

# From Remains to Rituals:

**Exploring the Changing Mortuary Program at El Rayo, Nicaragua**

by

Sacha Jo-Ann Wilke

B.A. (Honours), The University of Calgary, 2009

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF  
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

in

THE FACULTY OF GRADUATE STUDIES

(Anthropology)

THE UNIVERSITY OF BRITISH COLUMBIA

(Vancouver)

October 2012

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## **Abstract**

El Rayo is an archaeological site in Pacific Nicaragua that spans two time periods the Bagaces (AD 300-800) and Sapoa (AD 800-1350). In addition to the domestic assemblage of the site, El Rayo also contains burials from both time periods. El Rayo is one of the most well documented archaeological sites in Nicaragua and the presence of both Bagaces and Sapoa material makes it a valuable archaeological site. In comparing the burial assemblage, the patterns which appear in the archaeological record are distinct in the different time periods. These patterns, including the change in the location of burials from within domestic areas to specific mortuary contexts, a transition from single to multiple burials, and the inclusion of burial goods with the burials that appear to represent significant changes in the rituals associated with the burial of the dead.

By exploring the mortuary program at El Rayo I argue that the changes represent the negotiation of a single community to through changing cultural circumstances that mark and in some ways define the transition from the Bagaces Period to the Sapoa Period. The mortuary program shows continuity which supports the notion of cultural interactions without the complete replacement of one group by another. I focus on the burial area and the nature of the remains to interpret a changing mortuary program rather than focusing on the mortuary goods recovered with specific individuals. Based on Arthur Saxe's Hypothesis 8 that argues for the connection between the use and maintenance of formal cemeteries and control of critical resources (1970:119). I suggest that the changing mortuary program is the result of increased population pressures and the desire to create public markers of identity and ownership of local resources.

## Table of Contents

|   |           |
|---|-----------|
| Abstract .....  | ii        |
| Table of Contents .....                                 | iii       |
| List of Tables .....                                    | iv        |
| List of Figures .....                                   | v         |
| Acknowledgments .....                                   | iv        |
| Dedication .....  | vii       |
| <b>Introduction.....</b>                                | <b>1</b>  |
| The El Rayo Site: background to the current study ..... | 2         |
| A Note about Shoe Pots .....                            | 5         |
| Summary .....   | 6         |
| <b>Archaeological Study of the Dead.....</b>            | <b>8</b>  |
| <b>Mortuary Background in Nicaragua.....</b>            | <b>10</b> |
| Archaeological Sources .....                            | 10        |
| Ethnographic Sources .....                              | 10        |
| <b>Methods .....</b>                                    | <b>13</b> |
| Description of Burials .....                            | 13        |
| <b>Burial Descriptions.....</b>                         | <b>15</b> |
| Locus 1 .....   | 16        |
| Locus 2 .....   | 21        |
| Locus 3 .....   | 22        |
| <b>Analysis.....</b>                                    | <b>27</b> |
| Disposal Area .....                                     | 27        |
| Nature of the Remains .....                             | 28        |
| <i>Form of Disposal</i> .....                           | 28        |
| <i>Individuality</i> .....                              | 28        |
| <i>Articulation</i> .....                               | 28        |
| Artifact Assemblage .....                               | 29        |
| <i>Ceramics</i> .....                                   | 29        |
| <i>Faunal Remains</i> .....                             | 30        |
| <i>Prestige Goods</i> .....                             | 30        |
| <i>Weaponry</i> .....                                   | 31        |
| <i>Tools</i> .....                                      | 31        |
| <b>Interpretations .....</b>                            | <b>32</b> |
| Burial Area .....                                       | 32        |
| Nature of the Remains .....                             | 33        |
| Form of Disposal .....                                  | 33        |
| Artifact Assemblage .....                               | 34        |
| <b>Conclusion .....</b>                                 | <b>37</b> |
| <b>References Cited.....</b>                            | <b>40</b> |
| <b>Appendices .....</b>                                 | <b>45</b> |
| Appendix A. Data from Funerary Context at El Rayo ..... | 45        |

## List of Tables

|   |    |
|---|----|
| Table 1. Work Completed by Proyecto Arqueológico Granada, Nicaragua Team Member ..... | 3  |
| Table 2. El Rayo (2009) Artifact Densities by Locus.....                              | 4  |
| Table 3. Summary Comparison of Burial Characteristics by Period .....                 | 27 |
| Table 4. Summary Comparison of Artifact Assemblage by Period .....                    | 27 |
| Table 5. State of Burial Vessels at El Rayo .....                                     | 29 |
| Table 6. Distribution of Adornments at El Rayo .....                                  | 30 |

## List of Figures

|  |    |
|--|----|
| Figure 1. Regional map of Nicaragua and Costa Rica, with sites noted .....   | 2  |
| Figure 2. Example of Sacasa Striated Shoe Pots with Loonie for scale. Photo from<br>Mi Museo in Granada, Nicaragua. Photo courtesy of Geoffrey McCafferty..... | 5  |
| Figure 3. Site Map, showing detail of Operation Areas within Loci containing mortuary<br>Material .....  | 15 |
| Figure 4. Burial 1 showing Vessel A and B, with Madera Madera bowl inside Vessel B .....   | 16 |
| Figure 5. Example of overlapping nature of burials from Locus 1, Operation 2 .....   | 17 |
| Figure 6. Burial 7 showing a primary extended burial with mano .....   | 18 |
| Figure 7. Detail of cache of burial goods from Burial 8, including lance points and<br>ear spool.....  | 19 |
| Figure 8. Burial 9 showing crushed shoe pots.....  | 20 |
| Figure 9. Burial 10 showing Individual 44-1 .....  | 21 |
| Figure 10. Burial 14 showing mass of human bone next to Pataky periform vessel.....  | 23 |
| Figure 11. Detail of burial goods associated with burial 15 .....  | 24 |
| Figure 12. Plan and photo of Burial 16. Plan drawn by Armando Vasquez .....  | 25 |

## Acknowledgments

Thank you to my supervisors Dr. Michael Blake and Dr. Andrew Martindale for their support and guidance throughout this degree. I am forever grateful to Dr. Geoffrey McCafferty for introducing me to Nicaraguan archaeology, giving me the opportunity to work on the project, for allowing me to use the data from El Rayo for this thesis, for pushing me to do more, and for years of mentorship.

Proyecto Arqueología Granada, Nicaragua was made possible by funding from Canada's Social Sciences and Humanities Research Council, a University of British Columbia Entrance Award, and a University of Calgary Undergraduate Research Grant.

I would also like to thank the crew of the 2009 and 2010 PAGN field season who worked extremely diligently. I am grateful for the opportunity to have worked with so many fantastic people. I am especially thankful to Carrie Dennett for being a wicked ceramics and my personal archaeological superhero, Andrea Waters-Rist for her osteological expertise, Brett Watson for allowing me to see his lithic analysis, Sharisse McCafferty for teaching me some very important life lessons, and Ruth Martinez for sharing her faunal analysis.

Thank you to my friends and fellow classmates for sharing triumphs and struggles, good food and beverages, their love of archaeology and anthropology, for bouncing ideas off each other and for the constant friendship and support. Especially to Lindi Masur who read previous versions of this thesis.

Thanks to the Salablanca family for opening their home to the project and allowing us to work on their land.

I thank my dad, stepmom, brother and sister and my grandparents for always being interested in my work and thinking that I can do anything. Finally I thank my mom, for her unending support and belief in me, for making sure I had all the best opportunities, and for being my best friend.

**To my Mom,**  
*for making me who I am today*

## Introduction

Central American archaeology has not had the same level of attention as Mesoamerica and the Andes despite the geographic link between these two culture areas due to several factors: political unrest, lack of monumental architecture and the apparent lack of highly stratified societies. Nicaraguan archaeology has experienced a resurgence in the last fifteen years, with several projects focused on the alleged migration of Nahuat and Oto-manguean speakers from the Mexican Highlands (Carmack and Salgado 2006; Kirchoff 1943; Lange 1996; McCafferty 2010; Smith and Berdan 2003). Changes noted in the archaeological record have been used as evidence of the displacement of the indigenous occupants by an Oto-manguean group who are later displaced by a group of Nahua people. This evidence has included the increase in settlement hierarchy, where populations became focused along the lake shores (Salgado 1994), the introduction of white-slipped polychrome pottery (Dennett and McCafferty 2011), and changes to the mortuary program (Briggs 1992).

Of these projects, the most extensive research has been conducted by a team of archaeologists headed by Dr. Geoffrey McCafferty of the University of Calgary focusing on three sites along the shore of Lake Nicaragua: Santa Isabel, Tepetate, and El Rayo. These investigations have explored several aspects of material culture including foodways, architecture, mortuary patterns, ornamentation, and specialized craft production, as well as refining the chronological sequence of the area based on ceramic types and newly acquired radiocarbon dates (McCafferty 2008, 2010; McCafferty and Steinbrenner 2005).

This thesis will focus on the mortuary program at El Rayo by describing the mortuary practices, discussing how they change over time, and hypothesizing the reason for the changes. I have two main research questions based on the mortuary materials from El Rayo: (1) is there greater variation in the mortuary program between periods than within periods, and (2) what does this tell us about the nature of transition from the Bagaces Period (AD 300-800) to the Sapoa Period (AD 800-1350) at El Rayo? The answers to these questions will, I hope, contribute to ongoing discussions regarding the nature of the transition between these two periods. By examining this transition period (which is typically associated with changes in settlement patterns and the introduction of white slipped pottery which occur around AD 800) I will identify the order in which mortuary characteristics were altered and show that the change in the location of the burials was the initial alteration to the Bagaces mortuary program, arguing that this shows a slow and continuous alteration to the mortuary program during this time period. I then hypothesize that formal cemeteries (areas specifically reserved for the deceased) used during the Sapoa Period signified territorial markers resulting from increased interaction with other communities. This connection is based on Arthur Saxe's Hypothesis 8 that describes the connection between the rise of sedentism and marking the control of critical resources (Saxe 1970).

### The El Rayo Site: background to the current study

Archaeological investigations were conducted in 2009 and 2010 along the Asese Peninsula on Lake Nicaragua, a 20 minute drive from the colonial city of Granada at the site of El Rayo (Figure 1). The site is primarily situated within a banana plantation on a promontory overlooking the lake. Proyecto Arqueología Granada, Nicaragua was conducted by an international team of Canadian, American,

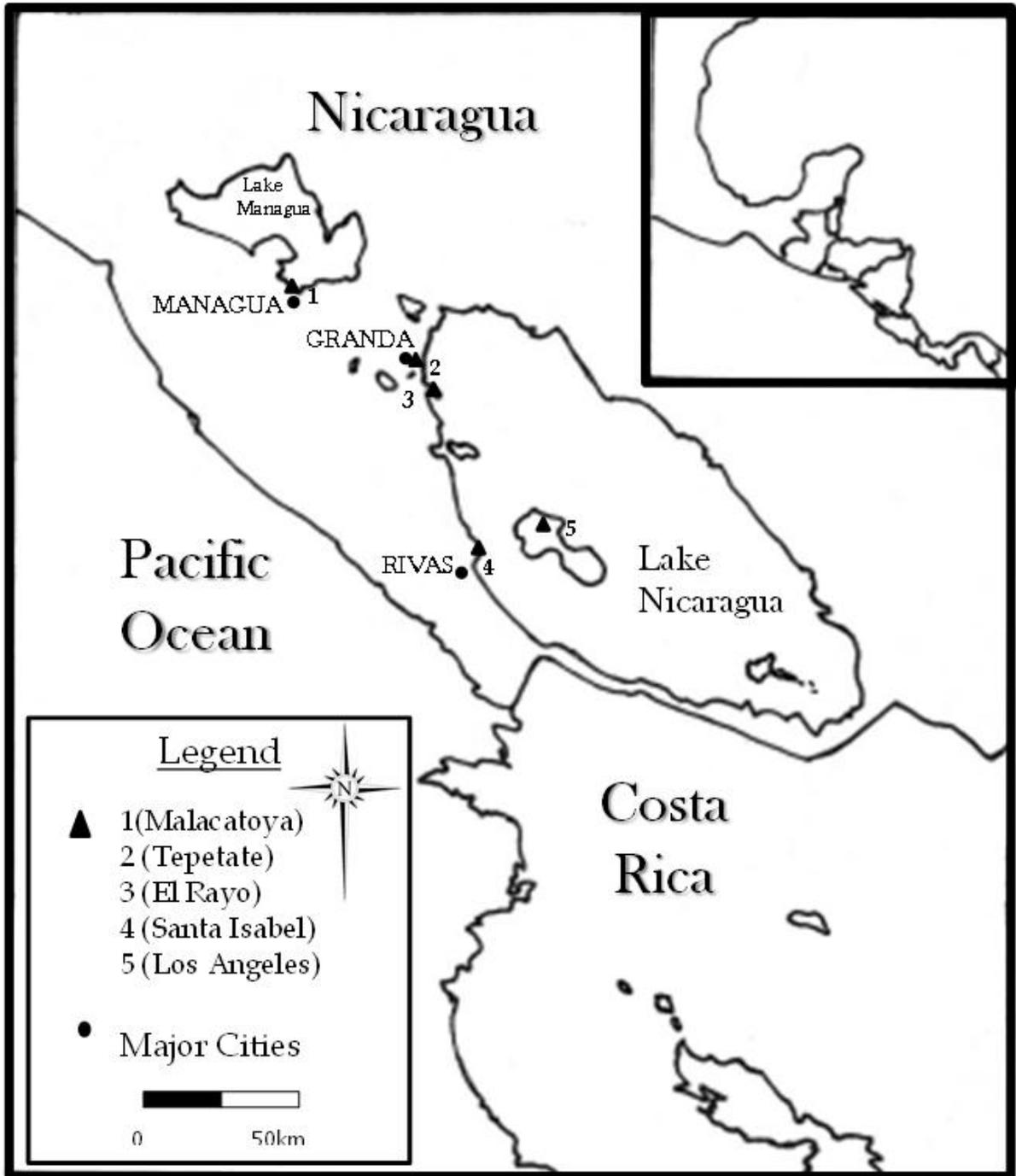


Figure 1. Regional map of Nicaragua and Costa Rica, with sites noted.

Nicaraguan, and Costa Rican archaeologists who have provided the data used in this thesis (Table 1).

**Table 1.** Work Completed by Proyecto Arqueológico Granada, Nicaragua Team Members

| Year | Type of Analysis      | Person                   |
|------|-----------------------|--------------------------|
| 2010 | Osteological Analysis | Andrea Waters-Rist       |
| 2010 | Ceramic Analysis      | Carrie Dennett           |
| 2010 | Faunal Analysis       | Ruth Martinez            |
| 2010 | Lithic Analysis       | Brett Watson             |
| 2010 | Object Analysis       | Sacha Wilke <sup>1</sup> |

Excavations took place at three locations at the site, including a domestic area occupied continuously from approximately AD 600-1250; through the Bagaces and Sapoa Periods (based on the chronology presented by McCafferty and Steinbrenner [2005]) and two areas of mortuary deposits that primarily date to the Sapoa Period.

Analysis of the domestic refuse of the site suggests a rapid but smooth transition from the Bagaces to the Sapoa Period but evidence also exists for the appearance of a new culture group during this transition (Dennett and McCafferty 2012). The ceramic typology was used in the field as a chronological indicator; these were later verified by seven radiocarbon dates, which were all obtained from carbonized wood recovered within the domestic deposits, that range between AD 500 and AD 1170 calibrated two sigma range (Geoffrey McCafferty, personal communication 2012). Bagaces Period serving wares feature bold red and black paint with some types displaying white accents and decorations and include Tola Trichrome and Ayala types (Steinbrenner 2010). White slipped polychrome serving vessels with banded, geometric, and zoomorphic iconography were introduced in the Sapoa Period, the most common of which are Papagayo, Pataky, Madeira, and Vallejo types. Utilitarian wares were dominated by Rivas Red, Red Rimmed/Slipped and Plain Monochromes during both periods, with Sacasa Striated being a Sapoa addition<sup>2</sup>. Despite the addition of new ceramic types in the Sapoa Period, older types were still present in smaller numbers and design elements from the Bagaces Period can be found in later Sapoa ceramics—this challenges notions of complete cultural change and rather underscores the addition of new ceramics with the continued use of already existing types (Dennett and McCafferty 2012; McCafferty et al 2009).

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<sup>1</sup> Analysis of figurines was conducted by Sharisse McCafferty and Ashley DeYoung

<sup>2</sup> I have included the specific names of pottery types when available because it is the most detailed description of the burial material available. The significance in what types are included should be looked at on a much wider scale to

<sup>2</sup> I have included the specific names of pottery types when available because it is the most detailed description of the burial material available. The significance in what types are included should be looked at on a much wider scale to determine if larger patterns exist in what types of vessels are included in burials, a line of inquiry which I have not attempted here but this information makes it possible in the future. I have stated which types belong to which period and distinguished between monochrome and polychrome vessels for those unfamiliar with the typology, for more detail of the El Rayo ceramics please see Carrie Dennett's forthcoming 2013 PhD Dissertation.

While the nature of this transition continues to be discussed, these data emphasize continuity between the periods and contest notions of the complete replacement of local populations with Mexican migrants.

Burials were recovered from all three areas excavated at El Rayo, these areas were labeled Loci 1, 2 and 3. Loci 1 and 3 were specific burial areas and Locus 2 was a domestic area. Locus 1 had a dense cluster of secondary burials, associated with Sacasa Striated “shoe pots” (see below for description of the ceramics), and was first identified when these vessels appeared in the side wall of a road cut leading to the lake shore. Locus 3 presents two different patterns: in one area burials were not associated with burial containers, while in another area burials were found in a structured deposit of aligned vessels.

I must make clear the distinctions between the non-burial artifact assemblages among the three loci. An analysis of artifact densities presented in Table 2 shows that the domestic area of Locus 2 has almost three times the number of artifacts per level than either of the mortuary loci. The greatest difference is in the faunal and lithic densities, which are much greater within the domestic area. The frequencies of ceramic types (Serving wares, Utilitarian wares, Trade wares, and others) are similar between Loci 2 and 3.<sup>3</sup>

**Table 2.** El Rayo (2009) Artifact Densities by Locus.

| Area                  | Unit levels | Ceramics<br>n<br>(n/unit level <sup>4</sup> ) | Faunal<br>n<br>(n/unit level) | Lithic<br>n<br>(n/unit level) | Total<br>n<br>(n/unit level) |
|-----------------------|-------------|---|-------------------------------|-------------------------------|------------------------------|
| Locus 1<br>(mortuary) | 174         | 10,415<br>(59.9)                              | 482<br>(2.8)                  | 354<br>(2.0)                  | 1,786<br>(67.7)              |
| Locus 2<br>(domestic) | 312         | 23,366<br>(74.9)                              | 22,332<br>(71.6)              | 10,090<br>(32.3)              | 57,130<br>(183.1)            |
| Locus 3<br>(mortuary) | 78          | 2,073<br>(26.6)                               | 496<br>(6.4)                  | 388<br>(5.0)                  | 3,200<br>(41.0)              |
| Total                 | 564         | 35,854<br>(63.6)                              | 23,310<br>(41.3)              | 10,832<br>(19.2)              | 62,111<br>(110.1)            |

<sup>3</sup> Ceramic frequencies for Locus 1 are still being processed and are not currently available.

<sup>4</sup> n/unit level represents the density of artifacts based on the total number of 1 m x 1 m units excavated per Locus and the number of levels excavated within each unit. At Loci 2 and 3 all levels were excavated in 10 cm intervals, the levels at Locus 1 varied from this standard measurement, with some levels being smaller than 10 cm. The horizontal dimension of all units is equal and variation occurs in the depth of the levels at Locus 1, while this difference in volume does skew the densities presented here (specifically for Locus 1), the density differences between Locus 2 and Loci 1 and 3 are so large that I am confident that they accurately represent the patterns of material recovered within each Locus.

### **A Note about Shoe Pots**

The most iconic feature associated with the burials at El Rayo is the burial vessel. Based on previous archaeological work, in Sapoa Period burials, people were often buried within “shoe-pots” (Bransford 1881; Briggs 1992; Healy 1980; McCafferty et al. 2011). Shoe pots are elongated asymmetrical vessels with the orifice to one end, resembling a shoe (Figure 2). They fall within a ceramic type designated as Sacasa striated (Healy 1980, Steinbrenner 2010). Small “shoe-shaped” vessels (also classified as “bird-shaped”) have been found throughout the Americas from the U.S. Southwest to Argentina, with horizontal body lengths rarely outside the 10-30 cm range and a capacity of 1 to 3 liters (Dixon 1963:594). The shape of these vessels makes them ideal for boiling. Ethnographic examples from Oaxaca and Chile support this use for similarly shaped vessels (Dixon 1963:596). However, the shoe-shaped vessels recovered in Pacific Nicaragua are significantly larger than the typical shoe-shaped vessels seen throughout the Americas and, as such, are unique. The presence of burn marks on many of the shoe-



**Figure 2.** Example of Sacasa Striated Shoe Pots with Loonie for scale. Photo from Mi Museo in Granada, Nicaragua. Photo courtesy of Geoffrey McCafferty.

shaped vessels recovered from mortuary context relates to their use as cooking vessels prior to their secondary function as burial containers. The rims of these vessels were often removed when used in burial contexts, presumably to allow for the placement of the deceased into the vessel (Lothrop 1926:254) or to allow for a cap vessel to be placed on the burial urn (Bransford 1881:10). The distribution of these large shoe pot burial vessels is limited geographically to Pacific Nicaragua and northwest Costa Rica and temporally to the Sapoa Period.

Recent research by Laura (Brannen) Wingfield (2007) has described the elongated body of the vessel as a representation of the distended belly of a pregnant woman (including the *linea nigra*) and the decorations that appear on the toe of the vessels as depicting female reproductive organs. She has suggested that these vessels are accurate representations of the womb and for this reason she has called this vessel shape the “womb pot.”

Sharisse McCafferty is examining the decorations present on the toes of what she has called “ovoid vessels” (personal communication, 2012). Using a database of vessel imagery and colonial records, McCafferty hypothesizes that the vessel itself represents a cacao pod and the applied decorations depict seasonings. At this point she has identified sprouting cacao beans, ear flower, achiote seeds, and vanilla bean pods, among other items, as ingredients which may indicate what was cooked in the vessels or what was mixed into *pinolillo* (a traditional Nicaraguan drink with a sweet cornmeal and cacao base). McCafferty’s interpretation of the applied decoration on these vessels seems logical, though her hypothesis is currently untested.

McCafferty is also exploring the idea that the cacao pod shape of the vessel is symbolically associated with female fertility and rebirth based on Mayan ethnographic data. This imagery has been used to surmise that the use of vessel burials during the Sapoa Period represents a belief that when individuals died they were reborn. Additionally, the transformative properties of cooking (in changing raw food into cooked food) may also be present in their use as burial vessels in aiding the transformation from a living member of the community to a deceased ancestor. The transformation property of cooking vessels may also represent the irreversibility of food transformations and of dying (Ostigaard 1999:359).

Despite these provocative interpretations, I will continue to use the term “shoe pot” throughout this thesis since it remains the most widely used label and is relatively neutral—it is a shape-based description, not a functional/symbolic interpretation.

## **Summary**

Given the small sample size, the main focus of my thesis will be the description of the mortuary remains at El Rayo and the identification of how burials from the Bagaces and Sapoa Periods differ specifically showing that burial moved away from domestic contexts into designated cemeteries, primary burials were replaced with secondary burials and the inclusion of burial goods increased. I will take

special note of the transition burials as these show the continuity and changes that were made to the mortuary program. The description will then be used to characterize the nature of the changes to the mortuary program and argue that it best represents the negotiation and adjustment of El Rayo inhabitants to changing social circumstances rather than the replacement of local inhabitants with Mesoamerican immigrants. I will argue that increased competition for land and resource locations during this time resulted in the use of ancestors as markers of territory, with increased mortuary rituals to show wealth and power and the use of community cemeteries to identify claims to the most productive areas.

## Archaeological Study of the Dead

Mortuary remains have been a staple of archaeological interpretations for a number of reasons: the range of materials often associated with human burials, their preferential preservation and their potential for reconstructing social organization (Beck 1995; Chesson 2001; Rakita 2005; Silverman and Small 2002). The physical characteristics of a burial often allows interpretations about the identity of the individual's age, gender, health, and less precisely: status, ethnicity, occupation, and life history (Chapman 1981, Silverman and Small 2002). Burials are not just places for the dead, but also active symbols for the living that are used as markers of ancestry, for communicating with the supernatural, and as places of worship (Chesson 2001; Silverman and Small 2002). Burials are not simply reflections of social organization; they represent conceptions of the living world (Hodder 1982:145).

Unfortunately, the poor preservation of the human remains at El Rayo prevents many of the detailed interpretations of the physical remains noted above. Rather, this thesis will focus on the manner in which the dead were prepared and how this treatment can be seen as an expression of the social negotiations among the occupants of El Rayo and their neighbors. If, as McHughs (1991:1) has argued, burials are more symbolic when there is instability in the social system then the alterations made to the mortuary program represent a means of dealing with or correcting the instability. Thus alterations in burial practice could be indicative of cultural continuity rather than replacement. While I will discuss multiple characteristics, I emphasize the location of the burials on the landscape as the first attribute to change and therefore the most substantial burial characteristic with regards to the changing mortuary program during the Bagaces and Sapoa Periods.

The significance of burial placement closer to or farther away from places of the living is dependent on the specific traditions of that culture which can only be inferred when we have earlier evidence of the placement of cemeteries relative to residential areas (Parker Pearson 1993:204). We can see changes in cemetery placement clearly at El Rayo. Dennett and Watson (2008) model a unified Lower Central American isthmus worldview rooted in the clear separation of the living and the dead which distinguishes it from Mesoamerica and the Andes. El Rayo's consistent use of secondary urn burials, artificial mounds, and interment in restricted cemeteries that are clearly separated from residential areas suggests that this was considered by ancient inhabitants to be the "correct" spatial relationship between the living and the dead. It is a relationship that was established during the Sapoa Period at El Rayo.

In his ground-breaking doctoral thesis Arthur Saxe (1970) generated a body of theory that related burial practices to the organization and structure of the society that created them. Saxe's Hypothesis 8 which states "...to the degree that corporate group rights to use and/or control critical but restricted resources are attained and/or legitimized by means of lineal descent from the dead (i.e. lineal ties to ancestors), such groups will maintain formal disposal areas for the exclusive disposal of their dead" (Saxe

1970:119), provides a useful starting point for understanding the spatial location of the El Rayo cemeteries. It leads me to suggest that the variation seen in the mortuary program, and the location of the cemeteries, tells us something about their changing role in the control of critical resources. More specifically, it relates to the association between the use of cemeteries and the importance of the land which descendent groups make claims upon.

Burial practices can create or modify a built environment when specific areas are designated as belonging to different natural and supernatural entities; these are culturally defined spaces built around natural features (e.g. high points above water). By examining the final location of burials we can examine the connection with the ancestors, how the landscape was used as a memory device (both locally and regionally), and how those memory devices have been used, changed, or destroyed by later people (Silverman 2002). In the case of El Rayo, I argue that burials were used as territorial markers.

More broadly, the rights to specific lands could be reaffirmed and reinforced through rituals (Goldstein 1976). The performance of mortuary rituals allows the living to negotiate, display, mask, reinforce, or transform their social relations and positions within the group (Rakita et al. 2005:7). These may be more ritually oriented rather than materially oriented, with the involvement of family members in ceremonial activities ensuring adequate representation of the social and political relationships of the deceased (McHugh 1999:5). This behaviour may have resulted in the inclusion of relatively few burial goods with individuals—even those with high status.

Feasting and ritual celebrations act both as a memorial to the deceased for times of remembrance and as ritual gifting to, and in honour of, the deceased. Brian Hayden (2009) looks at more than the feast's ability to provide the setting for the transformation into the ancestor realm; he explores the social and economic benefits of funeral feasting. He argues that during such feasts allies are made and reaffirmed for defense, reproduction and marriage, economical, and political purposes (Hayden 2009:35-36). Within the restricted cultural phenomenon of funeral feasts, Hayden (2009:48-49) has identified significant social and economic factors that influence the size and style of the mortuary practices external to the emotional considerations of loss and grief.

Together these bodies of theory suggest that the use of formal cemeteries at El Rayo during the Sapoia Period allowed people to make claims upon specific natural resources and feasting rituals associated with death and solidified the bonds of defense of those in attendance. These theories build on one another as both suggest a reaction to external pressures and the need to actively show solidarity among the descendants of those interred within the cemetery.

## **Mortuary Background in Nicaragua**

Sadly, ancient burials in Nicaragua have long been a primary supply of the most elaborate and complete ceramic vessels found in both museum and private collections. The prevalence of looting to obtain these materials has resulted in unprovenienced artifacts with minimal archaeological value. Despite this, a few archaeological cemeteries—including those from Ometepe Island, Rivas, and Managua—have been excavated scientifically and provide a comparative reference for the El Rayo cemetery during the Sapoa Period. A consultation of ethnographic and ethnohistoric sources is also required in order to envision the rituals practiced in ancient El Rayo, as rituals are rarely adequately interpreted based solely on the materials that come out of the ground.

### **Archaeological Sources**

The most well-known burials in Nicaragua are located on Ometepe Island; first recorded by J.F. Bransford in the 1870s and later by Wolfgang Haberland in the 1950s and 1960s. Bransford's survey is one of the most extensive investigations and included multiple sites on Ometepe Island as well as investigations on the mainland in Rivas (Bransford 1881). He describes 162 burial vessels, recording their size, shape, orientation, contents, and whether they were covered by a cap vessel. Of these, 118 vessels contained human bones. Bransford (1881:19) suggested that the lack of bones in some vessels was the result of poor preservation, especially of young children whose bones may have disintegrated into nothing. In addition to human remains, the burial urns often contained food offerings and items of personal adornment (Bransford 1881:35).

The cemetery of Los Angeles dating to AD 100-1200 included 54 primary burials in individual graves, with only 17 of the burials associated with burial goods (Haberland 1992:92). Haberland (1992:92) also identified large burial urns, often covered by an inverted bowl, containing the remains of children less than one year old. Haberland also suspects that the use of urns for secondary adult burials was an extension of their earlier use as primary burials for children (Haberland 1992:107). While this is a very interesting suggestion, El Rayo provides no evidence to support this hypothesis, though it should be considered in future research

Primary and secondary burials were also recovered from the Sapoa Period site of Santa Isabel located on the shore of Lake Nicaragua in the Department of Rivas (Chilcote and McCafferty 2005). At Santa Isabel, burials were recovered from open spaces between residential mounds and attributed to “‘private’ domestic practice” compared with the possible public adult interments found elsewhere (McCafferty 2008:74-75). Urn burials have also been reported at the cemetery of Malacatoya (Espinoza et al. 1999) near the modern city of Managua and at the site of Tepetate on the edge of the modern city of Granada (McCafferty et al. 2011). While shoe pot burials have been recovered from throughout Nicaragua the reason for their use continues to be debated.

## **Ethnographic Sources**

Spanish chronicler Francisco Fernandez Oviedo y Valdez, provides the most extensive collection on Spanish-contact period Nicaragua based on time he spent in the country between 1527 and 1529 which was published in 19 volumes in 1535). Additional ethnographic documents about indigenous groups in Central America- the Bribri and Talamanca (Bozzoli de Eillie 1975; Cervantes Gamboa 2003; Constenla 1990; Gabb 1875; Nygren 1998; Pittier 1903) have described death rituals which enhance the description of the mortuary program at El Rayo.

Oviedo discusses the burial practices of caciques (or chiefs) who were either dried to a state of near-mummification or cremated, while his retainers would often commit suicide and were buried with some objects (corn and knives) which they would have used in their lives (Oviedo 1959:35-37). Non-elite individuals could be buried in their fields or huts with a selection of their property (Joyce 1916:43).

Ethnohistoric descriptions of mortuary practices provided by Oviedo lack discussion of the ritual and religious components of the activities. For example, his description of the funerary rites of the cacique states:

it is custom to place his body on a stone or a log, and around him and very near, without coal or flame touching the body of the dead man, a large fire is built and kept going until all the grease and fluid comes out through the fingernails and toenails, and in sweat, and the body becomes so dry that the skin fits tight to the bones, and all the tissue and flesh are consumed. When the body is thus dried out, without opening it (which is unnecessary) it is placed in a secluded spot in the house prepared especially for it, next to the body of the father of the cacique, which has been placed there in the same fashion. [Oviedo 1959:37].

While Oviedo thoroughly describes the physical treatment of the deceased, he sheds little light on why this treatment occurred or what ceremonies occurred during the mummification process or after it.

The primary ethnographic example comparable to this archaeological site is the Bribri, who maintain pre-Columbian practices and live in parts of Costa Rica, Atlantic Nicaragua, and Panama. The Bribri language belongs to the larger Chibchan language group (Hoopes 2005; Kirchoff 1943; Nygren 1998:35) with whom the occupants of El Rayo would have been related to or in contact with. The ethnographic studies of the Bribri have focused mainly on oral traditions and ritual beliefs (Bozzoli de Wille 1975; Cervantes Gamboa 2003; Constenla 1990; Pittier 1903). Bribri funeral rites could be elaborate events, with the extent of the ceremony dependent on the importance of the individual. Funeral ceremonies for prominent individuals involved the entire community and lasted for days, during which time participants ate, drank, and danced (Gabb 1875:501). If the person was of low status, the body was prepared quickly and carried to the forest (Gabb 1875:497).

Bribri burials are primarily located away from residential areas. Descriptions of women following behind the burial procession leaving a trail of string over streams, paths, and ditches for the deceased's soul to follow, have been suggested to be the result of concerns that the spirit would linger among the

living unless led to their resting place (Bozzoli de Wille 1975:95). Among other Central American groups (Sumo, Mosquito, Paya), fear of the deceased's soul lingering and becoming malignant led to the inclusion of the deceased's material possessions within the burial, the use of belongings in mortuary festivities, or the destruction of their property (Bozzoli de Wille 1975:95). Common burial goods for prominent men included a macaw, a slave (if he had any), and the skulls of those he had killed, along with his spears and arrows, while those of lesser status had more simplistic burial goods, for example, young men were buried with a blowgun and women with a spindle whorl and cotton (Bozzoli de Wille 1975:95).

Customs of the Talamanca people of Costa Rica were described by Friar Manuel de Urcullu in 1763 as including funeral singers who performed at the mortuary rituals, mourners who fasted for three days, then, after a year had passed, a formal funeral was performed for the bones of the deceased (Fernandez Guardia 1918:19 in Bozzoli de Willie 1975:93). At the funeral for the bones, singers were present and the deceased soul was called, then the singers led a procession (including family members and the deceased's soul) to the family sepulcher (or tomb) where the individual would be buried (Fernandez Guardia 1918:25-27 in Bozzoli de Wille 1975:95). Friar Augustin de Caballos wrote in 1601 that the deceased's body was wrapped in leaves and bark and cloth then left until a big chichada (an offering of maize beer) could be offered (Fernandez Guardia 1918:13-14 in Bozzoli de Wille 1975:94). A specially woven cloth was used for the burial and the corpse was only touched by specially trained individuals as touching the dead was considered "unclean" (Bozzoli de Willie 1975:102, Gabb 1875:499-500).

As no pre-Columbian descriptions of religious life, mythologies, or other sacred oral traditions for the people of Pacific Nicaragua exist (Hardy 1992:81), analogies provide vital, arguably comparable, information for discussing the ritual aspects of death.

Based on this ethnographic data, mortuary rituals, at least during the Sapoia Period, would likely have occurred after an extended period of time had passed after death allowing for the body to be prepared for burial and an appropriate funeral celebration to be prepared. They would have involved several members of the community, and taken place over one or more days. Individuals would most likely be buried with items used during their lifetime.

## Methods

The analysis in this thesis will primarily be comprised of a visual exploratory inspection and description of the mortuary remains, their contexts, and the associated burial materials. This exploratory analysis allows me to answer my two main research questions: (1) is there greater variation in the mortuary program between periods than within periods, and (2) what does this tell us about the nature of Bagaces and Sapoa Period social organization at El Rayo?

I have already looked at the relationship between domestic and mortuary artifact assemblages and have identified distinguishing characteristics of the artifact assemblages within these two contexts that are not solely based on the presence/absence of human remains. The identification of artifact variation between domestic and mortuary contexts indicates the value of grave goods, as some artifacts can be identified as occurring primarily in one context showing the comparability and interrelatedness of these assemblages beyond the presence/absence of human remains (Parker Pearson 1993:219). Artifacts typically recovered from the domestic component of the site were found in lower concentrations in the general assemblage around the burials; I am considering these objects the result of domestic refuse and not intentionally placed burial goods so they have not been included in this analysis. These include ceramic balls that served as rattles in hollow vessel supports (legs), figurine fragments, worked sherds -- the purpose of which is unknown (though they likely were used in a variety of ways as tools in the manufacture of other goods or the processing of food), chipped stone flakes and debitage (non-tools), ground stone fragments, and broken net sinkers. These artifacts occur throughout the domestic and mortuary assemblage and as such do not denote diagnostic artifacts of mortuary remains. Objects that will be classified as intentionally included burial goods includes items of personal adornment, complete weapons and tools, complete ceramic bowls, complete net sinkers, and complete figurines.

### Description of Burials

Burial characteristics will be described using the terminology and categories set out by Sprague (2005:28-33) including temporal affiliation, description of the disposal area, nature of human remains including form of disposal, articulation, and individuality, and the types of burial goods present, including ceramics, faunal remains, prestige goods, weaponry, and tools.

Ceramic vessels have been classified as serving wares, utilitarian wares, and other wares (trade and unknown) based on Carrie Dennett's ceramic analysis (personal communication, 2011). Non-vessel ceramics, including ceramic balls, reworked sherds, net sinkers and figurines will only be mentioned when they appear as intentional inclusions within the burial (rather than incidentally associated because they were already present in the deposit into which the burial was placed). Faunal remain frequencies are categorized as: Low (0-20), Medium (20-100), High (100- 250), and Very High (>250). Prestige goods include items of personal adornment such as ear spools, pendants and beads, as well as unique items, such

as the copper bell and ocarina that were likely markers of status. Weaponry at El Rayo only includes chipped stone lance points. Finally, tools will include chipped stone tools (blades, scrapers, cores, etc.), complete ground stone tools and spinning and weaving implements such as spindle whorls and picks.

The artifact classification used here is based on Healy's (1980) work, which has provided the basic description of all subsequent artifact classifications in the region. The Santa Isabel and Granada archaeological projects also used Healy's object classification, adapting it where necessary (e.g., McCafferty and McCafferty's [2008] spindle whorl typology for Santa Isabel, and Wilke's [2011] typology for net sinkers from El Rayo).

I have ranked the characteristics being compared in order of importance (disposal area, nature of human remains, then artifact assemblage) based on the significance of changes they would make in the overall mortuary program. For example, the disposal area, whether in domestic space or in a cemetery, tells more about the ritual components of the mortuary program than whether the burial contains a stone tool or ceramic vessel. Burials sharing the same burial area will be considered more similar than those that share similar artifact inclusions.

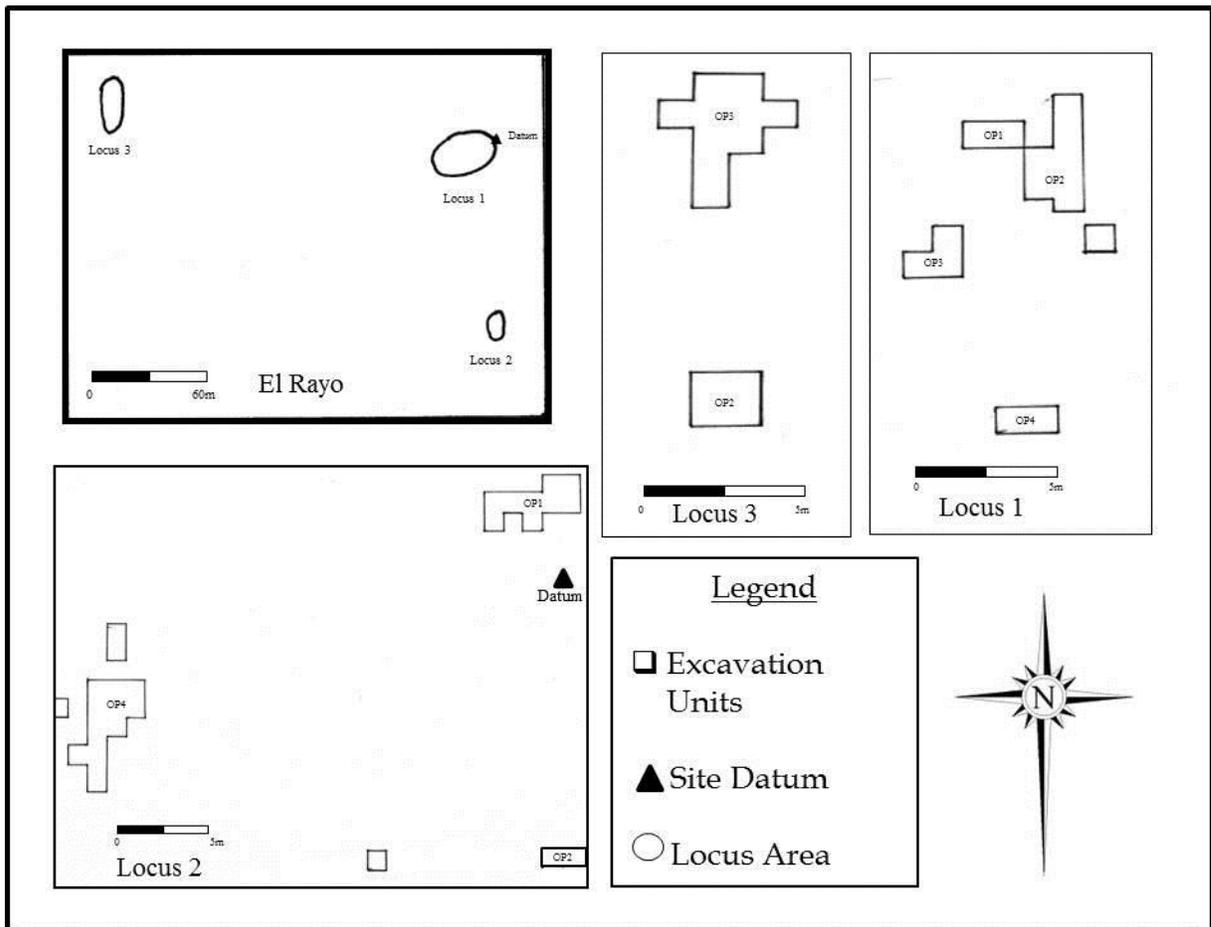
I compare burials within each period (to examine the degree of cohesion) and between the two periods (to look for changes over time). I then use the transition period burials to characterize change between periods in an attempt to determine if there was a rapid integration of cultural elements or replacement of the earlier peoples by a completely new culture. This analysis will include the presence/absence of specific mortuary characteristics through tabulations of quantities and types in order to show the range of characteristics and the burial material present. Because mortuary remains are the physical product of a mortuary program, I will try to detect changes in the mortuary programs by assessing the extent to which burial remains differ between the Bagaces and Sapoa Periods. This will extend to the social organization at this site between the two periods, which, based on Saxe's Hypothesis 8, I will argue shows increased social solidarity in the face of increased inter-group interactions.

For this analysis I will use burials as my analytical unit. For the Bagaces Period I will focus on human remains and associated burial goods, while for Sapoa Period I will examine secondary human remains and associated burial goods—especially the shoe pot burial urns.

Throughout this thesis I will be using the term "mortuary program" to refer to the complete ritual process from death through to burial (and reburial, when applicable), "mortuary remains" refer to the entire burial complex (including human remains, all cultural material, and their associated features). "Burial goods" will refer to the material culture and artifacts within a funeral context, and "human remains" refers to the human osteological remains.

## Burial Descriptions

Approximately 1,700 human bone fragments were recovered from the El Rayo site. All human remains recovered can be described as chalky: they fragmented at the softest touch, were often left encased in the surrounding dirt to avoid crumbling, and were left *in situ* whenever possible. As a result, individuals could often only be identified by the presence of a semi-complete set of clearly associated teeth, and in special cases when large/dense bone deposits containing major elements of the skeleton were recovered (Andrea Waters-Rist, personal communication 2010). The minimum number of individuals (MNI) for El Rayo is 27:15 Adults (five young adults, four middle aged adults, one older adult, five 'adult'), one adolescent, one juvenile, three children, four infants, and two individuals of indeterminable age. Burial data are summarized in Appendix 1 with more detailed descriptions of each burial given here. I present the burial data proceeding from Operation to Operation within the each Locus (see Figure 3) based on the original spatial organization of site excavations.



**Figure 3.** Site Map, showing detail of Operation Areas within Loci containing mortuary material.

## Locus 1

Burial 1 consisted of three Sacasa Striated shoe pots, two of which were touching. Two shoe pots (A and B) were missing their rims while the third (C) was cracked but complete. Human remains were recovered from within all three shoe pots and the remains of Individual 4-1 a young adult 18-35 years were recovered outside of a shoe pot. Shoe Pot 1B contained a Madeira Madeira bowl. It was found on its side within the shoe pot and had a large volcanic rock in its mouth (Figure 4).



**Figure 4.** Burial 1 showing Vessels A and B, with Madera Madera bowl inside Vessel B.

Burial goods around these vessels included a chert core and two items of personal adornment. A small shoe pot, with a rock lying across its mouth and the sherds of a broken bowl around its rim was recovered from between the touching shoe pots. A complete Rivas Red pot with a molded eyes and nose was also recovered from this burial.

Locus 1, Operation 2 was a complex grouping of vessels and human remains that have been divided into four burials (Burials 2-6) which were recovered from a 3 m<sup>2</sup> area and extended to a depth of 1.5 m without reaching sterile soil (Figure 5). These burials were recovered with little space between them, making distinctions between the burials difficult. This grouping of vessel burials extended to

slightly above the extended human remains of Burial 7, which were not removed due to their poor condition.



**Figure 5.** Example of the overlapping nature of the burials from Locus 1, Operation 2.

Burial 2 included cranial bones from Individual 29-1, an adult 18+ years, a complete white slipped bowl, and a Papagayo Mandador tripod vessel that was resting on its side. More skeletal remains were recovered outside the vessel and were associated with a Rivas Red super hemispherical bowl missing just the rim.

Burial 3 included two shoe pots (A and B). Three individuals are associated with Shoe Pot A: Individual 3-1, a young adult 18-30 years old, Individual 3-2, a middle adult 30-20 years old, and Individual 3-3, an infant 2-10 months old. The adults were identified based on differential wearing of the teeth, and were associated with adult cranial fragments, long bone and rib fragments. During excavation a large lance point was recovered from this shoe pot. The point appeared to have been placed within the mouth of a cranium located under an unidentified long bone, all of which were inside the shoe pot. During excavations it was thought that all human remains within the shoe pot were part of the same

individual, therefore, at this time I cannot conclusively associate this point with a specific individual identified above. A large Pataky periform vase and a Rivas Red bowl were also found inside the shoe pot, while three smaller vessels were recovered beside this shoe pot.

Shoe Pot B was crushed but the rim was still present and included cranial fragments and 50 long bone fragments. Three smaller vessels were inside the shoe pot: two smaller shoe pots and a Plain Monochrome bowl. A Papagayo Alfredo bowl was found outside Shoe Pot B.

Burial 4 included the remains of Individual 35-1: an infant 3-15 months old, and Individual 35-2: an adult 30-40 years old, both recovered from within a burial container. These remains were surrounded by both Bagaces and Sapoa style ceramics. Three complete vessels were recovered within Burial 4: one Sacasa Striated effigy vessel with a rodent face, one Rivas Red effigy vessel showing a naked female torso, and one Plain Monochrome vessel.

Burial 5 included the disarticulated remains of Individual 25-1, an 18+ years old adult within a fragmented Red Rim urn. Inside the urn was a small White Slipped tripod vessel containing 72 turtle bones and a spindle whorl with a ladder pattern.

Burial 6 was an unidentifiable urn that included Individual 17-1, an adult, 18+ years old and 38 turtle bones.

The deepest burial within Operation 2 was Burial 7. Unlike the ones above it, all of which were contained in or associated with shoe pots, these remains were not found inside a ceramic vessel. Burial 7 consisted of the crania and the articulated long bones of at least two individuals, both in partially articulated primary positions. The remains were not removed because of their fragility, and were therefore



**Figure 6.** Burial 7 showing a primary extended burial with manó.

not given individual numbers, nor were they analyzed in the field for age or sex markers. These remains were associated with Bagaces Period ceramics and a stone mano was found resting on top of one of the long bones (Figure 6). It is unclear what time may have lapsed between these extended burials and the shoe pot burials above them.

Burial 8 contained multiple large Sacasa Striated vessels: an olla (A) and three shoe pots (B-D), with the rims of all four vessels missing. These vessels were recovered directly above large volcanic rocks that acted as a base for the vessels. Individual 5/7-1, a Child aged 6.5 +/- 1 year and Individual 5/7-2 an Adult 18+ years old, were both found in association with the olla. The olla was associated with a significant cluster of burial goods which included four finely worked lithic points, two large ear spools, and a basalt core (Figure 7). Located near these shoe pots was what is believed to have been a complete fishing net (Wilke 2011). This inference is based on the presence of 25 complete net sinkers and eight fragmented net sinkers (the highest concentration of net sinkers at El Rayo), as well as 40 red ceramic beads found in the two levels below this burial which are thought to have been held in a Plain Monochrome bowl. Taken together, these objects form a high density of burial goods outside of a burial vessel. Shoe Pot B was the only vessel with additional burial goods (82 ceramic beads and an ear spool fragment).



**Figure 7.** Detail of cache of burial goods from Burial 8, including lance points and ear spool.

Burial 9 included a set of at least four Sacasa Striated shoe pots, which were placed into the ground one atop another, with the upper vessels crushing the lower vessels (Figure 8). The concentration of the

vessels (approximately 4) and their fragmentary nature make it impossible to distinguish the contents of each vessel<sup>5</sup>, human remains were attributed to the uppermost vessel of this cluster. Beside these crushed



**Figure 8.** Burial 9 showing crushed shoe pots.

vessels were two additional shoe pots (A and B) side by side. Individual 31-1, an Infant 2 years +/- 1 year, was found in Shoe Pot A; no other burial goods were inside this vessel. Shoe Pot B contained fragmentary human remains and a Castillo bowl. Shoe pot B, which contained a small broken Plain Monochrome bowl; beside this vessel was the only complete figurine (a hunchback figurine) recovered from the site.

Although Locus 1 appears to be a compacted cluster of burials, this may be a result of the sampling strategy at the site, wherein four different operations encountered burials. However, based on our field observations, I am confident that the areas left unexcavated would also contain burials in similar concentrations to the excavated areas, and that this Locus was a mass cemetery that spanned both the Bagaces (AD 500-800) and Sapoá (AD 800-1250) periods.

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<sup>5</sup> I have described burial containers (C-E) as a single entity within Table 4 due to their compact nature

## Locus 2

Locus 2 was primarily considered an area of domestic use; however, in the deepest deposits excavated the most complete human skeletons from El Rayo were recovered. Human remains at Locus 2 were in a primary burial position and did not occur in association with any burial containers. All human remains at Locus 2 were dated to the Bagaces component of the site using the ceramic chronology (Carrie Dennett, personal communication 2010) and radiocarbon dates (McCafferty 2010).

Burial 10 included Individual 44-1, a Middle to Older Adult 40+ years and probable female was recovered from the transitional zone between Bagaces and Sapoa Periods<sup>6</sup> in a semi-flexed articulated position (Figure 9). She was the most complete individual excavated from the site and her remains included a significant portion of the cranium, 27 vertebral fragments, 77 rib fragments, humeri, radii, ulnae, femora, metacarpals and carpal phalanges. An inventory of the materials surrounding her included



**Figure 9.** Burial 10 showing Individual 44-1.

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<sup>6</sup> Geoffrey McCafferty states that this burial falls well into the Bagaces Period and that the Sapoa Period ceramics appear above this burial (personal communication, 2012) however based on the ceramic analysis provided I will continue to call this a transition burial.

items typically found throughout the domestic assemblage. Possible burial goods associated with this individual included a green stone fragment.

Burial 11, surrounded by Bagaces ceramics, dating to just before the transition to Sapoa, included Individual 26-1 a Middle Adult 30-40 years old and probably male. It was identified by a relatively complete mandible that still had most of its teeth. This burial included a bone bead and several possible burial goods: two fragmented Rivas Red bowls, a fragmented Tola Trichrome vessel, an ear spool fragment, an expedient scraper, and a utilized flake.

Burial 12 included Individual 43-1 of indeterminate age and sex, identified based on a fairly complete cranium and semi articulated long bone fragments. An expedient biface was the only possible burial good with Burial 12.

Burial 13 was not initially identified in the field. During lab processing it was determined that the a fetus 6-7 months in utero had been mistaken for bird bones and was collected and mixed in with the faunal remains. A reconstruction of the burial material has been attempted from the artifacts collected from the same level as the human remains. The fetus was given Individual number 45-1; it was determined that no burial goods were associated with this individual and that it had been buried without any evidence of special treatment.

### **Locus 3**

Locus 3 will be discussed as two distinct areas located 10 meters apart along the slope of a hill.

Burials 14 and 15 occurred at different levels within Operation 2 and do not follow the standard set out by other areas of El Rayo for Sapoa Period burials in that no Sacasa Striated shoe pots were recovered from this component of the site. Burial 14 included ceramics from both periods suggesting the burial occurred within the Transition period between the Bagaces and Sapoa at approximately A.D 800. The ceramic assemblage from Burial 15 shows that it occurred within the Sapoa Period.

Burial 14, located 10cm below Burial 15 included multiple human bones including articulated long bones and a poorly preserved skull with teeth. These remains were identified as Individual 40-2, a young adult 18-30 years of indeterminate sex, and Individual 40-1 -- a child 3.5 years +/- 12 months, identified by deciduous and permanent teeth. Human remains found in addition to the articulated remains were comingled, some showing signs of burning. The long bones were recovered next to a jaguar tooth pendant, two bone weaving picks and a complete ceramic ocarina — a double barreled whistle in the shape of a water bird, identified specifically as a frigate bird (Patricia Fernandez, personal communication 2009). Additionally, a complete Pataky composite silhouette and the bottom half of a Pataky periform jar were placed beside the cranium of the individual buried here (Figure 10).



**Figure 20.** Burial 14 showing mass of human bone next to Pataky periform vessel.

Burial 15 included the remains of at least two individuals: Individual 32-1, an infant 30 months +/- 3 months, and Individual 32-2, an adolescent 15-18 years of indeterminate sex. These individuals were found in a disarticulated grouping of human bone associated with two clusters of artifacts located on either side of the bone. One cluster contained a human molar, a fragmented side notched net sinker, the ceramic foot of a bird figurine and a copper bell. The second cluster included a Plain Monochrome small olla directly underneath an inverted Papagayo Mandador goblet placed mouth to mouth (Figure 11). An additional small Pataky vessel was recovered during the shovel test pit and would have been included with this burial.

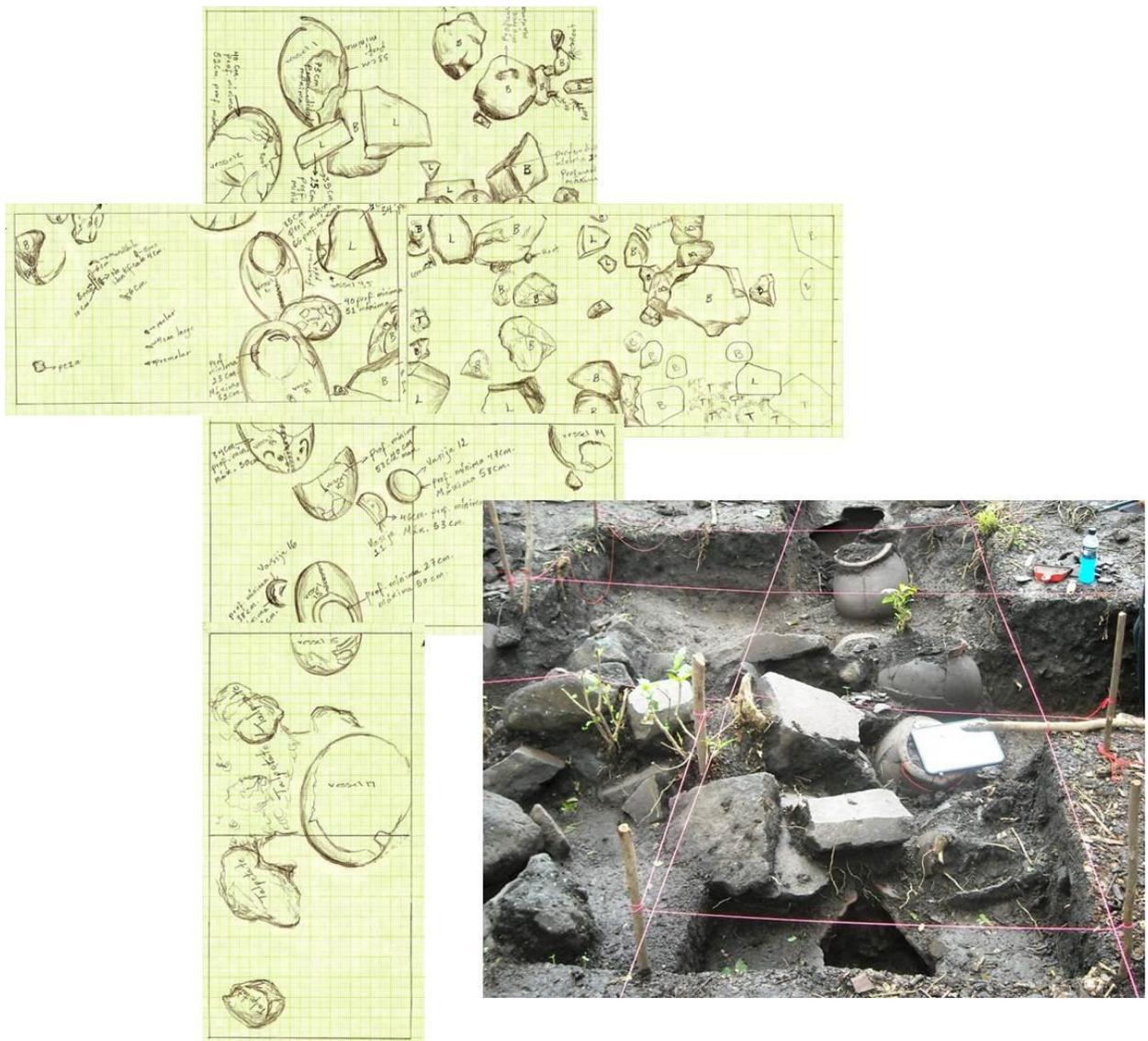


**Figure 31.** Detail of burial goods associated with Burial 15.

Burial 16 included all 10m<sup>2</sup> at Locus 3, Operation 3 and is the most structured burial deposit at El Rayo (Figure 12). It included 18 complete vessels, 12 of which were Sacasa striated shoe pots. The goal of these excavations was to explore the distribution of shoe pots, not to investigate their contents. Only three shoe pots were excavated so their contents could be compared with the Locus 1 shoe pots. The Burial 16 shoe pots were found in a linear formation running in a north south alignment, all at approximately the same depth in what seems to be a trench intentionally dug out of the *talpetate* (volcanic tuff substrate). The elements of this burial were interred in two distinct deposits. While most shoe pots rest on the *talpetate*, one was placed on top of a previously deposited shoe pots, suggesting a second time of deposition.

Five smaller vessels in Burial 16 were centrally located in the north-south alignment and do not appear to have been associated with any specific shoe pot. Fragmented human long bones were found in two of the smaller vessels, but whether these were offering bones or smaller burial containers is unclear.

To the west of the alignment was a collection of large flat volcanic rocks (*lajas*) covering a 2m x 1m area. The tops of these rocks are even with the tops of the shoe pots. This area was explored and the rocks appear to be stacked on top of the bedrock resulting in a fairly even upper surface which may have been used as a base for a small above ground place marker. The *lajas* found adjacent to the burial alignment provide a flat elevated surface which could serve as a foundation for an above ground feature such as a burial marker, monument, or as a space where offerings could be left above ground and replenished regularly. If the *lajas* served as a foundation, then they would have been placed at or near the ancient ground surface, and as the burial containers were also at this level, then the tops of the burial vessels would also have been centimeters from the surface.



**Figure 12.** Plan and photo of Burial 16. Plan drawn by Armando Vasquez.

While fragmented human remains were recovered from within each of the three shoe pots excavated, the shoe pots do not directly correlate to the individuals presented here. Four individuals were identified from the human bone assemblage found throughout this area of the site: Individual 33-1, an Infant 30 months +/- 6 months; Individual 33-2, a Juvenile 8 years +/- 1 year; Individual 33-3, a Young Adult 18-25 years; and Individual 33-4 a Middle Adult 30-50 years. Comingled burned and unburned human bones were recovered from this burial area and the presence of two mandibles that could not be clearly associated with the teeth of any of the individuals, as well as the ulnae and radii of at least two adults suggests the number of people buried in this area is larger than the four adults being reported. These comingled bones were recovered mainly from two clusters outside of the shoe pots, with one

grouping occurring half way down the outside of Pot C and the second grouping along the west side of the alignment of shoe pots.

The shoe pots at Locus 3 vary significantly from the shoe pots excavated at Locus 1, primarily in their organizational placement in the ground and also in their contents. Large rocks were recovered inside the shoe pots and sherds were found lining the inside of the urn, a pattern also seen at Locus 1, but this is where the similarities end. Rather than containing multiple additional smaller vessels, these shoe pots each contained at least one significant artifact (a lithic blade in Pot A, half of a tripod basalt grinding stone in Pot B, and a bone weaving pick in Pot C). A few objects were recovered around these vessels including five stone tools, two ear spool fragments, and one ceramic bead. The five smaller vessels were centrally located within the line of shoe pots and appear to be the main burial goods associated with Burial 14.

The sixth non-shoe pot was a large round vessel located in the center of Burial 16. It was also excavated under the belief that if any of the vessels would hold token offerings to the group they would be contained within this vessel. Inside this vessel were a broken claw pendant and a fragmented net sinker. At the time of excavation soil samples were collected to be tested for microscopic plant and animal remains, but to date this analysis has not been completed.

An additional shoe pot was identified during the initial shovel testing of Locus 3, but due to time constraints was not excavated. Discussions with the land owners suggest that additional burial containers are located throughout this hilltop area.

## Analysis

The previous descriptions have shown each burial at El Rayo is unique, yet patterns can be seen within and between each period when characteristics are studied independently (see Tables 3 and 4).

**Table 3.** Summary Comparison of Burial Characteristics by Period.

|                           | Disposal Area |          | Form of Disposal |           |         | Articulation |                 |         | Burial Container |         |
|---------------------------|---------------|----------|------------------|-----------|---------|--------------|-----------------|---------|------------------|---------|
|                           | Domestic      | Mortuary | Primary          | Secondary | Unknown | Articulated  | Dis-articulated | Unknown | With             | Without |
| <b>Bagaces<br/>n=4</b>    | 3             | 1        | 3                | -         | 1       | 2            | 1               | 1       | -                | 4       |
| <b>Transition<br/>n=3</b> | 1             | 2        | 1                | 2         | -       | 1            | 2               | -       | 1                | 2       |
| <b>Sapoa<br/>n=8</b>      | -             | 8        | 1                | 7         | -       | 1            | 7               | -       | 7                | 1       |

**Table 4.** Summary Comparison of Artifact Assemblage by Period.

|                           | Ceramics    |         |       | Faunal |        |           | Prestige Goods |           |         | Tools |               |              |              |
|---------------------------|-------------|---------|-------|--------|--------|-----------|----------------|-----------|---------|-------|---------------|--------------|--------------|
|                           | Utilitarian | Serving | Other | Low    | Medium | Very High | Beads          | Ear spool | Pendant | Other | Chipped Stone | Ground Stone | Weaving Tool |
| <b>Bagaces<br/>n=4</b>    | 1           | 1       | -     | 2      | 1      | 1         | 1              | 1         | -       | -     | 2             | 2            | -            |
| <b>Transition<br/>n=3</b> | 1           | 1       | 1     | 1      | 2      | -         | 1              | 1         | -       | 1     | 1             | -            | 1            |
| <b>Sapoa<br/>n=8</b>      | 4           | 5       | 4     | 6      | 1      | 1         | 2              | 3         | 3       | 1     | 6             | 1            | 2            |

### Disposal Area

Burials were found in all three loci and span both periods. The most obvious distinction between the two periods is the location of burial on the landscape. With only one exception, the location of the El Rayo burials fall into a basic pattern: Bagaces Period burials occur primarily within the domestic component of the site and all the Sapoa burials are located in formal cemetery areas. Transition period burials were found in both contexts; however, Burial 10 located within Locus 2 might be better classified as a Bagaces Period burial.

Despite this basic pattern, Sapoa Period burials are structured very differently in the arrangement of burials within Locus 1 and Locus 3. Locus 1 is a mass cemetery, with burials occupying various levels

from 30 cm to 100 cm below surface, which were placed atop of one another, overlapping, and with newer burials destroying older ones. The destruction of previously interred vessels might be explained by a lack of individual grave markers on the surface. Locus 3 is more organized, as illustrated by Burial 16: it has the most structured and organized arrangement of burial vessels at the site. The presence of a single significant artifact among the material within each of the burial containers excavated in Burial 16 as well as the placement of the smaller vessels in a central location among the burials suggests that the individuals interred here were considered equals. The uniform depth of the burial vessels resting on dug out *talpetate* allows us to infer that the burial vessels were placed in the ground at the same time. The burial containers were aligned north-south with the toes of all but one of the vessels facing south, showing a deliberate orientation. Even so, the reason for this pattern of placement remains unknown.

### **Nature of the Remains**

#### *Form of Disposal*

All Bagaces Period burials were the result of simple, primary inhumation with individuals placed directly into the ground after death. Seven of the eight Sapoa Period burials were the result of a compound disposal process involving at least one reduction process where the remains were defleshed and disarticulated. The remaining Sapoa Period burial (Burial 15) was a primary inhumation and was the only burial from this period without a burial container. Transition burials include characteristics of both periods. One burial was found in a primary position with the other two in secondary burials, despite the small sample size these burials follow the temporal change from primary to secondary burial. While modifications were being made to the mortuary program there was overlap of mortuary customs.

#### *Individuality*

Bagaces Period burials occurring within the domestic area of the site were limited to a fragmentary or single individual. The Bagaces burial located in the cemetery at Locus 1 contained the long bones of at least two individuals and the burial of multiple individuals continues through the transition burials into the Sapoa Period. Burials with multiple individuals are seen more often in the Sapoa Period, though single and fragmentary individuals also occur.

#### *Articulation*

Individuals at El Rayo mostly appear to be disarticulated or disturbed. This is the result of two factors: the poor preservation of the human remains and the compound disposal practiced during the Sapoa Period. Burial 10, a Transition period burial, was the only individual to be semi-articulated. Bagaces burials were partially articulated as was the Transition period Burial 15. Articulation is a result of the form of disposal and body preparations; as such, I have focused on those factors over articulation.

## Artifact Assemblage

Burial goods are rare in Bagaces burials but appear in all Sapoa burials. Burials vary from instances where there is only a burial container to examples that include several beads, lance points, or weaving tools. The quantity of burial goods associated with a given burial relates more closely to its location than its time period: burial goods are found more often in cemetery areas than in domestic contexts.

### *Ceramics*

Ceramics were the most common artifact type associated with the El Rayo burials. Complete or nearly complete ceramic vessels accompanied most Sapoa Period burials, while Bagaces burials lacked complete vessels--though one did contain the halves of three separate vessels. Sacasa Striated shoe pot burial containers were the most common ceramic vessels recovered at El Rayo, appearing regularly in burial contexts only after the transition to the Sapoa Period.

Despite the frequent occurrence, Sacasa Striated shoe pots, along with most other ceramic burial containers, were mostly found to be incomplete. Of the 31 burial containers recovered, the state of the vessel was recorded for 26, and only 5 of these were whole (Table 5). Most burial vessels were missing the rim and part of the upper portion of the vessel. While it is entirely possible that this is a result of post depositional processes (such as the agricultural activities which occur on the land today), it appeared that the rims were more likely removed prior to burial.

**Table 5.** State of Burial Vessels at El Rayo

| <b>State of Vessel</b>            | <b>n</b>  | <b>%</b>   |
|-----------------------------------|-----------|------------|
| Complete but broken               | 5         | 16.1       |
| Missing rim                       | 7         | 22.5       |
| Missing rim & portion of the body | 3         | 9.7        |
| Fragmented                        | 6         | 19.4       |
| Unknown                           | 10        | 32.2       |
| <b>Total</b>                      | <b>31</b> | <b>100</b> |

The decorations on the toes of the vessels have also been discussed, but since decorations were not consistently documented on the vessels at El Rayo it is not possible to continue this line of analysis at present.

Additional complete ceramic vessels (beyond the container itself) were included in all but two of the Sapoa burials. When complete vessels occurred they usually included multiple vessels, at least one of which was a serving vessel. These additional vessels were only recovered from outside of the burial container vessels at Locus 3, while they were found both within and outside of burial container vessels at Locus 1.

The separation of ceramic types into Utilitarian, Serving, and Other is based on the El Rayo ceramic analysis by Carrie Dennett (personal communication, 2012). This classification has been used to separate everyday use utilitarian wares as opposed to more highly decorated (and presumably more prestigious) serving wares. Table 4 shows the number of burials which contain each type of ceramic. Surprisingly the number of complete Utilitarian vessels was very similar to the number of complete Serving vessels. Beginning in the Transition period Other wares (which include trade wares and unclassified types) begin to appear, their presence increases in the Sapoa Period where it equals the number of burials which contain Utilitarian and Serving wares.

*Faunal Remains*

Faunal remains are present throughout the site as part of the general artifact assemblage. The faunal remains recovered from mortuary contexts are considered to be consistent with this general assemblage when they are within the Medium (20 - 100) frequency range, as this is the site average. Low, High, and Very High counts of faunal remains suggest variation from the typical assemblage, helping to discern patterns different from the background average.

Two burials contained Very High amounts of faunal remains, the Bagaces Period Burial 11 (which also contains the most burial goods), and the Sapoa Period Burial 16 (which is the result of the size of this burial). Nine burials included a Low amount of faunal remains indicating a distinction between the domestic locus of the site and the mortuary loci. This pattern is an extension of the loci reserved for the dead, which lack significant quantities of all other classes of domestic refuse as well.

*Prestige Goods*

Prestige goods were not always found in the quantities or places anticipated (Table 6). For example, 136 beads were recovered from El Rayo, 120 of those were ceramic beads from burial context. The much rarer bone or green stone beads were only recovered from the non-burial domestic area of the site. The domestic area also contained more pendants (including the most elaborate pendant recovered) and ear spool fragments than the burial areas.

**Table 6.** Distribution of Adornments at El Rayo

|          | Beads n=136 |      |       | Pendants n=21 |      |       | Ear Spools n=54 |          |
|----------|-------------|------|-------|---------------|------|-------|-----------------|----------|
|          | Ceramic     | Bone | Stone | Ceramic       | Bone | Teeth | Fragmented      | Complete |
| Mortuary | 120         | -    | -     | 3             | 1    | 1     | 11              | 2        |
| Domestic | 10          | 2    | 4     | 1             | 13   | 2     | 40              | 1        |
| Total    | 130         | 2    | 4     | 4             | 14   | 3     | 51              | 3        |

The variety of prestige goods included within the burials increases from the Bagaces to the Sapoa Period. Within the Bagaces Period, ear spools were the only prestige goods found. By the Sapoa Period, pendants and beads, as well as miscellaneous prestige items were also included.

Additional prestige burial goods include unique finds that were rare or did not fit into any other category. Included among these were the ocarina and copper bell. These items were recovered from two burials located in the same area of Locus 3.

Ocarinas have been reported from burial context from the Managua area (Jorge Zambrana Fernandez, personal communication 2010), however a detailed study of their form and distribution has yet to be published. As a result, at this time, I can only state that this artifact is a spectacular example of artistry and alludes to high status, but cannot confirm this interpretation until more work has been completed on this object type.

The copper bell is the first of its kind to be recovered from archaeological context in Nicaragua. Gold bells are known from Costa Rica (Reyman 1995) where they are associated with wealth and were recorded by Gaspar Epsinosa in 1519 on the *cacique* Parita as hanging from a gold belt during his funeral rites (Fowler 1992:358). The El Rayo copper bell includes a small loop which would allow it to be hung.

#### *Weaponry*

Lance points are the only artifact type that can be classified as a weapon. Complete examples were recovered from within burial contexts, including the cache of points in Burial 8. Lance points could have been used in both warfare and hunting. Use wear analysis of the stone tools has been planned by researchers at the University of Calgary, however to date these results are not available.

Traditionally weapons have been associated with gendered males, however no osteological evidence for this association has been found at El Rayo. The placement of a lance point in the mouth of an individual in Burial 3 is reminiscent of some Aztec burials from Templo Mayor. However, without additional examples we can do little more than speculate about the significance of these unique remains.

#### *Tools*

Tools which are typically recovered from the domestic refuse context are generally not being considered burial goods here as it is unlikely that they were included intentionally. These artifact classes only become noteworthy in specific circumstances such as in Burial 8 where a grouping of 25 complete net sinkers was described as a complete net placed within the burial (Wilke 2011) or the complete hunchback figurine from Burial 7-the only complete figurine recovered from the site.

Weaving tools were also found in a greater variety and in higher frequencies in the domestic locus of the site. The presence of weaving tools in Burials 5, 14, and 16 could suggest gendered females, however, as with the lance points, without additional evidence this is only speculation.

## Interpretation

The clear differences in mortuary programs between the Bagaces and Sapoa Periods, as well as the patterns observed for the transition burials which link the two periods, allows me to explore the significance of these burial treatments for understanding broader changes in the ancient El Rayo social organization. Framed within a discussion of the nature of this transition, I argue that the differences in the mortuary program were made by a single group of people who were adjusting to changing social circumstances rather than the result of a completely new group of people.

### Burial Area

The relocation of burials to formal cemeteries is seen in the transition burials and one Bagaces burial. Burials 4, 7, and 15 show the movement of burials away from the domestic component of the site. They are burials in formal cemeteries that maintain the primary interments without the presence of burial vessels. These burials signify that this is the first and most significant modification made to the mortuary program between the Bagaces and Sapoa Periods at El Rayo.

The relocation of burials from residential areas into formal cemeteries has been recorded throughout Lower Central America (Briggs 1993; Dennett and Watson 2008). I suggest that this same pattern of relocation of burials away from the domestic area at El Rayo, and into formal cemeteries, is a result of increased cultural interactions that resulted in the need to negotiate new cultural identifiers. Furthermore, as burials moved away from the home into reserved mortuary areas, any land claims (based on ideas of Mesoamerican ancestor worship) would have become less focused on familial plots and more directed towards communal property (McAnany 1994).

Bagaces burials (primary interments of single individuals within the domestic component of the site) are reminiscent of Mesoamerican examples of ancestors placed under the floors of households as a means to secure land claims, literally marking it as the place of your ancestors (Gillespie 2002). Placing burials within the home would limit access to the power of the ancestor and the size of the funeral. The location of Sapoa burials away from home allows for greater access to the power of the ancestors through public viewing and funerary rituals that are not restricted by space. With the inclusion of all members of the community in the cemetery, it becomes a marker of the community's ownership of the land, rather than any one lineage.

Furthermore, the placement of the cemeteries in areas of high ground between the lake edge and the community would have marked these highly productive critical resource areas around the village. They also provided land markers prior to approaching the living community for anyone who explored the region by boat or who also used the water source. While the area has been highly disturbed I suspect that above ground features were once erected at the cemeteries to clearly mark the area, as may have been the case at Burial 16.

## **Nature of the remains**

The changes that occur in the nature of the human remains are largely a consequence of the change in burial area. The loss of individuality and articulation are a result of the use of secondary burials and the interment of individuals in formal cemeteries rather than distinctions of time.

Of the 27 individuals for whom age and sex markers could be established, in all instances where multiple individuals were found at least one of those individuals was under eight years of age (Andrea Waters-Rist, personal communication 2010). This observation combined with previous interpretations of shoe pot burials urns symbolizing reproduction and regeneration, elicits an interpretation that these were family burial areas. Unfortunately DNA testing is unlikely due to the quality of the bones.

## **Form of disposal**

The process by which individuals were prepared for inhumation during the Sapoa Period at El Rayo remains unknown. Sprague (2005:28) describes six possible reduction processes that will be explored here: burial with later interment, exposure to air, fermentation in pots, exposure to animals, mechanical defleshing, and cremation.

Burial with later disinterment, exposure to air, and exposure to animals are all possible. The Talamanca of Costa Rica were said to wait for a year after the death of an individual before a funeral was performed (Fernandez Guardia 1918:19 in Bozzoli de Willie 1975:93), yet where the body was processed during that year was not recorded. During that time the body would have had to be kept somewhere away from the home to prevent illness, combat smell, and avoid any animals that may have fed on the body. Despite the poor condition of the remains at El Rayo, the only evidence of teeth marks from exposure to animals was small mammal gnawing (Andrea Waters-Rist, personal communication 2011). No evidence of larger predators such as jaguars was identified, casting doubt on this possible method of reduction. Bones also lacked strong evidence of cut marks or of butchering suggesting mechanical defleshing was not the primary reduction process used at El Rayo. The extended time between death and burial and the intense wildlife present in Nicaragua would have made exposure to air without substantial animal activities appearing on the bones very unlikely. Due to these factors, burial with later disinterment is the most probable of these processes.

The fermentation in pots is also a possibility due to the association of the deceased and the large Sacasa Striated cooking vessels, however, this is not conclusive. While burials within shoe pots have been recovered within Nicaragua with individuals in collapsed anatomical positions (Joyce 1973:45; McCafferty 2008:74) this is not the case at El Rayo as the remains were disarticulated and fragmentary. This suggests that if fermentation was a component of the processing of the deceased, additional processing occurred before the body was placed inside the burial container, or the remains were mixed once they were placed inside the container. In addition, the presence of complete and unbroken rims on

several of the vessels would have prevented larger bones such as the cranium or *os coxa* (not to mention a complete torso) from entering the vessel. Fermentation may be a method of processing for vessels in which the rim was removed, however prior reduction was still likely to have occurred.

The possible extrapolation of fermentation of human remains in cooking vessels to notions of cannibalism (an extrapolation which has occurred at more than one conference) has significant implications which I take very seriously. I suggest that individuals were interred in cooking vessels because the vessels were markers of familial relations and transformation, and not because the deceased were being eaten.

Finally, cremation may have been used as a reduction process at El Rayo. A few remains show evidence of burning and Oviedo described the de-fleshing of caciques over fires. Based on Oviedo's description, the remains may not show evidence of burning, as they were not placed directly in the fire, rather they were roasted above the flames until the flesh fell off the bones, leaving modified cremation as a possible reduction process during the Sapoa Period.

Three reduction processes remain as the possible methods for which the deceased at El Rayo were prepared for burial: burial with later disinterment, fermentation in pots, and cremation. With the small sample size that El Rayo provides and the state of the remains, it is impossible to narrow the classification any further. These factors also make the narrowing of possible methods specific only to the remains recovered at El Rayo, and should not be taken as conclusive evidence that these practices will not be observed elsewhere. However, all three reduction processes identified are credible possibilities based on the osteological remains and the ethnographic and ethnohistoric descriptions of the area.

Poor preservation of human remains has been noted throughout Nicaragua to be the result of tropical environments and acidic soils (Briggs 1993; McCafferty et al. 2011). Yet faunal remains (including fish bones) co-occur with human remains and are subject to similar, if not identical post-depositional processes and environments and are often recovered in excellent condition. Given the co-occurrence of human remains and faunal remains which were subject to similar, if not identical post depositional processes and environments, I, like Briggs, hypothesize that the different preservation is the result of pre-depositional activities. While Bagaces Period human remains were generally intact, the Sapoa Period human remains disintegrated upon touch. I hypothesize that the different preservation is the result of the reduction process that was used during the Sapoa Period which altered the bones in some manner which left them more susceptible to decomposition after burial. Without further testing of the human remains this hypothesis cannot be evaluated and remains unproven.

### **Artifact Assemblage**

While the number of burial goods increases from the Bagaces to the Sapoa Period, there does not appear to be a strong distinction between the categories of artifacts included. The small sample size limits

interpretations which can be made about burial goods. No category of objects with more than one occurrence was recovered exclusively, or almost exclusively, from burial context, and often the most elaborate example of the artifact class was recovered from the domestic assemblage. This suggests that the 'best' or 'most prestigious' items were not placed with the body at the time of burial; the obvious exceptions to this are the ocarina and the copper bell.

While no two burials at El Rayo contain the same burial goods, the lack of significant variation (which is seen at highly stratified cemeteries of Panama) promotes the interpretation that these individuals represent a single stratum of society. These burials do not represent a completely uniform society as some variation in status is suspected due to the presence of what have been considered status items. Yet, the El Rayo burials do not show anywhere near the variation in wealth that is seen in cemeteries further south which contain a few individuals with thousands of burial goods and most interments with only a few (Briggs 1993).

Prestige goods (primarily ornamentation at El Rayo) are material goods which can inform social identities (McCafferty and McCafferty 2011), and are expected to be most clearly displayed in mortuary contexts as expressions of wealth and status. These social expressions were manifested through the production, attainment and exhibition of elite objects and are a common pattern throughout Lower Central America (Fowler 1992:357). At El Rayo, ornaments are expected to be found primarily with Bagaces Period human remains, and associated with the burial containers in the Sapoa Period as adornments on the body of the deceased. In actuality, prestige goods were only associated with one of the Bagaces burials and half of the Sapoa Period burials where they were mainly found outside of burial containers.

The unexpected location of personal adornments could be used to infer three things: 1) that items of personal adornment were not key burial goods; 2) that status markers took other forms, either as organic materials which would not preserve or as different types of artifacts; or 3) status was displayed through social activities and not through physical belongings. As a result of these observations, we need to re-evaluate what types of artifacts should be considered markers of status and in what context they were used, at least at El Rayo.

There is a discrepancy between the increased inclusion of burial goods within Sapoa burials (which are mostly lacking from the Bagaces burials) and the use of utilitarian cooking vessels as burial containers. If burial goods are associated with wealth, their inclusion in Sapoa burials logically represents increased wealth. The use of pre-existing utilitarian cooking vessels as burial containers, rather than commissioning elaborately decorated vessels, suggest a lack of wealth, and even a level of equality (or desired level of equality) among the occupants of El Rayo. This actual or perceived equality may have been a mechanism for creating social solidarity among the occupants. Finally, the use of vessels with

images symbolizing rebirth, rejuvenation, and transformation may also act as a symbolic replenishment of the land by the descendants of those buried there.

Burial 14 is an anomaly with respect to its burial goods. As a transition burial it represents the best combination of mortuary patterns from both periods, however, more Sapoa characteristics are present. Bagaces characteristics include the semi-articulated remains not associated with a burial container. Sapoa characteristics include the location of the burial in a cemetery, the presence of multiple individuals, and the inclusion of elaborate burial goods (the ocarina, weaving picks, and a jaguar tooth pendant). This burial may suggest that the inclusion of more elaborate burial goods occurred before the transition to secondary burial.

The lack of large numbers of faunal and other organic materials contests the claim that large feasts were held as part of the mortuary rituals at the burial site. Yet, if the people of El Rayo feared malignant souls causing havoc on the living, as has been reported of the Sumo, Mosquito, and Paya (Bozzoli de Willie 1975:95) these celebrations may have happened before the body was led to the burial grounds to prevent it from becoming attached to the living. The movement of the deceased from the living community to the realm of the deceased ancestors may have been conducted by a ritual specialist in order to ease this transition (Fernandez Guardia 1918:25-27 in Bozzoli de Wille 1975:95).

## Conclusion

The archaeological site of El Rayo has provided a unique glimpse of the pre-Columbian history of Nicaragua. Comprising components from both the Bagaces and Sapoa Periods, this site also provides a rare look at the transition between these two periods. The presence of domestic and mortuary remains within the site allows for a double-edged interpretation. The domestic area has allowed for an important examination of the ceramic sequence (Dennett n.d.; McCafferty et al. 2009) while the mortuary remains provide a unique look at the changing cultural practices during this transition.

This thesis has focused on a visual exploration and description of the burials from both periods and attempted to make sound interpretations, despite the small sample size. Based on the remains excavated from this site, it is quite clear that significant differences occur between the Bagaces burials and the Sapoa burials—a pattern that far outweighs any differences that exist within either of the periods. These include the movement of burials away from the domestic spaces, the switch from primary to secondary burials, the association of burials with the Sacasa Striated shoe pot burial urn, the burial of multiple individuals together, and the increase in the appearance of burial goods. I have focused on the disposal area and the nature of the remains over the burial goods associated with each burial, though both perspectives help show the burial pattern changes at El Rayo. This focus has allowed me to tease out the broader changes in mortuary program at El Rayo rather than being bogged down by the variation in individual burial goods or by attempts to reduce the patterns to status and wealth differences between individual burials. While these analyses would be interesting and useful with a much larger burial assemblage than we have for El Rayo, they do not necessarily address the salient nature of the transition between the Bagaces and Sapoa Periods at El Rayo that we have been able to demonstrate so clearly.

The burials relating to the transition zone between the two periods suggest a smooth transition with the integration of new cultural elements into the mortuary program. The transition burials show characteristics from both periods and therefore display the continuous negotiation of the mortuary program. While the rate of this transition appears to be rapid within the domestic component of El Rayo, without additional dating of the cemeteries the rate of this transition in the mortuary program cannot be accurately determined. This integration begins with the movement of burials away from the domestic area which I argue makes it the most significant alteration to the mortuary program. This is then followed by the change from primary interments to secondary burials, which were associated with burial containers and the increase in burial goods which happen in the Sapoa Period. With so few transition burials present I cannot conclusively state which of these two characteristics occurred first. These characteristics may be interconnected as burial containers are both a burial good and a means of containing the disarticulated remains of the deceased.

Using previously constructed associations between the use of formal cemeteries and declarations of rights to specific properties (Briggs 1993; Dennett and Watson 2008; Goldstein 1976; Saxe 1970) I have hypothesized a reason for initial change in the mortuary program at El Rayo. The suspected increase in settlements during this time (Nimel 2003:234; Salgado 1996) supports the assertion that the inhabitants of El Rayo used their ancestors to make land claims which were visible to those outside the community. The specific placement of these cemeteries, in areas near water, marks the location of the most productive resources in the area. I argue that this evidence from El Rayo of interacting populations and the use of formal cemeteries near critical resource areas strongly supports Saxe's Hypothesis 8. Furthermore, the movement of ancestors away from the community was accompanied by increased ritual activity that created stronger social relationships among the community members and allied them against all outsiders. The use of utilitarian cooking vessels as burial containers allowed for the members of the community to maintain a (perceived or real) level of equality while an increase in burial goods heightened the status of the community as a whole. The possible use of above ground structures likely represents the communal cemetery rather than specific individuals. At Locus 1 individual grave markers are probably absent due to the presence of overlapping burials. Locus 3 is more structured with evidence of a single above ground feature; however this could be the result of a majority of the vessels being deposited at the same time.

Nicaraguan archaeology has focused on the "Out of Mexico" hypothesis, with a majority of archaeological work dedicated to evaluating this hypothesis and negotiating the southern boundary of Mesoamerica (Carmack and Salgado 2006; Kirchoff 1943; Lange 1996; Smith and Berdan 2003). As a result, the history of the country has been heavily influenced by Mesoamerican beliefs, concepts, and terms. Only in the last 20 years has Nicaraguan archaeology begun to be evaluated on its own merits (Lange 1992). Without directly linking the changing mortuary program to an influx of foreigners from the north (I leave this argument for those with more evidence than I have presented here) El Rayo now provides an excellent example of one group of people who are, at the very least, coping with changing cultural circumstances while maintaining access to their resources and autonomy from the influence of outsiders. The adoption of cemeteries without elaborate markers of wealth, choosing instead to emphasize equality with the utilitarian burial urns is a prime example of the active resistance of the highly stratified societies which surrounded Central America to the north and south.

Despite the small sample size, El Rayo has provided significant data about the alterations made to the mortuary program between the Bagaces and Sapoa Periods. The differences in the archaeological material between these periods have been used to make inferences about the changing cultural landscape that marks the distinction between these two periods. This thesis has made several interpretations about the nature of the changes made to the mortuary program, all of which need to be substantiated with additional research.

Further investigations of the methods utilized to process the body before burial are clearly needed. Not only will they explain why human remains are found in the manner they are, this research will also explore the methods of body preparation and therefore the mortuary rituals performed by ancient inhabitants of Nicaragua. A chemical study of the human remains could determine if it is pre or post depositional processes which have caused the poor preservation of human remains (especially compared to the faunal remains). DNA testing on the human remains in the region which compares archaeological samples to Mexican and Bribri samples will greatly influence the “Out of Mexico” hypothesis. For burials with multiple individuals, especially burials that include children, DNA testing might shed light on the nature of the connection between these individuals.

A thorough regional survey still needs to be conducted, to determine how many formal cemeteries were used at other sites throughout Pacific Nicaragua and Lower Central America. Following the arguments set out by this thesis, exploring cases where domestic burials had previously been used and determine what additional changes were made to the mortuary program.

Significant contradictions exist between the archaeological remains from El Rayo and the ethnohistoric accounts told by Oviedo. This suggests that additional alterations were made to the burial program during the Ometepe period (AD 1350-1522) prior to Spanish contact which have yet to be explored.

Evidence from El Rayo suggests that the supposed migration of Mesoamerican groups was not a complete replacement. Instead, this interaction may represent the mingling and negotiations of different cultural traditions, with the mortuary program adapting to these factors and changing over time.

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**Appendix A. Data from Funerary Contexts Excavated at El Rayo**

| Burial # | Time period | Locus<br>Operation |   | Disposal Container                     | Burial Description   |                         |                  |                       |               |                   |               | Artifact Assemblage |                |             |            |          |              |       |         |              |               |       |             |
|----------|-------------|--------------------|---|--|--|-------------------------|------------------|-----------------------|---------------|-------------------|---------------|---------------------|----------------|-------------|------------|----------|--------------|-------|---------|--------------|---------------|-------|-------------|
|          |             |                    |   |  | Human remains description  | Disposal Area           | Form of Disposal | Articulation          | Individuality | Utilitarian Wares | Serving Wares | Other Wares         | Faunal Remains | Beads       | Ear Spools | Pendants | Lance Points | Blade | Scraper | Ground stone | Weaving Tools | Other |             |
| 5        | Unknown     | 1                  | 2 | 198.4 Fragmented Red Rim (burial?) urn | <b>Individual 25-1: Adult 18+ years.</b> Humerus, ulna, fibula (2), femur, diaphyseal fragments (11), long bone fragments (193), cranial fragments (12), vertebra fragment (1). Two subadult mandibular molars from a 2 year old infant +/- 1 year (no other identifiable subadult bones found among the adult skeleton)   | outside habitation area | Secondary        | Disarticulated        | fragmentary   |                   |               |                     | 1              | Med         |            |          |              |       |         |              |               | 1     |             |
| 6        | Sapoa       | 1                  | 2 | Unidentified burial urn                | <b>Individual 17-1: Adult 18+ years.</b> Cranial fragments (54), long bone fragments (2), maxillary and mandibular molars and canines  | outside habitation area | Secondary        | Disarticulated        | fragmentary   |                   |               |                     |                | Med         |            |          |              |       |         |              |               |       |             |
| 7        | Bagaces     | 1                  | 2 |  | Long Bones (Not removed)   | outside habitation area | Simple           | Articulated, extended | fragmentary   |                   |               |                     |                |             |            |          |              |       |         |              |               | 1     |             |
| 8        | Sapoa       | 1                  | 3 | Outside disposal containers            | <b>Individual 5/7-1: Child 6.5 years +/- 1 year.</b> Near complete set of maxillary and mandibular teeth.<br><b>Individual 5/7-2: Adult 18+ years,</b> feet (navicular, cuboid, calcaneous, talus, 3rd cuneiform, tarsal phalanges), distal fibula, cervical and thoracic vertebrae, rib fragments, cranial fragments (175), long bone fragments (26), hand (metacarpal and carpal phalanges), maxillary molar |                         |                  |                       |               | Mass              |               |                     |                | L<br>o<br>w | 15         | 2        | 3            | 1     | 1       |              |               |       | Fishing Net |



**Appendix A. Data from Funerary Contexts Excavated at El Rayo**

| Burial # | Time period     | Locus | Operation | Disposal Container          | Burial Description   |                        |                  |                                      |                  | Artifact Assemblage |               |             |                |                            |            |          |              |       |         |              |                  |       |
|----------|-----------------|-------|-----------|-----------------------------|--|------------------------|------------------|--------------------------------------|------------------|---------------------|---------------|-------------|----------------|----------------------------|------------|----------|--------------|-------|---------|--------------|------------------|-------|
|          |                 |       |           |                             | Human remains description  | Disposal Area          | Form of Disposal | Articulation                         | Individuality    | Utilitarian Wares   | Serving Wares | Other Wares | Faunal Remains | Beads                      | Ear Spools | Pendants | Lance Points | Blade | Scraper | Ground stone | Weaving Tools    | Other |
|          |                 |       |           | Outside disposal containers | <b>Individual 31-1 Infant 2 years +/- 1 year.</b><br>Maxillary teeth, cranial fragments (3), long bone fragments (14)  |                        |                  |                                      | fragmen-<br>tary | 1                   |               |             |                |                            |            |          |              |       |         |              |                  |       |
| 10       | Transition Zone | 2     | 1         |                             | <b>Individual 44-1: Middle to Older 40+ years, probable female.</b> fragmentary cranial bones (frontal, parietal, occipital, temporal, zygomatic, maxillae, nasals), manible (6), edentulous maxilla and mandible, vertebra fragments (27), rib fragments (77), humeri, radii, ulnae, femora, metacarpals and carpal phalanges | inside habitation area | Simple           | Articu-<br>lated,<br>Semi-<br>Flexed | fragmen-<br>tary |                     |               |             |                | M<br>e<br>d                | 1          |          |              |       |         |              |                  |       |
| 11       | Bagaces         | 2     | 1         |                             | <b>Individual 26-1: Middle Adult 30-40 years, Probable Male.</b> Relatively complete mandible (3), near complete set of mandibular teeth   | inside habitation area | Second-<br>ary   | Disartic-<br>ulated                  | fragmen-<br>tary | 2                   | 1             |             |                | V<br>.<br>H<br>i<br>s<br>h | 1          | 1        |              | 1     |         |              | Utilized Flake   |       |
| 12       | Bagaces         | 2     | 2         |                             | <b>Individual 43-1:</b> indeterminate. Unidentified cranial fragments (285), long bone fragments   | inside habitation area | Second-<br>ary   | Semi-<br>Articulat<br>ed?            | fragmen-<br>tary |                     |               |             |                | L<br>o<br>w                |            |          |              |       |         |              | Expedient Biface |       |
| 13       | Bagaces         | 2     | 4         |                             | <b>Individual 45-1:</b> Fetus 6-7 months in utero. Clavicles, humeri, radii, ulna, femora, fibula  | inside habitation area | unknown          | Unkn-<br>own                         | Single           |                     |               |             |                | M<br>e<br>d                |            |          |              |       |         | 1            |                  |       |

**Appendix A. Data from Funerary Contexts Excavated at El Rayo**

| Burial # | Time period     | Locus | Operation | Disposal Container  | Burial Description   |                         |                                |                  |               |                   |               | Artifact Assemblage |                |       |            |          |              |       |         |              |               |   |
|----------|-----------------|-------|-----------|---|--|-------------------------|--------------------------------|------------------|---------------|-------------------|---------------|---------------------|----------------|-------|------------|----------|--------------|-------|---------|--------------|---------------|---|
|          |                 |       |           |   | Human remains description  | Disposal Area           | Form of Disposal               | Articulation     | Individuality | Utilitarian Wares | Serving Wares | Other Wares         | Faunal Remains | Beads | Ear Spools | Pendants | Lance Points | Blade | Scraper | Ground stone | Weaving Tools | Other   |
| 14       | Transition Zone | 3     | 2         |   | <p><b>Individual 40-1: Child 3.5 years +/- 12 months.</b> Deciduous and permanent teeth, piece of alveolar bone containing a very small dental bud.</p> <p><b>Individual 40-2: Young adult 18-30 years.</b> Near complete set of maxillary and mandibular teeth.</p> <p>Bone: Burnt bone from commingled area: ulna, rib, long bone fragments (6). Non-burnt bone from commingled area: mandible fragments (12), cranial fragments (104), rib fragments (7), vertebrae fragments (7), patella, long bone fragments (316), humerus, ulnae of at least 2 adult people, radii, femur, tibia, fibulae, metacarpals, carpal phalanges</p> | outside habitation area | one has articulated long bones | Semi-Articulated | Mass          |                   | 2             |                     |                |       | L          |          |              | 1     | 1       |              | 2             | Friget Bird Ocarina Expedient Biface Expedient Uniface    |
|          |                 |       |           |   |  |                         |                                |                  |               |                   |               |                     |                |       |            |          |              |       |         |              |               |   |
| 15       | Sapoa           | 3     | 2         |   | <p><b>Individual 32-1 Infant 30 months +/- 6 months.</b> Deciduous and permanent upper and lower incisors and molars.</p> <p><b>Individual 32-2: Adolescent 15-18 years.</b> Near full set of maxillary and mandibular teeth (M3 roots not completely formed). Additional human bones recovered from scatter: mandible fragments (4), cranial fragments (44) rib fragments (2) vertebrae fragments (11), ulna, radius, fibula, long bone fragments (42), Metatarsals and tarsal phalanges</p>  | outside habitation area | Secondary                      | Disarticulated   | Mass          |                   | 3             | 1                   |                | M     |            |          |              |       |         |              |               | Copper Bell Utilized flake drill Obsidian Prismatic Blade |
|          |                 |       |           |   |  |                         |                                |                  |               |                   |               |                     |                |       |            |          |              |       |         |              |               |   |
| 16       | Sapoa           | 3     | 3         | Sacasa Striated Shoe pot- missing rim and portion of the upper body | aprox three dozen fragments  |                         |                                |                  | fragmen- tary |                   |               |                     |                |       |            |          |              | 1     |         |              |               |   |
|          |                 |       |           | Sacasa Striated Shoe Pot- issing rim and upper body                 | cranial fragments (2)  |                         |                                | fragmen- tary    |               |                   |               |                     |                |       | M          |          |              |       |         | 1            |               |   |

