 80	-25.0*	5580 ± 80	6550–6210	Stratum IV, Level 19	McGee and Wheeler (1994)
8V02601	Groves' Orange Midden	BETA-59804	AMS	Hickory nut	5930 ± 80	-25.0*	5930 ± 80	6960–6550	Stratum IV, Level 21	McGee and Wheeler (1994)
8V02601	Groves' Orange Midden	BETA-65863	AMS	HICKORY NUT	6200 ± 70	-25.0*	6200 ± 70	7270-6920	Stratum V, Level 20	McGee and Wheeler (1994)
8V02601	Groves' Orange Midden	BETA-65861	AMS	HICKORY NUT	6210 ±60	-25.0*	6210 ±60	7260-6970	Stratum V, Lev 22	McGee and Wheeler (1994)
8VO202	Hontoon Island North	BETA-255905	AMS	Charcoal	4480 ± 40	-28.1	4430 ± 40	5280–4870	TU1, Stratum VII, Level D	This Report
8VO202	Hontoon Island North	BETA-244050	AMS	Charcoal	4430 ± 40	-23.9	4450 ± 40	5290–4880	TU1, Stratum V, Level B	This Report
8VO202	Hontoon Island North	BETA-244049	AMS	Charcoal	4500 ± 40	-25.6	4490 ± 40	5300–4980	TU3, Stratum IX , Level A	This Report
8VO202	Hontoon Island North	BETA-241924	AMS	Charcoal	4440 ± 40	-20.7	4510 ± 40	5310–5040	TU3, Stratum V, Level C	This Report
8VO214	Hontoon Dead Creek Mound	BETA-255907	AMS	Charcoal	5900 ± 50	-24.3	5910 ± 50	6880–6640	TU5, Stratum V (Bulk 8)	This Report

Table A-1. continued

Site Number	Site Name	Sample	Method	Material	Measured ^{14}C Age B.P.	$^{12}C/^{13}C$ Ratio	Conventional ^{14}C Age B.P.	2σ cal B.P.	Provenience	Source
8VO214	Hontoon Dead Creek Mound	BETA-202281	AMS	Hickory nut	6070 ± 70	-26.4	6040 ± 70	7160–6730	Auger 1	Randall and Sassaman (2005)
8VO214	Hontoon Dead Creek Mound	BETA-202281	AMS	Nutshell	6100 ± 40	-24.6	6110 ± 40	7160–6890	TU5, Stratum XXII (Bulk 1)	This Report
8VO214	Hontoon Dead Creek Mound	BETA-255906	AMS	Charcoal	6090 ± 50	-22.0	6140 ± 50	7170–6900	TU5, Stratum XII (Bulk 3)	This Report
8VO215	Hontoon Dead Creek Village	BETA-244052	AMS	Charcoal	3730 ± 40	-27.0	3700 ± 40	4150–3920	Feature 2	This Report
8VO215	Hontoon Dead Creek Village	BETA-217769	Radiometric	Marine shell	5670 ± 60	-7.9	5950 ± 60	6510–6250	TU2, Level B	Randall (2007)
8VO215	Hontoon Dead Creek Village	BETA-219933	AMS	Charcoal	6320 ± 40	-27.6	6280 ± 40	7310–7030	TU3, Base of Block	Randall (2007)
8VO24	Harris Creek	BETA-16675	AMS	Soot	3600 ± 40	-23.3	3630 ± 40	4080–3840	Vessel 21	Sassaman (2003c)
8VO24	Harris Creek	BETA-166676	AMS	Soot	3730 ± 40	-24.4	3740 ± 40	4230–3980	Vessel 1	Sassaman (2003c)
8VO24	Harris Creek	BETA-166677	AMS	Soot	3920 ± 40	-24.1	3930 ± 40	4510–4240	Vessel 252	Sassaman (2003c)
8VO24	Harris Creek	M-1265	Radio-metric	Charcoal	5320 ± 204	-25.0*	5320 ± 204	6500–5620	Layer 3, Mortuary A	Jahn and Bullen (1978)
8VO24	Harris Creek	M-1270	Radio-metric	Marine shell	5030 ± 120	0.0	5432 ± 204	6270–5360	Layer 7 or 8	Jahn and Bullen (1978)
8VO24	Harris Creek	M-1268	Radio-metric	Charcoal	5450 ± 184	-25.0*	5450 ± 184	6660–5760	Layer 8	Jahn and Bullen (1978)
8VO24	Harris Creek	M-1264	Radio-metric	Charcoal	5450 ± 303	-25.0*	5450 ± 303	6930–5590	Layer 3 Base, Bottom of Mortuary A	Jahn and Bullen (1978)
8VO24	Harris Creek	X9111A	AMS	Human bone	5825 ± 62	-17.6	5825 ± 62	6780–6480	Burial 9, Layer 4	Tucker (2009)
8VO24	Harris Creek	X9109A	AMS	Human bone	5904 ± 62	-16.1	5904 ± 62	6890–6560	Burial 3, Layer 4	Tucker (2009)
8VO24	Harris Creek	X9112RA	AMS	Human bone	6053 ± 65	-16.2	6053 ± 65	7160–6740	Burial 31, Layer 3	Tucker (2009)
8VO24	Harris Creek	X9110	AMS	Human bone	6125 ± 83	-17.8	6125 ± 83	7240–6790	Burial 7, Layer 3	Tucker (2009)
8VO41	Live Oak Mound	BETA-164961	AMS	Charcoal	6260 ± 50	-24.9	6260 ± 50	7280–7010	LPIA, Stratum XIII	Sassaman (2003a)

Table A-1. continued

Site Number	Site Name	Sample	Method	Material	Measured ^{14}C Age B.P.	$^{12}C/^{13}C$ Ratio	Conventional ^{14}C Age B.P.	2σ cal B.P.	Provenience	Source
8VO43	Blue Spring Midden B	BETA-145694	AMS	Nutshell	3500 ± 70	-24.9	3510 ± 70	3980–3620	TU2, Level E	Sassaman (2003a)
8VO43	Blue Spring Midden B	BETA-145695	AMS	Charcoal	3720 ± 40	-24.3	3730 ± 40	4230–3930	TU2, Level K	Sassaman (2003a)
8VO43	Blue Spring Midden B	BETA-145692	AMS	Charcoal	3790 ± 50	-25.4	3780 ± 50	4380–3980	TU4, Feature 7	Sassaman (2003a)
8VO43	Blue Spring Midden B	BETA-164963	AMS	Charcoal	4210 ± 50	-25.3	4210 ± 50	4860–4580	TU5, 140-150 CM BS	Sassaman (2003a)
8VO43	Blue Spring Midden B	BETA-145693	AMS	Charcoal	4360 ± 120	-24.9	4360 ± 120	5310–4590	TU1, Level M	Sassaman (2003a)
8VO53	Lake Monroe Outlet Midden	BETA-146752	AMS	Charcoal	4640 ± 50	-25.0*	4640 ± 50	5580–5090	TUA, Level 19	ACI, Inc. and Janus Research, Inc. (2001)
8VO53	Lake Monroe Outlet Midden	BETA-146748	Radio-metric	Charcoal	4650 ± 110	-25.0*	4660 ± 110	5600–4990	TUA, Level 9	ACI and JR (2001)
8VO53	Lake Monroe Outlet Midden	BETA-146751	AMS	Charcoal	4710 ± 40	-25.0*	4710 ± 40	5580–5320	TUA, Level 14	ACI and JR (2001)
8VO53	Lake Monroe Outlet Midden	BETA-146753	AMS	Charcoal	4760 ± 40	-25.0*	4760 ± 40	5590–5330	TUC, Level 9	ACI and JR (2001)
8VO53	Lake Monroe Outlet Midden	BETA-146756	AMS	Charcoal	4760 ± 40	-25.0*	4780 ± 40	5600–5330	TUC, Level 15	ACI and JR (2001)
8VO53	Lake Monroe Outlet Midden	BETA-146749	Radio-metric	Charcoal	5080 ± 80	-25.0*	5090 ± 80	5990–5650	TUA, Level 13	ACI and JR (2001)
8VO58-60	Thornhill Lake Complex	BETA-231047	AMS	Charcoal		-22.8	4170 ± 50	4840–4540	Mound A, shell at mound base	Endonino (2008)
8VO58-60	Thornhill Lake Complex	BETA-231054	AMS	Charcoal		-26.1	4430 ± 40	5280–4870	TU1, Stratum V	Endonino (2008)
8VO58-60	Thornhill Lake Complex	BETA-231049	AMS	Charcoal		-25.1	4950 ± 90	5910–5480	South ridge, TUF, Feature 7	Endonino (2008)

Table A-1. continued

Site Number	Site Name	Sample	Method	Material	Measured ^{14}C Age B.P.	$^{12}C/^{13}C$ Ratio	Conventional ^{14}C Age B.P.	2σ cal B.P.	Provenience	Source
8VO58-60	Thornhill Lake Complex	BETA-231048	AMS	Charcoal		-26.0	4970 ± 40	5880–5600	Mound B, TUD, Stratum VI, Basal Shell	Endonino (2008)
8VO58-60	Thornhill Lake Complex	BETA-231053	AMS	Charcoal		-24.4	5130 ± 40	5990–5740	TU H, Stratum IV	Endonino (2008)
8VO58-60	Thornhill Lake Complex	BETA-231050	AMS	Charcoal		-24.3	5170 ± 40	6000–5760	North Ridge, TU1, Stratum Va top	Endonino (2008)
8VO58-60	Thornhill Lake Complex	BETA-231052	AMS	Charcoal		-22.7	5190 ± 40	6170–5770	TUH, Feature 2, Level 2	Endonino (2008)
8VO58-60	Thornhill Lake Complex	BETA-231051	AMS	Charcoal		-26.5	5420 ± 40	6300–6030	North Ridge, TU1, Stratum VI	Endonino (2008)
8VO81	Tomoka Mounds	BETA-54622	AMS	Marine shell	4060 ± 70	0.0	4460 ± 70	4810–4450	Coquina Midden at Base of Mound 6	Piatek (1994)

*Presumed corrected ratio

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BIOGRAPHICAL SKETCH

Asa R. Randall is a native of Massachusetts. Asa began his college career at Boston University, where he earned his Bachelor of Arts in archaeological studies in 1999. He was accepted to the University of Florida in 1999, but deferred a year to work in the field of cultural resource management. Asa began graduate studies in 2000 and received his Master of Arts in anthropology in 2002. Since 2003, Randall has examined the histories of shell mounds along the St. Johns River in northeast Florida, and this research forms the basis of his dissertation. Asa earned his Doctor of Philosophy in anthropology in 2010, and is currently the Senior Archaeologist of the Laboratory of Southeastern Archaeology at the University of Florida in Gainesville.