# Developing and Testing a Model for Settlement Types in the Piedmont Southeast based on Artifact Scatters

# Introduction

This archaeological research examines what the characteristics of surface artifact assemblages can tell us about site function for Late Woodland sites in the Upper Yadkin River Valley in the North Carolina Piedmont (Figure 1). Over 50 sites have been identified in floodplain contexts in the valley. Of those, 30 have been characterized as Middle or Late Woodland settlement sites. Eight have been the subject of extensive excavations, which have established them as settlements (Woodall 1984, 1990, 1999, 1999; Jones 2017). The other sites are largely characterized as settlements based on surface artifact densities, assemblage characteristics, or surface sediment staining interpreted as middens. Many others remain in an "undefined" category. Barnette (1978) compared ceramic assemblages for sites in the lower great bend area to the well-known Donnaha settlement site, providing strong evidence for characterizing most of those sites as settlements. However, similar work has not been done for non-excavated sites in the upper great bend area, which was likely the main focus of settlement between 1200-1600 CE (Jones 2017). Our goal in this research is to test one of the "undefined" sites (31Yd175) using a similar and spatially proximate excavated settlement site (31Yd173) as a model.

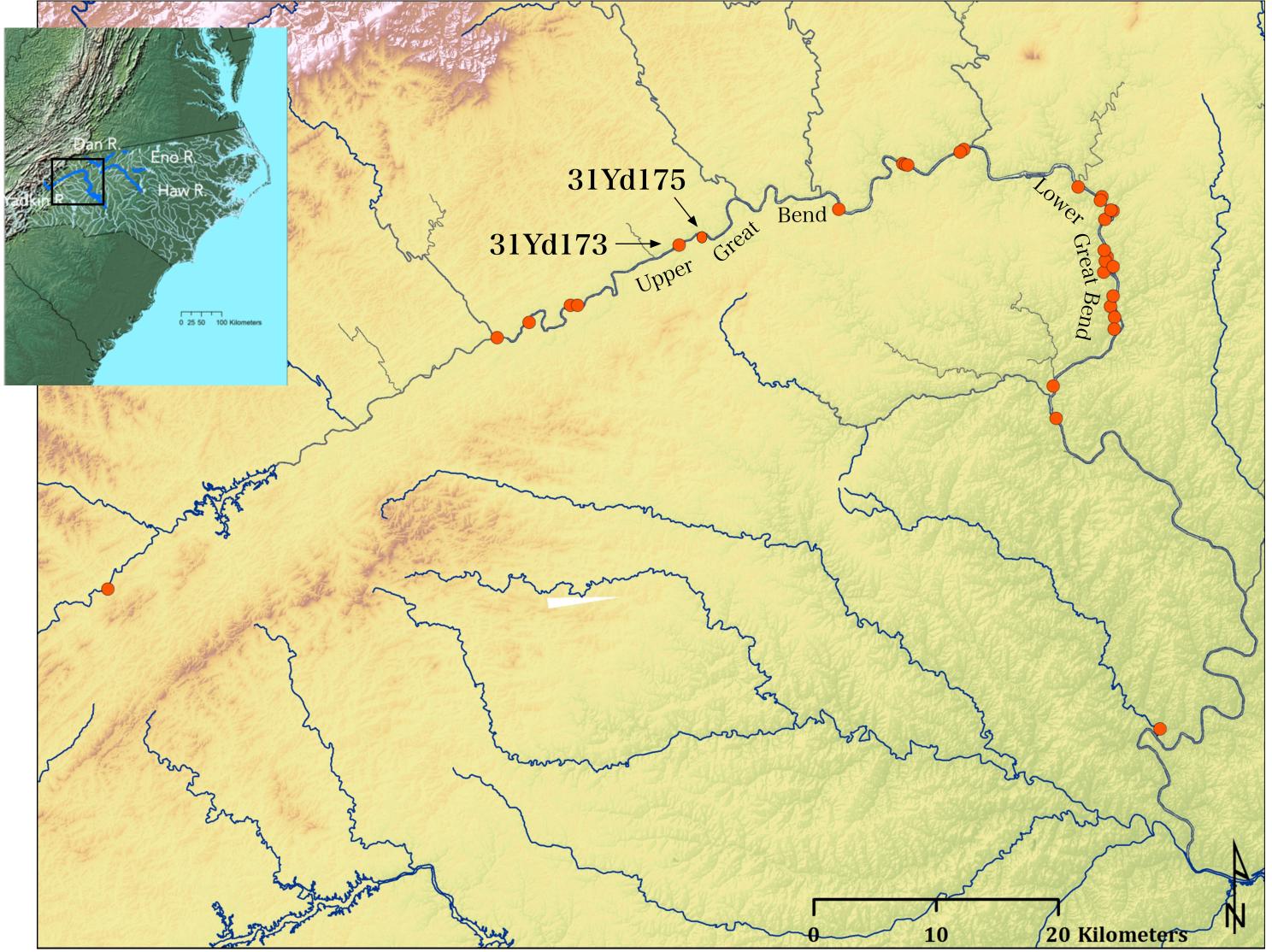


Figure 1: The location of known settlement sites in the UYRV.

# Background

The Piedmont Village Tradition (PVT) is an archaeological culture that existed in the northern Piedmont Southeast during the Woodland Period (1000 BCE - 1700 CE). Most PVT people lived in dispersed settlements of 2-5 households until 1300 CE, when they began to coalesce into planned villages in the Dan, Eno, and Haw River valleys (Ward & Davis 1993). However, in the upper Yadkin River Valley (UYRV), they remained in dispersed settlements into the 1600s.

Regional settlement patterns studies for the UYRV have identified general patterns (Woodall 1990) for the upper great bend area. Subsequent settlement ecology research examined factors influencing the settlement pattern, changes in settlement patterns over time, and potential impacts of living on the edge of several Mississippian polities (Jones et al. 2012, Jones and Ellis 2016, Jones 2015, 2017). Ideally a census of Late Woodland settlements would provide the best data for such research. However, such an expectation is unrealistic. We hope for a representative sample, which requires accurate identification of settlements. It is also unrealistic that we can or should excavate every site. Thus, establishing a methodology for testing site function, even broadly, based on surface finds could be useful and could aid in site preservation.

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# **Building the Model**

31Yd173 is likely a typical Late Woodland PVT settlement in the UYRV. It was occupied 1300-1400 CE and contained 2-3 households linearly arranged parallel to the river. One has an associated activity area with 12 pit features. The other has only recently been identified. Between the two households, there may have been a shared midden or activity area. Research at 31Yd173 began in 2011 with systematic surface surveys and shovel testing. Extensive excavations began in 2013. As seen in Figure 2, surface surveys identified a dense clustering of artifacts along the natural levee. The highest densities were around the highest points (but not on) and on more flat areas in front of and behind the levee. The front and back slopes of the levee tend to have fewer surface artifacts, but the slopes to the side had more. The collection of surface artifacts included 259 pottery, 435 lithics, and 72 fire cracked rock. The total surface artifact density was 0.0783 over a surface area of 9,800 square meters surveyed.

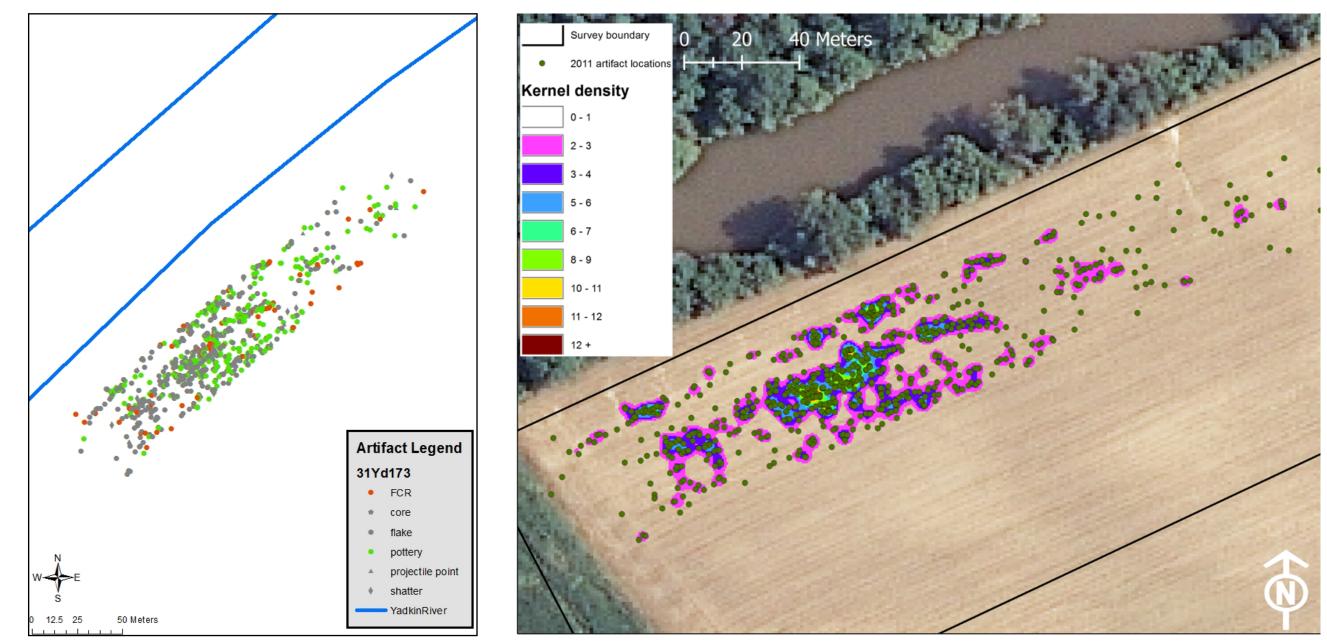


Figure 2: (left) spatial patterning of artifacts by class; (right) spatial patterning of surface finds at 31Yd173 with kernel density smoothing of results.

Intact subsurface cultural deposits did not spatially correlate with the highest surface artifact densities. They occurred on the highest points on the levee (Figure 3). Excavations have revealed intact domestic surfaces and pit features between STPs 14 and 18 (Figure 4).



Figure 3: The same kernel density shown in Figure 2 with the location of shovel test pits and artifact counts from them.



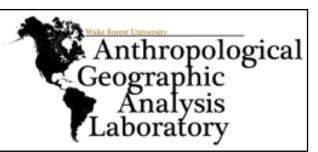
Figure 4: Diagram of identified postmolds and features at 31Yd173. The box on Figure 3 shows the location of this in relation to the surface and shovel test results.

We think that the extensive plowing that has occurred at the site for decades has brought artifacts to the surface and moved them in specific ways. We have identified two plowzones at the site, an historic and a modern. The historic occurred perpendicular to the river and the modern parallel. We believe this explains the pattern of lower density clusters perpenticular to the site and the extensive and dense clustering parallel to the site.

#### Expectations

The above information from 31Yd173 is only applicable to sites with similar plowing histories. While the UYRV has seen recent decreases in plowing to reduce erosion, many floodplains in the upper great bend area are still plowed annually. Thus, this information is useful for many uncategorized sites in these settings. Given that 31Yd173 is small settlement, we think it is a good measure of whether other sites are also settlements. To be classified as year-round settlements, new or undefined sites should show similar overall surface artifact densities. They should also have similar percentages of ceramic to the overall assemblage, as a marker of long-term settlement.

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# **Applying the Model**

31Yd175 lies 2.7km to the east of 31Yd173 (Figure 1) in a similar floodplain environment. The fields containing each site have similar plowing histories and have even been farmed by the same individuals over the past several years. Prior to this research, the only archaeological research conducted at the site was a brief, informal survey during which a small representative sample of artifacts was collected. Although left out of settlement studies, the site was labeled a "short term occupation" based on the density of artifacts and potential midden staining on the surface. Thus, it warrants examination for categorization.

At 31Yd175, surface artifact data was collected through pedestrian surveys conducted over two days in the summer of 2017. We focused our work on and around the natural levee in the floodplain. Surveyers walked the surface with 2m spacing between them, flagging artifacts that were later collected and mapped using a MobileMapper CX GPS unit. The same methods and equipment were used to survey 31Yd173 in 2011 and 2012. Core testing was also carried out at 31Yd175 using a 1" corer. 12"-long cores were removed, pictures taken, and samples collected. Both datasets were analyzed using ArcGIS software for mapping and spatial analysis. Density calculations and broad characteristic analysis were also conducted.

### Results

The data from the surveys indicates that 31Yd175 has a higher density of artifacts on the surface than 31Yd173 (Figures 9 and 12). The latter has a total artifact density of 0.0783 per square meters, while 31Yd175 has an artifact density of 0.1289 per square meters. In comparing the actual counts of artifacts, there is a significant contrast in the distribution of artifact types between the two sites. Most notable is that 31Yd173 has a large concentration of pottery with approximately 34% of the collected artifacts being pottery sherds. Contrarily, 31Yd175 has a small concentration of pottery with less than 5% of the total number of artifacts being pottery sherds. Subsurface testing at 31Yd175 indicates the presence of a stained strata, possibly cultural, on the top of the levee. Similar stratigraphy and soil characteristics are comparable to those at 31Yd173.

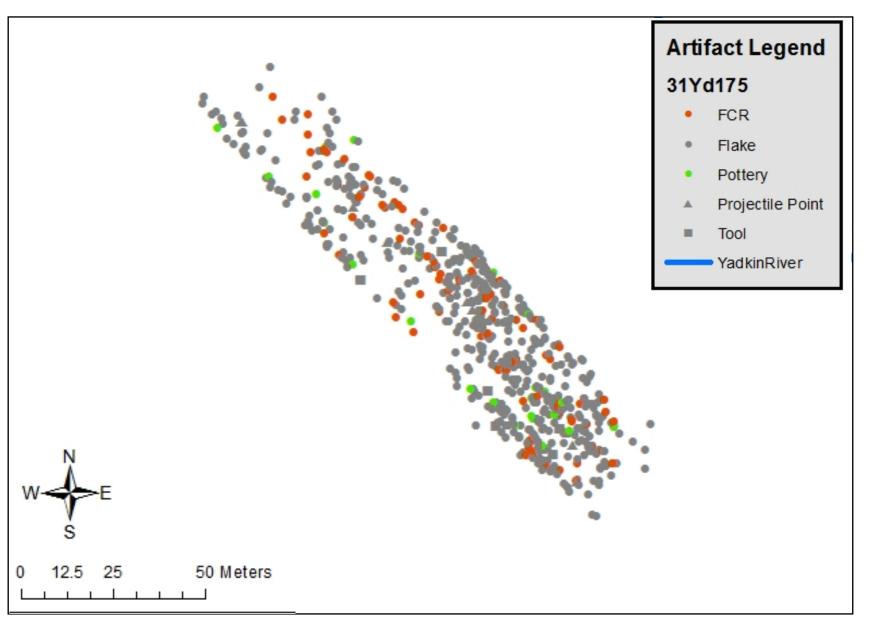


Figure 7: Artifact distribution at 31Yd175

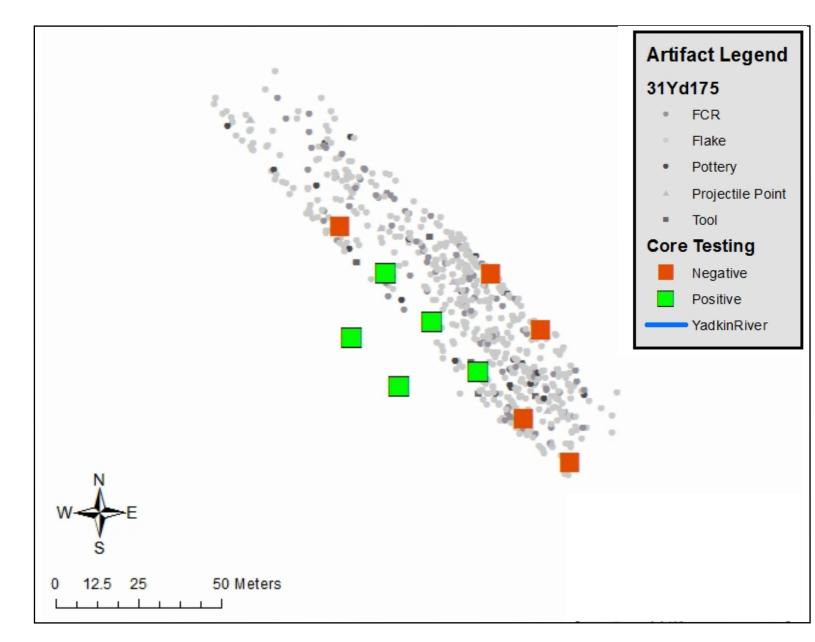


Figure 8: Core locations from 31Yd175

Site	Surveyed Area	<b>Artifact Total</b>	<b>Artifact Density</b>		
31Yd173	9,800m <sup>2</sup>	766	0.0783/m <sup>2</sup>		
31Yd175	5,338m <sup>2</sup>	688	0.1289/m <sup>2</sup>		
Figure 9: Surface artifact density table					



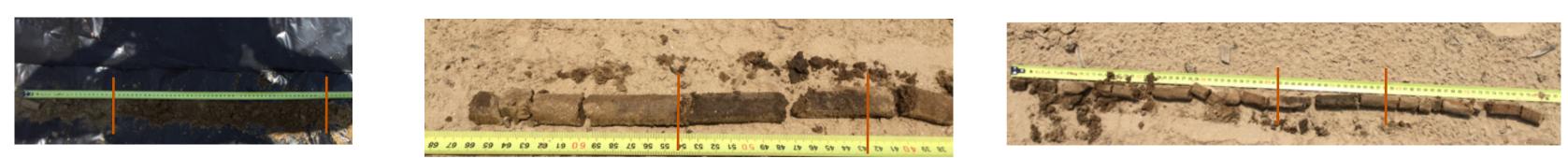


Figure 5: Three core samples from 31Yd175. The sections of the samples between the red lines indicate dark-stained sediments that tend to contain intact cultural remains at sites in the upper great bend area.

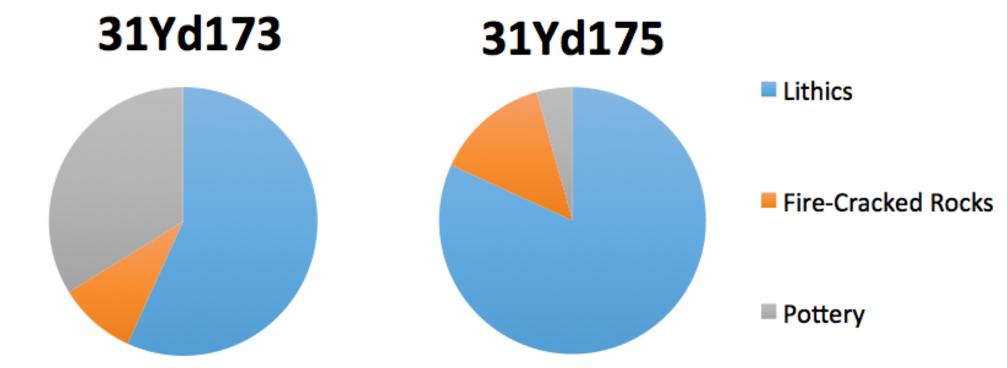
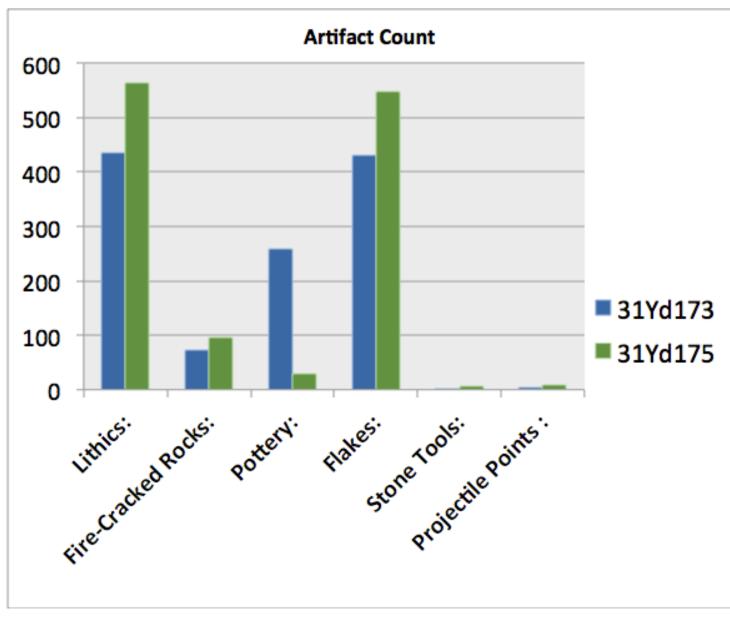


Figure 10: Charts of artifact type distributions collected during surface survey.



	Artifact Density					
31Yd173						
Surface Area: 9,800m <sup>2</sup>						
Total Artifact Count:	766	Total Artifact Density:	0.0783/m <sup>2</sup>			
Total Lithics Count:	435	Total Lithics Density:	0.0444/m <sup>2</sup>			
Fire-Cracked Rock Count:	72	Fire-Cracked Rock Density:	0.0073/m <sup>2</sup>			
Pottery Count:	259	Pottery Density:	0.0264/m <sup>2</sup>			
Flake Count:	400	Flake Density:	0.0408/m <sup>2</sup>			
Core Count:	1	Core Density:	0.0001/m <sup>2</sup>			
Shatter Count:	29	Shatter Density:	0.0030/m <sup>2</sup>			
Projectile Points Count:	5	Projectile Point Density:	0.0005/m <sup>2</sup>			
31Yd175						
Surface Area: 5,338m <sup>2</sup>						
Total Artifact Count:	688	Total Artifact Density:	0.1289/m <sup>2</sup>			
Total Lithics Count:	563	Total Lithics Density:	0.1055/m <sup>2</sup>			
Fire-Cracked Rock:	95	Fire-Cracked Rock Density:	0.0178/m <sup>2</sup>			
Flake Count:	548	Flake Density:	0.1027/m <sup>2</sup>			
Projectile Points Count:	9	Projectile Point Density:	-			
Stone Tool Count:	6	Stone Tool Density:	0.0011/m <sup>2</sup>			
Pottery Count:	30	Pottery Density:	0.0056/m <sup>2</sup>			

Figure 11: Comparison of artifact classes between the two sites.

#### Figure 12: Artifact class counts and densities.

#### Discussion

The surface artifact density at 31Yd175 is higher than the density at 31Yd173. On its own, this would suggest that 31Yd175 is a larger or longer occupied settlement than 31Yd173. The difference in artifact counts, specifically pottery, challenge the assumption that a higher surface artifact density indicates a larger settlement size. The low quantity of pottery at 31Yd175 suggest to us that this site might not be a settlement. This is contradictory to the density based interpretations, and indicates that while simple artifact densities may not be able to distinguish settlements from nonsettlements, slightly more detailed examinations of artifact class distributions may be able to.

It is likely that this site is a long-term special use site. Furthermore, intial analysis of collected artifacts at 31Yd175 show a marked difference in lithics from 31Yd173. This difference in the lithics material combined with the significantly low porportion of pottery may be indicative of a hunting and animal processing camp. This site hints at PVT communities having multiple site types during the Late Woodland, a model that has not been explored in depth. We should begin to build new models of UYRV settlement systems that accounts for camps and other non-long-term habitation sites and what these may mean for subsistence strategies, social interactions, and economic behaviors.

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