Background
Settlement ecology is the study of human interaction with surrounding natural and cultural landscapes and how these relationships influence settlement patterns and processes. This research seeks to understand the sociopolitical complexity of the Mississippian and PVT settlements in eastern North America by analyzing various landscape features and processes. Previous research has examined Mississippian settlement ecology qualitatively (Lock and Swenson 2002; Meyers 1998; Fikadeh 2006). Most of the quantitative settlement ecology research has focused on Mississippian communities in North Carolina, South Carolina, and Georgia (Richter 2011; Jurczak and White 2016; Jones and Price 2020). Similarly, research has been done for PVT groups in North Carolina (Jones and Price 2016; Jones 2017). This research examines the interactions between PVT and Mississippian communities in North Carolina and larger samples of sites in Georgia, South Carolina, and Virginia using these same methods.

Methods
I obtained topographic (DEM), hydrographic, and hydrologic data from the USGS digital elevation and hydrography datasets (1774-1915). I also created a digital dataset using tools from the AGA Lab webpage (2022). I digitized historic trail locations from (1775) and Myer (1971). Figure 1: map showing the Piedmont topographic formation in the Southeast and the sites being analyzed. Figure 2: map of overland trails in the Piedmont depicting the location of potential trail nodes.

Results
Table 1 shows that Mississippian communities in North Carolina were more distinguished from PVT settlements by having more solar radiation, being farther from trail nodes, having larger wetlands within their catchment, and having larger wetlands. Similar to previous results (Jones 2020), this analysis also included similar results for the second stage of this project (Jones and Price 2020). Table 2 shows that it was significantly distinguishable in the first results. I realized to remind this variability to be sure that their distinctions in ISQ quality or resolution is not impairing this result.

Discussion
This research examined the sociopolitical complexity of the Mississippian and PVT settlements in the Piedmont (NC and GA) to better understand their social interaction and differences. This suggests that there are communities either formed in a settlement pattern in larger floodplains, larger wetlands, and larger wetlands with lower solar radiation. This finding suggests that similar processes that occurred in the Mississippian settlements are still occurring in the PVT settlements. The raw data can be examined more closely, but there is legitimacy to this finding. The raw data can also be examined more closely, but there is legitimacy to this finding. The raw data can also be examined more closely, but there is legitimacy to this finding. The raw data can also be examined more closely, but there is legitimacy to this finding.

Future Work
Over the next two years, I will utilize (with undergraduate research assistant) the remaining site from the first-year project at the University of North Carolina at Chapel Hill. Those will be collected with what we know from excavation at both Mississippian and PVT sites from across the Piedmont to create a more descriptive and quantitative understanding of settlement patterns. If results continue to be supported, this work should help to explain why complex sociopolitical processes are occurring at these sites, and how they interact with each other and with the landscape and environment.