GEOGRAPHIC TECHNIQUES FOR DIFFERENTIATING ARCHAEOLOGICAL SITES IN NORTH-CENTRAL FLORIDA

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North-Central Florida is the highland region which lies south of the Santa Fe River and north of a line drawn east-west through Belleview in southern Marion County. The area is characterized by grassy shrubs, sand pine scrubs, sandhill communities, pine flatwoods, xeric, mesic, and hydric hammocks, hardwood swamps, cypress domes, wet prairies, freshwater marshes, and numerous lakes, streams, ponds, and sinkholes. These numerous environmental zones offered the early inhabitants of North-Central Florida a variety of natural resources, including well-drained soils suitable for agriculture. The region was occupied from as early as 9000 B.C. by aboriginal peoples until well into the historic period.

The overall density and distribution of population of a region is determined to a large degree by the nature and availability of the natural resources being exploited. Factors such as the availability of game have a strong bearing on the size of hunting territories and on the distribution of permanent and transient bases. The attractions of fishing and shellfish collecting and the difficulties of overland travel through bush or forest may result in concentration of population alongside bodies of water (Fig. 1).

Fig. 1. Prehistoric settlement sites, Alachua County, Florida.
<table>
<thead>
<tr>
<th>Period</th>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum Value</th>
<th>Maximum Value</th>
<th>Standard Error</th>
<th>Sum</th>
<th>Variance</th>
<th>Cumulative Variance</th>
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*Elevation and distance to water are computed in feet.
It is possible to speak of North-Central Florida as a discrete geographical and cultural area. The aboriginal cultures remained more or less homogeneous at any given time, allowing an intensive study of a large area and permitting generalizations to be made about this region. The purpose of this study was to attempt to show a relationship of settlement location with two variables which were unlikely to change over time and which might influence site selection: elevation and distance to water. Data on these variables were subjected to statistical testing by means of frequency distribution, arithmetic means, standard deviation, standard error, and regression analysis. Data were gathered for the five time periods recognized for the aboriginal cultures: Paleo-Indian Period, Archaic Period, Deptford Period, Cades Pond Period, and the period of the Alachua Tradition.

Paleo-Indian Period

Little is known about Florida's first inhabitants, the Paleo-Indians. These people were probably wandering hunters who exploited many of the now extinct animals which abounded in the northern half of the state. They hunted manatee, deer, camel, and mastodon along the rivers and lakes of North Florida. Because of their antiquity, their nomadic way of life, and the fact that they had few material items such as pottery or permanent housing, little is known of the details of Paleo-man. Few campsites have been discovered. Those that are known are at Silver Springs and on the south side of Paynes Prairie. River crossings and bog areas where hunters could ambush and kill large animals are considered to be areas of concentration of Paleo-Indian artifacts. Early cultural materials of the same era have also been found in the Santa Fe River, Ocklawaha River, Suwannee River, and Withlacoochee River. Paleo-Indian sites are found both at stream and spring sites, and on high ground, overlooking springheads, streams, large swampy basins, and lakes along streams.

A statistical summary of the data on Paleo-Indians in North-Central Florida shows interesting patterning (Table 1). Nonrandom distribution marks this cultural period more than that of any other occupation. All Paleo-Indian sites are found in close association with major running water sources, with over 29 percent located in river bed deposits. This association can be explained by early man's need to locate near drinking water.

A simple linear regression of elevation and distance to water sources was calculated. Interpretation of this regression showed causality, which may at first sight seem only logical in terms of physical geographical principles. Elevation would naturally increase as one travels away from a major water source, but here one is speaking of occupational preference in a variety of ecological zones of either high or low elevation. The $R^2$ of the regression equation is 0.853 and the F ratio is 310.03 with degrees of freedom 1, 56. The F ratio is significant at the 0.01 level (Table 2).

Archaic Period

The Archaic population in North-Central Florida required quantities of chert, which were only obtainable in selected areas, for artifact production. This is demonstrated geographically and culturally in an area historically known as one of the few locales in Florida capable of producing quality materials for lithic artifacts.

The Archaic period is the best represented time period in the total sample numbering some 115 sites. These are distributed throughout Alachua County in varied geographical contexts. The single most intensive study is made of the period at the Simonton Ranch property in Marion and Alachua counties. Such sites are usually identified by quantities of flaked chert. Elevations range from 60 to 190 feet, with a mean value of 100.79 feet; over 51 percent are located at 85 feet or less.
Archaic populations have the greatest variation in distance to major water sources, ranging from 328 to 11,152 feet. Over 52 percent of all Archaic sites surveyed, however, fell within the first four classes from 328 feet to 1,312 feet.

A regression analysis of elevation and distance proved significant in terms of the value of $R^2$. The derived $R^2$ was 0.661 and the F ratio was 220.44 (at 1 and 114 degrees of freedom), both being statistically significant at an alpha of 0.01.

**Deptford Period**

The early Deptford population is poorly defined in North-Central Florida and lacks representation and information, especially in terms of site locations. There is little doubt, however, that a hunting-gathering-collecting economy was its subsistence base and that ceremonialism to some extent had begun by middle or late Deptford period. Archaeological evidence has been interpreted by some that Deptford people were basically coast oriented and only migrated inland seasonally to exploit resources not found on the Gulf coast. Among these resources could have been quality chert. At the end of the era, Deptford peoples began moving inland to more sedentary villages where soil was better suited to their agricultural practices. Rudimentary forms of agriculture were introduced into north Florida by A.D. 200. This brought about a gradual change to sedentary life.

The $R^2$ between distance to water and elevation is 0.25 and the F ratio is at 1 and 9 degrees of freedom, and the F value (2.69) is not statistically significant at the 0.01 alpha level.

**Cades Pond Period**

The next major cultural element to invade North-Central Florida was that of the Cades Pond. The bulk of the Cades Pond diet was foods taken from aquatic and swamp habitats, although probably there was small scale horticulture as well. Analysis of the well-preserved food remains from Melton Village gives solid evidence of the forms of Cades Pond subsistence, characterized by a dependence on hunting, fishing, and collecting utilizing a wide variety of animal species, especially from marsh-aquatic environments; and a spring-summer-fall and possible year-round occupation.
All of the sites occur within less than one mile of major water sources, including Paynes Prairie, Lake Lochloosa, Orange Lake, and Newman's Lake. There appears to be a diversity in soil and vegetative zones in which these sites occur. The elevation range of Cades Pond sites is from 65 to 175 feet, with 55 percent of the sites located at an elevation of 80 feet or less.

The types and variety of hydrological systems in the close vicinity of Cades Pond sites give substantial evidence, along with the archaeological data, that these people depended on resources close to a variety of water sources. Ninety-five percent of the sites are located in some type of habitat associated with wet areas. Fifty-five percent of the sites are in hydric hammocks, 30 percent in marshes and sloughs, 5 percent in cypress vegetation, and 5 percent in hammocks.

Regression analysis of elevation and distance to water sources yielded an $R^2$ of 0.06, which is not significant at the 0.01 level. The F ratio is 1.13 with 1 and 19 degrees of freedom.

**Alachua Tradition**

The importance of aquatic habitation is readily discernable in the Cades Pond period. Equally visible, however, is the importance of another type of geographic setting for the people of the Alachua Tradition. Within 980 feet of the center of the densest distribution of Alachua sites there are less than approximately 250 acres of aquatic habitats; the remainder is hammock.

The Alachua Tradition has a wide distribution. The elevation ranges from 60 to 180 feet above sea level, the mean elevation is 101.12 feet, the standard deviation 39.08, and the standard error of the mean 4.63. Slightly over 50 percent of the sites are located 75 feet above sea level or less. Thirty-three percent of the sites are found at an elevation of 75 feet.

Mean distance to water sources is 984 feet; 57.7 percent of the sites are located within 656 feet away from water sources. None of the sites surveyed occurred near running water systems, and only 5 percent were found near river branches. Almost 31 percent of the sites are found near prairies and 12 percent occur near at least two water sources.

The elevation to distance-to-water $R^2$ of this period dropped to 0.004. The degrees of freedom were 1 and 70. An F value is reported at 0.025, significant at 0.01 level.

**Summary**

Statistical testing failed to provide conclusive proof of clustering of archaeological sites in a particular area. These tests did not show geographic restriction of a particular type of site to only one microenvironment. Those areas considered preferable for living changed through time. This may have been a conscious selection by particular cultural groups exploiting different habitats.

During the earliest cultural period man chose to live near running water at low elevations. Later, a trend toward selecting higher elevations and areas with a variety of available water sources developed. The distances to water sources and the type of water sources did not remain consistent for any successive time periods; for instance, Paleo cultures located at low elevations adjoining running water. Archaic cultures situated at varying distances from lakes and ponds and at a variety of elevations. Deptford groups also located at diverse elevations but at a greater distance from water sources than did Paleo, Cades Pond, or Alachua Tradition sites. Cades Pond cultures established at a uniform elevation near a variety of water sources including streams, rivers, hydric hammocks, marshes, and sloughs. Alachua Tradition cultures located near lakes and ponds at a greater mean elevation than Paleo, Archaic, and Cades Pond sites.
Paleo-Indians probably required selected areas when hunting. River crossings afforded the opportunity to kill large animals. For this reason Paleo cultures are found near rivers in hydric hammocks. The Archaic population in North-Central Florida required quantities of chert (which were only obtainable in selected areas) for artifact production. Cades Pond culture located almost exclusively in aquatic habitats which could support larger populations because more resources were available. During the Alachua Tradition agriculture was introduced into North-Central Florida. A majority of Alachua Tradition living sites were situated on lands still agriculturally productive.

This sequent occupancy study examined five groups with differing cultural traditions utilizing resources from the North-Central Florida environment. The environment remained constant, but the livelihood patterns of the inhabitants changed through time, and as they did, site of settlement also changed. Culture, then, more than environment, explains settlement location among these groups.

1. This is a summary of a thesis presented to the University of Florida under the supervision of David L. Niddrie, Department of Geography.


CORRECTION

The equation on page 12 of the article by Joyce McJunkin and Ronald Schultz, "The Market Pattern of Fresh Winter Vegetables from Florida," The Florida Geographer 13-1 (1979), should read:

\[ \text{VEGT} = \beta_0 \cdot \text{POP}^{\beta_1} \cdot \text{INC}^{\beta_2} - \text{ED}^{\beta_3} / (\text{DIST}^{\beta_4} \cdot \text{UR}^{\beta_5}) \]