**1 Introduction to the project**

- A paleosol was found in a sand dune on Bennett Beach, Lake Erie.
- We have dated the paleosol and improved our understanding of Lake Erie’s coastal history.
- Pottery fragments found below the soil were identified as late Woodland pottery (500-1000 AD; Perrelli et al., 2003) based on their corded surface texture.
- Charcoal was found at the same depth as the pottery fragments and dates to the early Woodland.
- There is one prominent paleosol exposed, but there are a series of older, weakly developed soil horizons within the dune.
- Future plans for the site include the use of ground penetrating radar to better determine the complete structure of the dune stratigraphy.

**2 Location of study area**

The site is in western NY. The paleosols are in Bennett Beach park in Angola New York. The paleosol is in a sand dune on the coast of Lake Erie.

**3 Appearance and map of the dune’s features**

The exposed structures of the paleosols are on the surface of the sand dune. There are three paleosols visible in the dune. (Note hammer for scale)

This map shows the trenches used to determine the dune’s structure, the pit was the pottery found and the location of the stump and the charcoal. The pottery and charcoal were both in contact with paleosol 2.

**4 Cross section of dune structure**

- Stratigraphic section of dune system
- Top paleosol A horizon very fine 70% clay 30% sand
- Second paleosol horizon less than 30% sand
- Second paleosol horizon less than 20% clay 80% sand
- Second paleosol horizon less than 10% clay 90% sand
- Second paleosol horizon less than 5% clay 95% sand
- Second paleosol horizon less than 1% clay 99% sand
- Clay matrix fine to medium

**5 Composition of sediment in the dune**

**6 Radiocarbon ages for A-charcoal and B-stump**

**3 Appearance and map of the dune’s features**

- Plain View of the important locations and GPS points
- Location of the trench used to observe the structure of the dune

**7 Samples used to date the site**

A-Charcoal

The charcoal sample found below the second paleosol. Its position makes it contemporary with the pottery. It may have been used to make pottery.

B-Stump

This tree stump was rooted within the top paleosol. It is much younger than the charcoal but it provides a minimum age for the top paleosol.

**8 Archeology of the site**

C- Pottery fragments (Late Woodland) found at or slightly above the second paleosol in the 2-m-deep pit dug into the dune.(see panels 3 and 4). D-Example of a complete pot from the late woodland from a nearby site. The pot was 35cm wide and 70 cm tall. E- A primitive tool used to shape clay from the same period, found at the base of the dune.

**9 Conclusions**

- We think the paleosols key out as Udipsamments, a type of entisol that forms in sandy environments.
- The charcoal is related to the pottery, and was dated to (1117-1221) (1042-1105) AD.
- This site may have been a seasonal fishing camp.
- The multiple paleosols reveal a pattern of periodic coastal dune stability.
- In the future, ground penetration radar may be used to map the complete internal structure of the dunes.

**References**