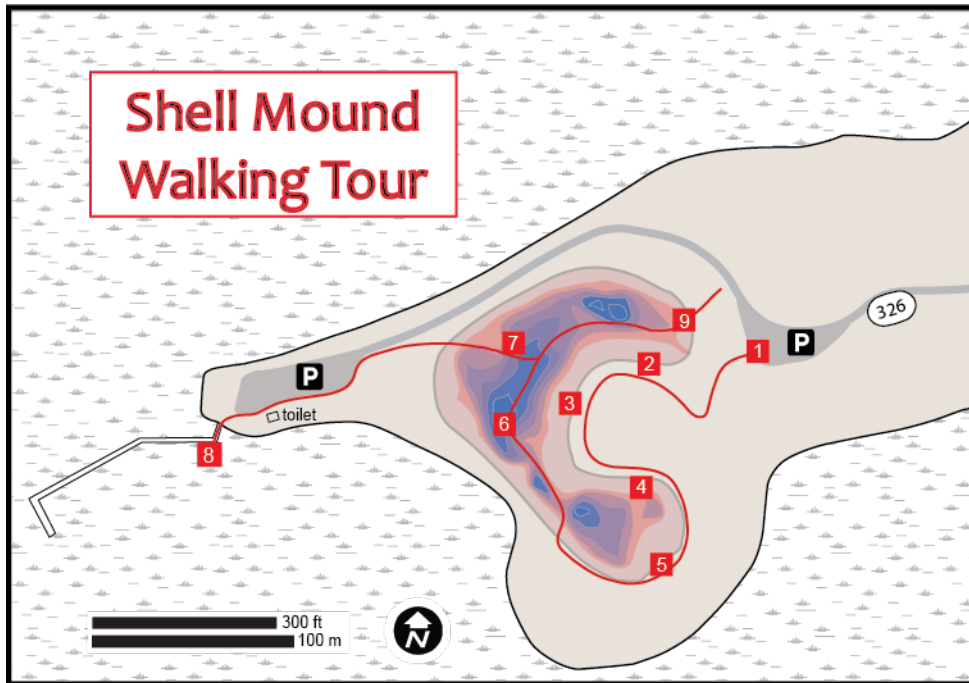# Shell Mound: A Portal into Another World

Shell Mound was a portal into another world for the people who lived here in the centuries before the arrival of Europeans; they regarded it literally as a gateway to the underworld. Modern visitors may find the experience of Shell Mound to be a portal into the world and worldviews of the ancients.

Location 1. Shell Mound, a Place of Gathering

Archaeologists from the University of Florida have been piecing together the history Shell Mound, and invite you to take a 30-minute walking tour that will reveal its wonders. By the end of this short trail you may have developed some insights into the lives of the ancient peoples who came here. They are known to us only through the mute remnants of their time on Earth at places like Shell Mound, and findings from the careful scientific investigations of these remnants by archaeologists.

The Florida peninsula has changed much over geological time. When sea levels were high, it consisted of a series of islands. The coastal lowlands we know today, including this parking lot in the Lower Suwannee National Wildlife Refuge where you now stand were under the sea. Later, when glaciers covered much of North America, vast amounts of water were withdrawn from the oceans to form ice, and the Gulf of Mexico coastline was as much as 150 miles west of its current location. Sometime during this history, large deposits of sand accumulated where you are now standing, probably having been washed down the Suwannee River. Much later this sand was blown by strong winds and formed as large dunes.

When the first people arrived on the Florida peninsula about 14,000 years ago, the glaciers had begun to melt, water was returning to the sea, and the coastline had begun retreating landward. Some scientists believe that the first people who crossed into the Americas over the Bering Strait land bridge did not spread outward evenly across the continents, but instead first clung to the Pacific coastline. If they moved along the coasts to occupy new areas, this linear progression could help explain how in a few thousand years they were able to expand to two continents. It also might suggest that the first dwellers in most parts of the New World made their livings on the coasts.

The first people living near this coast had to migrate landward as rising water inundated former villages. About 3,000 years ago, the sea was close to its current level, and despite occasional fluctuations, the coastline became relatively stable. The people living near Shell Mound in this time of relative stability likely included descendants of many generations that had followed the coastline as it retreated toward its present position.

Three things made this place special and one, its cemetery, made it sacred.

1st. Sand dunes with elongated arms, known as parabolic dunes, were formed by strong southwest winds during the last Ice Age, before arrival of the first people in the Florida peninsula. These dunes later provided attractive sites for dwellings on the low-lying coast when glacial melting caused the sea to rise again.

2nd. The tremendous biological productivity caused by mixing of fresh and salt water in the Suwannee estuary provided food for people in the form of abundant fish and shellfish. The ready availability of food was important, even though Shell Mound probably never harbored more than 14 or 15 dwellings, but hosted many guests for occasional feasts.

3rd. Perhaps most important, is the southwest to northeast orientation of the long dune arm. It is aligned with the position of the setting sun (240 degrees) on the winter solstice, the shortest day of the year, and the rising sun (60 degrees) on the summer solstice, the longest day of the year. This lent mystical significance to Shell Mound for people whose view of the world and their place in it was shaped by cyclical events that played out in daily, seasonal, and life transitions. The sun probably was seen as gathering the water and energy to fuel existence in its daily and annual cycles.

Thus, this place offered more than shelter and nourishment for the people who came here millennia ago. It was also sacred and central to their understanding of themselves and their place in the cosmos. Based on the kinds of pottery found in the cemetery at Palmetto Mound, archaeologists have found that it attracted people from as far away as southern Georgia, who came to participate in ceremonies connecting them with their past and binding them together as a society.

Shell Mound is today an archaeological site under stewardship of U.S. Fish and Wildlife Service. Fifteen hundred years ago, this was a place of ritual gathering for Native Americans across the region. Archaeologists refer to places such as this as "civic-ceremonial centers," meaning places of both residence and ritual activity. Like other civic-ceremonial centers in the region, Shell Mound drew its significance from the cemetery on Palmetto Mound, the hallowed ground of ancestors from far and wide. Shell Mound rose to prominence as a ritual center at about A.D. 400. Six generations later the mound achieved its final form—the C-shaped outline seen in the map above. It was abandoned as a residence another four generations later, at about A.D. 650, but the cemetery on Palmetto Mound remained active through at least A.D. 1300.
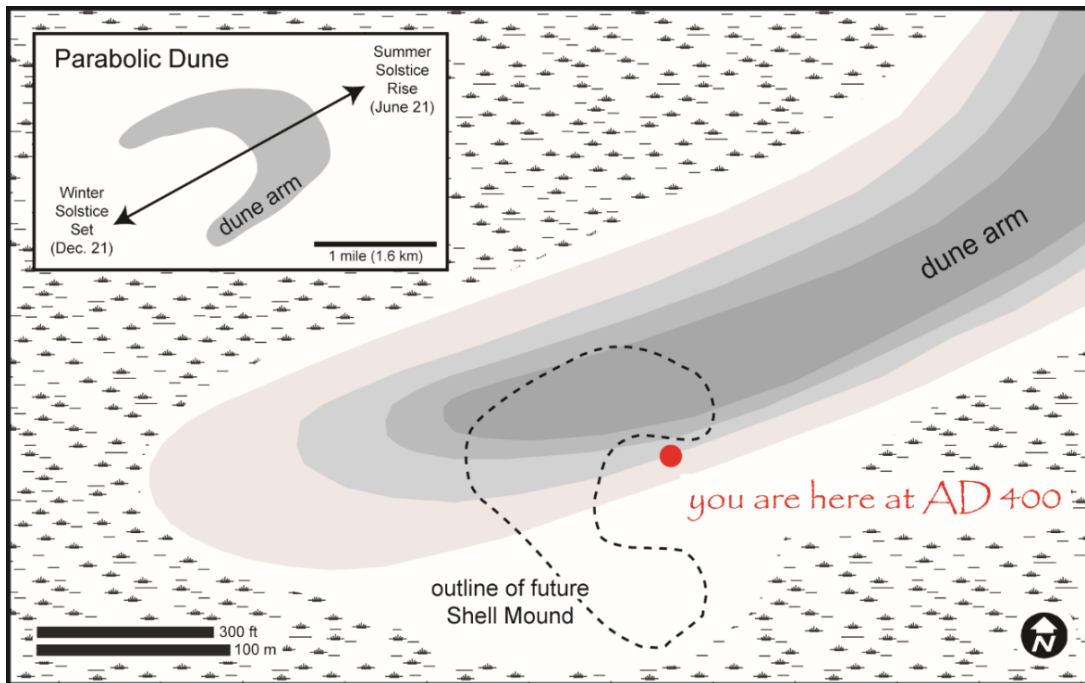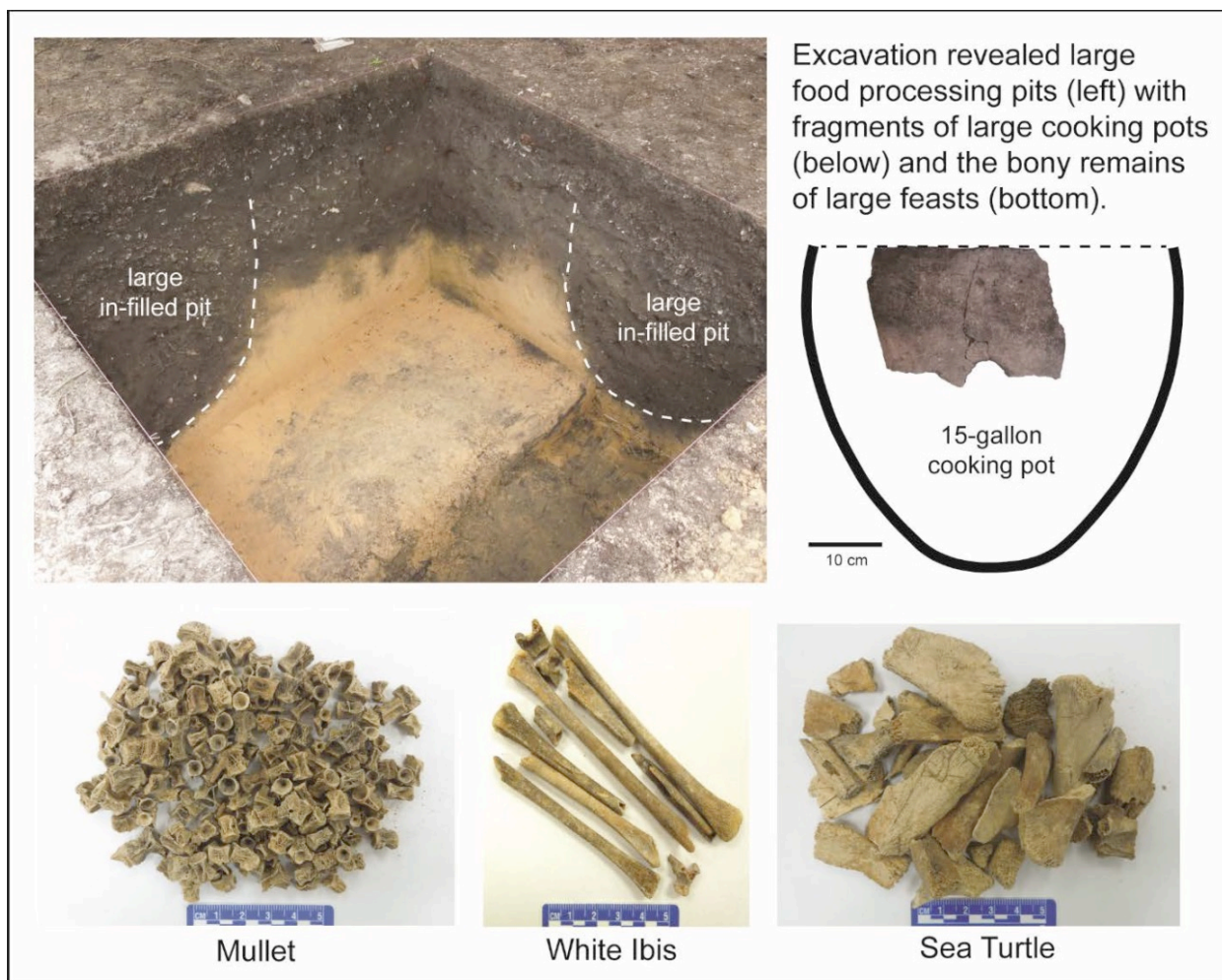
Location 2: Gathering on Dunes

The road you traveled to get to Shell Mound follows the arm of a U-shaped, parabolic dune that formed during the last Ice Age, when the coastline was still far to the west.

As the sea rose with warming climate, eroding dune sand was dispersed across the tidal flats, enabling productive salt marsh ecosystems to thrive. Later, the remnants of dunes that despite eroding for centuries, were still high enough to provide refuge for people escaping rising sea.

The dune arm you stand before was first occupied at about A.D. 400, well before Shell Mound reached its final shape. Into the side slope of this dune arm early residents dug large pits for cooking oysters and other food. The scale of food preparation was unusually large, suggesting that groups gathered at this place occasionally for big feasts. One reason for such gatherings can be found in the dunes themselves.

Beyond the usual significance of solstices to calendars worldwide, local people since at least 4,500 years ago buried the remains of their ancestors at the ends of dune arms. This dune arm pointed to the setting winter solstice sun which they may have seen as the portal to the underworld. When first established, the cemetery at Palmetto Mound may have been contiguous with the end of this dune arm. Eventually this was the site of a settlement, but it may have been more important as the site of a cemetery because the cemetery preceded settlement by many centuries. It follows that people were drawn to this location because it provided a link to their common ancestry, and furthermore because the annual cycle of the sun established the timing of ritual gatherings.

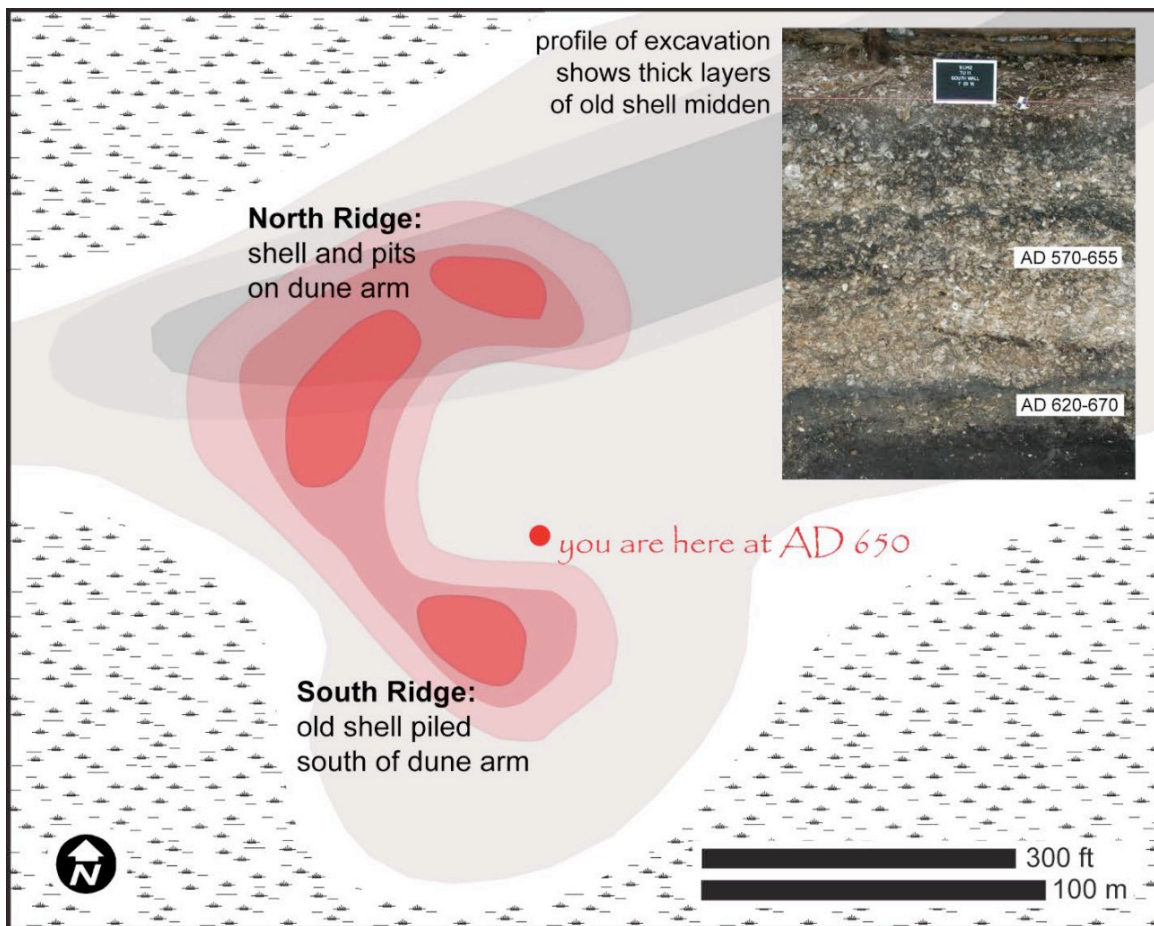Like modern settlements in the area, Shell Mound was not a self-contained entity, but instead was part of and dependent upon a network of communities that extended throughout the current north Florida region and beyond. Although influenced by the local effects of changes like sea level fluctuations, the community here was also at the mercy of wider social and political changes occurring throughout the Southeast.

Excavation revealed large food processing pits (left) with fragments of large cooking pots (below) and the bony remains of large feasts (bottom).

large in-filled pit

large in-filled pit

15-gallon cooking pot

10 cm

Mullet

White Ibis

Sea Turtle

Location 3: Feeding a Crowd

You are now at the midpoint of the interior arc of Shell Mound. Behind you, to the east, is the open interior of the C-shaped mound. To the west and north is the dune arm and the oyster shell and other materials that were emplaced on it. As with the previous location, excavation showed that large pits were dug into the dune sand to prepare large quantities of food.

These pits later became waste bins for the remains of feasts, including fragments of 15-gallon cooking pots that were specially made for ritual gatherings. Food remains are diverse, but they are dominated by the bones of fish and among them mullet bones are the most common. Noteworthy among bones other than fish are the remains of juvenile birds, mostly white ibis. Rookeries on islands to the south of Cedar Key were the likely source of these fledgling birds and, given their age, June was the likely month of harvest. An abundance of sea turtle bone also points to early summer. Sea turtles don't currently nest in numbers in the area, perhaps because of the paucity of sandy beaches, but the shallow waters of Florida's Big Bend are important summer foraging areas for adult and juvenile turtles. Many lines of evidence support the idea that ritual feasts took place during the summer solstice, around June 21, the longest day of the year. Despite the passage of time, many present-day cultures continue to hold celebrations around the times of the solstices.

profile of excavation shows thick layers of old shell midden

AD 570-655

AD 620-670

North Ridge:
shell and pits on dune arm

• you are here at AD 650

South Ridge:
old shell piled south of dune arm

300 ft
100 m

Location 4: Terraforming

Something big must have happened about A.D. 550. Whatever it was, it seems to have enhanced the role of Shell Mound. There was an apparent burst of activity that resulted in Shell Mound being reshaped by the people, not by natural changes. In a few decades, Shell Mound reached its final form. Perhaps its ceremonial function spread to people occupying an even larger region. Or maybe mound building became more thoroughly incorporated into the ritual activities of visitors.

The ridge you see at this location—the South Ridge—is the product of human effort alone. Excavations show that a thick deposit of oyster shell and other materials that was dug up from some other place and deposited here. Seen in the photograph to the upper right is an example of "reverse" layering, when older material is on top of younger material. Archaeologists tend to interpret reverse layering as modern disturbance, but in this case it is an example of ancient landscape engineering, or "terraforming." The source of shell for creating this ridge is uncertain. It may have come from the North Ridge, or perhaps the central area, which is now free of shell. Also uncertain is the activity in this location prior to terraforming. Dark soil below the shell, as seen in the photo above, indicates the accumulation of a great deal of organic matter, ancient waste heaps that archaeologists call "midden."

It is unlikely that Shell Mound was wooded as it is today, but shell mounds everywhere tend to support the kinds of plants such as redcedar, coontie, and white indigo that would not be found on sand dunes. Another plant, soapberry, is mostly found on shell mounds and conceivably could have been carried from mound to mound by Native Americans because of its useful soap-like properties.
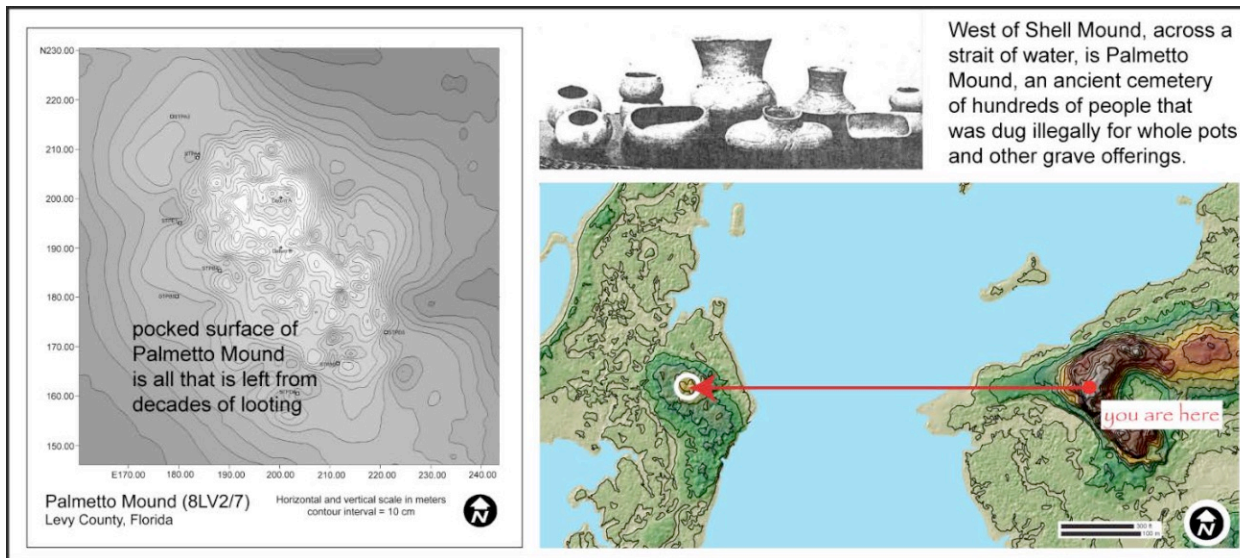
Shell mounds throughout Florida were mined for shell or leveled for development (upper left), including those of Cedar Key (bottom left). The systematic methods of modern archaeology (below) aim to recover details on the context and association of artifacts and other materials.

New Smyrna, Fla. Old Spanish Shell Mound.

Cedar Key Indian Mound

Location 5: Site Destruction and Preservation

Taking a break from the unique story of Shell Mound, here at the south end of the mound is a good place to talk about site destruction that occurred across the wider region, and the need for preservation. The large hole you see in the side of the shell ridge was made in the 1970s, when the land was privately owned by someone who wanted to develop it for commercial use. The pathway you are on was formed with shell from this hole. Such was the fate of hundreds of mounds throughout Florida. Shell was mined commercially for road aggregate, fertilizer, and building material because it was easily and inexpensively obtained locally. Shell Mound is actually a rarity in the region, because the impact from this 1970's activity was minimal, and the site stands today in its more-or-less original form.

Archaeological excavation is destructive too, but when done properly, controlled excavation aims to preserve the associations among artifacts, food remains, and other materials in their original contexts. That is why archaeologists dig in grids and levels. They also refrain from digging more than they need to. Unless a site is under threat of imminent destruction—which warrants complete recovery—it is prudent to leave something intact for future generations. New technologies coming on line in the future may permit archaeologists to revisit sites and to gain new and fuller insights into the past. Sites on federal lands, such as Shell Mound, are protected by laws and regulations that prevent indiscriminate destruction.

West of Shell Mound, across a strait of water, is Palmetto Mound, an ancient cemetery of hundreds of people that was dug illegally for whole pots and other grave offerings.

pocked surface of Palmetto Mound is all that is left from decades of looting

Palmetto Mound (8LV2/7)
Levy County, Florida

Horizontal and vertical scale in meters
contour interval = 10 cm

you are here

Location 6: Ancestral Ties

Now back to the discussion about Shell Mound's civic-ceremonial role, you have arrived at the apex of Shell Mound and its commanding view of the surrounding terrain. Take a look to the west, across the water. The closest land mass in that direction is Hog Island, location of the cemetery known as Palmetto Mound. It may have been contiguous with the dune arm on which Shell Mound rests before erosion or a slight rise in sea level.

Since the mid-19th century, Palmetto Mound has been the target of looting. From the accounts of looters themselves, we know that hundreds of people were buried in the mound, along with an even larger number of pots, including pots with molded animal heads and some with human faces. Fortunately, two large collections of looted pottery ended up in museums, including the Florida Museum of Natural History and the South Florida Museum. Archaeologists studying these collections provide information on the origin and age of the pots. It turns out that the mound was initiated as a cemetery as early as 800 B.C., and it continued to be used for that purpose well into the 14th century A.D., long after Shell Mound was abandoned as a place of residence. Strong evidence from nearby McClamory Key indicates the reburial of remains from sites possibly inundated by rising seas, but no such evidence exists for Palmetto Mound. Despite the fact that nothing is left of Palmetto Mound other than the pocked surface of illegal digging, its position at the end of a dune arm is consistent with the longstanding practice of emplacing the dead with the setting winter solstice sun.

In contrast to the somber symbolism of the winter solstice, the summer solstice was a time of life-renewing forces. Gatherings at Shell Mound were synced to the cycle of life and death, and the practice of early people was to celebrate that the summer as a time of renewal.
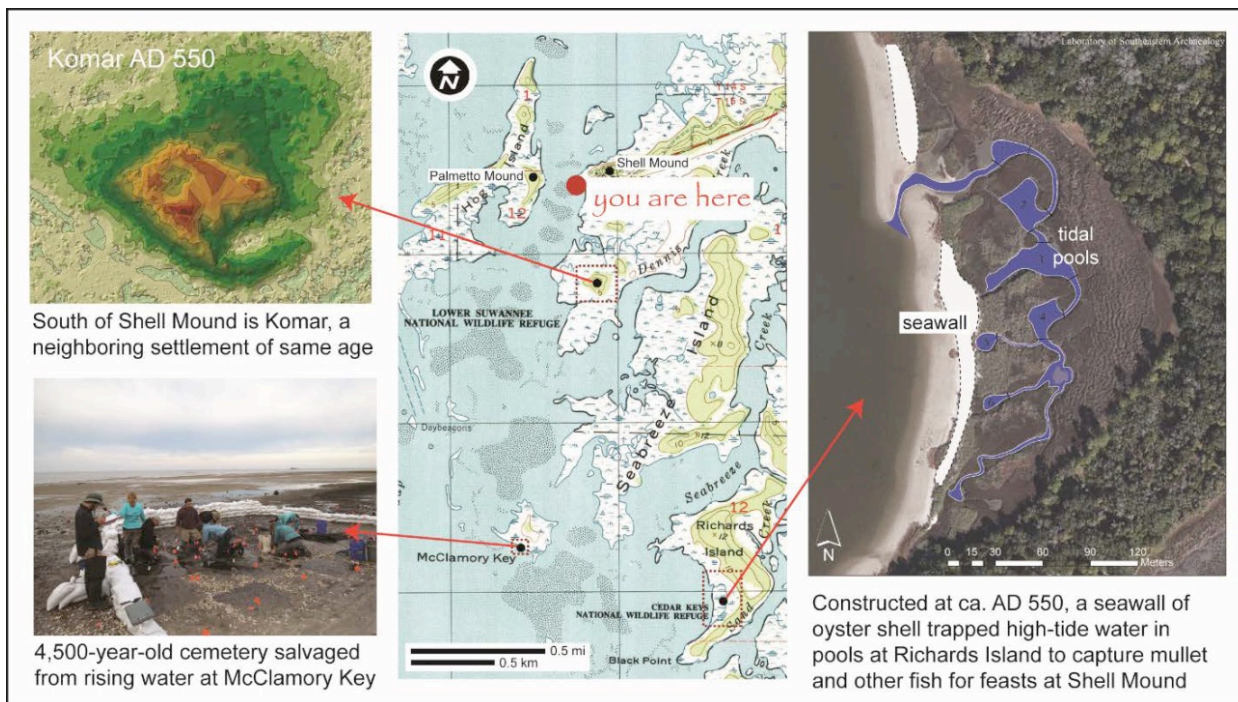
Oyster shell reveals evidence for cultivation
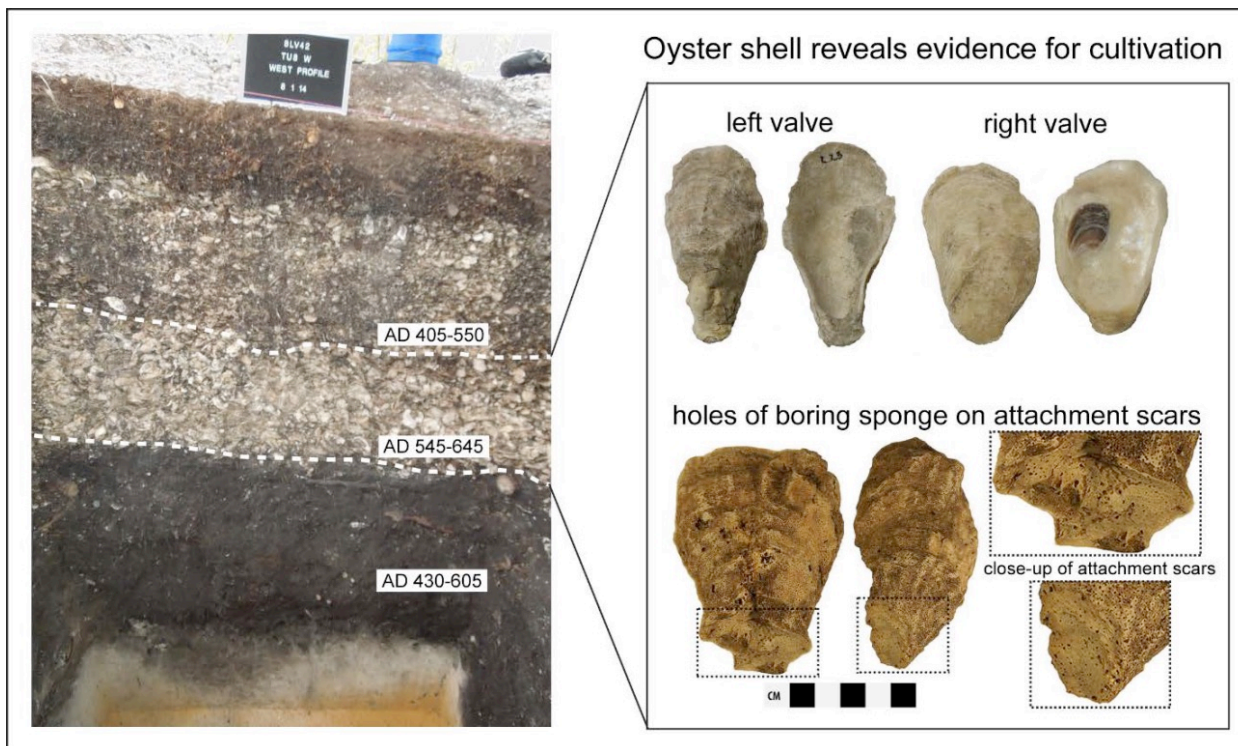
Location 7: Mariculture

Archaeologists estimate that Shell Mound contains the shells of 1.2 billion oysters. If those oysters were harvested over a period of thousands of years, perhaps the natural populations could have supported such heavy harvesting and renewed themselves. Indeed, before modern times, many shallow reefs near the mouth of the Suwannee River and intertidal beds such as those around Shell Mound provided highly productive oyster habitat. However, most of the oyster shell at this site accumulated not over thousands of years, but over a century or less. Plus, at times of ritual gathering, the demand for oysters must have spiked.

We now have strong evidence that, to meet this demand and prevent overexploitation, oysters were managed by Native people for long-term sustainability. Excavation at this location provided clues to two forms of oyster *mariculture*.

First, the right valve (shell) of oysters—the flat "lid" you remove to get to the edible part—was returned to the water to encourage the growth of reefs. The left valve was added to the growing mound.

Second, oyster clusters were culled by removing mature individuals, leaving smaller ones behind to grow. Specimens have shown holes made by boring sponges on the former attachment scars of oysters. This suggests that larger oysters were taken and the clusters of smaller oysters of which they were part were returned to the water—if they had remained attached to larger oysters, the boring sponges could not have accessed the scars. The layer of clean shell in the photo above provided strong evidence for both of these maricultural techniques, and it dates to the time of terraforming, when ritual gatherings were especially large. Incidentally, the shell overlying this layer is another example of reverse layering and it likely originated from the depression you see in the surface in front of you, possibly the former location of a house.
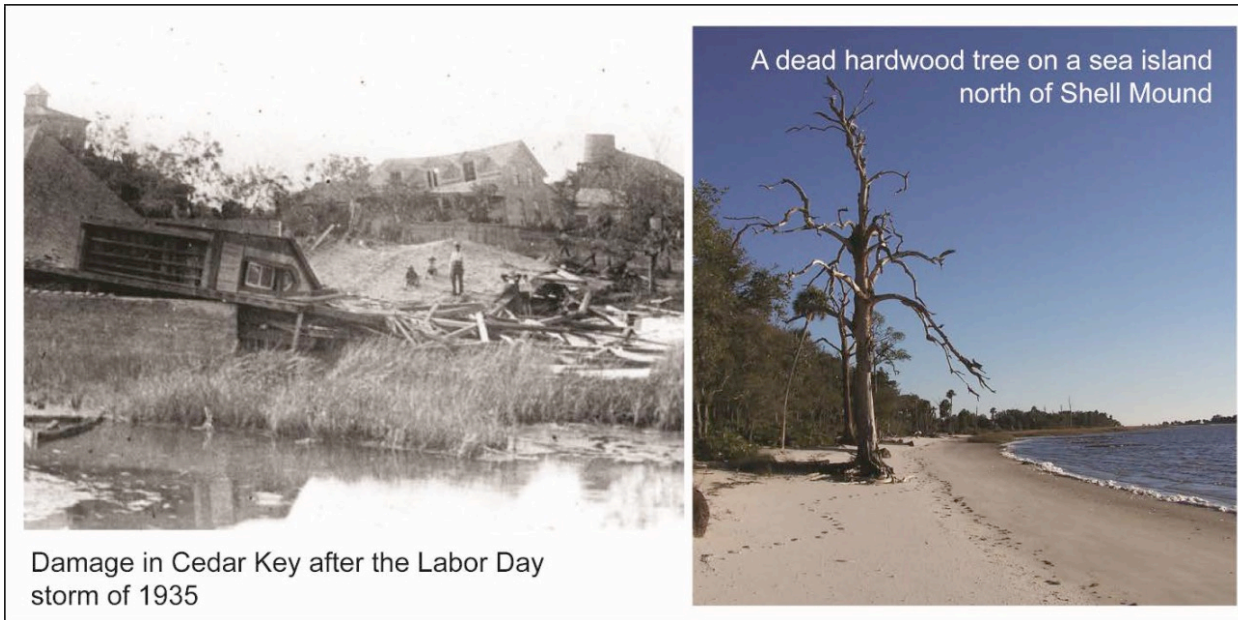
Komar AD 550

South of Shell Mound is Komar, a neighboring settlement of same age

4,500-year-old cemetery salvaged from rising water at McClamory Key

you are here

Constructed at ca. AD 550, a seawall of oyster shell trapped high-tide water in pools at Richards Island to capture mullet and other fish for feasts at Shell Mound

Location 8: Larger Context (at the base of the fishing pier)

The vantage point from this spot provides a reminder that Shell Mound is only one archaeological site in a constellation of many sites, some older, some younger, and a few of similar age. Three locations to the south, in the direction you are looking, bear special mention. The first is a place known as Komar. This low-lying hammock would be underwater today were it not for the accumulation of oyster shell and other materials by people during the time of Shell Mound, A.D. 400-650. Although work there has only just begun, archaeologists suspect that the inhabitants of Komar participated in ritual gathering at Shell Mound.

The second location is out of view but incredibly important to the economy of ritual gatherings. On the western margin of Richards Island archaeologists have documented a fish trap consisting of an oyster shell seawall and a series of tidal pools. Mullet feeding in summer, before their fall runs, are a good target for traps like this.

And the third location is an ancient one. McClamory Key lies just over a mile south of here. Eroding from the beach there several years ago were 32 burials dating to about 4,500 years ago. These individuals would have been buried in the ground when the sea level was several feet below its modern elevation. Most of these individuals were actually buried elsewhere first and then removed and relocated, presumably landward, as the sea rose.

The McClamory Key cemetery is a stark reminder of the vulnerability of sites. Archaeologists are in a race against time, in which sea level rise threatens to obliterate ancient sites throughout the region. The McClamory Key cemetery is also a testament to the antiquity of the tradition of placing the deceased at the end of dune arms. Taken together, these and many other sites in the greater area remind us of the need to look at Shell Mound in broader historical and geographic contexts.

A dead hardwood tree on a sea island north of Shell Mound

Damage in Cedar Key after the Labor Day storm of 1935

Location 9: Abandonment

Shortly after A.D. 650, about 100 years after they began reshaping Shell Mound to its current formation, Native people abandoned the site. They also abandoned other civic-ceremonial centers in the region: Garden Patch to the north and Crystal River to the south. Because places of gathering and residence were abandoned at about the same time across a swath of Florida's coastline, it is logical to look for environmental causes like climate change.

Clearly, ancient communities had to deal with environmental changes. Big climate events like hurricanes obviously take their toll on coastal communities, ancient and modern. A hurricane in 1896 forced the town of Cedar Key to abandon the island of Atsena Otie and relocate to its current position on Way Key. Storms ever since have challenged the permanence of the town, and eventually it will be relocated again or abandoned altogether.

Even small changes in climate or changes induced by human exploitation of resources could have disrupted fragile ecosystems and degraded the food supply, making it more difficult to support the levels of activity formerly occurring at Shell Mound.

Ancient communities relocated as the sea encroached, but until they created civic-ceremonial centers with elaborate infrastructure, moving was not terribly demanding. Beyond events, environmental change also came slowly and gradually, as with the salinization of groundwater that killed the hardwood tree in the photo above. Under these conditions communities could adapt through innovations and other ways to make ends meet. One way to adapt may have been a transformation of functions, as occurred at Shell Mound when first its residential and then its civic-ceremonial functions were abandoned and the place persisted only as a cemetery.

As important as environmental change was to these ancient people and the role of places like Shell Mound, other changes may have been at work. The culture and social stability of Shell Mound was predicated on a network of other communities whose people gathered here, including those who came from communities deep in the interior of the Southeast. Shell Mound and other civic-ceremonial centers could only persist as long as they remained parts of wider networks. One possibility is that their simultaneous abandonment had more to do with the failure of these supporting networks than it did local environmental conditions. Our own future with climate change may similarly force us to decide what to keep and what to abandon.