

A Comparative Stable Isotope Analysis of Two Archaeological Sites in Broward County, Florida

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Introduction

This study presents the preliminary overview of forthcoming thesis work. Using the method of stable isotope analysis, this project will decipher the diets of the prehistoric people found at two archaeological sites found in close proximity to one another, located in present-day Broward County, Florida. This study will compare the paleodiets of these two inland groups of Native Americans.

Understanding the paleodiet of these two groups will provide a thorough insight of the peoples' food habits, stratification (if any), paleoenvironment, and migration patterns.

Markham Park and Lauderhill Mound are two Everglades hammock sites located west of U.S. 441. After excavations in the 1970s, these two locations produced thousands of ceramic sherds, lithic artifacts, and human burial remains. These sites correlate to different cultural time periods in South Florida's archaeological history.

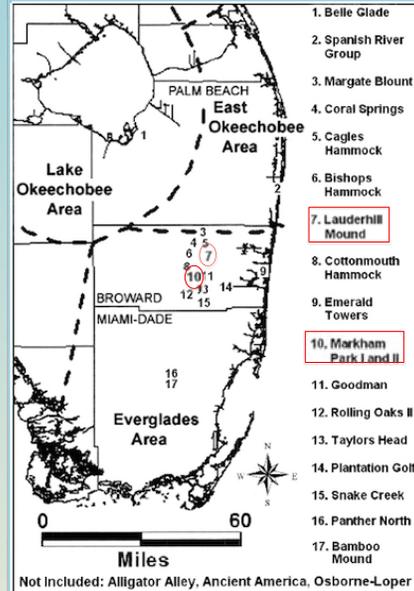


Figure 1: Map of known Eastern South Florida Archaeological Sites.

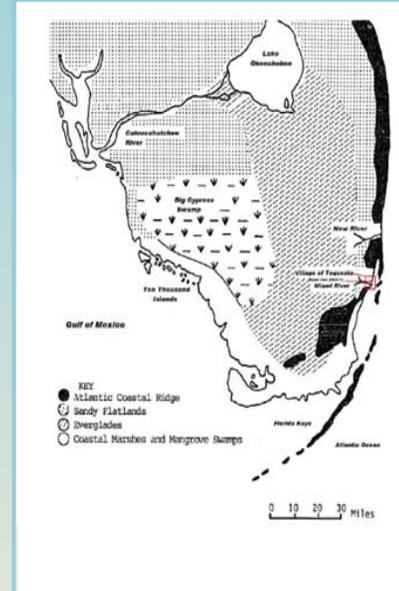


Figure 2: Layout of environmental landscapes of South Florida

Research Questions

1. Of what foods did the diets consist of?
2. Were these groups migratory, or did they settle on these tree hammocks for an extended period of time?
3. Because these two sites are inland but occupied at different time periods, what are the differences, if any, in diets?
4. What can be understood from the comparison of the paleodiets of these two inland groups and that of the coastal peoples'?

Future Results and Implications

This information will reconstruct the culture and lifestyles of some of Florida's first settlers.

- Understand the paleodiet in the same region through different time periods.
- Provide information on where individuals spent their earliest years of life and locate migration patterns of individuals and groups.
- Know Florida's history through a different pathway than what was recorded by the Spanish explorers.
- Compare these results with previous paleodietary studies from coastal regions (Ferdinando, n.d.) in Palm Beach County. This comparison will provide a comprehensive understanding of South Florida's Native Americans through time and space.
- Extend the analysis of stable isotopes to other archaeological sites in South Florida to reconstruct Pre-Columbian lifeways.

Glades Chronology	Year
Archaic	6500 B.C.- 750 B.C.
Glades I	750 B.C.- A.D. 750
Glades II	A.D. 750- A.D. 1200
Glades III	A.D. 1200- A.D. 1750

Archaeological Sites

- Markham Park contains two mounds. Mound I was excavated from 1971- 1972 and Mound II was excavated 1971- 1973. The land is now a 660-acre municipal park.
 - Dated to the Late Archaic- Glades II time periods
 - Mound I= 15 individuals
 - Mound II= unknown due to jumbled bundle burials
- Lauderhill Mound was excavated in 1971. In 1974, the land was transformed into a parking garage. More remains may still be at the site.
 - Dated to Glades II- III time periods
 - 7 individuals
- The sites are approximately 15 miles from one another.

Stable Isotope Analysis

"Stable isotope analysis in bone and tooth collagen is now a well-established technique for the reconstruction of prehistoric human diet" (Van der Merwe 1982).

- Stable Isotope analysis is used to infer paleodiet through the interpretation of light stable isotopes.
- Isotopes of an element have atomic masses of a consistent number of protons, but a different number of neutrons.
- The isotopes used for this study are C ^{12&13}, N ^{14&15}, and O ^{16&18}.
- For this study, each individual will be analyzed for preservation of bone collagen, apatite, and tooth enamel. The individuals with best- preserved bones (ribs, crania, teeth, and long bones) will be taken to the Light Stable Isotope Lab at the University of Florida. Preparation and disinfection techniques will be learned and practiced by the researcher, whereby the analysis of C, N, and O will be conducted.

Standard	R _{STANDARD}	Atom	Human Element	Distinguishes
V-PDB	0.011056	¹³ C	Collagen, apatite, and tooth enamel	C3, C4, CAM plants ingested
N AIR	0.003663	¹⁵ N	Collagen and apatite	Protein amounts, trophic levels (increases 3-4% per level)
V- SMOW	0.0020004	¹⁸ O	Collagen and tooth enamel	Imbibed water

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