# Project Description

## Objective Research

The goal of this project is to conduct a paleoepidimiological study on the skeletal collection from the Highland Beach archaeological site. The main focus of this research is to see if there is a large prevalence of disease within this population, and how it could have affected the lifestyle of the people living near the coast of Florida. After the data has been collected it will be compared to previous data from a study conducted by Kenneth Winland in 1993. Looking at the prevalence of disease will help to understand the lifestyle of the pre-Columbian people of Florida.

## Background

The collection originates from the Highland Beach Burial Mound (8PB11), a portion of the greater Spanish River Complex, which is located along the Florida coast just north of the Boca Raton city limits. Carbon dating and analysis of the associated artifacts indicates that the site was used between 800 and 1400 years ago by pre-Columbian Native Americans. The site was excavated in the summer of 1980, after construction crews discovered human remains during construction of an apartment complex. It is estimated that between 120 to 150 individuals were recovered from the excavation and a portion of the site remains in situ beneath and adjacent to the existing parking lot. The remains recovered are in poor condition due to environmental factors, such as erosion and plant damage.

In 1993 Kenneth Winland conducted a paleopathological study that focused on the skeletal collections from Highland Beach (8PB11), Fort Center and Bayshore Homes. His research included the identification of the age at death, sex, and recorded any observable pathologies that the individuals may have possessed. Age at death was determined by using the pubic symphysis and the sternal end of the fourth costal rib. The techniques are outlined by Krogman and Iscan(1986), Iscan and Loth (1993), and Johnston and zimmer(1989). Sex estimation was conducted using the sub-pubic angle, parturition scars and sciatic notch for the pelvis, and features on the cranium were also used to determine sex. The methodologies are outlined by Krogman and Iscan(1986) and Hoyme and Iscan (1989). For disease identification various sources were used such as Ortner and Putshar, Mann and Murphy and Categories outlined by Steinbock. These eight categories include congenital disorders, traumatic disturbances, metabolic disorders, circulatory and hematologic disorders, arthritis, infectious disease, hyperplastic and neoplastic conditions, diseases of obscure origins. The original research has provided great insight of the general health of the Highland Beach population. Methods have since changed however and this study will reinterpret the paleodemographics of the population with revised methods where available.

## Methodology

Several methods on sex, age, height and identification of pathologies will be used in order to have an accurate estimation of who these individuals were. For sex estimation several features of the pelvis and skull will be viewed to determine sex. Three features of the pelvis will be viewed to get a high accuracy rate of the individual's sex. The first region will focus on the pubic symphysis and the method being used is the Klales et al (2012). Cranial features will also be used to determine sex by using Buikstra and Ubelaker's 1994 method. Both methods require looking at specific feature on the cranial and pelvic region, which will be scored on a scale of one to five. Age at death estimation will be determined by using the Suchey and Brooks (1990) method. This method requires looking at the degree of degradation from the pubic symphysis. The fusion of the long bones will also be used to determine the age at death of the individuals. Ortner's manual (2003) provides detailed descriptions of pathologies that occur on bone. These detailed descriptions will be used to identify any pathology that may be present on the Highland Beach population. All data collected will be run through the fordisc program for statistical analysis.

## Anticipated Outcome

The final result of the project will be a general description of the health of the Highland Beach population during the period in which the burial mound was in use. We expect to verify much of what Winland recorded in his 1993 thesis but newer methods may allow us to reach more precise and accurate conclusions.

# Time line

## November 6<sup>th</sup>-January 26<sup>th</sup>

November 6$^{th}$ :                                         Project Starts

November 6$^{th}$-20$^{th}$ :                              Inventory and Specimen Labeling

November 21$^{st}$-January 26$^{th}$ :              Age and Sex Estimation

## January 27-March 15<sup>th</sup>

January 27$^{th}$- February 20$^{th}$ :            Determination of Pathologies

February 24$^{th}$- March 10$^{th}$ :              Data Input

March 11$^{th}$-15$^{th}$ :                               Statistics

## March 15<sup>th</sup> –April 3<sup>rd</sup>

March 15$^{th}$- April 3$^{rd}$ :                       Final Report and Poster

April 3$^{rd}$ :                                               Undergraduate Symposium

# Budget

| Item Description | Supplier | Price | Quantity Needed | Total List Price |
|---|---|---|---|---|
| **Fordisc 3.1** | University of Tennessee | $395.00 | 1 | $395.00 |
| **Total Cost** | | | | **$ 395.00** |

**Budget Justification**

1. Fordisc 3.1: is an interactive computer program for classifying adults by ancestry and sex using any combination of standard measurements. This program will be used for analyzing age and sex of the highland beach population. This program can also be used for future projects that deal with similar measurements.

## References

Bass, W. 1987. Human Osteology: A laboratory and field manual. 3$^{rd}$ ed.  Columbia, Mo.: Missouri Archaeological society.

Haas, J., Buikstra, J., Ubelaker, D, Aftandilian, D. 1994. Standards for data collection from human skeletal remains: Proceeding of a seminar at the field museum of natural history, organized by Jonathan Haas. Fayetteville, Ark: Arkansas Archeological Survey.

Lovell, N. 2005. Trauma analysis of paleopathology. Yearbook of physical Anthropology 40: 139-170

Ortner J, D. 2003. Identification of Pathological Conditions in Human Skeletal Remains. San Diego, California: Elsevier Academic Press

White T., Black M., Folkens P. 2012. Human Osteology, New York, New York : Elsevier Academic Press