

How humans have affected the charcoal content of sediment in a barrier island environment in Boca Raton, FL

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Introduction

Geoarchaeology is the presentation of any concepts, theories, methods or information related to earth-sciences to help the understanding and demonstration of the results and data collected during an archaeological dig, thus representing archaeological data (Sheets, 2009). This helps make linkages between human activity and the effects on the environment. Learning about human interactions with the environment is important because it provides an insight into how humans lived before and how, over the years, there has been a continued impact on surroundings. Studying human development provides society with an explanation of the origin of contemporary living and how socialization has progressed over the many thousands of years humans have inhabited this earth. One example of how humans may have modified their environment in the past can be seen in the example of the Everglade tree islands.

By definition, tree islands in the Everglades are elevated areas of land which follow the underlying bedrock patterns and are influenced by biological activity such as deposition of sediment (Bernhardt, 2011). Although tree islands have been an environment where human activity has been recorded (Schwadon, 2006), the main conundrum posed to be answered in this research is whether humans aided tree island formation, or not. This will be completed by investigating how sediment size (see poster Faulk et al.) and concentration of charcoal vary in different sites along barrier reef environments. It is hypothesized that humans moved into the barrier islands in Boca Raton because they became developed and stable enough for human habitation but in doing so, the environment was changed. However, over time, the environment has returned to its natural state, before human interaction.

Methods

Sediments were collected as part of an archeological dig at South Inlet Park, Boca Raton. Here, sediments were taken at different levels of the site and recorded by two units and nine levels. Then, a specimen from each unit and every level was put through the following method:

Charcoal Concentration

Sediment was measured to 5g using a digital scales.

Sediment was deflocculated using hexametaphosphate for 3 days.

Sediment was wet sieved into three different grain sizes – 63-125um, 125-250um, >250um. Samples were then left to dry for 24 hours.

Sediment was bleached by adding 30mL of hydrogen peroxide to the Petri dishes and leaving in the oven for 24 hours.

Bleached sediment was counted under a stereoscope, adjusting the lighting accordingly. Final results were collated in an excel spreadsheet.

Results

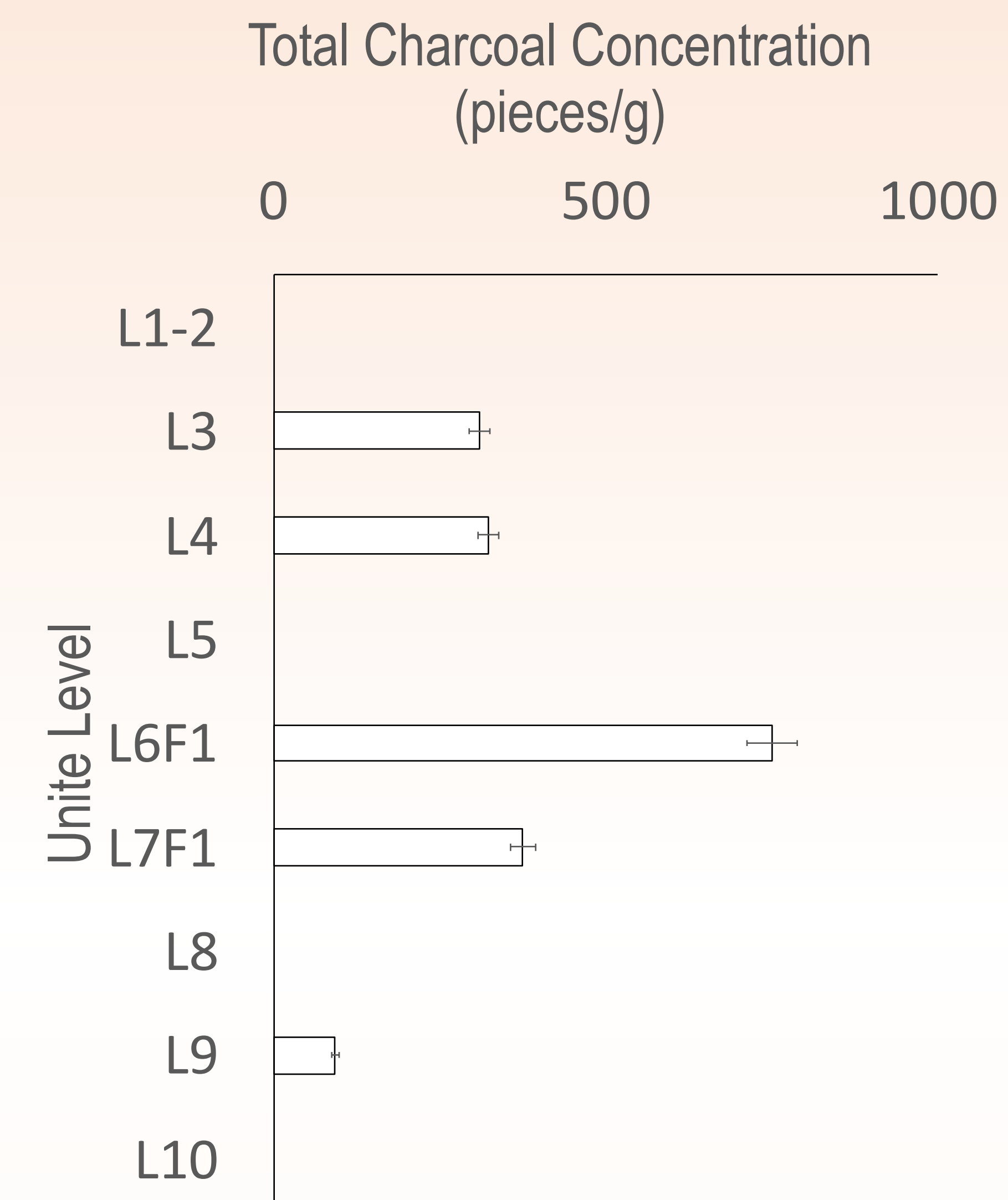
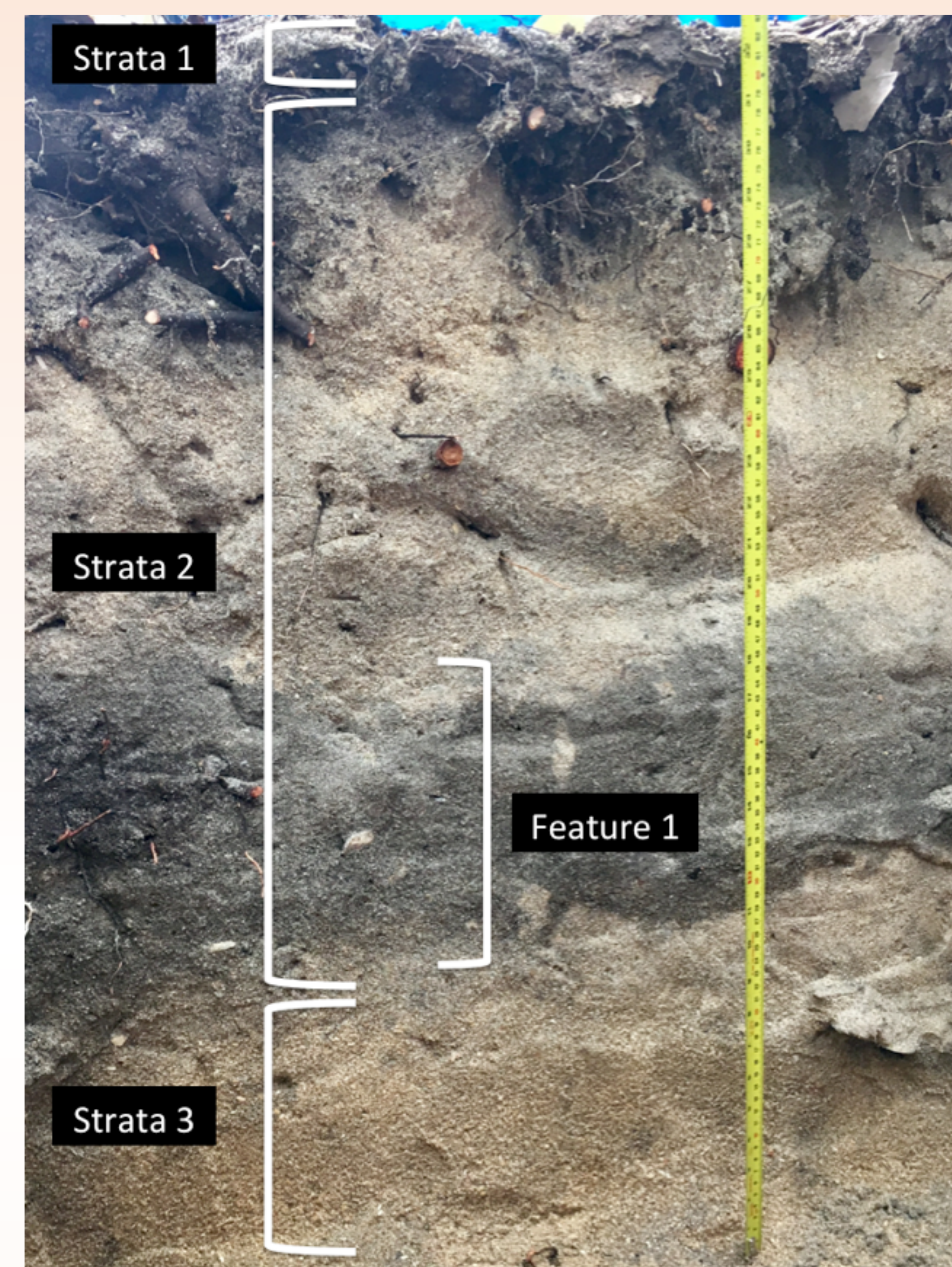


Figure 1: Strata and charcoal concentrations for Unit 1. Strata was defined visually and the feature was defined by evidence of human habitation by artifacts

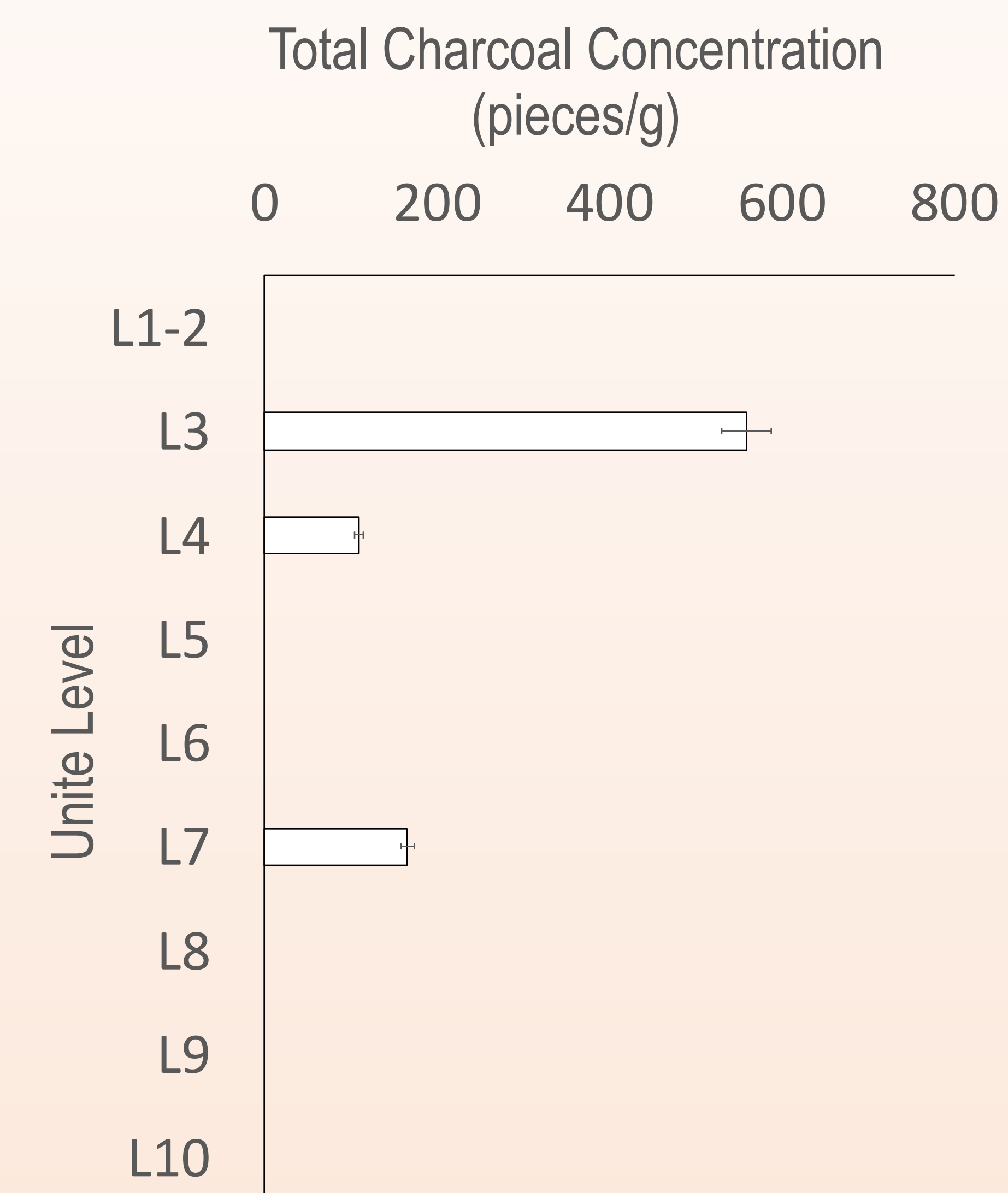


Figure 2: Strata and charcoal concentrations for Unit 2. Strata was defined visually. No feature was present in this unit.

Discussion

From the results, it can be seen that a higher concentration of charcoal corresponds with human habitation, which means that humans have altered the environment, because of this increased deposition of charcoal. This conclusion can also be supported by the artifacts collected at the same site (see poster Mcdowell et al.) which indicate the location was used as a food processing station. This may have included human activities such as cooking food.

Future Work

As only half of the data has been collected and interpreted, the future of this study relies on the completion of the rest of the data. In addition to this, other chemical analyses will be proposed such as, investigating how human habitation has increased concentrations of prosperous. It is also important that replications of the above studies are carried out, thus reducing the error.

Works Cited

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