

PLANT USE AT THE FELTUS MOUNDS SITE: A LOOK AT COLES CREEK
SUBSISTENCE

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A paper presented at the 65th annual meeting of the Southeastern Archaeological Conference.

Charlotte, NC
2008

From roughly AD 700 to 1200, socially complex Coles Creek cultures inhabited the Lower Mississippi Valley and built numerous mound centers throughout the region. For many cultures of the Late Prehistoric Southeast, the construction of monumental earthworks arose out of sociopolitical hierarchies created by the intensification of maize agriculture. At first it was assumed that Coles Creek people were farmers relying on maize to support their largely sedentary lifestyle and civic building projects. Evidence from archaeological investigations, however, failed to provide support for this assumption. It became apparent that Coles Creek populations were an exception to this supposed link between agriculture and hierarchical organization.

As subsistence-based research has increased in the Lower Mississippi Valley, the potential for variation in historical trajectories has become clear. The peoples of the Coles Creek period were not farmers, but rather complex foragers who relied almost exclusively on wild resources. They most likely managed these resources through small-scale cultivation and simple arboriculture. Even among Coles Creek sites, however, there are considerable variations in subsistence patterns.

In light of these issues, my study sought to examine the use of plant resources at Feltus Mounds, an early Coles Creek mound site near Natchez, Mississippi. Two main goals were set for the research: the first was to better understand subsistence at Feltus, and the second was to explore interregional variability by comparing the Feltus plant assemblage to those of other contemporaneous Coles Creek sites. Data analyzed by Katherine Roberts from the Hedgeland, Shackleford Lake, and Lisa's Ridge sites in northeast Louisiana were chosen for comparison.

The Feltus site is located in the bluffs of Jefferson County, Mississippi, about 24km north of Natchez. It is an early Coles Creek period mound site that dates from approximately AD 700

to 1000. Originally the site was composed of at least four earthen mounds (labeled A-D) positioned around a central plaza; today, however, only mounds A, B, and C remain.

The most recent excavations at Feltus were conducted by the University of North Carolina's Research Laboratories of Archaeology. These excavations were part of two field schools held during the fall semesters of 2006 and 2007. The project, directed by Dr. Vincas Steponaitis, aimed to date the site, as well as to develop an understanding of the construction history and use of the mounds and plaza. As a UNC undergraduate student, I was a participant of the 2006 field school, and was responsible for processing flotation samples in the field.

For my study, I analyzed 19 flotation samples taken during 2006 and 2007 from the plaza, Mound A, and Mound B. The plaza samples analyzed all originated from Feature 4, a large midden-filled pit feature in the southern end of the plaza. Only a small portion of the pit feature was excavated during the 2006 field season, but it was later completely bisected by a trench in 2007. Evidence suggests that the pit was deposited and covered in a rapid sequence of events.

The Mound A samples were all from a sub-mound midden deposit on the eastern slope of the mound. Excavations of this midden began in 2006 with two separate units: one on the eastern slope and another on the southeastern flank of the mound. In 2007, a trench connecting the two units was excavated. In all units, the same sub-mound midden was reached. Thus, all samples from Mound A originate from the same midden deposit. The deposit was later capped with mound fill.

The samples analyzed from Mound B were the only samples for this study that were not taken from midden contexts. Since midden samples from Mound B were lacking, I decided to analyze samples from four contexts in the summit unit: a charcoal deposit, a burnt hearth, a burnt

living floor, and another burnt layer of clayey silt, which was either a burnt hearth or floor. Contexts like hearths and floors were often cleaned or swept during their use, and therefore do not always contain the high numbers of plant remains that midden deposits may produce. Hearth contexts may, however, provide a better glimpse of specific activities taking place around the hearth than refuse deposits allow us to see.

Before continuing to my findings, it will be helpful to understand exactly how I analyzed and organized my data. I sorted the samples at the University of North Carolina's Paleoethnobotany Laboratory under the direction of Dr. Margaret Scarry. In order to effectively compare the data between different contexts and sites, I used standardized counts. These ratios are obtained by dividing raw counts by the total plant weight of the sample. More complex analysis of the data was conducted through correspondence analysis. With the help of Dr. Steponaitis, the correspondence analysis was generated by Stata. Using correspondence analysis, it may be possible to detect patterned relationships among the variables that are not obvious when simply looking at the tabulated data.

In addition to looking at individual taxa, I also placed each plant into one of the following categories: acorns, other nuts, starchy and oily seeds, fruits, miscellaneous, and unidentified or unidentifiable.

Acorn shell and acorn nutmeat were considered separately from other nuts because of their unique starchy quality, which made them an important source of carbohydrates in ancient North American diets. The other nuts category includes thick-shell hickory, thin-shell hickory or pecan, and walnut. The starchy and oily seeds category encompasses a number of plants including chenopod, maygrass, and sumpweed. Although some of these plants have a long history of cultivation and domestication by prehistoric Southeastern populations, the seeds

recovered from Feltus appear to be from wild or cultivated species, and are not clear domesticates. Fruits consist of fleshy fruits and berries like grape, persimmon, and cabbage palm. The miscellaneous group was a catchall for plants that did not fit into the other main categories.

The 11 plaza samples from Feature 4 contain diverse plant remains from all six of the plant categories identified at Feltus. They are dominated by acorn and thick-shell hickory, but have only small amounts of thin-shell hickory, pecan and walnut. Starchy and oily seeds were the third most common type of remains found in the plaza samples. Maygrass, chenopod, and amaranth seeds had the highest standardized counts from this group. Far smaller amounts of erect knotweed, sumpweed, and smartweed were recovered. Although fruits did not account for a large portion of the plaza assemblage, six different fruit species were identified: cabbage palm, elderberry, grape, hackberry, maypop, and persimmon. Of these, grapes were by far the most abundant. In fact, more grape seeds were found in the plaza than anywhere else in the site. The plaza also contained a few miscellaneous seed types, most notably bedstraw, purslane, and pokeweed, which were not found in any mound samples. Due to the nature of the deposition, the plaza pit feature may contain refuse from a relatively short-term, distinctive event. The notable frequency of acorns and nuts in the plaza could be an indicator that this event took place during the fall.

Like in the plaza, acorn and thick-shell hickory are the most abundant plant remains from the four Mound A samples analyzed. The standardized count of starchy and oily seeds, however, almost equals that of acorn. Chenopod, cucurbit rind, erect knotweed, and maygrass, were the principal components of this category. Fruits were not as common as acorns, nuts, and starchy and oily seeds. On Mound A, the most frequently occurring fruit remain is cabbage palm.

Remains of blackberry or raspberry, grape, maypop, and persimmon were also identified in small numbers.

Four samples from the summit of Mound B were analyzed, but due to fundamental differences in context, as well as the low number of remains found, Mound B is not easily compared to Mound A or the plaza. Acorn and thick-shell hickory were the only nutshell found, and they occurred in very small amounts. By far, the most abundant type of seed in Mound B contexts was chenopod. These seeds account for almost 85% of the Mound B assemblage.

Chenopod occurred in two separate samples: a burnt hearth, and a possible burnt floor.

Inadvertent size-sorting may account for these seeds being so common in contexts where little else is found. For instance, if a hearth or floor is being swept clean, larger seeds and pieces of nutshell are likely to be swept away, while the extremely tiny seeds of the chenopod plant might be more likely to be ground into the floor and go unnoticed during cleaning. Also, these seeds could be the result of a single event, whereas middens tend to show more accumulation, often representing multiple events. In addition to the chenopod, a few erect knotweed, sumpweed, and grass seeds were also found on Mound B. No fruits were present in the samples.

Overall, the data reveal that plant use at the Feltus site is indeed consistent with broad patterns of Coles Creek subsistence. The plant remains recovered suggest reliance on wild and/or casually cultivated species, which supports the view that Coles Creek peoples were foragers as opposed to agriculturalists. Based on standardized counts, acorn is the most commonly occurring taxon in the refuse deposits sampled from the plaza and Mound A. Thick-shell hickory seems to have also been an important resource. Of the starchy and oily seeds, maygrass, erect knotweed, and chenopod are the most prevalent. Fruits are the least common plant category, but a variety of fruit seeds are consistently present in the Mound A and plaza samples.

It is important to note that there has been no evidence of maize recovered from the Feltus site. Maize becomes an important dietary component for Mississippian cultures circa AD 900-1200, but people of the Lower Mississippi Valley do not seem to have adopted large-scale maize agriculture until the later Plaquemine period. Small amounts of maize have been found at later Coles Creek period sites in Louisiana researched by Fritz and Kidder, but the quantities do not suggest that it was a dietary staple.

At this point, the absence of maize from Feltus flotation samples may not entirely rule out the possibility of maize use at the site. The samples analyzed for this study are only a fraction of the total samples taken from Feltus--while I tried to select contexts that might have the most to tell us about subsistence at Feltus, they may not reflect *all* plant use at the site. Furthermore, the preparation of maize can affect its visibility in the archaeological record. Roasting maize, for instance, would be more likely to leave behind charred remains than boiling would. Considering the long history of maize-use in North America and the fact that maize has been found at later Coles Creek sites, it is not altogether unreasonable to think that people at Feltus were at least aware of its existence. The use of maize at Feltus, however, is not supported by current archaeological evidence.

After analyzing the Feltus data, I was curious how Feltus would compare to other Coles Creek sites of the same time period. To explore regional variability, I selected three sites in the Tensas Basin of northeast Louisiana for comparison: Hedgeland, Shackelford Lake, and Lisa's Ridge. The data from these sites were already collected and analyzed by Katherine Roberts, so I drew upon her work to form the basis for these comparisons. The Hedgeland site is a two-mound site with a long period of occupation. For my study, 29 samples which dated to around AD 750-850 were used.

The Shackleford Lake site consists of four mounds and occupation is believed to have taken place between AD 650 and 1000. Roberts analyzed 20 samples from Shackleford Lake.

Lastly, the Lisa's Ridge site differs from the other sites and Feltus because it is a non-mound site. It was mostly likely occupied around AD 800-900. Twenty samples were analyzed from Lisa's Ridge.

In order to compare Robert's data to that at Feltus, I standardized raw counts from each site assemblage. I chose to only include the Mound A and plaza assemblages from Feltus in the comparisons, since the midden samples seemed to be more representative of plant use at the site as a whole. Had I included Mound B, however, Feltus would have had a much higher occurrence of starchy and oily seeds. Aside from these points, the sites are comparable due to similar numbers of samples and roughly equivalent sorting methods.

Out of all four sites considered, the Hedgeland site contained the highest proportion of starchy and oily seeds; and, in fact, it was the only site at which these seeds outnumbered all other plant categories. There were high numbers of chenopod and echinocloa seeds, with maygrass following in a distant third. Acorn shell was only slightly less numerous than starchy and oily seeds, making these two categories account for 75% of the entire Hedgeland assemblage (not including unidentified remains). Hedgeland had nearly four and half times more fruit than Feltus. The fruits at Hedgeland include blackberry or raspberry, cabbage palm, grape, and persimmon, though persimmon is by far the most abundant of these.

The highest standardized counts of acorns came from the Shackleford Lake site. The amount of acorns almost quadruples the acorn counts at Feltus. Aside from this unusually high count of acorns, the rest of the Shackleford Lake assemblage is relatively well-balanced. Counts of other nuts, and starchy and oily seeds, while higher than those at Feltus, appear in relatively

comparable proportions to Feltus's. Shackleford Lake had high rates of fruit due to large numbers of persimmon and cabbage palm. The other fruits found at the site were blackberry or raspberry and hackberry.

Of the plant remains identified from the Lisa's Ridge site, nearly 90% belong either to the acorn or fruit categories, which make up 59% and 30% of the plant assemblage, respectively. Once again, there is a high occurrence of persimmon. Lisa's Ridge stands out not only because of high rates of acorn and fruits, but also because of strikingly low rates of starchy and oily seeds. Together chenopod, amaranth, bottle gourd, erect knotweed, and sumpweed make up only 2% of the entire Lisa's Ridge assemblage. Based on standardized counts, Feltus has over 10 times as many starchy and oily seeds. While it is hard to say for certain what accounts for this conspicuous lack of starchy and oily seeds at Lisa's Ridge, perhaps the high abundance of acorns, a resource high in starch and carbohydrates, compensates for this deficit. Overall, Lisa's Ridge lacks the plant diversity seen at the other sites, including Feltus. This may be because it is a non-mound site and different activities regarding plant use are being reflected. Sampling may also be a factor.

Overall, the three Tensas Basin sites have higher acorn counts than Feltus. This is especially true of the Shackleford Lake site, which has almost three times as many acorn remains as any other site. Feltus, on the other hand, has lots of thick-shell hickory, while the other sites have none. As opposed to thick-shell hickory, inhabitants of the Tensas Basin sites seem to have made greater use of thin-shell hickory or pecan. Some of these differences might be attributed to a difference in laboratory procedure. I sorted hickory from Feltus at both the 2 mm and 1.4 mm size-fractions, whereas Roberts only sorted hickory from the Tensas Basin sites at the 2 mm size-

fraction. Even though this might increase counts of thin and thick-shell hickory at Feltus, it does not affect the relative proportions of the two types.

Starchy and oily seeds are more common at the Hedgeland and Shackleford Lake sites than at Feltus, but Lisa's Ridge has the smallest number of these plants by far. At Feltus, maygrass and chenopod are the most common components of the starchy and oily seed category. At Hedgeland, chenopod and echinocloa are favored, and at Shackleford Lake, the most common of these plants are chenopod or amaranth, and maygrass.

All three of the Tensas Basin sites had much higher quantities of persimmon, and thereby fruits, than the Feltus site. The relative lack of persimmon at Feltus is one of the more notable differences between the sites. While more grape seeds were found at Feltus than any other site, it is not likely that grapes had the same significance at Feltus that persimmon did in the Tensas Basin.

The comparison of Feltus to the Hedgeland, Shackleford Lake, and Lisa's Ridge sites illustrates that subsistence strategies were probably similar throughout various regions of the Lower Mississippi Valley, but that there is variation from site to site in regard to the use of plant resources. While more research would be necessary to uncover the exact causes of differences between the sites, it is possible that resource availability, depositional circumstances, and/or issues relating to sampling may be factoring in. After all, Hedgeland, Shackleford Lake, and Lisa's Ridge are all in the Tensas Basin of Louisiana, west of the Mississippi River, whereas Feltus lies to the east of the river in the Natchez Bluffs. Ecological and geographical differences between these two regions certainly must have impacted the availability and quantity of certain resources. Pecan trees, for instance, inhabit mainly bottomland areas. Thus, they were probably more widely available at the lower elevation Tensas Basin sites than at the bluff-top Feltus site.

Furthermore, the deposits sampled from the various sites could be fundamentally very different—some may have been deposited and covered over relatively quickly, while others may have been used for greater portions of the year. Deposition could have also occurred at different times of year, causing them to be representative of different seasons. Regardless of cause, the differences of plant remain assemblages among the sites show the variability present in Coles Creek settlements in the Lower Mississippi Valley.

In conclusion, the analysis of flotation samples from the Feltus site shows a heavy reliance on acorns and thick-shell hickory, as well as an assortment of starchy and oily seeds. Fruits like grape and cabbage palm were probably also important. The data from Feltus strongly suggests dependence on wild resources, though some small-scale cultivation may have been taking place. Even though maize has been found in small amounts at later Coles Creek period mound sites, it has not yet been found at Feltus, despite the fact that Feltus is presumably a center for public activity. This furthers the idea that domesticates did not play a large role in the diet of people living at Feltus.

When Feltus is compared to three roughly contemporaneous Coles Creek sites, variations among plant assemblages are found. Data from Hedgeland, Shackleford Lake, and Lisa's Ridge show that people using these sites were more heavily dependent upon resources like acorn, thin-shell hickory, pecan, and persimmon than people at Feltus. Feltus people perhaps practiced more management of weedy seed-bearing plants. More research is necessary to tease out causes of these differences, but basic geographical considerations point to possible ecological factors. My results serve to emphasize the possibilities for variation within broader regional patterns. Even among contemporaneous sites, plant assemblages may look very different. They also point to the need for further subsistence research in the Lower Mississippi Valley.

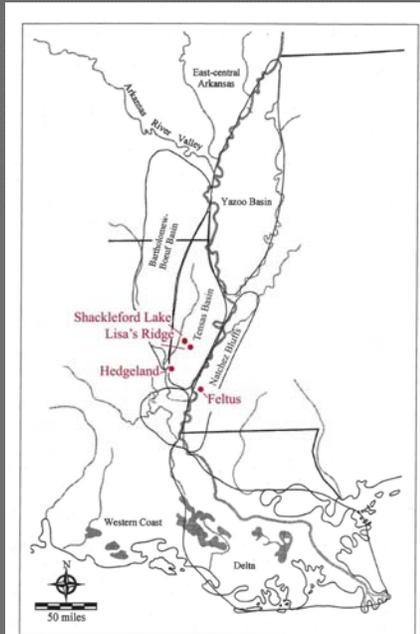
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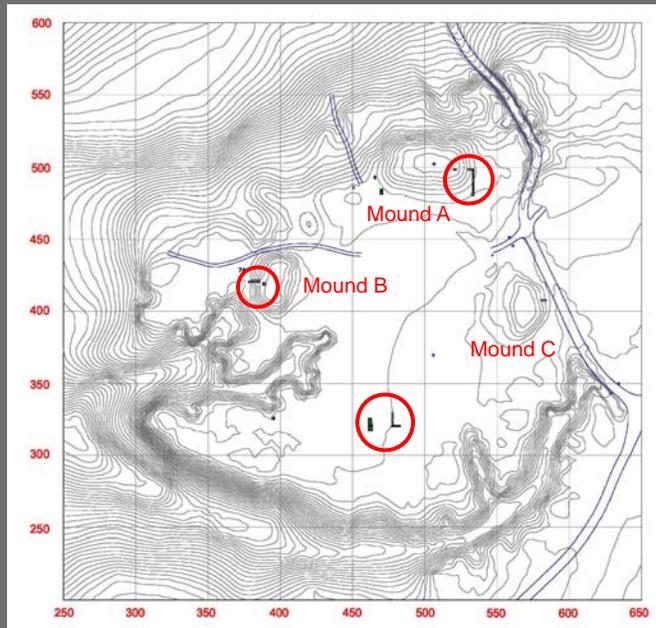
Research Goals

- Examine plant use at the Feltus Mounds site
- Explore interregional variability by comparing plant assemblages from Feltus to other Coles Creek sites researched by Katherine M. Roberts (2006):
 - Hedgeland
 - Shackleford Lake
 - Lisa's Ridge



Regional Map

Adapted from Kidder (2002)

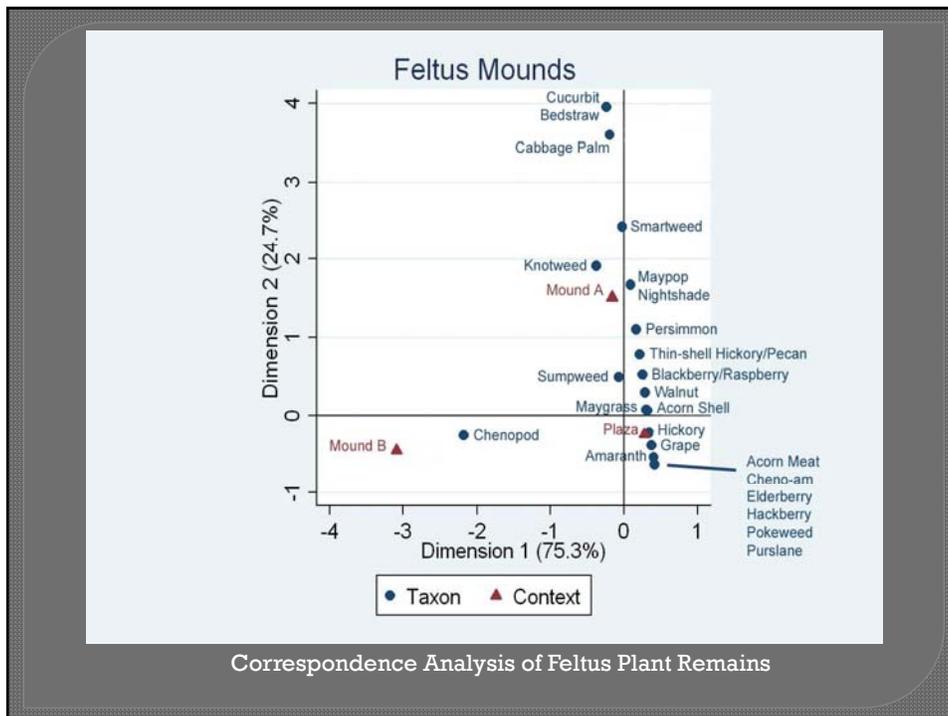


Map of Feltus Mounds, showing RLA excavations from 2006 and 2007

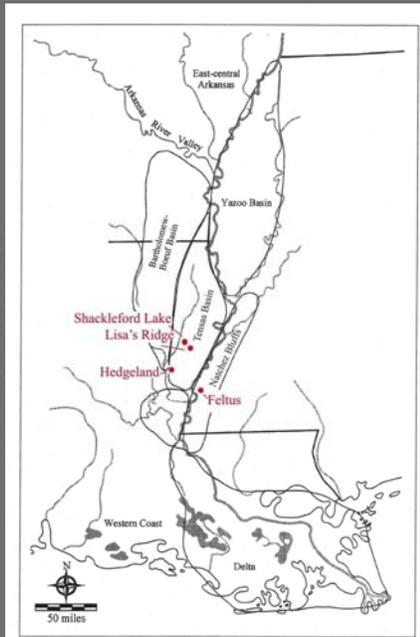
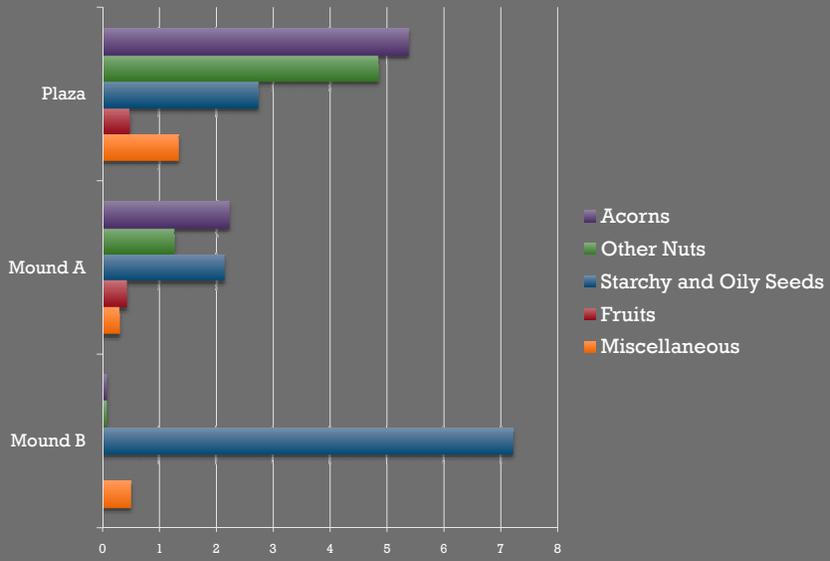
(Steponaitis)

Plant Categories Identified

- Acorns
- Other Nuts
 - Hickory, pecan, and walnut
- Starchy and Oily Seeds
 - Such as chenopod, maygrass, sumpweed, and knotweed
- Fruits
 - Such as grape, persimmon, and cabbage palm
- Miscellaneous
- Unidentified/Unidentifiable

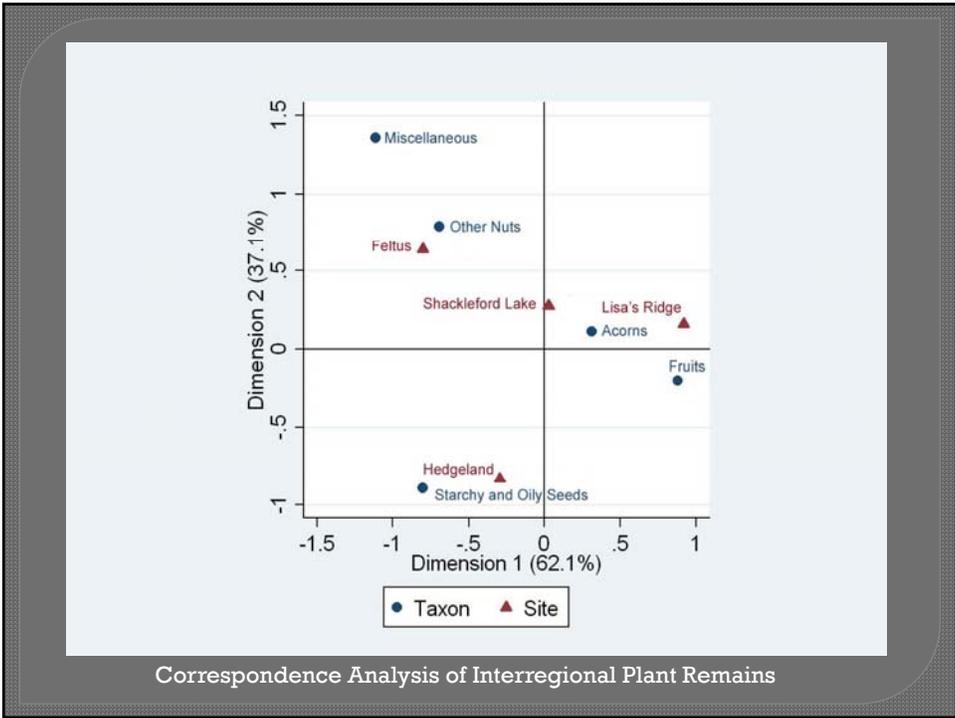
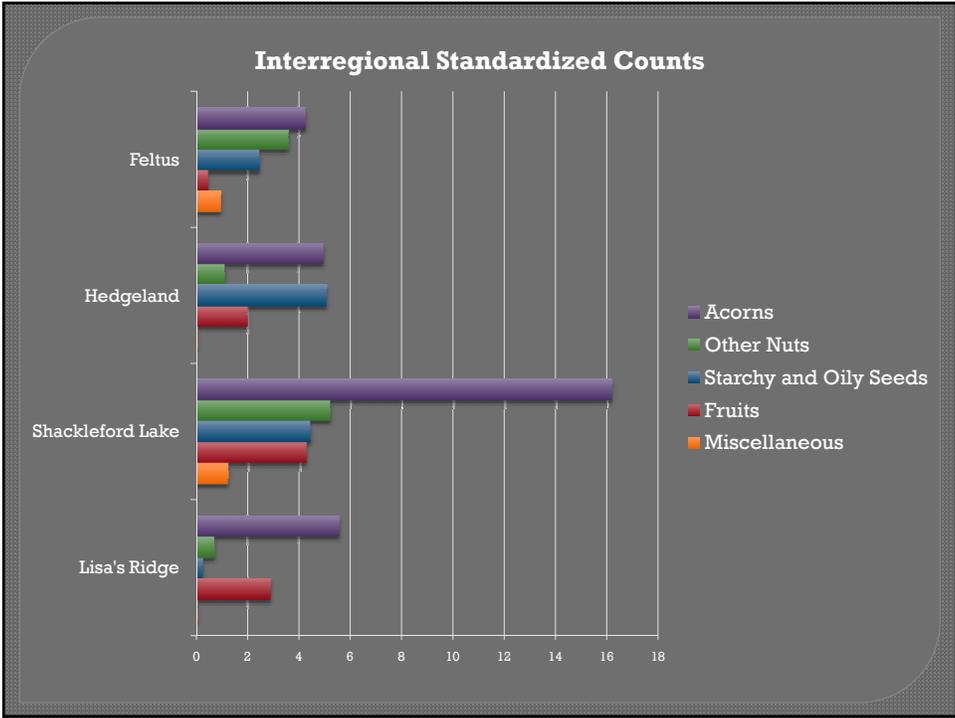


Standardized Counts of Feltus Plant Remains



Regional Map

Adapted from Kidder (2002)



How do the sites compare?

- Data from all sites suggest reliance on primarily wild resources
- Feltus plant assemblages are similar to those from the Tensas Basin sites, but interregional variation is apparent
 - Possibly due to ecological factors

Conclusions: The Feltus Site

- People at Feltus were probably dependent on wild resources and small-scale cultivation of those resources
 - Heavy reliance on acorns and thick-shell hickory
 - An assortment of starchy and oily seeds
 - Some fruits like grape and cabbage palm
- No remains of maize or other clear domesticates have been recovered

Conclusions: Site Comparisons

- Data from the sites in the Tensas Basin suggest heavier reliance upon acorn, thin-shell hickory/pecan, and persimmon than at Feltus
- People at Feltus might have practiced more management of weedy, seed-bearing plants
- Results show the potential for variation within broader regional patterns

Acknowledgements

- Dr. Margaret Scarry
- Dr. Vincas Steponaitis
- Dr. John Scarry
- Dr. Katherine Roberts
- Ben Shields
- University of Alabama Graduate Student Research and Travel Support Fund