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The Jácana Site, PO-29: A Lightly Occupied, Heavily Utilized, Ceremonial Center in South-Central Puerto Rico, A.D. 1300-1500

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Abstract

Intensive archaeological investigations of the Jácana site yielded results that suggest although the site saw limited occupation in the late period, A.D. 1300-1500, there was evidence of intensive use of the site as a ceremonial destination, as an element of a broader landscape of cultural importance. The various lines of evidence from the multi-disciplinary study of Jácana are presented in this paper, as well as a discussion of the site's place in the extensive network of sites and landscapes.

Key words: *South-Central Puerto Rico, A.D. 1300-1500, ceremonial destination, mythic landscape*.

El sitio de Jácana, PO-29: un centro ceremonial poco ocupado y muy utilizado, centro ceremonial en el centro-sur de Puerto Rico, 1300-1500 D.C.

Resumen

Las investigaciones arqueológicas intensivas del sitio de Jácana arrojaron resultados que sugieren que aunque el sitio tuvo una ocupación limitada en el período Tardío, 1300-1500 D.C., hubo evidencia de un uso intensivo del

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sitio como destino ceremonial, como elemento de un paisaje más amplio de interés cultural. En este artículo se presentan las diversas líneas de evidencia del estudio multidisciplinario de Jácana, así como una discusión sobre el lugar del sitio en la extensa red de sitios y paisajes.

Palabras clave: *el centro-sur de Puerto Rico, 1300-1500 D.C., centro ceremonial, paisaje mítico.*

Le site de Jácana, PO-29: un centre cérémoniel légèrement occupé et fortement utilisé dans le centre-sud de Porto Rico, 1300-1500 après J.-C.

Résumé

Des recherches archéologiques intensives sur le site de Jácana ont donné des résultats qui suggèrent que, bien que le site ait connu une occupation limitée à la fin de la période, entre 1300 et 1500 après J.-C., il existait des preuves d'une utilisation intensive du site comme destination cérémonielle, en tant qu'élément d'un paysage culturel plus vaste importance. Les différentes sources de données issues de l'étude multidisciplinaire de Jácana sont présentées dans cet article, ainsi qu'une discussion sur la place du site dans le vaste réseau de sites et de paysages.

Mots clés: *Centre-sud Porto Rico, 1300-1500 après J.-C., centre cérémoniel, paysage mythique.*

Introduction

This article addresses the late period use of the Jácana site in south-central Puerto Rico, circa AD 1300-1500. The site and the broader settlement context of the region underline an apparent contrast. The site and region show relatively limited domestic occupation (i.e., low regional population) in this span, but the site saw major ceremonial use. A similar contrast has been noted for the Caguana/Utuado area in the late period (Oliver, 1998, 2005; Oliver and Rivera Fontán, 2004, 2005).

Such contrasts have been the basis for the hypothesis that the Jácana site and much of central Puerto Rico was a mythic landscape used for ceremonial purposes even after the bulk of Taíno population had moved elsewhere (Espenshade, 2014, 2020). The authors recognize the significance of the apparent contrast, and this article seeks to fully delineate the lines of evidence before revisiting an explanation that reconciles the two conditions, limited domestic occupation and extensive ceremonial use.

Context

The Jacana site is approximately nine acres along the floodplain of the Portugues River. Its major components were designated Jácana 2 (A.D. 650-900) and Jácana 4 (A.D. 1300-1500). The site underwent data recovery excavations in 2006 and 2007. New South Associates, Inc., issued a multi-part report on the study that included the following elements:

- Volume I, Synthesis (Espenshade, 2014).
- Volume II, Part 1, Introduction, Natural and Cultural Settings, and Methods (Espenshade, Young and Foss, 2014).
- Volume II, Part 2, Site Contexts and Feature Patterning (Young and Foss, 2014).
- Volume II, Part 3, Batey Borders/Rock Art (Loubser, Weng, Espenshade, Bustelo, and Diener, 2014).
- Volume II, Part 4, The Houses of Jácana (Kaplan, 2014).
- Volume II, Part 5, Human Remains from Jácana (de la Rosa, Matternes and Young, 2014).
- Volume II, Part 6, The Pottery of Jácana (Espenshade, Reber and Huie, 2014).
- Volume II, Part 7, Lithic Artifacts of Jácana (Kaplan, Patch and Mainieri, 2014).
- Volume II Part 8, Paleoethnobotany of Jácana (Newsom, Duncan, Pearsall and Jones, 2014).
- Volume II, Part 9, The Zooarchaeology of Jácana (DuChemin, Cannarozzi and deFrance, 2014).
- Volume II, Part 10, Site Stabilization and Preservation (Joseph, Mountjoy and Bustelo, 2014).

The pottery has been further addressed in two articles by Espenshade (2013, 2015), and the Jácana 4 site interpretations were addressed in Espenshade (2020).

To assist with flood control, the United States Army Corps of Engineers (USACE) proposed construction of a reservoir on the Portugues River. The proposed impoundment threatened to inundate the site during high flood periods, and the site location was also proposed for disposal of fill removed from the proposed dam location. USACE involvement then required compliance with Section 106 of the National Historic Preservation Act (NHPA). Prior to impoundment/construction, USACE determined that archaeological excavations (i.e., data recovery) were the best approach to resolving the adverse effects. The project evolved into an example of the flexibility built into the Section 106 process.

When the data recovery effort was approximately 90 percent complete, it became apparent that the archaeological data potential and heritage

significance of the site had exceeded all expectations. With the delineation of the large batey, the indications of possibly 400 burials beneath the batey floor, the exceptional gallery of rock art, and the healthy engagement of interest from many Puerto Ricans, the site became of transcendent importance. The USACE could have simply completed the data recovery effort as outlined in the Memorandum of Agreement, but they instead chose to preserve the site in place. Data recovery excavations were halted, the site was carefully backfilled, and another location was selected for the disposal of overburden soils from the dam construction site (Siegel *et al.,* 2009, Espenshade, 2014).

When excavations were halted, the planned data recovery effort was 90 percent complete, representing only six percent of the overall site. Although the data recovery was not completed, the investigations yielded important archaeological datasets. The interpretations presented here are based on the datasets that were collected. This means that much data potential remains at Jácana and that we lack the information needed to fully address certain questions.

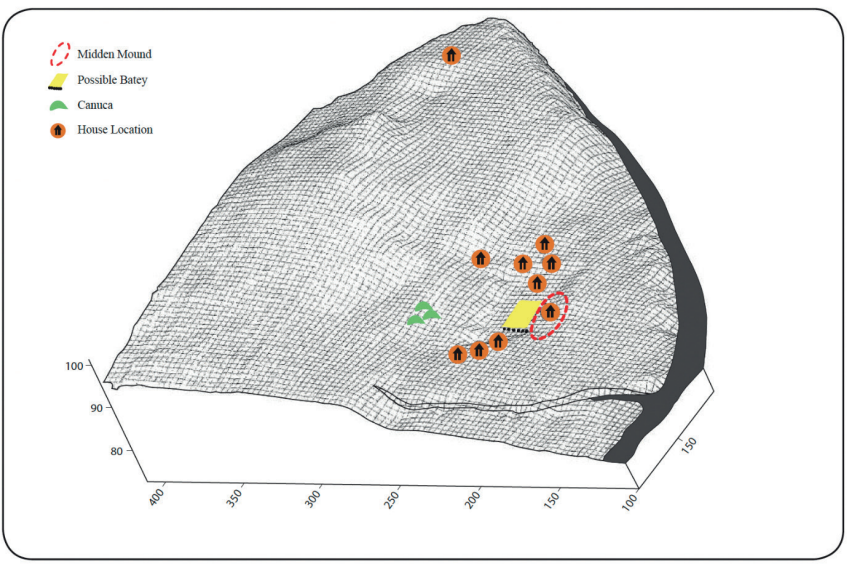

Figure 1. Jácana 2 Simplified Site Structure.

The fieldwork included a combination of geomorphological trenching (33 trenches); 71 hand-excavated units to sample the various site contexts (52 1x1-meter units, one 1.5x0.5-meter unit, and 16 0.5x0.5-meter units); machine-assisted excavation of feature exposure areas (FXs, totaling 1,790.5 square meters); exposure, analysis, and recordation of the four batey

borders; the hand excavation of 49 burial features, some containing multiple individuals, and the hand excavation of 157 non-burial features.

By combining geomorphological trenching, hand excavation, and machine-assisted exposure of living areas, the study was able to characterize with confidence the site structure during two major components. Although a large percentage of the site area was left unexcavated, enough work was conducted in each precinct of the site to date and characterize the midden and features. House patterns were exclusively found in association with midden deposits or the midden mound, making it unlikely that residential areas were missed in either component.

Two major pre-Columbian components were revealed at the site, with Jácana 4 stratigraphically above Jácana 2, or mixed with the uppermost portion of the Jácana-2 deposits. In the Jácana-2 span (A.D. 600-900), the site contained numerous houses, thick midden deposits, human burials in and below the middens, a small midden mound, and possibly a batey or plaza (Figure 1). The thickness of the domestic midden and the frequency of burials suggests a lengthy occupation by multiple, contemporary households. The associated pottery was a mix of materials fitting the expectations for late Cuevas and Early Ostionoid/Monserrate styles. The residents at the site ate a mixture of mammals (predominately hutia), fish, and shellfish, with minor contributions by birds and reptiles. There was a significant reliance on maritime faunal resources, relative to expectations for a site in the interior hills. Houses were oval forms, generally eight by six meters (Kaplan, 2014); Figures 2 and 3 present house patterns. It appears that the site served as a hamlet (perhaps 3-5 houses occupied coevally) and a part of a ritual landscape in Jácana 2 times (Espenshade, 2014).

In Jácana 4 times (circa A.D. 1300-1500), the site centered on a 40x50 meter batey, which was bordered on all four sides by rows of slabs and boulders (Figures 4-5). The north border of the batey featured a gallery of rock art, and other petroglyphs were also present in the other borders (Loubser et al. 2011). The midden mound was greatly expanded in this span, with most of the material derived from the earlier midden deposits. Only 2-4 structures were present (perhaps only a single house occupied at a time), and very little midden accumulated during the Jácana 4 occupation. The zooarchaeological record and the macrobotanical remains suggest the possibility that a garden of ritual and medicinal plants was maintained at the site, and guinea pigs may have been raised there as well (Newsom et al. 2014; DuChemin et al. 2014). The Jácana 4 diet saw an increase in guinea pig, the first use of pelagic fishes, and an increased use of sea turtles. These differences relative to the Jácana 2 pattern suggest that the Jácana 4 occupation was more heavily focused on ritual consumption. Neither component yielded seasonality indicators.

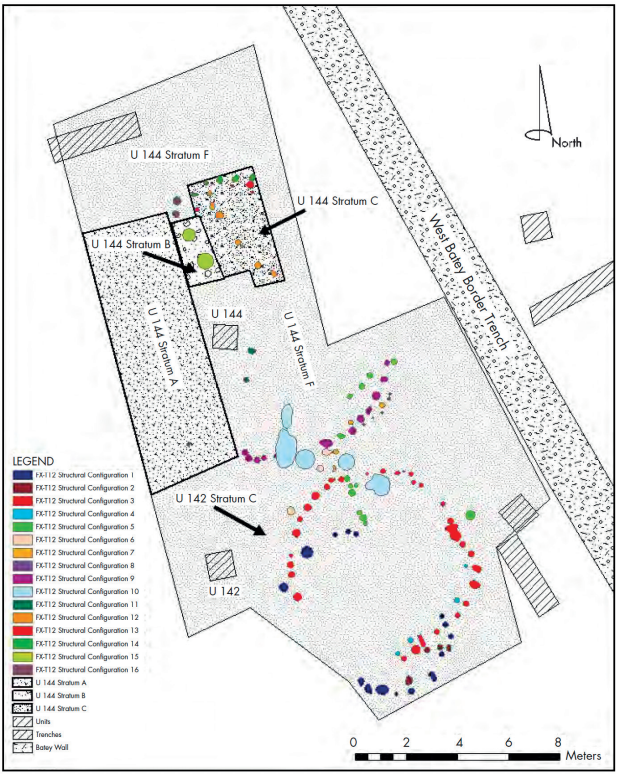

Figure 2. House Patterns West of Batey. Configuration 14 is Jácana 4, all others Jácana 2.

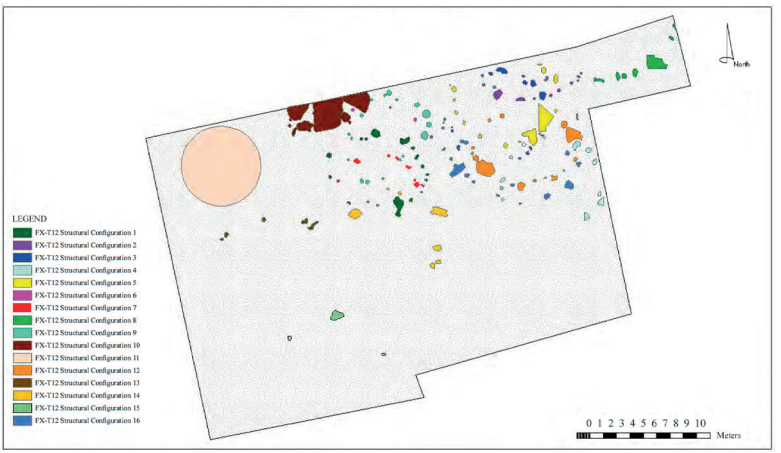

Figure 3. House Patterns East of Batey. Configurations 10 and 11 are Jácana 4, all others are Jácana 2.

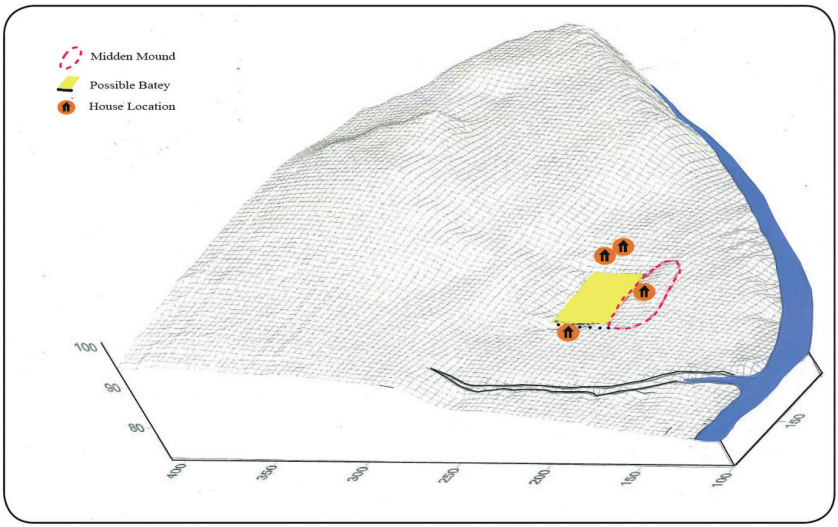

Figure 4. Jácana 4 Simplified Site Plan.

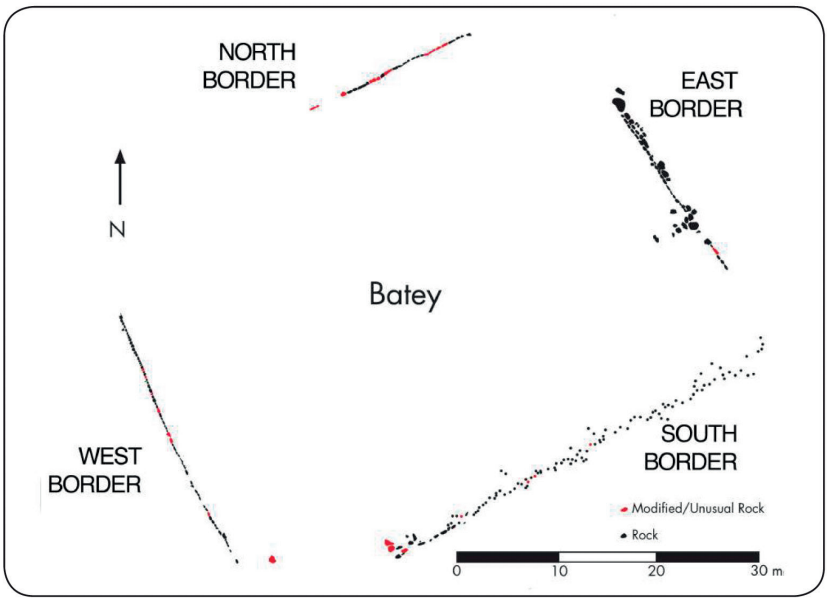

Figure 5. Jácana 4 Batey Plan.

Contrast

Many archaeologists naturally and implicitly expect that large ceremonial centers go hand-in-hand with large residential populations. In the Caribbean, this has led to settlement models that assume, absent extensive testing, that the largest residential sites must be intensively occupied villages (Siegel, 1992, 1995, 1996, 1999, 2004, 2010; Torres, 2010, 2012; Torres, DeChemin and Lugares, 2008).

Espenshade (2020) has argued there are two erroneous processes that may have resulted in these unfounded assumptions: Mississippianization and Hispaniolization. The first, Mississippianization, is the assumption that Taíno settlement can be modeled upon the systems in place in the Mississippian span in the southeastern United States. In classic Mississippian settlement systems, there is a site hierarchy of large villages with temple mounds and plazas, smaller villages, hamlets, and single-family farmsteads (Polhemus 1987). For many American archaeologists, Mississippian settlement patterns define the expectations for chiefdom-level societies (Hudson 1976; Smith 2000). The Mississippianization concept seems to be at play when settlement models for the Taíno in Puerto Rico assume that the largest sites were villages (Siegel, 1992, 1995, 1996, 1999, 2004, 2010; Torres, 2010, 2012; Torres, DeChemin and Lugares, 2008) despite a general lack of archaeological examinations of such sites.

The second process, Hispaniolization, assumes that the Taíno settlement systems seen on what became Haiti and the Dominican Republic had to be the same as Taíno settlement systems on Puerto Rico. Curet and Stringer (2010:4) identified this potential fallacy:

> Considering that the great majority of the ethnohistorical information was collected from various groups on the island of Hispaniola, it is unclear how much the cultural and social reconstructions are applicable to other islands, or even to all parts of Hispaniola itself. There are strong reasons to doubt that all polities within Hispaniola and in the rest of the Caribbean were highly stratified and centralized societies.

Roe (1999) was an early opponent of Hispaniolization, noting significant and persistent differences between Taíno sites of Puerto Rico and Haiti/Dominican Republic. Roe emphasized that Puerto Rico generally lacked late village sites, while Hispaniola contained many, large, late habitation sites with deep midden deposits. Roe also pointed out the differences in scale in the ceremonial sites in Puerto Rico and Haiti/Dominican Republic. He suggested that much of the Taíno population departed Puerto Rico by AD 1200 for Haiti and the Dominican Republic.

Recognizing the false expectations that Mississippianization and Hispaniolization may have created, it is appropriate to reconsider the apparent contrast between light residential occupation and intensive ceremonial use.

Light Residential Occupation

Limited midden deposition

The Jácana 4 component showed very little evidence of midden accrual. To the west of the batey, where there was significant midden deposition in the Jácana 2 span, there was generally less than 10 centimeters of midden from Jácana 4 times. Likewise, the area east of the batey saw Jácana 4 materials only in the upper 10 centimeters, where they were mixed with Jácana 2 materials. There was no Jácana 4 midden in the Gully Top area.

Limited evidence of house construction

Unlike the Jácana 2 component that included many house patterns, the Jácana 4 component's structural remains were limited to a single massive post west of the batey and two possible houses east of the batey (Kaplan 2014). The house remains east of the batey were the only examples with large, rock-wedged posts and possible evidence of burning. Certain site areas that were used for houses in Jácana 2 times (e.g., Gully Top and east of batey) were abandoned in Jácana 4 times.

Heavily Ritual Utilization

Size of the batey

At 50 x 40 meters (0.2 ha), the batey is among the largest known on the island. Other major ceremonial centers (defined on size and count of bateys) included Tibes, Caguana, Viva Ariba, Tierras Nuevas, Bateyes de Ciales, Palo Hincado, Villón, and Bateyes de Trujillo Alto (Rodríguez Meléndez, 2007). The general premise in interpreting bateys is that the size of the ballcourt/plaza/dance-ground is related to the anticipated number of participants in the associated ceremonies. By this relatively straightforward argument, the Jácana site post-A.D. 1300 was one of the major ceremonial centers on Puerto Rico.

Expansion of midden mound

The effort that went into expanding the midden mound in early Jácana 4 times was significant. The source material for the expansion was apparently

Jácana 2 midden removed from the area that became the batey. This is an important point; the midden mound was not expanded by the natural accrual from domestic occupation during Jácana 4. The ceremonial importance of the midden mound demanded its expansion.

Prevalence of petroglyphs/iconography

The count and complexity of the rock art at Jácana is exceptional. The spiritual and artistic impact of the north border gallery of petroglyphs is rivalled only by Caguana (Oliver, 1998, 2005, 2009, 2019), another site interpreted as a major ceremonial center. In addition to having relatively simple and common motifs, Jácana features two highly detailed, mythical creatures of pan-Taíno importance.

The north border gallery also includes multiple examples showing evidence of ongoing modification after the petroglyphs had been installed. It is unclear how this post-installation alteration of petroglyphs was related to ceremonial activity.

Ceremonial Species in Jácana 4

Maize was indicated by starch residue on two pots and a large metate from Jácana 4 contexts. Newsom (2010) suggests that maize was a high-status food for the Taino.

Although no cohoba remnants were recovered from the Jácana 4 contexts, several ceramic artifacts related to consuming cohoba were recovered.

One pottery vessel from Jácana 4 contexts and one pot from Jácana 2/4 contexts had residues suggestive of the heating of pine resin. Pines were not native to Puerto Rico, and this foreign material may have been imported for ceremonial use, like what was known ethnohistorically from Central and South America (e.g., Alcorn, 1984; Balser, 1960).

The zooarchaeological analysis identified guinea pigs, the distribution of which showed an over-representation in the midden mound and batey. It is possible that guinea pigs were raised at the site. Hutia was the other major mammal.

Jácana 4 saw a significant increase in the use of sea turtles and the first use of pelagic fish species. It is argued that the greater effort involved in capturing these marine species reflected the bringing of foodstuffs for ceremonies rather than everyday consumption.

Another species of possible ritual significance is the porcupine fish. Twelve MNI were recovered from Jácana 2/4 or Jácana 4 contexts (DuChemin *et al.*, 2014). The toxins contained in this species (also in the related puffer fish) can cause hallucinations when ingested. Without proper treatment, eating this species can be fatal to humans. Keegan and Carlson (2008:114-115; see

also Keegan 2007:178) stated that the historical use of this species in the Caribbean (but not African) version of voodoo may suggest temporally deeper roots of the practice, possibly among the Taíno or other island groups. A Taíno effigy vessel featuring a porcupine fish, from circa A.D. 1300 contexts at the Governor Beach site on Grand Turk, strengthens the argument that the species was ritually charged (Keegan 2007:89). The proper methods for rendering this deadly fish may have been esoteric knowledge, shared only by shamans or behiques.

Ceramic Indicators

The ceramic analysis for Jácana included both sherd-based and sample vessel analysis. Detailed technological, stylistic, and formal analyses were completed for 489 sample vessels (Espenshade, Reber and Huie, 2014). Various aspects of the Jácana 2 (Espenshade, 2015) and Jácana 4 assemblages (Espenshade, 2013) were examined to help inform interpretations of site use. A key question for the Jácana 4 pottery was: is there the consistency expected from a limited community of practice, or are there indicators of potters of many communities contributing to the assemblage?

Table 1. Tentative Style Assignments, Jácana 4 Vessels

Tentative Style	*Basis for Assignment*	*Vessel Numbers*
Boca Chica	Presence of neck	367
Boca Chica	Incised line ends in punctuation	9, 362, 394, and 399
Boca Chica	Broad lines, widely spaced, complex motif	32, 33, 34, 116, 123, 153, 162, 166, 170, 173, 197, 200, 272, 281, 294, 301, 386, 387, 388, 389, 391, 397, 415, 428, 443,459
Esperanza	Broad lines, simple motif	7, 8, 10, 137, 160, 191, 273, 308, 407, 414, 424
Capá	Narrow lines, tightly packed, complex motif	140, 154
Boca Chica or Esperanza	Broad lines, moderate complexity motif	304, 312, 371, 417
Boca Chica or Capá	Line width or spacing ambiguous, complex motif	30, 35, 138, 151, 174, 363, 400, 455, 467

The first ceramic trait examined was Rousean style assignment. Although there have been recent critiques of Rouse's approach to pottery classification, there remains an expectation linking style –Capá, Boca Chica,

Attribute	Data
Vessels	
• Form C	7
• Form D	31
• Form G	1
• Form I	1
Shoulder Inflection	
• Count With	43 (91.5%)
• Count Without	4
Rim Forms	
• Round Direct	33
• Square Direct	13
• Interior Thickened	1
Rim Diameter	
• Range	12-42 cm
• Mean	26.4 cm
Thickness	
• Range	3.9-11.8 mm
• Mean	8.0 mm
Coil Break	
• Present or Possible	47.8%
• None	52.2%
Inferred Firing Position	
• Upright	36.8%
• Inverted	8.8%
• Indeterminate	54.4%
Core Retention	
• Range	0-100%
• Mean	42.0%
Major Paste Color	
• Dark Grey	40%
• Tan	15%
• Brown	15%
• Red	30%
Exterior Paste Colors	
• Dark Grey	29%
• Tan	21%
• Brown	2%
• Red	48%
Aplastic Type	
• White Quartz	58
• Dirty/Rusty Quartz	5
• Sandstone	1
• No Apparent Temper	1
• Metamorphic Rock	2
• Quartzite	1
Possibly Extralocal Pots	
• Including No Apparent Temper as Extralocal	6 (8.8%)
• Excluding No Apparent Temper as Extralocal	5 (7.3%)
Primary Aplastic Shape	
• No Apparent Temper	1
• Angular	56
• Sub-Angular	7
• Round	2
• Irregular	2
Aplastic Density	
• Range	0-35%
• Mean	17%
Use Abrasions	
• Present	11.8%
• Absent	88.2%
Fire Clouds	
• Present	33.8%
• Possible	7.4%
• Absent	58.8%

Figure 6. Attribute Data for Jacana 4 Vessels.

and Esperanza– to generalized homelands. In general, it is not expected that a simple domestic site in south-central Puerto Rico would display all three styles as well as possible hybrids mixing attributes of the three styles. Table 1 documents the co-occurrence and hybridization of the three styles in the Jácana 4 assemblage. The data indicate Boca Chica (31-43 vessels) is the prevalent style, with Esperanza (11-15 vessels) and Capá (2-11 vessels) less well represented. The findings suggest contributions from multiple communities of practice.

Stepping beyond stylistic assignments, it is pertinent to next examine the consistency of technological attributes. Within a community of pottery practice there is generally a well-entrenched technological tradition that reflects a successful adaptation to vessel needs, local clay and tempering resources, manufacturing trajectory, and firing approach. The technological tradition, as a proven solution to providing ceramic needs, is typically resistant to change.

Within a community of practice, there is also an expectation for consistency in the size classes and proportions of vessels. Using rim diameter as a proxy for vessel size, Figure 7 presents the rim diameter data for the Jácana 4 sample vessels. There is a generalized line from 10-50 centimeters in diameter, with no clear breaks for standardized size classes. The data instead suggest many potters contributing vessels beyond their home tradition.

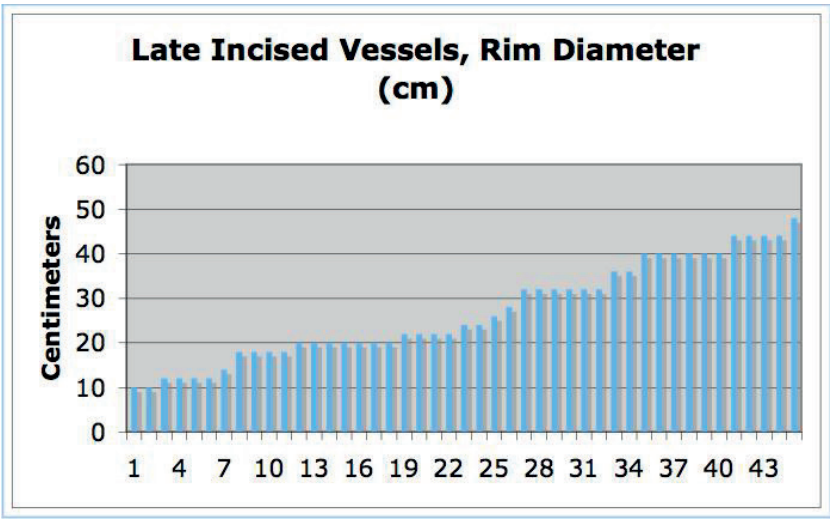

Figure 7. Rim Diameter for Jacana 4 Vessels (each bar represents a single vessel).

The relationship of vessel thickness (measured 3 cm below rim) and vessel size is expected to be consistent for a community of practice. The baseline relationship can be seen as the definition of what an accomplished potter

can do with these materials and the established approach. Even accepting that there will be changes in potting ability through time, suitability and acceptability are expected to be well defined among a small group of potters. Conversely, pots from many sources will not necessarily have been produced to the same standards. Figure 8 plots vessel thickness against rim diameter. There is no consistent relationship, and the data instead suggest many ideas on the appropriate relationship.

Another means of addressing proportion is to examine the relationship of neck width and rim diameter. The expectation again is that community of practice will have well-defined parameters of what that relationship should be. Figure 9 demonstrates for the Jácana 4 material, neck width and rim diameter do not track well. There is no consistent relationship, again arguing that multiple schools, traditions, or communities of practice of potting contributed to this site.

Highly decorated pots are often associated with public ceremonies. It is not possible to gauge the frequency of incised and plain pots for the Jácana 4 assemblage, as cluster analysis dd not yield sufficiently robust groupings to place most undecorated vessels as Jácana 2 or 4. Several large, Jácana 4, incised pots showed severe interior damage suggestive of grinding. Espenshade (2014, 2013, 2020) suggests that this may have been ritually

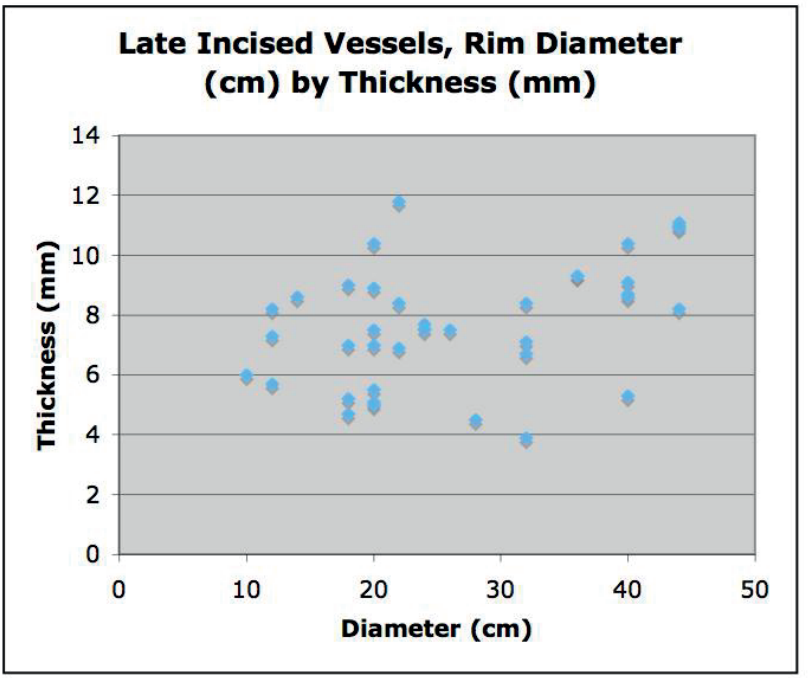

Figure 8. Thickness and Rim Diameter for Jacana 4 Vessels.

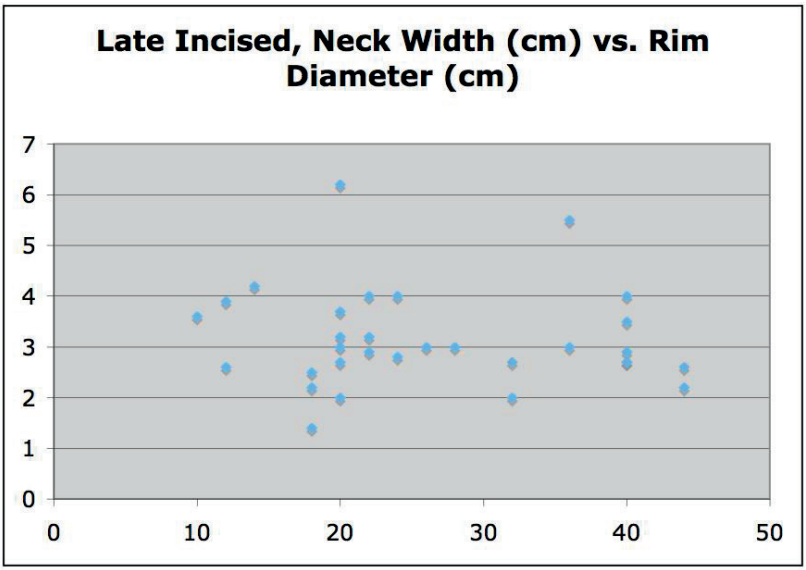

Figure 9. Neck width (1-7 cm) versus rim diameter (10-43 cm).

charged grinding, from either cohoba preparation or endocannibalism (grinding of human bones).

The count of late vessels is surprisingly high given the limited midden and few features assignable to the Jácana 4 span. Especially in comparison with Jácana 2, the Jácana 4 vessel population suggests an intensity of pottery use greater than common domestic activity.

There is a difference in burens between Jácana 2 and 4 site uses. The pure Jácana 2 contexts yielded large, undecorated burens, as are typical in residential sites. In contrast, mixed Jácana 2/4 contexts from the midden mound were the only proveniences that yielded decorated burens. All six examples in the vessel sample were from mixed Jácana 2/4 contexts in the Midden Mound. None were recovered from pure Jácana 2 contexts anywhere on the site. It will be recalled that the midden mound lacked a pure Jácana 4 deposit; all the Jácana 4 material was mixed into the Jácana 2 midden that formed the bulk of the mound. The contextual data lean toward these incised burens being of Jácana 4 origin.

The decoration of the burens is also consistent with a Jácana 4 affiliation (Table 2). Incising is most common in the Jácana 4 stylistic palette, and Sample Vessels 9 and 12 have incisions ending in punctates, a treatment considered indicative of the Boca Chica style. Sample Vessel 7 varies from the typical buren in its small size, having a diameter of only 12 centimeters (Dr. Joshua Torres, personal communication, 2020) feels that this small item may be a

Cohoba tray instead). Sample Vessel 12 has a design possibly representing an owl, a class of birds of significance to Taino beliefs (García Arévalo, 1991).

The decoration of all six burens, the diminutive size of Sample Vessel 7, and their exclusive association with the midden mound suggest that these burens were used in public ceremony rather than every day, domestic activities. It is generally the case that items used in public display are more heavily decorated than those used in domestic contexts (Schiffer and Miller 1999; Mills 2007; Budden and Sofaer 2009). The presence of incised burens only in the Midden Mound, and their likely Jácana 4 affiliation are consistent with the midden mound having served special ritual functions during batey-related events.

Table 2. Decorated Burens

Sample Vessel	*Description*
3	Upper surface decorated with incised line and punctates. The design is similar to variations of the Late Incised wave motif.
7	12 centimeters diameter. Upper face incised with two lines paralleling outer edge. Upper, exterior edge is also incised with a single line below and parallel to the rim.
8	Single incised line on upper face, apparently parallel to outer edge.
9	Two incised lines on upper face, approximately parallel to outer edge. One line ends in a punctate.
10	40 centimeters diameter. Upper face incised with two lines parallel to outer edge.
12	Upper face decorated with incisions and two punctuates, in a design suggestive of an owl. One of the lines ends in a punctate.

The last areas for examining ceramic variability are motif selection and the motor habits associated with creating those motifs. The majority of Jácana 4 incised pots had some variation of a wave motif. Figure 10 defines how the elements of these motifs were recorded. Table 3 demonstrates a significant diversity in how the wave motif was created on Jácana 4 vessels. These data suggest a generalized approach with much freedom for variation, rather than a single community of practice. The analytical scheme of recording separate elements of the motif proved effective in substantiating the general feeling upon looking at the sample vessels.

Lastly, when potters were attempting to illustrate the same element of a motif, were their methods similar? In this case, the analysis questioned if there was an acceptable way to depict an eye. For example, if a potter uses an incised line to border an eye on one adorno, the potter is expected to generally use that trait on all adornos. Of the face-bearing adornos, the

following variations can be observed: shallow punctuates alone; incised line around the exterior of the eye, with a central punctate; incised line around the eye exterior without a central punctate; eyes represented by simple, small punctates; eyes represented by puck-shaped appliqués with a center punctate; and puck-shaped appliqués with horizontal incisions for pupils. The adorno variability supports many potters contributing to the Jácana 4 assemblage.

Overall, the ceramic technology, morphology, and style show a significantly higher level of variability than expected from a single domestic community. Instead, the Jácana 4 pottery indicates contributions from multiple communities of practice, from groups of potters not in routine contact with one another. Such an assemblage is expected from a regionally important ceremonial center.

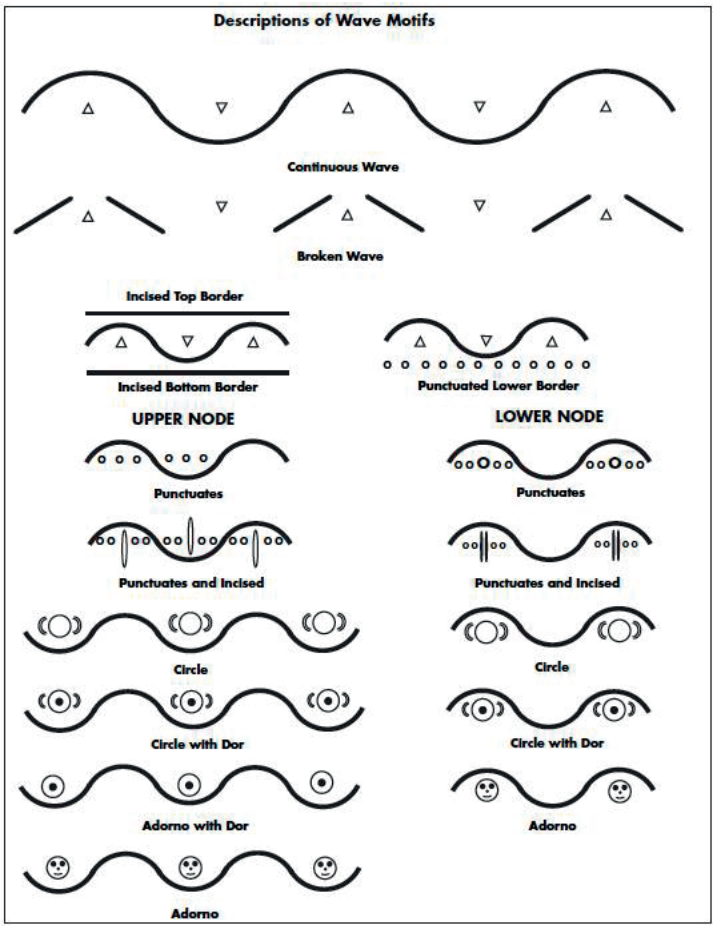

Figure 10. Coding Scheme for Wave Motif.

Table 3. Variability in Modes Used in Wave Motif

Mode	*State*	*Count*
Wave Structure	Continuous	17
	Broken	27
	Unknown	5
Lower Node	Punctates	16
	Punctates and Incising	2
	None (Herringbone)	2
	Incised	3
	Incised Circle with Center Dot	8
	Incised Circle	2
	3-Dimensional Adorno	5
	Triangle	1
	Unknown	10
Upper Node	Punctates	16
	Hemispherical Adorno with Circle and Dot/Punctate	1
	3-Dimensional Adorno	4
	None (Herringbone)	1
	Incised	2
	Triangle	1
	Punctate and Incised	3
	Incised Circle with Center Dot	2
	Incised Circle	4
	Unknown	15
Lower Border	None	28
	Incised	8
	Punctates	1
Upper Border	None	9
	Incised	36
	Punctates	0
	Unknown	4

Estimated burial population beneath batey floor

One of the late discoveries that led to the ultimate preservation of the site was the apparent density of burials beneath the batey floor. The cleaning of a small portion, 11 x 11 meters of the batey floor revealed 24 burials, none of which were excavated. If this density is representative of the entire batey area, there would have been more than 400 burials beneath the floor.

Absent excavation, why do we assume that these are late period burials? To the east of the batey, Jacana 2 burials were found in pits within thick organic midden deposits. If, as suspected, the Jacana 2 midden once extended over what became the Jácana 4 batey floor, the burials would have been removed with the midden that was relocated to the midden mound. The presence of sub-batey burials in soil that lacked organic midden suggests that these burials were placed after the batey had been cleared of midden.

The observed and inferred burial counts beneath the batey floor are inconsistent with expectations from a limited domestic occupation. However, reburial of remains from far afield as part of ritual behavior could account for many graves and would be consistent with an important ceremonial center. Secondary burial was known among the Taíno.

Reconciliation

A strong case has been made that late period (AD 1300-1500) residential use of Jácana was extremely limited, and that there was a general lack of major residential sites in the valley. A similarly strong case has been offered that Jácana was the site of significant, well-attended ceremonial functions in the same span. Rodríguez (2015) suggests at least certain ceremonies at Jácana were related to astronomical events. The reconciliation of those two conditions demands reconsideration of simple arguments of large ceremonial centers always occurring in conjunction with large residential sites.

It needs to be acknowledged that there is increasing evidence from various parts of the world that significant ceremonial sites occurred in the absence of a major local population. For example, Renfrew (2001) defined the concept of Location of High Devotional Expression (LHDE) to explain the role of Chaco Canyon in the American Southwest, A.D. 900-1130. Renfrew (2001) states that LHDEs were places of extreme significance to the identity of a culture. His LHDEs have small, permanent populations, but saw many pilgrims or visitors on certain holidays (see also Malville and Malville 2001). Hohokam ballcourts in the American Southwest (Abbott *et al*., 2007) and Stonehenge in England (Darville *et al*., 2012) are other well-known examples of LHDE.

Stepping Away from a Site-Driven Perspective

Espenshade (2014, 2020) has argued that the focus on archaeological sites rather than broader landscapes has severely hindered our understanding of Taíno lifeways. When focused on sites, archaeologists look for competition and replacement at the site level rather than elaboration at the landscape level.

Although the Portugués Valley has been subjected to intensive survey and site testing efforts (Pantel, 1978; Solìs Magaña, 1985; Oakley and Solìs Magaña, 1990; Torres *et al*., 2008; Torres, 2012), the largest residential sites discovered seem to be more on the scale of hamlets than villages. The Jácana-2 component at the Jácana site, and the earlier residences at Tibes were not large villages.

Likewise, there was not a single, dominant ballcourt. Tibes offered a ballcourt complex in Elenoid times, but there were also three small sites, each with a ballcourt, elsewhere in the lower valley (Torres *et al*., 2008; Torres, 2012). A site focus leads to misdirected questions of abandonment and replacement, rather than considering the possibility of elaboration through time of a landscape of ritual importance.

Espenshade (2020) argues "When we remove the blinders of a site-perspective and when we consider the true nature of the supposed abandonment of bateys in the Portugués Valley, a new possibility can be entertained."

Abandonment Processes of Ceremonial Landscape Elements

Espenshade (2020) has argued that the major bateys and related ceremonial sites were not abandoned as abandonment is commonly perceived. Espenshade (2020) states "The pattern of abandonment at the late period, Puerto Rican, batey sites seems to have been to simply walk away from the site." At Tibes, Jácana, Utuado, and other major ceremonial centers, abandonment is defined by the loss of a domestic function (i.e., loss of a residential area), while the bateys and associated petroglyphs were left in place. There was no theft or damage of petroglyphs. Furthermore, a striking trait of many of the ceremonial centers is continued use even after the site is no longer a population center.

Espenshade argues that the leaving of petroglyphs in place when residential use of the sites waned indicates a continued ceremonial use. This is also evidenced by the recovery of pottery that post-dates the use of these sites as residential areas. So, although there were residential shifts in the valley the baseline ceremonial places remained in use even when there were no on-site domestic areas.

Landscape Evolution as an Additive Process

If the reader accepts the reality that ceremonial site use did not end with residential shifts and that landscape history was not driven by competition between sites, the landscape of southern-central Puerto Rico can be recast as an additive landscape. Ceremonial sites of various types were added through time, rendering the landscape more complex and more powerful. As a result, the landscape became more inviting to those immersing themselves in Taíno culture, folklore, and ceremony. Espenshade (2020) argued "the Portugués Valley was a major portion of a ritual landscape that had mythic and cultural importance to possibly all the Taíno." As such, the landscape was a touchstone, a source of knowledge, and a source of identity for the Taíno. The Portugués valley is unique in several regards:

- It has a significantly high number of bateys, including some of the earliest on the island.
- It includes Tibes, arguably the largest ceremonial center on the island for the period AD 900-1200.
- It includes the large batey at Jácana, AD 1300-1500.
- It is on a natural route linking the southern coast to multiple large ceremonial centers, including Utuado, which was modeled on Tibes (Figure 11). Major ceremonial centers are not randomly distributed on the island, and almost all of them could be visited via a sojourn starting up the Portugués valley.

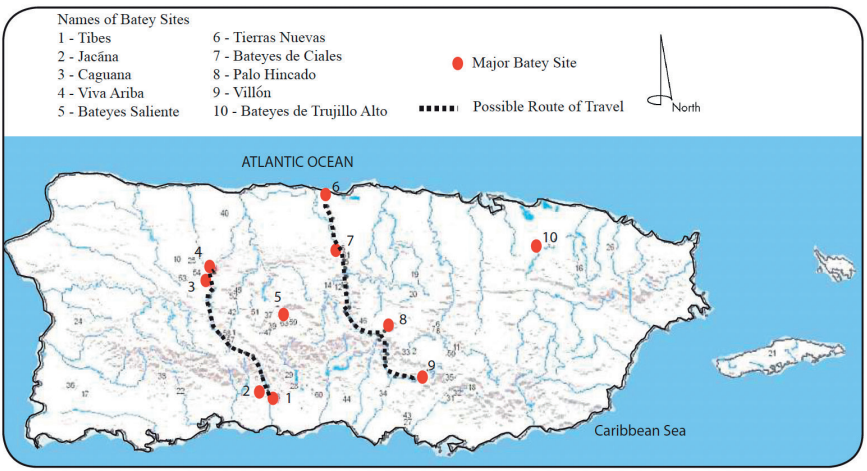

Figure 11. Major Ceremonial Centers.

Why Create and Maintain a Mythic Landscape?

In the end, the question becomes why would there be a mythic landscape maintained when the valley was only lightly occupied? Who would have been served by the landscape if the valley had only a limited population?

All Taíno would have been served. Whether or not an individual sojourned to the valley, visited the key sites, and learned the oral history of each stop, the landscape remained as a touchstone to cultural identity. The Portugues valley represented the source of pre- Taíno culture in the Caribbean. By this argument, the mythic landscape was maintained as a means to celebrate and teach the oral history of how Taíno came to be.

The ceremonial landscape of the valley was additive, with elaboration gained through the establishment of new locations of ritual importance. Each stop or way station -- whether a major ceremonial center, a small batey, a cave, or a riverside petroglyph – provided knowledge on what it meant to be Taíno. An aspiring shaman might spend months learning in the valley, and others might only choose to visit specific sites on specific days of celebration. Except for visitors, the valley was lightly populated.

Where Were the Local Villages?

The lack of a major residential component at the Jácana site in Jácana 4 times is a major theme of this article. Not only was there no village at Jácana in the late period, there was no evidence of major villages anywhere in the valley. Siegel (2010) and Torres (2005, 2010, 2012) included villages as categories in their reconstructions of late settlement, but this was based on the assumption that the largest sites must have been villages (see Mississippianization of Puerto Rico above). The analysis of the Jácana 4 component demonstrates that a large late site can lack any significant residential component.

This situation is similar to that seen around Caguana, with a large ceremonial center but no related villages (Oliver and Fontán 2004, 2005; Rivera-Fontán and Oliver 2006; Oliver 2019). In 1999, Roe (1999:279) noted the extreme differences between Taino sites in Puerto Rico and the Dominican Republic:

> ... in the Dominican Republic, a vast number of Chicano Ostionoid sites contain deep and rich middens with enormous quantities of pottery. . . Could there have been a massive population displacement from Puerto Rico to the Eastern Hispaniola in late prehistoric times as resident populations outgrew the local resources on their much smaller island?

Roe is explicit in his belief that the largest late communities in Puerto Rico were in a different league than those in Hispaniola. Roe based his

argument on site size, midden volume, batey size and complexity, and ceramic complexity. Roe's findings are supportive of the contention that large, late villages were rare or absent in Puerto Rico.

Why might we expect a valley to take on mythic importance to a far-spread culture? Espenshade (2020) notes that preliminary DNA studies by Martinez-Cruzado (2010:70) suggest that the Portugués valley has the highest density of DNA indicative of the earliest migration to the island (Figure 12). It is suggested here that the valley was culturally recognized as a place of initial settlement in Puerto Rico, the spiritual homeland of those who became Taíno.

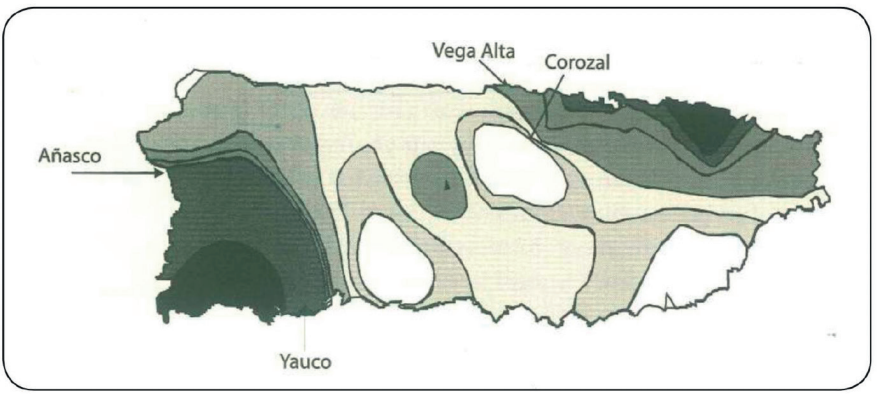

Figure 12. Density Map of Ancient DNA Groupings. White areas have highest density of DNA indicative of earliest migration to island (from Martínez-Cruzado 2010:70).

It is also instructive to consider that to the Taíno, a place or object held an important spirit even before the Taíno settled there or modified the object. A slab that ultimately became a petroglyph was destined to be that petroglyph by its inherent spirit. By such a world view, the valley may have chosen to be settled, rather than the Taíno choosing to settle. Espenshade (2020) suggests "by this logic, the lands first settled were always of cultural importance, and that is why they were first settled. The Taíno, over centuries, elaborated and commemorated this landscape to mark its mythic importance to their culture."

Conclusions

It has been demonstrated that in Jácana 4 times (AD 1300-1500), the Jácana site was probably occupied by only a caretaker behique. However, in this same span, the site saw intensive ceremonial use. This seeming contrast is suggested as the key to understanding Jácana and the broader valley.

Espenshade (2020) has argued that site size is not a direct indicator of the residential population, and that a lightly occupied site can play an important ceremonial role.

This model of a mythic landscape of cultural importance to the Taíno, existing in a region of low population density, is far from conclusively proven. The model calls for further regional survey and for examination of late sites identified as potential villages by Torres and Siegel. The past decade of research in Puerto Rico resulted in the questioning of many givens, things we thought we knew to be true. With this model, we question the assumption that villages must have been present (or the largest known sites must have been villages) in late Puerto Rico, and we question the contention that bateys predominately served in cacique-level aggrandizement. The authors suggest that from Ponce Beach to Caguana, there was a landscape of ceremonial locations, and that landscape played a vital role in reinforcing the cultural identity of the Taíno. Development of this landscape may have begun as early as AD 400, and it was elaborated through time through the addition of ceremonial locations.

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