Identifying Late Precontact Houses in the Yadkin River Valley

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Introduction

Ongoing research at the Redtail site (31Yd173) is constructing a model for the internal arrangement of Piedmont Village Tradition (PVT) settlements in the upper Yadkin River Valley (UYRV) of the North Carolina Piedmont. Recent work defined a 12x18m cultural lens with ~400 postmolds and a separate area containing pit features and higher concentrations of artifacts. Under part of the cultural lens, we uncovered a stained circular area (Figure 7). In the field, we hypothesized that these areas represent a houseflоor (stained lens area), general use area (non-stained lens area), and midden area (area with pit features and more artifacts). To test this, we examine four lines of evidence: the spatial distribution of 1) ceramic and 2) lithic artifacts by size; 3) postmold distribution; and 4) cultural stratum thickness. We hypothesize that if artifacts are smaller and less dense in the stained area, then this area was cleaned/maintained, indicating a houseflоor. We also hypothesize that if deeper postmolds correlate with the edge of the staining, then we have identified the wall of the house. Finally, we hypothesize that if the cultural stratum is thinner over the staining, there is compaction and less deposition , indicating a houseflоor.

The primary goal of this work is to develop a methodology for identifying houseflоors at single occupation sites in the UYRV. The larger goal is to produce a model of settlement layout and households that can be used to facilitate discussions of social organization and economic activities. These findings in turn could be used to augment recent research on regional settlement patterns and what they tell us about social, economic, and political relationships in the region (Jones et al. 2012; Jones and Ellis in press).

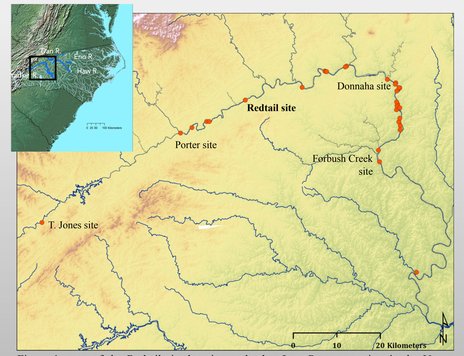

Figure 1: map of the Redtail site location and other Late Precontact sites in the Upper Yadkin River Valley.

Background

The Redtail site is located in the Upper Great Bend area of the UYRV, roughly 20km downriver from the Porter site and 40km upriver from the Donnaha site (Figure 1). It was discovered in the 1990s by Ned Woodall during systematic surveys of the UYRV. The site was not revisited until 2011, when the last author and several undergraduates conducted a systematic collection of surface artifacts. Shovel testing during the 2012 Wake Forest fieldschool revealed intact cultural remains below the plowzone. Excavations began in 2013 and have continued to the present. In August of this year, the first radiometric dates were obtained: one from an undisturbed pit feature in Block C and one from stratum 2 in Block A (Figure 6). The first returned an uncalibrated date of 580+/-30 BP, with intercepts at 1330, 1340, and 1395 CE and a calibrated ranges of 1300-1370 CE and 1380-1415 CE (Beta-416506). The second returned an uncalibrated date of 630+/-30 BP, with intercepts at 1305, 1365, and 1385 CE and a calibrated range of 1285-1400 CE (Beta-416505). Thus, the site was likely occupied for 100 years, mainly during the fourteenth century.

For most of the North Carolina Piedmont, the Late Woodland Period (AD 800–1600) was a time of population growth and consolidation and increased warfare and trade (Ward & Davis 1999: 98). This was not the case in the UYRV, where small hamlet-like settlements became more common, communities began focusing more on locally-obtained raw materials, and population may have declined, particularly after AD 1200. This represents a different political, economic, and social landscape in this portion of the Piedmont that may be partly a result of the formation of hierarchical Mississippian polities in the lower Yadkin/Pee Dee River valley to the south after AD 1100.

Using a classification scheme devised by Jones et al. (2012), the Redtail site has been categorized as a medium long-term settlement, defined as such because surface artifact densities indicate permanent settlement yet are clustered in a relatively small area (Jones and Ellis, in press). There are 10 other sites classified in such a category within the UYRV. However, Redtail represents one of the most undisturbed and intact sites from this category discovered thus far. Our research attempts to operationalize this category.

Methods

Excavation

To examine intrasite patterning, we have taken a horizontal strategy, exposing large portions of the site in 1x1m increments (Figures 2 and 3). We processed all strata below the plowzone using 1/16" screen. In the field, we removed the easily separated sediment, bagged the remaining sediment and artifacts, and water screened these materials in the lab. Only remains from the potential midden area were water-screened in the field. Once dry, we separated cultural remains in the lab. The following analyses use artifacts recovered from 1/8" screen and larger. The 1/16" remains have not been fully separated but will be in the future. The following analyses focus on stratum 2, which is the intact cultural layer directly below the plowzone (Figures 2 and 5).

Figure 2: 2015 field crew excavating stratum 2 in Block A.

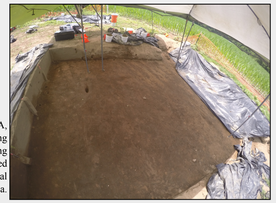

Figure 3: Block A, stratum 3 (facing south) showing staining that defined our potential houseflоor area.

Ceramic Analysis

We took a 33% random and systematic sample distributed across the three main excavation blocks (Figure 4). We examined a total of 419 sherds, 51 from 10 units in the potential houseflоor area, 256 from 11 units in the potential general use area, and 112 from 1 pit feature and 1 unit in the potential midden area. We measured the general size, length, width, and thickness of pottery sherds with a recognizable inner or outer surface and identifiable temper using electronic calipers, rounding to the nearest tenth of a centimeter.

Lithic Analysis

We used a similar 33% sample of units (Figure 4). We examined a total of 333 lithic artifacts, 108 from 10 units in the potential houseflоor area, 190 from 11 units in the potential general use area, and 35 from 1 pit feature and 1 unit in the potential midden area. After sorting by material, each individual artifact was analyzed and classified. The identification of a striking platform and a bulb of purcussion defined flakes versus debitage (Figure 5). After classification, each category was weighed, and each artifact was sized and counted. We weighed artifacts in grams to the tenths on an electronic scale. Sizing was done using a standard sizing chart and sorted into 1 cm, 2, and 4cm groups.

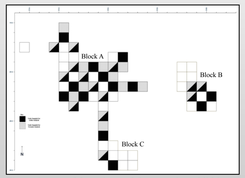

Figure 4: map of the units used for ceramic and lithic analysis.

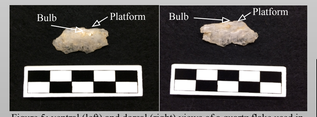

Figure 5: ventral (left) and dorsal (right) views of a quartz flake used in this analysis.

Postmold Spatial Analysis

We identified approximately 400 features as "possible postmolds" (Figure 6). We excavated each one and recorded morphological data, including depth, size, angle, and orientation. Next, we used ArcGIS to spatially analyze the arrangement of postmolds according to a variety of attributes, focusing mainly on depth. We divided postmolds into three categories: those between 3-5cm in depth, 5-9cm, and greater than 9cm and examined their patterning.

Stratum 2 Spatial Analysis

In order to analyze the thickness of stratum 2 as an accurate measure of cultural activity and deposition, it was first necessary to verify if historic plowing practices have been a determining factor in stratum 2 thickness. In order to do so, the center point z-values of both the plowzone and stratum 2 in each excavated unit was mapped into ArcGIS 10.3. We then used kriging to interpolate a surface of each level from the z-values provided. We compared the resulting interpolated surfaces to determine if plowing had an effect on stratum 2's varying thickness.

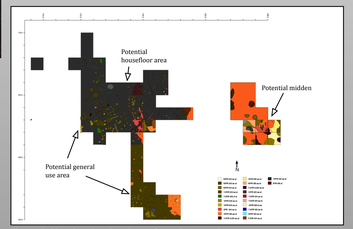

Figure 6: Site plan showing the surface of stratum 2.

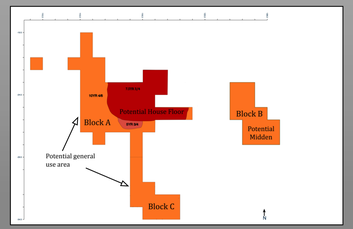

Figure 7: Site plan showing the surface of stratum 3.

Results

Ceramic Results

Analysis of ceramic length, width, and thickness showed differences between the three hypothesized areas with regard to all three variables (Figure 8). Independent samples t-tests revealed that between all three areas of the site, differences in size, length, and width were all significantly different. Table 2 shows much higher densities of ceramic artifacts in the general use and midden areas.

Lithic Results

Analysis of lithic weight and size categories showed differences between the potential midden area and the remaining areas of the site with regard to both variables (Figures 9 and 10). Total weight was not examined because of plowing disturbances (Figures 13 and 14). The general use and houseflоor areas appear to be similar with regard to both average weight and size. Independent samples t-tests show significant differences in average flake weight between the general use area and midden area as well as houseflоor areas and midden areas. The hypothesized houseflоor and general areas were not significantly different (Table 1). Table 2 shows similar densities in the midden and general use areas and lower concentrations in the houseflоor area.

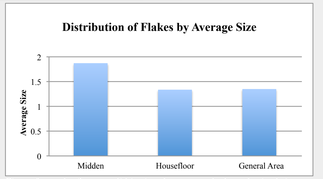

Figure 9: graph of average lithic size class across the hypothesized site areas.

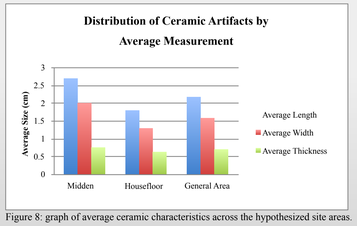

Figure 8: graph of average ceramic characteristics across the hypothesized site areas.

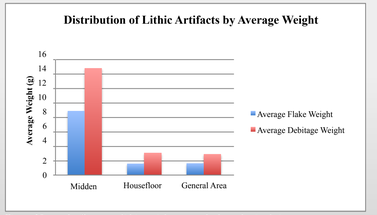

Figure 10: graph of average lithic weight across the hypothesized site areas.

	Ceramic Analysis			Lithic Analysis
	Size (cm):	Length (cm):	Width (cm):	Flake Weight (g):
General Areas vs. Houseflоor:	M_{GA}=1.74 M_{HF}=1.43 $t(305)=2.997$, p=.003	M_{GA}=2.17 M_{HF}=1.53 $t(305)=3.997$, p<.001	M_{GA}=1.58 M_{HF}=1.07 $t(305)=4.482$, p<.001	M_{GA}=1.56 M_{HF}=1.51 $t(296)=0.464$, p=.643
General Areas vs. Midden:	M_{GA}=1.74 M_{M}=2.01 $t(360)=-3.023$, p=.003	M_{GA}=2.17 M_{M}=2.69 $t(360)=-3.825$, p<.001	M_{GA}=1.58 M_{M}=2.00 $t(360)=-4.001$, p<.001	M_{GA}=1.56 M_{M}=8.83 $t(223)=-7.002$, p<.001
Houseflоor vs. Midden:	M_{HF}=1.43 M_{M}=2.01 $t(161)=-3.968$, p<.001	M_{HF}=1.53 M_{M}=2.69 $t(161)=-5.219$, p<.001	M_{HF}=1.07 M_{M}=2.00 $t(161)=-4.969$, p<.001	M_{HF}=1.51 M_{M}=8.83 $t(12)=-5.330$, p<.001

Table 1: t-test results from ceramic and lithic data.

	Ceramics (per m²)	Lithics (per m²)
Houseflоor area	5.1	10.8
General use area	23.3	17.3
Midden area	56.0	17.5

Table 2: Densities of ceramic and lithic artifacts across the three potential areas of the site.

Postmold Spatial Analysis

We chose to focus on deeper postmolds assuming that they would have been structural or load-bearing posts. Figure 11 shows all of the postmolds, and Figure 12 shows postmolds deeper than 9cm below the surface of stratum 2. The deeper postmolds form an arc located in north-central part of Block A. We first reconized this pattern after the 2014 excavation, and the additional postmolds found this summer extended the arc to the east. Furthermore, the diameter of the arc, approximately 10 meters is similar in size to houses found in other river valleys in the Piedmont (Dickens et al. 1987; Ward and Davis 1993).

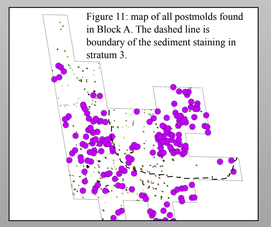

Figure 11: map of all postmolds found in Block A. The dashed line is boundary of the sediment staining in stratum 3.

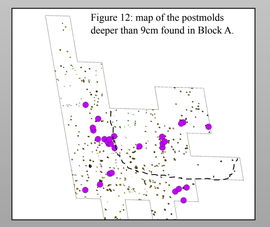

Figure 12: map of the postmolds deeper than 9cm found in Block A.

Stratum 2 Spatial Analysis

The results from this part of the study indicate that plowing is indeed a determining factor in stratum 2 thickness. Stratum 2 is thinnest where the plowzone is thickest; likewise stratum 2 thickens where the plowzone thins. The plowzone is thickest where stratum 2 is thinnest as the plow cuts into and disturbs the intact layer below, therefore thickening the plowzone while thinning stratum 2. Stratum 2 does not exist in Block B even though the plowzone thins out again in that direction. Therefore, even though varying stratum 2 depth cannot be used as an indicator of cultural activity and deposition, the mere fact of its presence in Block A and absence in Block B is an indicator of different functions.

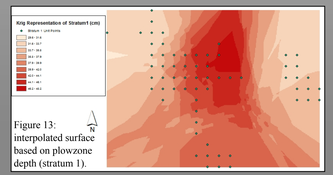

Figure 13: interpolated surface based on plowzone depth (stratum 1).

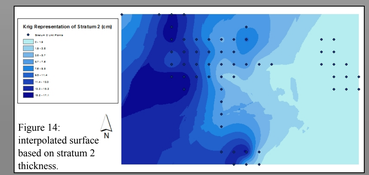

Figure 14: interpolated surface based on stratum 2 thickness.

Discussion

Site Formation Processes

It is clear from the stratum thickness analysis that plowing has altered stratum 2. With regard to the postmold spatial patterning, we must assume that some postmolds were destroyed and that our view of them is thus distorted. However, we can conclude that the postmolds deeper than 9cm still provide an accurate indicator of a possible house because they have survived plowing. In addition, the deepest postmolds would have most likely have been structural. The arc of 9cm postmolds is similar in shape to the staining observed at the top of stratum 3, but it does not correlate spatially with it, so it does not support our hypothesis. The postmolds and staining could be from different house-building episodes. Alternatively, niether may be related to a houseflоor.

Intrasettlement Layout and Houseflоor Identification

The lithic analysis revealed average flake size is a distinguishing factor in determining the potential midden from the other areas. However, it does not support the hypothesis because houseflоor and general use area sizes were similar. The ceramic analysis does support our hypothesis. These results in combination with the fact that the proposed midden area is the only place with pits, larger animal bones and much higher concentrations of charcoal, make us confident that it is in fact a midden. With regard to identifying houseflоors, we have three interpretations at this time based on the mixed results:

1) Stratum 2 represents shifting houseflоors, and as mentioned above, the staining in stratum 3 is either unrelated to domestic activities or is from one particular household episode.
2) The staining and ceramics patterns are identifying the houseflоor area and the rest of stratum 2 was an activity area cleaned in a similar manner as the houseflоor with regard to lithics.
3) Stratum 2 represents a surface that was maintained by cleaning off larger artifacts, but does not contain any houseflоors.

Gendered Spaces

We are more inclined toward interpretations 1 and 2 given the evidence of maintenance/cleaning activities. As such, these results allow us to begin discussing different behaviors at the site. In addition to ceramic artifacts being much smaller in the houseflоor area compared to the general use area, they are also much less common as well (Table 2). This suggests either different use behavior or different cleaning/maintenance behavior. The lithic data show similar average flake sizes across these two areas and a lower concentration, but not nearly as big of a difference as is seen with the ceramics. If the same cleaning activities are in place for ceramics and lithics, as the artifact sizes suggest, then we are inclined to think production and use behaviors account for the density of artifact results. Previous archaeological and ethnographic research on Piedmont communities indicates that ceramic manufacture and use during food production was typically performed by women, and men were the primary lithic tool producers (Boudreaux, 2002). The much higher density of ceramics in the proposed general use area compared to the houseflоor could be showing that women used pottery much more outside the actual household structure than within it. Given that lithic distributions were more even, perhaps more production or use of lithics went on in the household. We may be coming across indicators of gendered spaces. In this case, a more even distribution of of lithics compared to ceramics may represent an indication that all spaces were freely frequented by men compared to women's more restricted space when performing their daily activities.

Conclusions

After analyzing the lines of evidence presented in this research project, we believe we have the right approach, but it is too early to definitively identify a houseflоor. The arc of structural postmolds and presence of the staining in stratum 3 correlate with the size and shape of other houses in the Piedmont (Ward and Davis 1993, Dickens et al. 1987, Woodall 1990). We think stratum 2 is the remains of a domestic area due to the presence of postmolds in an organic stratum and deliberate cleaning of artifacts greater than 2cm in diameter. However, we also recognize that we need to be apprehensive concerning the presence of a specific houseflоor. Of the two main analyses supporting the presence of a houseflоor, ceramic sizes and stratum 3 staining, the staining has yet to be confirmed as a result of cultural activity, though natural alternatives have yet to be thought plausible. Therefore, of the four lines of evidence analyzed for this investigation, ceramic distribution is the only one that supports the houseflоor hypothesis.

Ultimately, this project reveals that multiple lines of evidence are required to identify a houseflоor at sites in the UYRV. The lack of representative information reinforces the idea that houses in the archaeological record are not always simply identified by a single line of evidence such as the shape of their foundation, but also by association of artifacts, features, and other remains. Furthermore, this research also demonstrates the kinds of in depth investigation that is required when excavating in a partially disturbed context.

Although this research explored four separate lines of evidence in an attempt to define the boundaries of a potential houseflоor, other lines of evidence can still be explored. By performing a sediment analysis of stratum 2, the spatial variability in organic materials, magnetism, and other properties can be compared to our results here. This will be the next step in this research. Future excavations will focus on the midden area and spaces between the midden and stratum 2 to further delineate different activities that may have been performed at the site and what they can tell us about social organization and economic activities.

Acknowledgments

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