Case Studies in Ancient Maya Human-Animal Relations: El Perú, La Corona, and Commensal Mammals

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Case Studies in Ancient Maya Human-Animal Relations:  
El Perú, La Corona, and Commensal Mammals  
by  
Diana Nicole Fridberg

A dissertation presented to the  
Graduate School of Arts & Sciences  
of Washington University in  
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of Doctor of Philosophy

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ABSTRACT OF THE DISSERTATION

Case Studies in Ancient Maya Human-Animal Relations:

El Perú, La Corona, and Commensal Mammals

by

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Doctor of Philosophy in Anthropology

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Professor David A. Freidel, Chair

The ancient Maya of Mesoamerica inhabited a biodiverse landscape filled with animal taxa that provided both physical resources and rich ideological inspiration. To date, faunal studies among the Maya have been more limited than other types of archaeological investigations, leaving much still unknown about how human-animal relations varied across time and space. This study utilizes zooarchaeological, iconographic, ethnohistoric, and ethnographic data to illuminate the use of animals in Late Classic period (600–900 CE) ritual at the sites of La Corona and El Perú-Waka’ (henceforth abbreviated as El Perú) in Petén, Guatemala, and to investigate the roles of commensal mammals in ancient economic and belief systems. The discussion is centered on a ritual-economic analysis of human-animal relations as revealed by the presented data.

The La Corona sample is derived from a high elite feasting context recovered from a chultun (CR16B-1A). This deposit was located in close association with Structure 13R-10, a building used for elite political legitimization and observation of calendric rituals during the Classic period (250–900 CE). A zooarchaeological analysis of faunal remains reveals that the
participants in the feasting event preserved in this deposit consumed opossums in addition to taxa more typically related to high-status consumption. I relate this to the ideological associations of opossums revealed through iconography and ethnography.

The second component of the dissertation is a study of El Perú Structure M12-44 (the “Cuartito”), a subterranean chamber that contained abundant and diverse faunal remains and other materials. The structure’s association with the nearby civic-ceremonial Structure M13-1 and its unusual architectural form lead to the interpretation that Structure M12-44 was created as a “pseudocave” for ritual access to the Underworld. I hypothesize that the faunal remains were placed in the Cuartito to formally position animals in this liminal space.

I next turn to an issue central to interpretation of the La Corona and El Perú deposits: the role of certain commensal mammals—opossums, rodents, and rabbits—in Maya economy and ideology. Through examination of their ethology, documented uses among modern and historic Maya groups, and archaeological evidence, I suggest that these taxa were potentially valuable resources for subsistence and also held symbolic associations that must be considered when their remains are discovered in archaeological contexts.

This study has produced detailed analyses of two previously unreported ritual deposits as well as a comprehensive investigation of the commensal mammals that are rarely evaluated for their contributions to Maya life, although they are present throughout the area inhabited by the Maya. In so doing, I provide new data on local expression of human-animal relations of Late Classic ritual activity in the archaeologically understudied region of northwestern Petén and also contribute to the thematic and pan-Maya study of the economic and symbolic exploitation of animals.
Chapter 1: Introduction

Animals play critical roles in human economy and ideology in both present and past societies, functioning as environmental actors, subsistence resources, and sources of ideological inspiration. The indispensable and varied relationships of animals with human life is particularly visible in the archaeology of the ancient Maya, where abundant animal remains and depictions reflect the extensive biodiversity of the Maya environment.

The Maya Lowlands were home to both diverse wildlife and multiple urban centers during the Maya Classic period (250–900 CE). The incidence of archaeological study in the Maya area varies across different regions, and portions of the Lowlands, although historically important and ecologically diverse, have been relatively understudied. This is especially true in the intact tropical forests of northwestern Petén, Guatemala, home to the Maya archaeological sites of El Perú-Waka’ and La Corona. These sites are located in close physical proximity to each other and maintained mutual political relationships during the Classic period. Therefore, they provide an excellent window through which to assess variation in animal use during this time.

The objective of this research is to elucidate the nature of human-animal relations in northwestern Petén and the larger Maya world through the analysis of animal remains and representations. I utilize a wide variety of tools from anthropological archaeology in order to explore the nature of these relations, including zooarchaeology, iconography, and ethnographic analogy. This synthetic approach permits closer investigation of context-specific operation of matters, including ritual economy, economic provisioning, the effects of the environment on social practice, and the expression of ideology through material culture.
The analysis of materials from two ritual contexts at El Perú and La Corona is central to this study. At the most basic level, this research adds to what is known about human-animal relations at these two sites. In addition to contributing data to an overly sparse zooarchaeological record, this study contributes to understandings of intraregional variation in Petén and permits direct comparisons of zooarchaeological and iconographic data sets from elsewhere in the Maya world. The assemblages from these sites also provide an opportunity to better understand a disappearing environmental milieu, the Neotropical wet forest, and human engagement with it.

1.1 Outline of the Dissertation
This research is presented in eight chapters. Chapter 2 provides background information on the Maya region of Central America. In this chapter I introduce major environmental divisions used in Maya research—the Highlands, the Northern Lowlands, and the Southern Lowlands. I then focus on the Southern Lowlands of Petén, Guatemala, and situate El Perú and La Corona in the history and geography of the region. Chapter 3 is a discussion of two overarching and interacting themes: human-animal relations and ritual economy. The three chapters that follow are investigations of specific aspects of human-animal relations among the Maya.

In Chapter 4, I explore a high elite, Late Classic feasting deposit from La Corona through its zooarchaeological and other material remains. This deposit, CR16B-1A, contained undisturbed and remarkably well-preserved materials that allow for a reconstruction of a single festal meal. I characterize the menu presented in CR16B-1A and argue that the seemingly anomalous presence of opossums, an animal typically not associated with high-status consumption, indicates the dual operation of opossums as subsistence and symbol.
Chapter 5 is a detailed analysis of El Perú Structure M12-44. This subterranean structure, nicknamed the “Cuartito,” provided a robust and well-preserved faunal sample. Utilizing faunal and architectural data, I suggest that the Cuartito represents a manmade “pseudo-cave” used to access the Underworld during ritual activities.

In Chapter 6 I provide a broad discussion of commensal mammal utilization among the modern and ancient Maya. I address the ethnographic, ethnohistoric, iconographic, and zooarchaeological evidence for Maya use of opossums, rabbits, and large rodents (agoutis and pacas) as economic and ideological resources. I argue that these taxa warrant more detailed anthropological analysis than they typically receive because of their ubiquity in the Maya region and the ethnographic and archaeological evidence for their distinct ideological associations.

Chapter 7 relates the previously discussed data sets of Chapters 4, 5, and 6 to the concept of ritual economy presented in Chapter 3. I conclude in Chapter 8 with a summary of the study’s main findings and their import to the broader study of Maya human-animal relations.
Chapter 2: Defining the Study Area

“Ancient Maya” refers to a pre-Columbian cultural complex of wide temporal range and geographic breadth. The information in this Chapter provides background information to orient the reader to the settings and ecological contexts discussed in later chapters. A general chronology is described in Figure 2.1. In Chapters 4 and 5 I focus on specific loci of Late Classic ritual activity at the lowland sites of El Perú and La Corona in northwestern Petén. In Chapter 6 I expand the discussion to include information on both ancient and modern patterns of animal utilization, using zooarchaeological, iconographic, and ethnographic data from throughout the Maya world.

![Figure 2.1 Chronological periods, based on Foster 2002](image)
2.1 The Maya Area

The Maya area is a vast territory within the Mesoamerican geocultural zone (Figure 2.2).

Bordered by the Isthmian Region of the Isthmus of Tehuantepec and the Valley of Oaxaca to the west and Lower Central America to the east, it extends from southeastern Mexico through Guatemala and Belize and into western El Salvador and Honduras (Demarest 2004; Sharer 1994). It is defined by the modern-day distribution of Mayan-speaking populations and ancient Maya archaeological sites (Sharer 1994:19). This massive region is broadly separable both culturally and ecologically into the Highlands, Northern Lowlands, and Southern Lowlands. As a
result of the great environmental variability between (and within) these regions, the Maya area contains a variety of habitats that support a wide array of locally variable faunal taxa.

The Maya Highlands include sections of Tabasco and Chiapas in Mexico, southern Guatemala, western El Salvador, and southwestern Honduras (Demarest 2004:3). This area includes the coastal plain and piedmont of Guatemala’s Pacific Slope, the northern highlands of the Sierra de los Cuchumatanes and northern Sierra Madre, and the southern highlands of the southern Sierra Madre. Pine-oak forest and small areas of cloud and tropical wet forests characterize this mountainous region (Schlesinger 2001). The flora, fauna, and temperature of the Highlands vary with elevation.

The Maya Lowlands lie to the north of the Highlands, extending from central Guatemala northwest through sections of Chiapas and Tabasco and north through Belize and the Yucatán Peninsula (Demarest 2004:3). This region lies below 800 m in elevation and is characterized by a tropical climate (Sharer 1994). This region is separated into the Northern and Southern Lowlands in Maya archaeology and for purposes of this dissertation. Some scholars further subdivide the region by splitting the Southern Lowlands into the Central and Southern or transitional Lowlands (e.g. Schlesinger 2001).

The Northern Lowlands of the northern Yucatán Peninsula lie on a low, karstic limestone plateau with little surface water. It is a hot and dry region with less annual rainfall than areas further south. The landscape is characterized by mangrove forest along the coasts, grading into savannah and low, tropical dry forest further inland. Plants and animals in the Northern Lowlands, especially in the far north, are more dry-adapted than those in the Southern Lowlands (Hammond 2000; Schlesinger 2001).
The Southern Lowlands are hot and moist, with abundant vegetation. Surface rivers, lakes, wetlands, and more frequent rainfall support the region’s wet tropical forests (Schlesinger 2001). The Southern Lowlands, in particular its northern half, have been referred to as the Maya heartland due to its large number of ancient polities. Additionally, the first hallmarks of a uniquely Maya civilization emerge from Preclassic sites in this region (Sharer 1994).

2.2 Petén
This research focuses on El Perú-Waka’ and La Corona, Petén. Petén is a department of the country of Guatemala and a large subregion of the Southern Maya Lowlands. This low-lying area (100–300 m above sea level) is characterized by high rainfall (an average of 1600 mm annually) supporting the presence of lakes, rivers, and seasonally inundated swampland (Deevey 1978; Deevey et al. 1979). The region has good drainage and is typified by tropical wet forest, though it also has areas of savannah and grassland (Schlesinger 2001, Sharer 1994). Today, much of Petén is part of the Maya Biosphere Reserve, an area of protected forest that covers over 2 million hectares (UNESCO 2011).

In addition to its tropical forests and abundant biodiversity, Petén was an important part of the ancient Maya political and social landscape. As a site of hegemonic conflict between the rival powers of Tikal and the Kaanal ("Snake") dynasty, which was centered at Calakmul during the 7th century, Petén was a focal point for political and economic expansion and interaction during the Maya Classic period. The region’s centrality to the development of ancient Maya culture makes research in Petén an excellent avenue for investigating variability, continuity, and change in ancient Maya social life, including human-animal relations. Zooarchaeology, the study of animal remains from archaeological sites, has played an important role in previous research in Petén, particularly in the southern and central areas (Emery 1997, 2003, 2004, 2008; Masson
Analysis has been limited historically, however, by inaccessibility of the region due to dense vegetation, poor understanding of Neotropical fauna, excavation strategies that have not prioritized faunal recovery, and a dearth of trained analysts (Emery 2004d:194). Meanwhile, analyses of animal imagery within Petén have necessarily been opportunistic due to limited material and usually spurred by isolated finds (e.g. Rice 1983). The research in this dissertation was performed as part of an effort to systematically assess all faunal remains and animal imagery from the temporally, spatially, and politically related sites of El Perú-Waka’ and La Corona, located in northwestern Petén.

2.2.1 El Perú

El Perú-Waka’ is an archaeological site located near the confluence of the San Pedro Martir and San Juan Rivers in northwestern Petén, Guatemala. The site is located in an area of dense rainforest vegetation and was rediscovered by petroleum workers in the 1960s. It was initially mapped and documented by Ian Graham in 1970 and has been studied under the auspices of the El Perú-Waka’ Regional Archaeological Project since 2003 (Escobedo and Freidel 2004; Rich and Navarro-Farr 2014). Waka’, the ancient name of the site, was discovered after it had already been given the modern name of El Perú. It is now known variably as El Perú, El Perú-Waka’, or simply Waka’, which translates roughly as “Centipede Water” (Freidel and Escobedo 2014; Guenter 2007; Martin 2000). This dissertation uses the most frequent naming convention, El Perú.

El Perú was occupied throughout the Late-to-Terminal Preclassic (ca. 400 BCE–250 CE) to Terminal Classic (ca. 800–1000 CE) periods (Eppich et al. 2005; Eppich 2011). The site’s location on a limestone escarpment near the confluence of the San Juan and San Pedro Mártir
rivers elevated it above surrounding areas and placed it on major trade routes across the Southern Lowlands. These locational advantages made the site an important and contested strategic center for trade and defense, especially during the Classic period. El Perú was centrally located between the Usumacinta River polities of Yaxchilan and Piedras Negras to the west, Tikal and Uaxactun to the east, and the Petexbatún region of southern Petén to the south. El Perú’s close proximity and shifting allegiance to the rival Classic period polities of Tikal and Calakmul was of particular historical importance (Freidel et al. 2007; Rich and Navarro-Farr 2014). The royal court at El Perú fell sometime after the last recorded monument date in 801 CE (Guenter 2005; 2014), but the site continued to be inhabited for another several hundred years. Commoners utilized buildings in the site core to continue ritual practice through its Terminal Classic occupation (Navarro-Farr 2009; Navarro-Farr and Arroyave Prera 2014).

The center of El Perú consists of four main plazas surrounded by palaces, temples, elite residential complexes, a ballcourt, and other buildings associated with the ruling dynasties of Waka’ (Freidel and Escobedo 2014; Tsesmeli 2013). As of 2013, 794 buildings have been documented in the site center (Tsesmeli 2013). El Perú also had extensive peripheral settlement of varying density and socioeconomic status, some of which was likely interspersed with farmland, gardens, and other food production areas (Marken 2007, 2008, 2009b, 2010b, 2011; Rich and Navarro-Farr 2014).

To date, there are over 13,000 specimens of animal bone recovered from archaeological excavations at El Perú (Fridberg 2010a, 2010b, 2013a). Contexts yielding faunal remains include middens, architectural fill, caches, and burials. In a pilot study in 2010 I analyzed the fauna from the Classic period Paal Group at El Perú to gather preliminary data on bone preservation and taxonomic representation at the site in a domestic context (Arroyave Prera 2006; Fridberg 2010a,
Tropical conditions often impair preservation, but the majority of this material remained in good condition. I determined that residents of this group were heavily reliant on turtle and deer, with little utilization of other mammalian taxa or fish. My research was the first subsistence study performed at the site and provided some of the first information on ancient Maya animal utilization to emerge from northwestern Petén. Other important faunal contexts, including burials, demonstrate ritual use of animals at El Perú. Burials 37 and 39 included large cat (most likely jaguar, *Felis onca*) phalanges, indicating these individuals were interred with pelts (Meléndez 2014; Kennedy-Thornton in Rich 2008). Non-burial ritual contexts include an Early Classic offering that included jaguar and deer bones found beneath the center of the ballcourt’s southern range (Structure L-31) (Meléndez 2007). Chapter 5 contains a detailed analysis of the faunal remains from an unusual subsurface chamber adjacent to Structure M13-1, El Perú’s main civic-ceremonial building.

### 2.2.2 La Corona

La Corona is a smaller site located approximately 40 km north of El Perú. Its primary occupation was during the Classic period (Barrientos and Canuto 2009). During this time, La Corona produced the high quality, finely sculptured monuments for which it is best known. Many of these entered the art market prior to the site being located by archaeologists. The distinctive style of these different works led Mathews (1979) to identify them as originating from the same source, dubbed Site Q (Schuster 1997). The archaeological site of La Corona was first mapped in 1996 after being located by remote sensing (Barrientos and Canuto 2009; Graham 1997) and was named La Corona—the crown—for a linear arrangement of five small pyramidal platforms that were later termed the Coronitas Group. Shortly thereafter, the ancient name of the site, *Sak Nikte’* (“White Flower”), was deciphered and Site Q was identified as La Corona (Stuart
Preliminary archaeological investigations at the site began in 2005 under the auspices of the El Perú–Waka’ Regional Archaeological Project (Acuña 2007; Canuto 2007; Canuto et al. 2006; Freidel and Escobedo 2006; Marken and Guenter 2007). A dedicated project, Proyecto Regional Arqueológico La Corona, began in 2008 (Barrientos and Canuto 2009).

Lagoons and marshlands surround La Corona and constrain the site’s layout. It is modest in size and organized around two main ceremonial plazas (Marken 2009a, 2010a). Although mapping efforts are still ongoing, residential areas, hieroglyphic stairways, temples, and the palace complex once occupied by the site’s ruling dynasty have also been identified (Barrientos and Canuto 2009; Ponce Stokvis 2013).

La Corona’s diminutive size contrasts sharply with the richness of its material culture. A close relationship with the Classic period superpower of Calakmul appears to have brought the inhabitants of La Corona relative affluence. Inscriptions from the site record a history of visits by members of the ruling Kaanal dynasty as well as marriage into the dynasty (Canuto and Barrientos 2013). Despite this relationship, the rulers of La Corona were never given the distinguished title of ajaw (“holy lord”) used at El Perú. Instead, the highest title recorded at La Corona is sak wayis (“white goblin”), a regionally specific title associated with rulers in the Kaanal sphere of influence (Martin 2008). This difference suggests that La Corona had a closer and more explicitly subordinate relationship to Calakmul than did El Perú.

Compared to the amount of material recovered from excavations at El Perú, the faunal sample from La Corona is limited. Most excavations to date were performed in and around monumental architecture and resulted in only small quantities of poorly preserved zooarchaeological material. The chultun deposit described in Chapter 4 is a notable exception and suggests that other well-preserved contexts may exist (also see Fridberg 2013b). Additional
information on human-animal relations at the site comes from small deposits from caches and tombs such as Burial 6, which contained locally available aquatic taxa including crocodile (*Crocodylus cf. moreletti*) (Baron et al. 2011; Fridberg 2014), Burial 3, which included marine shells and pearls (Desailly-Chanson 2012), and a cache in Structure 13R-9 that contained a variety of marine goods, including shell, coral, and stingray spine (Gómez 2010).

### 2.3 A Multi-Scalar Approach to Human-Animal Relations

This study includes assessment of human-animal relations at both a regional and site-specific scale. El Perú and La Corona are located in close proximity to one another and occupy the same general environmental zone. They differ primarily in their size and established political relationships. The data presented in Chapters 4 and 5 serve as case studies for broader trends, such as those discussed in Chapter 6.

Human-animal relations have great potential for variability across time and space, and it is thus appropriate to examine these relationships using multiple scales of analysis. Examining context-specific patterns as well as pan-Maya trends enable a nuanced view of human-animal relations that takes into account their diversity. The data from El Perú and La Corona contribute to what is known of Late Classic ritual animal use in northwestern Petén. In so doing, they provide another point of reference from which to understand how the ancient Maya as a culture group interacted with animals at both the physical and ideological levels.

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Chapter 3: Human-Animal Relations and Ritual Economy

In this chapter I build a framework for examining human-animal relations in the archaeological record. First, I define human-animal relations as a field of inquiry and explore how archaeology approaches animals in terms of their exploitation as physical and ideological resources. These can be broadly divided into non-ritual uses and extraordinary, ritual uses. In the second section of this chapter, I address the definition of these categories and justify their use. Although “ritual” is a nebulous category in archaeological discourse, it is a valuable construct for approaching ancient ideology. I introduce the concept of ritual economy as a useful perspective for assessing human-animal relations. Third, I discuss the archaeological methodologies most commonly used for assessing human-animal relations: zooarchaeology, iconographic analysis, and analogy provided by ethnography, ethnohistory, and ethnoarchaeology. In the fourth section I review the current evidence for practical and ritual aspects of ancient Maya animal use. I conclude by addressing how these matters will be incorporated into this thesis.

3.1 What Are Human-Animal Relations?
Research performed under the heading of human-animal relations is broad and multidisciplinary. Current scholarship includes studies in biology, ethics, and anthropology, as well as a variety of other fields (e.g. DeMello 2012; Gross and Vallely 2012; Hurn 2012). It is united by a concern for how non-human animals are conceptualized in human societies and the meanings and values ascribed to them. This thesis focuses on aspects of the human-animal relationship that have left particular material traces in the archaeological record.
A prerequisite of all human-animal studies is establishing the exact definition of both “human” and “animal.” To speak of human-animal relations is to set up a dichotomous opposition between the terms, similar to culture versus nature. Current scholarship—such as biology, critical human-animal studies, and anthropological attempts to incorporate worldviews outside of the industrialized West—recognizes this as a false dichotomy (Mullin 1999; Willis 1990). Even in the modern industrialized West humans as *Homo sapiens* are recognized as part of the animal kingdom by biological descent but often opposed to “animals” by moral exceptionalism, the possession of a “soul,” or the attribution of consciousness (Gross 2012:2-3).

The common opposition of human culture versus the natural world is itself a Western construct (Ingold 1996; 2012). In direct contrast, the Maya worldview—as established by archaeological interpretation, ethnohistory, and ethnography—does not draw a hard line between people and other animals. Rather, as will be discussed further in Chapter 6, humans and animals are equally integrated into ideas about how the natural world itself is organized. In a world that rests on the back of a turtle, under the Milky Way that is itself a giant lizard, and in a realm of understanding that sees humans linked by the essence of their humanity—their souls—to living animals, the two are inextricably linked (Foster 2002; Freidel et al. 1993; Taube 1989).

Despite its shortcomings, the (Western) human-animal opposition still has heuristic utility. It is a lens rather than a philosophical statement with a distinct truth value, a method of categorization rather than absolute definition. For purposes of this dissertation, humans are defined as belonging to the species *Homo sapiens*, while animals are creatures of other species. I use this binary because the archaeological data can itself be identified as the remains or products of *Homo sapiens* versus the remains or products of non-human agents. The goal of this dissertation is to illuminate some of the ways in which the ancient Maya interpreted this
connection, through analysis of animal remains and the human products of ideological and economic non-human animal consumption.

3.1.1 Anthropological Perspectives on Human-Animal Relations
Human-animal relations have been subject to anthropological focus since the discipline’s inception. Anthropology has approached human-animal relations in two major ways: as natural/economic resources and as symbolic resources (Shanklin 1985). As economic resources, animals provide the raw materials for subsistence and the production of certain goods. As symbolic resources, they are intertwined with religion, aesthetics, and ideology. Anthropology thus examines the ways in which animal resources operate in ordinary production and extraordinary ritual activities.

3.2 Practical and Ritual Activities
The artifacts, ecofacts, and features that are subject to archaeological analysis are the physical products of individuals operating within a particular cultural framework. It is through these media that ancient life in all its complexity becomes accessible. Followers of modern Western ontology have an easier time interpreting aspects of the human experience that follow clear cause-and-effect relationships (e.g. field terracing to improve agricultural production). Behaviors where the intended effects are less clearly and physically related are less directly interpretable (e.g. rituals to petition deities for agricultural success) (Bell 1992; Brück 1999). In archaeological and broader anthropological discourse, the difference between these two realms of activity is often conceptualized as practical (also referred to as non-ritual, base, mundane, quotidian, secular, or “rational”) versus ritual action.

Anthropology has long struggled with the definition of ritual, the purposes served by ritual activity, and whether or not it even has validity as an analytical category (see Bell 1992;
Bell and Aslan 2009:23-60). A major source of difficulty is the recognition that division between practical and ritual activities is not universally held among human groups (Bell 1992; Goody 1961, 1977; Moore and Myerhoff 1977:23). The difficulty of defining what constitutes ritual versus non-ritual has led some scholars to eschew the term completely (e.g. Goody 1961, 1977). In the attempt to explain why a material signature exists in the archaeological record, ritual often serves as a “catch-all designation for anything which defies a crudely utilitarian explanation” (Richards and Thomas 1984:189) or an “all-purpose explanation used where nothing else comes to mind” (Bahn 1989:62). There is no consensus as to what ritual is in archaeological terms, though there have been several attempts to determine its physical signatures (e.g. Renfrew 1994; Renfrew and Bahn 2000:405-407; Richards and Thomas 1984). In these models, ritual behaviors differ significantly from the activities of everyday life, and their anomalous nature identifies them as such. However, the use of anomaly to identify ritual itself presents significant problems, among them the question of what is considered anomalous (Gazin-Schwartz 2001). The definition of ritual spaces requires that scholars make assumptions about systems of value and the sacred. Despite these valid criticisms, the practical/ritual dichotomy remains a useful construct for examining human action by identifying those aspects of behavior whose motive defies modern Western rationalism.

In the context of human-animal relations, practical behavior refers to the everyday utilization of animals and their products for subsistence, craftable materials, and labor. Ritual, on the other hand, refers to those instances in which humans use animals (either material creatures or conceptualizations) to achieve culturally defined ends. This includes the use of animals as symbols as well as those situations in which animals are used to effect change according to a belief system not supported by modern Western rationalism. Gazin-Schwartz (2001:268)
articulates the distinction as follows: “Ritual actions are distinguished from habitual ones to the extent that they have the effect of connecting a person with something—gods, spirits, or society—beyond the physical and concrete world of the individual.” The remains of ritual activity serve as “materialized ideology” (DeMarrais 1996). In so doing, they allow the outsider archaeologist to investigate aspects of human experience that otherwise defy preservation.

3.2.1 Ritual Economy
The concept of ritual economy seeks to examine the ways in which ritual concerns affect economic behavior. This theoretical approach was developed in two volumes edited by Wells and Davis-Salazar (2007a) and Wells and McAnany (2008). It addresses the ways in which ritual serves as the materialization of ideology (DeMarrais et al. 1996; Kovacevich 2007). As defined by McAnany and Wells (2008:1), ritual economy refers to the “process of provisioning and consuming that materializes and substantiates worldview for managing meaning and shaping interpretation.” This definition acknowledges the link between economy, social structure, and political and sacred authority (McAnany 2008; Spielmann 2007). A ritual-economic perspective interrogates the ways in which material requirements for ritual behaviors impact the movement and value of resources in an economic system.

In this framework, the economic control and choice of material objects, including animal carcasses or animal imagery, is used to strengthen the efficacy of ritual acts (Wells and Davis-Salazar 2007b). A ritual-economic approach thus permits insight into how people thought about animals through the archaeologically visible, material expression of these ideas. It is one way of approaching the “how” and “why” behind the use of animals and their representations.
3.3 The Archaeology of Human-Animal Relations
The archaeological study of human-animal relations has built upon the theoretical frameworks established in broader anthropological discourse and uses three main tools for investigating the human-animal relationship: zooarchaeology, iconographic analysis, and ethnoarchaeology. Zooarchaeology provides the evidence for the physical presence and utilization of animals. Iconographic analysis is the reading and interpretation of imagery, including the choice, methods of representation, composition, and style of how particular subjects are portrayed, as well as the medium in which they are depicted. These artistic choices inform the assessment of how individual artists working within a particular cultural framework thought about the animals they portrayed (Morphy 1989). The combination of iconography and zooarchaeology has been fruitfully applied to interpretations of animal assemblages in a number of areas including the Caribbean (Cooke 1984; Cooke et al. 2008) and West Asia (Russell and McGowan 2003) to elucidate the ways in which animals functioned in culturally specific expressions of economy and ritual. The interpretation of zooarchaeological and iconographic data may be usefully informed by reference to the ethnographic record of modern and historic populations, including modern ethnographies and ethnohistory of descendant communities as well as targeted ethnoarchaeological research to determine how current behaviors may be reflected in the archaeological record. In the Maya area, this includes research among modern Maya communities (e.g. Blaffer 1972; Bricker 1973; Bunzel 1952; Hunn 1977; La Farge 1931, 1947; Redfield and Villa Rojas 1971; Roys 1965; Steggerda 1941; Villa Rojas 1945; Vogt 1969, 1970, 1976; Wisdom 1940) and Contact and Colonial period records (e.g. Roys 1972; Tozzer 1941).

Caution is required when interpreting ritual deposits. Equality of meaning between representations and physical animals is often assumed, but this conflation of signifier and
signified is problematic at multiple levels (Boivin 2009). Animals are fundamentally different from representations in terms of their origins, acquisition, physical characteristics, and animacy. Conflation ignores the fact that animals may operate as agents as well as objects (Larsson 1990) and the ways in which systems of representation express and encode messages about how animals were understood (Morphy 1989). Determining the ways in which fauna and faunal representations were deployed within specific contexts is therefore critical to understanding the nuances of how animal symbolism operated.

3.4 Ancient Maya Animal Use: Archaeological Perspectives
Animals served the ancient Maya as both physical and ideological resources. This is amply attested by zooarchaeology and iconography and supported by ethnographic analogy and historical accounts.

3.4.1 Subsistence
Like other inhabitants of the pre-Columbian Americas, the ancient Maya had few domesticated animals, and faunal utilization was largely dependent upon what was available in the local environment or through trade. Seasonal and temporal variations of faunal availability as well as social status provide especially useful insights into the functioning of local economy (Emery 2003; Pohl 1990). The sole domesticated mammal of the Maya, the dog (*Canis familiaris*), was both consumed and used as a hunting aid. It contributed most significantly to diet during the Preclassic at sites such as Cuello (Clutton-Brock and Hammond 1994). The majority of animal foods consumed were from wild resources, and wild taxa dominate most faunal assemblages. Deer (Cervidae, especially *Odocoileus virginianus*) are found throughout the Maya area and were particularly desirable game (2004b). The utilization of fauna with more restricted habitats varied with their availability. At coastal sites such as Champotón, Xcambó, and Cozumel, marine
resources including sea turtles, fish, and mollusks were important to local subsistence (Götz 2008; Hamblin 1984). Cuello, the Petexbatún region, and other areas along Lowland river corridors demonstrate wide exploitation of freshwater turtles and mollusks (Carr and Fradkin 2008; Emery 1997, 2004a). Previous studies in south and central Petén demonstrate frequent reliance on freshwater turtle and local forest taxa such as deer, peccary (Tayassuidae), and ocellated turkey (Meleagris ocellata) (Pohl 1990). My preliminary research in an elite household group at El Perú suggests reliance on similar taxa, but with a notable abundance of brocket deer (Mazama sp.) (Fridberg 2010a, 2010b). Further work is necessary to fully understand how environment affected the nuances of animal exploitation in particular areas.

Although local availability greatly influenced faunal utilization, zooarchaeologists have demonstrated that the sourcing of animal products was not strictly local. The ancient Maya transported marine shells and fish inland to Petén and elsewhere (McKillop 2002:20). Deer or deer remains were also imported by Cozumel Island inhabitants from the mainland (Hamblin 1984). Long-distance inland trade of deer and peccary also occurred, as evidenced by isotopic studies (Freiwald 2010; Thornton 2011). These trade routes linked to others in northwestern Petén, including a major overland route through El Perú and La Corona (Freidel et al. 2007).

Consumption of animal protein varied due to geographic availability, temporal context, and along social lines. In general terms, gallinaceous birds (i.e. turkeys) and larger-bodied mammals such as deer and peccary are associated with higher status consumption relative to smaller-bodied birds and mammals (Collins 2002:284).

3.4.2 Crafting
In addition to meat, animals provided the raw materials for various crafting endeavors, including the use of bone, teeth, antler, and shell for production of tools and ornaments (Emery 2001,
2008, 2009; Emery and Ayoama 2007; Moholy-Nagy 1985a; Trubitt 2003). Conch shell trumpets, turtle carapace drums, and antler drumsticks were used as musical instruments (Landa 1941:49). The use of soft-tissue products, including pelts, hides, and feathers, is indicated by iconographic representations, lithic wear studies, and abundant ethnographic analogy (e.g. Aldenderfer et al. 1989; Spinden 1975 [1913]).

3.4.3 Ritual Use
In societies worldwide, the environment serves as a conceptual model for the interpretation of natural phenomena, human society, and individual identity. Humans categorize themselves in part by referencing the natural world, and humans categorize animals in part by referencing their own social world (Douglas 1990; Lévi-Strauss 1963). The ways in which people think about themselves, animals, and the larger world are thus closely and recursively linked.

For the ancient Maya, the origins, organization, and operation of the universe itself depended upon animals. The gods were accompanied by animals or took on their physical attributes, and the story of creation said that the universe itself emerged from the back of a cosmic reptile (Pugh 2001; Taube 1989). Likewise, human society was conceptualized and categorized using faunal references. The emblem glyph for Classic period El Perú contains a centipede, indicating that the site was the “centipede kingdom” (Guenter 2007). Similarly, the names of rulers often referenced animals, such as Sun-faced Dog (K’inich Yook), a king of La Corona (Guenter 2005), perhaps referencing their animal spirit companions (wayob) (Grube and Nahm 1994; Houston and Stuart 1989). The connection of particular dynasties and their associated polities with animal-based emblem glyphs suggests that residents of Calakmul, the Classic period home to the Snake (Kaanal) Dynasty, likely had a different ideological relationship to snakes than people from other sites (Stuart and Houston 1994). Similarly, the
scarlet macaw (*Ara macao*), a symbol of divine kingship from the Preclassic through Postclassic, is native to Petén and was most emphasized symbolically in the Lowlands (Freidel 2008; Kappelman 1997). Many animal associations were widespread in the Maya area, but there is also evidence of variability within the region.

Faunal references in ritual activity include offerings, ceremonial attire, and consumed foods. In the Maya area, ritual deposits include the deliberate interment of valued and agentive objects, as in the case of caches and burials, as well as the refuse generated by ceremonial activities including feasts, and the dedication and termination of structures (Chase and Chase 1998; Kunen et al. 2002; Mock 1998). Remains and depictions associated with monuments (e.g. Altar Q at Copan [Fash 1991]) and tombs (e.g. Burial 1 at Tikal [Wright 2005]) demonstrate the importance of animal symbolism in royal ceremonial performances.

Zooarchaeological indicators of group and personal identity include status-restricted animal products such as marine shell prestige items (Trubitt 2003) and use of stingray spines and shells to mark gender (Joralemon 1974; Miller 1974). The inclusion of deer long bones in the burials of women at have also been suggested as indicators of female identity (Ardren 2002). Context-specific analyses are necessary to determine how such practices operated across time and space.

### 3.4.4 Feasting: Intersection of Subsistence and Ritual

Feasting is one act particularly well suited to ritual-economic analysis that can be used to investigate all levels of society. As a form of ritualized subsistence, feasts involve sharing of food and/or drink to mark a particular occasion (Dietler and Hayden 2001; Hayden 2001). They operate to foster social unity as well as reinforce social differentiation, often simultaneously (Blitz 1993; LeCount 2001). As a point of intersection between subsistence and ritual, feasts
offer valuable insight into economy and ceremony as part of a singular event in which animals play vital roles.

The subsistence and ritual functions of animals often overlap. The Maya consumed deer, dogs, turtles, and mollusks as part of ordinary as well as ritualized subsistence, but these creatures also feature in supernatural iconography and purely ritual contexts (Moholy-Nagy 1985a, 1985b; Pohl 1981, 1983). Ideological and subsistence consumption are both assumed in the context of feasting. When viewed in light of ritual activity, the animals that appear on the menu should be assessed as conscious choices made to further the goals and messages of the feast. In Chapter 4 I discuss a well-defined feasting context from La Corona where the seemingly anomalous presence of opossums offers insight into dietary choice and provides a suggestion for why the event itself took place.

3.5 Presentation of Data
Determining the utility of animals requires a consideration of how they function simultaneously as physical and ideological resources within a cultural framework. This is especially apparent in ritual contexts, where remains serve as materialized ideology and represent the emic logic of the culture in question. A ritual economic perspective examines the multiple values animals can hold, both material and metaphysical.

The central goal of this research is to contribute to a holistic assessment of animal resource value. In Chapters 4 and 5, I investigate two discrete archaeological contexts at El Perú and La Corona and assess their faunal assemblages in order to explain the depositional context and interpret the zooarchaeological data in light of projected practical and ritual concerns. In Chapter 6 I expand my analysis to the broader Maya culture area and examine the potential practical and ideological values of a subset of the animal kingdom, commensal mammals. In
Chapter 7, I interpret the data presented in Chapters 4, 5, and 6 in light of a ritual-economic perspective.

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Chapter 4: Late Classic Maya Feasting at La Corona, Guatemala

Feasts, the sharing of food and drink to mark a particular occasion, are a form of extra-ordinary subsistence in which surplus food is transformed into social capital (Dietler and Hayden 2001a; Hayden 2001). When definably representative of singular events, feasting deposits offer the opportunity to closely analyze discrete moments in time. They present the remnants of one particular multifaceted activity, and in so doing offer insight into the lived experiences of the participants. Who they were, what they ate, and what other behaviors accompanied the festal meal may all be assessed through the analysis of a single well-defined feasting deposit. Although based on the essential and daily biological functions of eating and drinking, feasts are ritual activities used to transmit cultural messages and communicate, maintain, and manipulate social relationships (Dietler 2001; Hayden 2001). Feasts may be held for diverse reasons by groups of varying size, linked by any number of political, religious, biosocial, or other cultural facets that bind together social units (Dietler 1996; Hayden 1996; Potter 2000). Despite this variability, feasts are united by their role in expressing social order, whether through fostering unity or reinforcing differentiation (Blitz 1993; Dietler 1996; Gero 2003; LeCount 2001).

Because the middens generated by feasts may be difficult to distinguish from material remains associated with non-ritual subsistence, caution is necessary when defining them in the archaeological record. Feasting is often identified through a combination of ceramic, faunal, and spatial data that when combined, suggest ritual, rather than ordinary, consumption. Across the Maya region, ethnographic, ethnohistoric, and archaeological sources suggest a multitude of reasons for ancient feasting and forms in which it may have taken place. However, there are relatively few archaeologically defined feasting contexts, yet each provides insight into one
particular moment of ritualized consumption (e.g. Brown 2001; Dahlin et al. 2010; Eppich 2009; Goldstein and Hageman 2010; LeCount 2001). Feasting therefore remains a relatively underexamined field of study, one that offers a unique perspective on the intersection of ordinary and ritual life among the ancient Maya.

This paper discusses a feasting deposit excavated from a chultun in the site core of La Corona, Petén, Guatemala, during the 2010 field season (Fernández 2011). This sealed context contained abundant ceramic and faunal indicators of a single ritual consumption event of short duration. I focus on the zooarchaeological remains, which offer insight into the menu of one Late Classic feast and suggest that typical conclusions about elite festal cuisine are overly simplistic. The determinants of festival meals cannot be based solely upon presumed food preference; rather, the ideological values connected to foods also affected their choice. The presence of opossums, animals not typically considered part of high-status consumption, suggests that the feast have been performed in order to acknowledge a calendric event.

4.1 Feasts in the Maya World
Feasting is well documented among the ancient, historic, and modern Maya in ethnographic and ethnohistoric sources. Bishop Diego de Landa’s descriptions of feasts in Yucatán demonstrate the diversity of occasions when feasting occurred during the Contact period (Tozzer 1941). The ritual collection of food offerings was an important part of many rites designed to honor gods and mark the passage of time; at their conclusion, the gathered food and drink were consumed. Feasting was also used to mark social occasions such as marriages, regardless of social status – both elites and commoners held feasts to celebrate them (Tozzer 1941:92). Communal consumption, as described by Landa, engaged individuals of all social strata in a well-established pattern of obligatory, reciprocal hospitality (Hendon 2003:205; Mauss 1990; Tozzer 1940:92).
Feasts were also used to further the political goals of elites, who used food sharing as well as the redistributional gift-giving that accompanied some such meals to establish and reaffirm social inequality (Hendon 2003:205; Tozzer 1941:92).

The consumption of food and drink is likewise a common component of more recent Maya ritual events. Bunzel (1952:45) mentions that among the Quiché of Chichicastenango, “The partaking of food marks every ceremonial or formal occasion.” Likewise, Vogt (1969:574-5) reports that, among the Tzotzil-speaking Maya of Zinacantán, “For ritual occasion there is always a ‘meal on a table’ which follows a carefully prescribed format.” Opportunities for feasting are regular and diverse: feasting is documented in ceremonies commemorating individual life transitions including baptism, marriage, and death among Tzotzil, Yucatec, Quiché, Chorti, and Kanjobal-speaking Maya groups (Bunzel 1952:153; Christenson 2010; La Farge 1947:43, 46; Redfield 1941:125, 218, 224; Vogt 1970:64, 70, 76, 1976:21-22; Wisdom 1940:291-2, 299-230, 305-6). This echoes a worldwide trend of feasting to mark such rites de passage (e.g. Dietler and Hayden 2001b; Nelson 2003; Pollock 2003; van Gennep 1960).

Consumption of food or drink also accompanies Maya ceremonies used for curing disease (Vogt 1970: 94, 96; 1976:80). The consumption of food offerings during these rites is a crucial component of their efficacy because the body of the petitioner is linked to these supernatural forces through the physical ingestion of an offering to gods or ancestors (Christenson 2010:578). Feasting is also used to mark special occasions at the group level, including communal celebrations marking the passage of time and the agricultural cycle (Vogt 1970:98-99, 1976:42, 55; Wisdom 1940:445). Preparation for public festivals is a collective effort and may involve the labor of children as well as adults (Redfield 1941:176; Wells 2007).
Despite the considerable passage of time between the Classic period and the present and the influence of religious syncretism, there is reason to believe that some aspects of modern Maya feasting may extend into the ancient past. Modern festivals in Maya communities are frequently associated with Christianity or a syncretic amalgam of Christian and indigenous beliefs and practices, but other rituals, such as those pertaining to the Mayan calendar, have no clear correlation those in the Christian liturgical calendar. Feasting rituals pertaining to the passage of time and the agricultural cycle are documented from the earliest days of the Colonial period and are particularly likely to reflect ancient practice. The Yucatec Maya *ch’a’ chaak* ceremony, for instance, is a communal festival to petition for rain and agricultural success that has material parallels in the archaeological record (Anderson 2010; Suhler et al. 1998). Another event, the *cuch* ritual, has been identified in the iconographic corpus of the Classic period as well as in modern ethnographic practice (Pohl 1981). Beyond those materials that seem to correspond to known feasting occasions, images on ceramic vessels repeatedly show individuals engaged in consumption, performance, and the exchange of commodities in association with feasting (Reents-Budet 2000).

### 4.1.1 Archaeological Signatures of Maya Feasts

Archaeological identification of feasting activities is based upon the presence and patterning of specific material correlates. Hayden (2001: Table 2.1) offers the following indicators: food remains; vessels for the preparation and serving of food; facilities for preparation, storage, and consumption; prestige, performance, and ritual items; recordkeeping devices; and pictorial or written records of feasts. Although none of these is by itself indicative of a festal event, their juxtaposition, especially if several different items are present, suggests feasting. These signatures are also often associated with special locations outside of the normal, household environments.
used for consumption activities, such as public spaces. Archaeological feasts in the Maya area have been identified by reference to such criteria (e.g. Brown 2001; Eppich 2009; Goldstein and Hageman 2010; LeCount 2001).

In the Maya area, most feasts are identified at least in part by the co-occurrence of serving vessels with food remains, especially when refuse is abundant. Small vessels used for individual consumption and large pots used for cooking and food preparation were likely involved in feasting as well, but servingware used for the presentation of large quantities of food are a better indicator of large-scale consumption (Blitz 1993; Goldstein and Hageman 2010; Hayden 2001; LeCount 2001). Maya serving wares include large and/or decorated plates and bowls (Hendon 2003:217). Other wares indicative of festive foods include cylinder vessels and other forms of chocolate pots used in the preparation and consumption of cacao (LeCount 2001). Ceramic indicators of non-consumption activities involved with feasting rituals may also include materials such as incensarios, drums, figurines, and whistles (Eppich 2009; Hendon 2003:217).

4.2 La Corona, CR16B-1A
La Corona is a modestly sized site that was occupied from the Early through Terminal Classic periods (ca. 300-850 CE) (Barrientos and Canuto 2009). La Corona is located on several major trade routes and was once thought to have been a garrison; however, ongoing excavations suggest that the site was an unspecialized settlement similar to others in the Petén region, albeit one of unusual affluence (Baron 2013:17; Barrientos and Canuto 2009). The site is organized around two main ceremonial plazas; the focus of the eastern ceremonial plaza is the Coronitas Group, home to a north-south arrangement of five small temples that inspired the site’s name (Graham 1997; Marken 2009, 2010). To the north of the Coronitas temples is Structure 13R-10 (Figure 4.1), a residential structure located atop a large patio platform and associated with
smaller buildings that may have served auxiliary or residential functions (Baron 2013:249). During the Classic period, Hieroglyphic Stairway 2 and La Corona Panel 6 (the Dallas Panel) were placed just south of Str. 13R-10. This series of monuments record important moments in the history of La Corona and its ruling dynasty and relates them to the long-term calendric cycle (Ponce Stokvis 2013).

Figure 4.1 Excavation map of Structure 13R-10 and its surroundings, showing location of chultun CR16B-1A. Map by Victor Orellana and Maxime Lamoureux-St. Hilaire. Image courtesy of the La Corona Regional Archaeological Project.
The CR16B-1A chultun was discovered in 2010 during excavations to define architectural phases and assess the function of Structure 13R-10 (Figure 4.1). The chultun was located 1.45 m below the surface on the “back” (north) side of the structure and covered by a layer of humus as well as large stones, mortar, ceramics, and stucco fragments with remnants of red paint from an apparent structural collapse (Fernández 2011:296). The chultun was discovered intact beneath a layer of tamped earth. It was first visible as a round aperture that broadened with increasing depth and contained dense, visually homogenous cultural material (Fernández 2011; Parris 2014). Excavation proceeded in twelve arbitrary 20 cm levels (Lots 5-1 through 5-12), extending to a depth of 2.53 m (Figure 4.2). Materials were recovered using ¼” screen and sorted in the field for analysis by project specialists.

Figure 4.2 Profile of the CR16B-1A chultun. Image courtesy Caroline Parris and the La Corona Regional Archaeological Project.
4.3 Materials Analysis
Paleoethnobotanical analysis of plant remains recovered by Clarissa Cagnato from the chultun revealed the presence of a variety of potential food plants, including maize and legumes (Fridberg and Cagnato 2012). The chultun also contained seeds from the family Amaranthaceae, including amaranth (genus *Amaranthus*) and goosefoot (genus *Chenopodium*), the fruits of which can be used as pseudo-cereals. Seeds from the nightshade family (Solanaceae) may represent edible varieties including tomatoes (*Solanum lycopersicum*) and chiles (genus *Capsicum*) (Fridberg and Cagnato 2012). The paleoethnobotanical remains in sum overwhelmingly correspond to edible taxa, supporting the conclusion that the chultun represents the remains of a consumption event.

A total of 31 mollusk shells and shell fragments were also recovered (Table 4.1). Identification of mollusks was performed with the assistance of malacologists Gabriella Palomo and Lucia Prado. Both Gastropoda (snails) and Bivalvia (hinged mollusks) were present, and both marine and freshwater taxa were represented. Neogastropoda including Olividae (olive snails) are marine taxa, while *Pomacea flagellata* (apple snails) and Unionidae (freshwater mussels) are locally available freshwater taxa. The shells are unmodified with the exception of one polished, perforated, and cut olive snail shell. These remains likely represent both consumption of mollusks and the use of shells for decoration and as prestige items.
Ceramic analysis was performed by Caroline Parris to identify the types and forms of vessels included in the chultun. The assemblage contained a total of 5,887 sherds corresponding to the Cambio unslipped, Tinaja and Azote monochrome red, Infierno monochrome black, Saxche-Palmar orange and Zacatel cream polychrome, and Chablekal fine gray groups (Parris 2014; Smith and Gifford 1966). These wares were primarily dishes, plates, jars, and other vessels associated with the processing and consumption of food. Parris identified refits throughout the deposit, sometimes separated by multiple 20 cm lots, including several that were possible between three or more (Figure 4.3). Parris interpreted this pattern as indicative of pre-depositional breakage and mixing (Parris 2014).
Figure 4.3 CR16B-1A ceramic refit 71, a large polychrome plate
Photograph and color-coding by Caroline Parris. Image courtesy of Caroline Parris and the La Corona Regional Archaeological Project.
In addition to vessels, the ceramic assemblage includes fragments of an ocarina, a hand drum, and eight figurines and whistles, most of which reference animals. The ocarina bears remnants of an attached zoomorphic head, although identification was hindered by the partial preservation of the instrument. Other identifiable zoomorphic figurine and whistle forms include a seated monkey with remnants of blue paint, two owls, a body fragment, perhaps of a quadruped, and a burned zoomorphic head with an elongated snout (Figure 4.4). Three of the figurine/whistles are anthropomorphic, two of which wear large feather headdresses with zoomorphic masks. The most complete of these shows a seated figure that is probably female, based on the hair-like extensions below the ear flares and the robe-like garment (Figure 4.5).
Ceramic typology places the feasting event during the Late Classic (Tepeu 2) period (ca. 700–850 CE) due to the presence of Chablekal fine gray and its Chicxulub incised variety (Smith and Gifford 1966). Chablekal fine gray does not appear in the Petén region until the mid-eighth century CE, which suggests that deposition occurred in the latter part of this range (Forné 2006:129). The Late Classic date is further supported by accelerator mass spectrometry analysis of two organic carbon samples from the chultun. Samples of wood charcoal from Lots 7 and 10 date to 775–852 cal. CE ($p = 0.95$) (C. Cagnato, personal communication 2014; calibrated at 2σ
using OxCal v. 4.2 [Bronk Ramsey 2009] and the IntCal 13 curve [Reimer et al. 2013]). This is consistent with the style and typology of recovered ceramics.

In their analysis of the chultun’s obsidian materials, Andrieu and Roche (2015) identified 67 secondary flakes pertaining to one core. Because some of the flakes were very small, they argue that the obsidian was worked nearby and debitage carefully deposited into the chultun. They suggest this is evidence of ritualized lithic production seen elsewhere in the Maya world (Hruby 2007).

Materials recovered from the CR16B-1A chultun include food remains, prestige items, and ceramics consistent with ritual consumption of food. I performed faunal analysis in 2011–2012 in order to determine taxonomic representation and assess the possible roles of animals at this event, both as foods and as other resources. The results of this analysis are presented below.

### 4.4 Zooarchaeological Methods

I analyzed the zooarchaeological remains from CR16B-1A at the PRALC laboratory in Guatemala City and the zooarchaeology laboratory at Washington University in St. Louis following standard procedures (Reitz and Wing 2008). After removal of surface matrix by dry brushing, I identified skeletal element and taxon using published and unpublished reference photographs and drawings (e.g. Environmental Archaeology Program, Florida Museum of Natural History 2003; Gilbert 1990; Gilbert et al. 1996; Olsen 1964, 1968, 1982) as well as direct resemblance to comparative materials. A preliminary report of findings was submitted as part of the La Corona project informe (Fridberg 2012). Selected materials were exported for analysis at the zooarchaeology laboratory at Washington University in St. Louis in 2011, which are included in the present assessment. All specimens were weighed and measured for maximum dimension. Refits of anciently fragmented elements were attempted within lots, often with
success. Minimum number of elements (MNE) and minimum number of individuals (MNI) were calculated for the entire unit as a whole rather than on a lot-by-lot basis.

4.5 Zooarchaeological Results
CR16B-1A contained 1,139 specimens of vertebrate remains, the majority of which were identifiable to the class level (Table 4.2). The remains are predominantly those of mammals. The next best represented class is ray-finned bony fish (Actinopterygii). Many specimens were sufficiently well preserved to identify to element even when further taxonomic identification was not possible. Minimal quantities of remains from amphibians, reptiles, and birds were also recovered. The full results are detailed in the following table.

<table>
<thead>
<tr>
<th>Taxon</th>
<th>NISP</th>
<th>% NISP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish (Actinopterygii)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perciformes</td>
<td>11</td>
<td>0.97%</td>
</tr>
<tr>
<td>Cichlidae</td>
<td>6</td>
<td>0.53%</td>
</tr>
<tr>
<td>Fish (indet.)</td>
<td>136</td>
<td>11.94%</td>
</tr>
<tr>
<td>Total Fish</td>
<td>153</td>
<td>13.43%</td>
</tr>
<tr>
<td>Amphibia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anura</td>
<td>18</td>
<td>1.58%</td>
</tr>
<tr>
<td>Total Amphibian</td>
<td>18</td>
<td>1.58%</td>
</tr>
<tr>
<td>Reptilia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Testudines</td>
<td>27</td>
<td>2.37%</td>
</tr>
<tr>
<td>cf. Testudines</td>
<td>2</td>
<td>0.18%</td>
</tr>
<tr>
<td>Total Reptile</td>
<td>29</td>
<td>2.55%</td>
</tr>
<tr>
<td>Aves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aves cf. Galliformes</td>
<td>4</td>
<td>0.35%</td>
</tr>
<tr>
<td>Aves (indet large)</td>
<td>2</td>
<td>0.18%</td>
</tr>
<tr>
<td>Total Bird</td>
<td>6</td>
<td>0.53%</td>
</tr>
</tbody>
</table>

Continued, next page.
Table 4.2, continued

<table>
<thead>
<tr>
<th>Taxon</th>
<th>NISP</th>
<th>% NISP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mammalia</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Didelphimorphia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Didelphidae</td>
<td>38</td>
<td>3.34%</td>
</tr>
<tr>
<td>Didelphis sp.</td>
<td>3</td>
<td>0.26%</td>
</tr>
<tr>
<td>cf. Didelphidae</td>
<td>5</td>
<td>0.44%</td>
</tr>
<tr>
<td>Total Didelphiform</td>
<td>46</td>
<td>4.04%</td>
</tr>
<tr>
<td><strong>Carnivora</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canidae</td>
<td>10</td>
<td>0.88%</td>
</tr>
<tr>
<td>C. familiaris</td>
<td>92</td>
<td>8.08%</td>
</tr>
<tr>
<td>cf. C. familiaris</td>
<td>100</td>
<td>8.78%</td>
</tr>
<tr>
<td>Total Caniform</td>
<td>202</td>
<td>17.73%</td>
</tr>
<tr>
<td><strong>Artiodactyla</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cervidae</td>
<td>4</td>
<td>0.35%</td>
</tr>
<tr>
<td>O. virginianus</td>
<td>33</td>
<td>2.90%</td>
</tr>
<tr>
<td>Total Deer</td>
<td>37</td>
<td>3.25%</td>
</tr>
<tr>
<td><strong>Unidentified Mammal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>237</td>
<td>20.81%</td>
</tr>
<tr>
<td>Medium-Large</td>
<td>27</td>
<td>2.37%</td>
</tr>
<tr>
<td>Large</td>
<td>18</td>
<td>1.58%</td>
</tr>
<tr>
<td>Indet.</td>
<td>194</td>
<td>17.03%</td>
</tr>
<tr>
<td>Total Unidentified Mammal</td>
<td>476</td>
<td>41.79%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mammal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Identified</td>
<td>172</td>
<td>15.10%</td>
</tr>
<tr>
<td>Total</td>
<td>1139</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Table 4.3 Identifiability of vertebrate remains, CR16B-1A

<table>
<thead>
<tr>
<th>Level</th>
<th>NISP</th>
<th>% NISP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximal</td>
<td>655</td>
<td>57.5%</td>
</tr>
<tr>
<td>Minimal</td>
<td>263</td>
<td>23.1%</td>
</tr>
<tr>
<td>Not Identified</td>
<td>221</td>
<td>19.4%</td>
</tr>
<tr>
<td>Total</td>
<td>1159</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 4.4 Identifiability of mammalian remains, CR16B-1A

<table>
<thead>
<tr>
<th>Level</th>
<th>NISP</th>
<th>% NISP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximal</td>
<td>501</td>
<td>65.8%</td>
</tr>
<tr>
<td>Minimal</td>
<td>222</td>
<td>29.2%</td>
</tr>
<tr>
<td>Not Identified</td>
<td>38</td>
<td>5.0%</td>
</tr>
<tr>
<td>Total</td>
<td>761</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
Mammals account for the majority of faunal remains identifiable to class level (NISP=761), the bulk of which were not identifiable to taxon due to fragmentation, though many were sufficiently well preserved to identify to element (Tables 4.3 and 4.4). Many of the bones identifiable solely to class Mammalia are of the “medium” size category. For purposes here, small refers to animals such as small rodents (mice, rats, squirrels), medium to animals including Didelphimorphia (opossums) and most Carnivora (e.g. raccoons, dogs), and large to Artiodactyla (peccaries, deer), large felids (jaguars, pumas), as well as humans. A large portion of mammalian remains could not be identified beyond size class, due in part to high mammalian diversity in the region and an absence of distinctive bone landmarks, though good preservation resulted in high proportions of specimens identifiable to element (Table 4.5). Further identification to taxon may be possible at a later date with reference to a comprehensive skeletal collection for direct comparison. It should be noted that the mammalian remains lacking taxonomic identification are consistent in size and morphology with the mammalian taxa that could be definitively identified.
Table 4.5 Body part representation, unidentified medium mammal, CR16B-1A

<table>
<thead>
<tr>
<th>Element</th>
<th>NISP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cranium</td>
<td>10</td>
</tr>
<tr>
<td>Teeth</td>
<td>14</td>
</tr>
<tr>
<td>Vertebra</td>
<td>65</td>
</tr>
<tr>
<td>Scapula</td>
<td>7</td>
</tr>
<tr>
<td>Sternum</td>
<td>1</td>
</tr>
<tr>
<td>Rib</td>
<td>78</td>
</tr>
<tr>
<td>Humerus</td>
<td>1</td>
</tr>
<tr>
<td>Ulna</td>
<td>7</td>
</tr>
<tr>
<td>Radius</td>
<td>6</td>
</tr>
<tr>
<td>Pelvis</td>
<td>8</td>
</tr>
<tr>
<td>Femur</td>
<td>1</td>
</tr>
<tr>
<td>Patella</td>
<td>1</td>
</tr>
<tr>
<td>Tibia</td>
<td>3</td>
</tr>
<tr>
<td>Metapodial</td>
<td>12</td>
</tr>
<tr>
<td>Phalanx</td>
<td>13</td>
</tr>
<tr>
<td>Long bone</td>
<td>2</td>
</tr>
<tr>
<td>Not Identified</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>237</strong></td>
</tr>
</tbody>
</table>

Opossums, dogs, and deer were identified to taxon. A total of 41 specimens were identified as opossum (Didelphidae) (Table 4.6). Two individuals (MNI= 2) were present based on duplication of the mandible (2L/2R) and femur (1L/2R). Fifty specimens were identified as domestic dog (*Canis familiaris*), with an additional 22 specimens suggestive of dog (cf. *C. familiaris*) (Table 4.7). These remains represent a minimum of four individuals (MNI= 4), calculated by duplication of the mandible (3L/4R). Two of the individuals were young juveniles from different litters based on the different stages of dental eruption. A total of 37 specimens of deer (Cervidae) remains were recovered, the majority of which correspond to white-tailed deer (*Odocoileus virginianus*) (Table 4.8). A minimum of three white-tailed deer are represented (MNI= 3), calculated using duplication of the right radius, right femur, and left astragalus. Little modification is visible on white-tailed deer remains, although there is some evidence of
processing. Cut marks consistent with butchery are present on two astragali, and an isolated cut mark is present on the midshaft of a right femur. Evidence of burning is also present on four specimens (two humeri, two radii).

Table 4.6 Didelphiform body part representation, CR16B-1A

<table>
<thead>
<tr>
<th>Element</th>
<th>Didelphidae</th>
<th>Didelphis sp.</th>
<th>cf. Didelphidae</th>
<th>Total NISP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cranium</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Vertebra- Atlas</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Vertebra- Axis</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Vertebra- Cervical</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Maxilla</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Mandible</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Molar</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Scapula</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Humerus</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Radius</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Ulna</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Pelvis</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Epipubic</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Sacrum</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Femur</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Tibia</td>
<td>2</td>
<td>-</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Fibula</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Phalanges</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>38</strong></td>
<td><strong>3</strong></td>
<td><strong>5</strong></td>
<td><strong>46</strong></td>
</tr>
<tr>
<td>Element</td>
<td>Taxon NISP</td>
<td>C. familiaris</td>
<td>Canidae</td>
<td>cf. C. familiaris</td>
</tr>
<tr>
<td>------------------</td>
<td>------------</td>
<td>---------------</td>
<td>---------</td>
<td>------------------</td>
</tr>
<tr>
<td>Maxilla</td>
<td></td>
<td>6</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Mandible</td>
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<tr>
<td>Tooth- Incisor</td>
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<td>Tooth- Canine</td>
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</tr>
<tr>
<td>Tooth- Premolar</td>
<td></td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tooth- Molar</td>
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<td>8</td>
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<td>1</td>
</tr>
<tr>
<td>Vertebra- Atlas</td>
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<td>2</td>
<td>-</td>
<td>-</td>
</tr>
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<td>Vertebra- Axis</td>
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<td>1</td>
<td>-</td>
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<tr>
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<td>6</td>
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<td>21</td>
</tr>
<tr>
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<td>-</td>
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</tr>
<tr>
<td>Vertebra, indet.</td>
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<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Scapula</td>
<td></td>
<td>6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Humerus</td>
<td></td>
<td>13</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Radius</td>
<td></td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Ulna</td>
<td></td>
<td>4</td>
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<td>-</td>
</tr>
<tr>
<td>Metacarpals</td>
<td></td>
<td>3</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>Pelvis</td>
<td></td>
<td>5</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Femur</td>
<td></td>
<td>3</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>Tibia</td>
<td></td>
<td>6</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Astragalus</td>
<td></td>
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<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Calcaneum</td>
<td></td>
<td>6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Metatarsals</td>
<td></td>
<td>5</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>Metapodials</td>
<td></td>
<td>-</td>
<td>-</td>
<td>14</td>
</tr>
<tr>
<td>Phalanges</td>
<td></td>
<td>-</td>
<td>-</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>92</td>
<td>9</td>
<td>100</td>
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Table 4.8 Cervid body part representation, CR16B-1A

<table>
<thead>
<tr>
<th>Element</th>
<th>Taxon NISP</th>
<th>Total NISP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cervidae</td>
<td>O. virginianus</td>
</tr>
<tr>
<td>Maxilla</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Mandible</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Tooth- Molar</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Vertebra</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Humerus</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Radius</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Metacarpal</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Pelvis</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Femur</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Tibia</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Astragalus</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Calcaneum</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Metapodial</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Phalanges</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4</strong></td>
<td><strong>33</strong></td>
</tr>
</tbody>
</table>

The zooarchaeological assemblage includes several fragments of worked mammal bone. Among these are four bone perforators without eyes (Figure 4.6). There are several proposed uses for such objects, including as picks and battens for textile production, sewing needles, pins to hold layers of cloth together in clothing, awls, hair pins, styli for writing and divination, and imitation stingray spines, i.e., bloodletters (Ciaramella 1999; Coe and Kerr 1997:145-146; Halperin 2008; Hendon 1992; Moholy-Nagy 2003:59). Nearly all of these activities are associated with women among the ancient Maya, with the possible exceptions of writing, divining, and bloodletting.
The CR16B-1A assemblage is noteworthy in both the quantity and preservation of recovered faunal remains. Preservation of osseous material at La Corona is generally poor, and few contexts excavated to date have produced substantial faunal samples. The extraordinarily good condition of the remains within the chultun is likely the result of the context remaining sealed from the time of its original deposition until its excavation. The integrity of the deposit is further indicated by a lack of surface weathering and carnivore tooth marks from scavenging by dogs and the virtual absence of rodent gnawing (NISP= 2). The only taphonomic indicators are of human intervention, including a small quantity of remains with evidence of cutting or burning (Table 4.9). Furthermore, a number of small and/or delicate elements, such as the bones of fish and juvenile mammals, remain intact, suggesting little natural or cultural disturbance after interment. The taphonomy of the zooarchaeological assemblage thus argues strongly for a rapid, single-event deposition of material.
Table 4.9 Cut and burned specimens (NISP), CR16B-1A

<table>
<thead>
<tr>
<th>Taxon</th>
<th>Cut</th>
<th>Burned</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aves</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cf. Galliformes</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Aves, indet.</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Mammalia</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Didelphidae</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Canidae</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Canis familiaris</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>cf. C. familiaris</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Cervidae</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Odocoileus virginianus</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Medium Mammal</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Medium-Large Mammal</td>
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<td>2</td>
</tr>
<tr>
<td>Large Mammal</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Mammalia, Indet.</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>22</td>
<td>17</td>
</tr>
<tr>
<td><strong>% Total Vertebrate</strong></td>
<td>1.93%</td>
<td>1.49%</td>
</tr>
</tbody>
</table>

4.6 Discussion

The combination of food remains, exotic shell, and serving vessels, combined with the time scale implied by the state of the faunal remains (specifically, the lack of gnawing and weathering), supports the hypothesis that the CR16B-1A deposit represents a single ceremonial meal. The disposal of feasting remains often diverges from that of ordinary consumption activities; it may be less processed than household trash or maintained as a separate unit apart from other middens (Potter 2000; Walker 1995). The placement of refuse in the constructed, cleaned, prepared space of the chultun concurs with this pattern of disposal.

The location of the deposit, its high-quality ceramics, figurines depicting high-status individuals, and exotic shell traded across long distances suggest that participants of the feast were from the upper echelon of La Corona society. The participation of women is implied in several ways; gendered division of labor supports the conclusion that preparation of the festival meal was almost certainly performed by women (see Hendon 1997; Joyce 2000; O’Connor 2010;
Although the function of bone perforators cannot be established with certainty, as noted above many of their proposed uses occur in the woman-associated realm of textile production. Their other potential uses in bloodletting, inscription, and divination are not strongly gendered. The presence of a female figurine may also suggest invocation of female power or the presence of women. The feasting event is thus interpreted as an event that included participation of elite members of La Corona society, including at least some women.

The presence of large food preparation and serving vessels in CR16B-1A, in addition to the above material, indicates large-scale consumption (Parris 2014). The deposit can be interpreted as a single, discrete event due to the large number of ceramic refits between spatially distinct lots (Parris 2014). The ceramic data suggest that the vessels were smashed prior to deposition, with the resultant sherds gathered and deposited. Notably, only part of the refuse from this event was placed in the chultun. This is demonstrated by a lack of complete vessels after refitting and the undisturbed nature of the chultun, as the removal of remains after sealing is unlikely.

The disposal of multiple musical instruments and figurines is further suggestive of ritual performance rather than ordinary consumption. Musical performance is associated with festive occasions in both the iconographic and ethnographic record. The anthropomorphic figurines can be positively identified as high-status individuals or even rulers based on their attire. The subjects of the zoomorphic figurines, monkeys and owls, are consistent with those found in elite areas at the nearby site of Aguateca (Triadan 2007). Monkeys are associated with scribes and musicians in the Popol Vuh (Tedlock 1996). The headdress worn by the monkey figurine indicates that it is a supernatural figure and may have been fulfilling one of these roles. In contrast, the owls are represented naturalistically. These birds are associated with Teotihuacan
and warfare during the Classic period; it is possible that the owls were evocative of these themes (Triadan 2007).

The molluscan assemblage is consistent with the dual use of mollusks as prestige items as well as subsistence resources. Marine shells in particular have well documented use in ceremonial activities and likely represent offerings rather than taxa consumed at this event (Moholy-Nagy 1985). Locally available apple snails (*Pomacea flagellata*) and river clams like *Unionidae* are known food taxa and likely represent consumption of mollusks (Hammond and Miksicek 1981).

As in other such deposits in the Maya region, it is the co-occurrence of ceramic forms and food remains that most clearly indicates feasting. Direct evidence of processing for consumption is infrequent, since commonly employed cooking techniques in the Maya region such as stewing and baking rarely leave macroscopic evidence on skeletal remains (Götz 2014). Marks from butchery and burning do occur in a small portion of the faunal assemblage, as is the case in the chultun at La Corona. The fish, turtles, freshwater mollusks, deer, and dogs present in this deposit are well established food taxa in socioeconomically diverse deposits including those of the high elite (e.g. Emery 2003, 2007; Masson 1999; Teeter 2004).

Opossums, on the other hand, are not as frequently encountered in archaeological contexts indicating high-status consumption (e.g. Collins 2002; Emery 2007; Masson and Peraza Lope 2008, 20013) and appear to be an outlier in the faunal assemblage from the chultun. In several ethnographic and ethnohistoric accounts, they are not eaten or are considered inedible (e.g. Anderson and Medina Tzuc 2005:63; Carr 1986:120, 207; Wisdom 1940:73). The inclusion of opossum in the festal menu may be due to their ideological associations rather than the relative desirability of their meat. Opossums appear in iconographic representations as
performers and associates of God N (see Chapter 6 for a full discussion of this relationship). Anthropomorphic opossums are depicted as clowns, actors, and musicians in Classic period material, and their role as entertainers may be in the context of calendric rites. The deity *Mam*, an aspect of God N, oversees the inauspicious last five days of the year known as the *Wayeb* period. In the Postclassic Dresden Codex, the new year is brought by the four *Bacabs*, a quatripartite form of God N. These year bearers are depicted as opossums, either anthropomorphic figures or actors/entertainers in opossum costumes (Stempell 1908; Tozzer and Allen 1910; Taube 1989).

4.7 Conclusion
The CR16B-1A chultun was found directly behind Structure 13R-10, which served as a central site for expression of the site’s rulers and their *Kaanal* overlords by La Corona’s Late Classic upper class. This expression was temporally situated through the prominent and public references to calendric cycles and history presented by monuments located south of Structure 13R-10. Placed in direct association with this important structure, the CR16B-1A chultun deposit may reflect the building’s function – which must be taken into consideration in contextual analysis.

Although opossums may not typically be considered high status fare, their presence in the CR16B-1A deposit is consistent with inclusion in elite feasting. The connection between opossums and God N, a deity who in his multiple aspects oversees the passage of time, may help explain their apparently anomalous presence. Structure 13R-10 was used in part for the commemoration of important dates. It is possible that the feasting event located in close proximity to this building was performed in conjunction with rites to mark time, such as the festivals surrounding the *Wayeb* period. In this case, the chultun deposit represents consumption
of animals, opossums in particular, as both subsistence and symbol by the Late Classic elite of La Corona.

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Wisdom, Charles
Chapter 5: Animals in the Portal:  
Investigations at El Perú-\textit{Waka’}  
Structure M12-44, the Cuartito

This paper presents a rich Late Classic Maya assemblage discovered in a subsurface chamber located within the site center of El Perú-\textit{Waka’}, Petén, Guatemala. Structure M12-44, nicknamed the Cuartito (or “little room”), produced an abundant and well preserved faunal sample in addition to ceramics, lithics, and other materials. The structure’s unusual architecture and varied artifacts suggest its use in Late Classic ceremonial activity. However, the precise nature of this activity is open to interpretation due to a lack of direct analogues. In this chapter I describe the unique architectural and artifactual evidence and present hypotheses regarding the nature of ritual activity at the structure. I suggest that the Cuartito is a Late Classic, man-made cave used for ceremonies to access the supernatural. The associated archaeological assemblage reflects either activities that directly reference the structure’s role as a supernatural portal or are ceremonial refuse deposited in the space prior to its final sealing.

5.1 Background

El Perú is an archaeological site in northwestern Petén, Guatemala that was occupied from the Late Preclassic through the Terminal Classic periods (ca. 400–1000 CE) (Freidel et al. 2007; Pérez Robles and Arroyave 2008). During its height in the Late Classic (ca. 600–900 CE), El Perú was an important and politically contested regional center strategically located on major overland and riverine trade routes (Freidel et al. 2007; Freidel and Escobedo 2014; Rich and Navarro-Farr 2014). Excavations in the site core have produced abundant material evidence of
Classic and Terminal Classic ritual activities such as royal veneration and marking the passage of time (DeMarrais et al. 1996; Mock 1998).

Structure M13-1, a pyramidal temple with attached adosada platforms, was the primary site of royal civic-ceremonial activity at El Perú during the Classic period. East of the royal palace and west of the site’s religious-ceremonial district, Str. M13-1’s elevated location in the landscape made it both visually prominent and ideologically potent (Navarro Farr 2009:23). Evidence for Classic period activities at M13-1, including the burial of 7th century queen kalomté K’abel, suggests its use as a public stage for ritual performances honoring and reasserting the power of gods and kings. The discovery of a monumental fire shrine, or wite naah (Freidel et al. 2013), on the western side of Str. M13-1, which faces Plaza 2, suggests that fire rituals performed atop the building could be observed by the public. In situ and redeposited monuments on the plaza-facing face of the structure similarly suggest that the building was a vital locus for the public expression of Classic period religious and political commemoration at El Perú (Navarro Farr et al. 2013a).

Structure M12-44 was built into a small patio just northeast of Str. M13-1, adjacent to elite residences and not visible from Plaza 2 (Figure 5.1). In contrast to the *wite naah* on the western side of Str. M13-1, the subterranean Cuartito is in a private and restricted location. The chamber is small and rectangular, measuring 3.4 m north-south by 2.47 m east-west and descending to bedrock at a depth of approximately 3 m. It was constructed with fairly regular
masonry walls and capped in antiquity with a four-sided masonry vault (Figures 5.2 and 5.3). Evidence for the vault shape was visible in the remaining lower courses. There is no evidence for any doors or passageways extending from within the chamber, indicating that access was restricted to descent through the vault, resulting in a small, deliberately constructed masonry room descending into the surface of a patio directly associated with Str. M13-1. Excavation of the Cuartito was performed to determine the structure’s function as well as its relationship to the demonstrated ritual activities at the much larger Str. M13-1.

Figure 5.2 Structure M12-44 during excavation. Photo by Francisco Castañeda. Image courtesy of the El Perú-Waka’ Regional Archaeological Project.
5.2 Methods

Structure M12-44 was excavated over two weeks during the 2012 field season, revealing complex, mixed stratigraphy. The feature was not sealed at the time of its excavation, and it was unclear whether the vault collapsed in the distant past or more recently. In addition to the collapsed vault, a fragmentary, flagstone pavement and deposits of ceramic, faunal bone, and other materials were discovered above bedrock. This pavement consisted of cut stone blocks placed at the same depth, but in an irregular manner. It is unclear whether these blocks represent
a true, intentional “paving” event. The unit was excavated in ten lots roughly corresponding to accreted humus (Lot 396); mixed rubble fill, including the probable remains of collapsed vault stones (401, 406, 413); a small, ashy concentration in the southwest corner (418); paving stones (420); an layer of artifact-rich deposit (425) at the same depth as a disturbed bone bundle (435); material just above bedrock (444); and material removed from an ancient cut in bedrock (446). Fragmentary human remains extending through Lots 435 and 446 suggest the placement and later removal of the aforementioned secondary burial at some point in antiquity (Figure 5.4).

Figure 5.4 Field sketch of the southern profile of Str. M12-44 (not to scale). Drawing by Griselda Pérez Robles. Image courtesy of the El Peru-Waka’ Regional Archaeological Project.
I conducted zooarchaeological analysis in order to examine the use of fauna in the constructed, underground space of Structure M12-44. Materials were hand-sorted using ¼” screen. Small quantities of microfaunal remains were recovered from flotation of bulk soil samples performed for paleoethnobotanical analysis. Faunal specimens were exported and analyzed at the zooarchaeology laboratory at Washington University in St. Louis, where each specimen was assessed for refits within its excavation lot, identified to body part and taxon, and weighed. Taxonomic identifications were made using reference to comparative skeletal material in the St. Louis and Guatemala City laboratories, material housed at the Field Museum of Natural History in Chicago, and reference to published and unpublished photographic collections (Florida Museum of Natural History, Field Museum of Natural History, Washington University in St. Louis, and Universidad Autónoma de Yucatán), and reference volumes (e.g. Gilbert 1990; Gilbert et al. 1996; Hillson 1992; Olsen 1964, 1968, 1982). Natural and cultural modifications were noted where present.

5.3 Results

5.3.1 Zooarchaeological Results
The impression that emerges from this analysis is of intentional, ritualized placement of fragmentary, diverse taxa into the subterranean space of Structure M12-44. A total of 1,607 fragments of vertebrate faunal material were recovered, weighing a total of 1,168.26 g (Table 5.1). The Cuartito assemblage is notable for its taxonomic diversity. Mammalia was the most abundant class identified in all lots and in the unit overall by count (NISP= 814, 50.65% total faunal assemblage) and by weight (910.97 g, 78%). Reptiles (NISP= 146, 9.09%) and bony fish
(Osteichthyes, NISP= 244, 15.18%) contributed significantly to the assemblage, with smaller quantities of amphibian (NISP= 59, 3.67%) and bird (NISP= 35, 3.67%) also present.

Table 5.1 Taxonomic representation by lot (NISP), Structure M12-44

<table>
<thead>
<tr>
<th>Taxon</th>
<th>Lot:</th>
<th>396</th>
<th>401</th>
<th>406</th>
<th>413</th>
<th>418</th>
<th>420</th>
<th>425</th>
<th>435</th>
<th>446</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fish, total:</strong></td>
<td></td>
<td>22</td>
<td>1</td>
<td>40</td>
<td>38</td>
<td>60</td>
<td>32</td>
<td>50</td>
<td>1</td>
<td>244</td>
<td></td>
</tr>
<tr>
<td>Tropical gar (Atractosteus tropicus)</td>
<td></td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Cichlids (Cichlidae)</td>
<td></td>
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<td>White-tailed deer (<em>Odocoileus virginianus</em>)</td>
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<td>19</td>
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<td>Brocket deer (<em>Mazama sp.</em>)</td>
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Overall preservation of the assemblage is very good. Over half (NISP=828, 51.52%) of the specimens were maximally identifiable to element (i.e. humerus, femur). The remaining specimens were equally split between those minimally identifiable to element (i.e. long bone shaft, rib shaft, axial fragment; NISP=309, 24.27%) and unidentifiable fragments (NISP=389, 24.21%). Bones in the assemblage showed minimal modification and were not highly fragmented. Rodent gnawing is minimal (NISP=25) and mostly localized in the upper lots. Very
little burning (NISP=86) and few cut marks (NISP=25) are present. Of mammal remains
maximally identifiable to element, 43.40% (NISP=204) are over 50% complete (25.06% total
mammal remains), and more than a third of mammal bones maximally identifiable to element
(33.82%, NISP=159) are over 75% complete. Because the deposit was not sealed when
evacuated, a degree of caution is necessary in interpreting the presence of animals that may have
simply fallen into the open cavity. The amphibian remains generally displayed preservation
similar to that seen in other bones in their respective lots, but because frogs and toads are
commonly found in subterranean areas, both cultural and natural explanations for their presence
must be considered. The completeness and white color of snake remains found in the uppermost
lot, 396, suggest that it represents an intrusive individual. The snake remains found in an area of
probable vault collapse, Lot 406, display similar preservation to other bones in the lot and
represent a single individual, though whether it is cultural or intrusive is unclear.

The Cuartito faunal material is noteworthy for several reasons. It is taxonomically diverse
and includes known subsistence taxa (e.g. white-tailed deer [Odocoileus virginianus], fish) as
well as animals more likely used for decorative or ceremonial purposes (e.g. felid, crocodile
[Crocodylus sp.]). Some taxa are represented by isolated elements, among these a mandible and
two pelvis fragments of iguana, one crocodile tooth, three dermal scutes and one humerus
Corresponding to armadillo (Dasypodidae), one rabbit (Leporidae) tibia, and one molar
corresponding to a large felid (Felidae, cf. puma or jaguar). A matched left and right pair of
motmot (Momotidae) ulnae may be evidence of feather use. The excellent level of preservation
observed argues against the notion that post-depositional destruction would significantly skew
taxonomic representation.
5.3.2 Results of AMS Analysis

Five bone samples were directly dated using accelerator mass spectrometry (AMS) to determine the use history of Str. M12-44. AMS is the preferred method for direct dating bone samples, especially in tropical contexts where the decay of collagen is can be significant (e.g. Law et al. 1991; Pestle and Colvard 2012). The specimens dated with AMS include three bone fragments from domestic dog (*Canis familiaris*), one human bone fragment, and one fragment from an unidentifiable large mammal consistent with Artiodactyla. The human bone was chosen in order to obtain a direct date for the burial event found in the lower portion of the Cuartito. Collagen was extracted at Harvard University and dating was performed at the National Ocean Sciences Accelerator Mass Spectrometry Facility at the Woods Hole Oceanographic Institution. Although the bones selected were from lots associated with different depths in the excavation, they all date to the Late Classic, ca. 614-768 cal. CE (Table 5.2).

<table>
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<tr>
<th>Context</th>
<th>Lab No.</th>
<th>Description</th>
<th>Uncal. BP</th>
<th>Cal. CE</th>
<th>Confidence</th>
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<td>WK01L-84-2-406</td>
<td>OS-108243</td>
<td><em>Canis familiaris</em></td>
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<td>753–759</td>
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<td>OS-108314</td>
<td><em>Canis familiaris</em></td>
<td>1310±25</td>
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<td>741–768</td>
<td>26.10%</td>
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<tr>
<td>WK01L-84-3-420</td>
<td>OS-108313</td>
<td>Large mammal</td>
<td>1290±30</td>
<td>664–770</td>
<td>95.40%</td>
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<td>WK01L-84-4-435</td>
<td>OS-108312</td>
<td><em>Homo sapiens</em></td>
<td>1380±25</td>
<td>614–674</td>
<td>95.40%</td>
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<td></td>
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<td>OS-108242</td>
<td><em>Canis familiaris</em></td>
<td>1330±25</td>
<td>650–715</td>
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<td>Humerus</td>
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<td>744–765</td>
<td>13.20%</td>
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</table>

5.3.3 Other Materials

The Cuartito excavations produced abundant materials for analysis (Table 5.3): in addition to the vertebrate faunal remains, 37 poorly preserved human bone fragments were also collected,
corresponding to a minimum of three individuals (E. Patterson, personal communication 2012). The majority of these specimens are long bone fragments found adjacent to a cut in bedrock and interpreted as the remains of a disturbed bundle burial. Botanical remains were scarce, with most recovered samples originating in areas of high ash content. Paleoethnobotanical analysis revealed relatively large fragments of tree fruit seeds including zapote (*Pouteria* sp.), siricote (*Cordia* sp.), and hogplum (*Spondias* sp.) as well as a single maize kernel (C. Cagnato personal communication, 2014). The abundance of plant remains were found in proximity to the human remains associated with the bundle. Inorganic materials from the deposit include lithics and both black and green obsidian. Artifacts suggesting ritual activity include fragments of ochre, greenstone, the head of a deer figurine (Figure 5.5), and a speleothem fragment (Figure 5.6). The removal and transport of speleothems from caves was a common practice among the ancient Maya, and speleothems continue to be used in ritual activities among modern Maya groups (Brady et al. 1997; Brady et al. 2005; Peterson et al. 2005).

**Table 5.3 Material counts by lot, Structure M12-44**

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<th>Chert</th>
<th>Obsidian (Green)</th>
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<td>19 (1)</td>
<td>Deer figurine (1)</td>
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<td>35</td>
<td>37</td>
<td>61</td>
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</table>
Keith Eppich and I analyzed the ceramics from the Cuartito to clarify the zooarchaeological data and to further investigate the use and depositional histories of the feature. Types range from ubiquitous, coarse-paste utilitarian wares and striated water jars to palace-quality polychromes (Table 5.4). The ceramic assemblage includes materials from the Late Classic Q’eq’ Complex (ca. 550–800 CE) and the Terminal Classic Rax Complex (ca. 800–1000 CE) (Eppich 2011).

During analysis, the frequencies of monochrome ceramics (blackwares and redwares) appeared to vary with stratigraphy, but there was no statistically significant difference in the ceramic distribution in different levels. Terminal Classic indicators (i.e. Altar orange, Danta orange polychrome, Poite incised, Tres Naciones grey, Tohil plumbate) appeared to be more frequent in the upper strata of the deposit. Late Classic materials (i.e. Infierno black, Nanzal red, Tinanja
red, Carmelita incised, Chilar fluted) seemed to become more abundant closer to bedrock. An increase in Late Classic diagnostic sherds present from Lot 413 down (approximately 2.5 m below ground surface) corresponds with the appearance of heavily eroded, palace-quality ceramics. These include a minimum of two cylinder vases of indeterminate Palmar orange polychrome and a robust Zacatal cream polychrome bowl (Figure 5.6). The abundant presence of common, utilitarian unslipped and striated sherds contrasts sharply with the palace-quality material. The ceramic data therefore support Late Classic use with later reuse in the Terminal Classic, with significant mixing.

Figure 5.6 Partially reconstructed cylinder vase from Structure M12-44. Sherds were recovered from multiple lots.
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5.4 Cosmology and Architecture
Before interpreting the artifacts of Structure M12-44, it is first necessary to interpret the unique architectural space in which they were interred. The Cuartito has two main architectural features that suggest it was constructed as a pseudocave: it is a subsurface chamber, and it had a quadrilateral vault.

5.4.1 Subsurface Chambers
The cosmology of many pre-Columbian groups is based upon a multi-layered universe in which passages that pierce the earth’s surface serve as conduits between the world inhabited by humans and the supernatural Underworld (Bassie-Sweet 2008; Brady and Prufer 2005; Gossen 1974; Prufer and Brady 2005; Redfield and Villa Rojas 1971; Stross 1996; Vogt 1969, 1993). Creation stories often focus on caves as origin places and portals for the movement of spiritual forces between these realms (Redfield 1941; B. Tedlock 1982; D. Tedlock 1996; Thompson 1970; Vaillant 1962). The earth’s surface is understood to be permeable, and the act of penetrating and reemerging from the earth is supernaturally charged.

In ancient Mesoamerica there is widespread evidence for the extensive incorporation of earth entries such as caves and cenotes into ritual activity. These activities vary through space and time but often incorporate concepts that reference the role of caves as portals to the Underworld. The archaeological remains of cave rituals suggest their use in accession ceremonies and lineage veneration (Bassie-Sweet 1991; Heyden 1975; Suhler et al. 1998), rites of passage (Heyden 1976), and cosmic centering (Brady and Ashmore 1999:127).

Caves, however, do not present the only option for piercing the surface of the earth. In multiple ancient Mesoamerican belief systems there is a conceptual coupling between both mass above the surface and vacuity below. This duality is most explicit in regions where mountains
(mass above) are themselves considered to be hollow. Scholars have made the analogy that mountain is to cave as monumental architecture is to constructions below the surface e.g., tombs, cache holes, and subsurface chambers (Benson 1985; Brady and Ashmore 1999; Stuart and Houston 1994:86; Tokovine 2013; Vogt 1981, 1992). Brady and Veni (1992) link such constructions specifically to caves, identifying artificial caves as an architectural form among the pre-Hispanic Maya of Highland Guatemala, where caves are not part of the natural topography. They discuss several modified and constructed spaces with evidence of ritual activity and suggest that the notion of the cave as a sacred and centering location was so important to cosmology that pseudocaves were constructed at sites where none existed naturally. In other locations, such as El Perú Structure P13-5, natural cavities in bedrock were modified and augmented with construction to create subterranean spaces that could be entered (Rich 2013).

Freidel and Suhler (1999) identify subsurface constructions of varying complexity as “path places” used to enact rituals that involved movement from the Underworld to the surface to the sky. They suggest that such architectural forms were important in accession rituals in which rulers were “reborn” into leadership by mimicking the descent and resurrection performed by the gods. Suhler et al. (1998) discuss Northern Lowland architectural forms featuring restricted-access, subsurface chambers in their analysis of Structures 6E-53 and 6E-120 at Yaxuna. The majority of the examples cited, including those at Yaxuna, consist of small networks of chambers and connecting passages accessible by a “trap door” or other small entry. However, Suhler et al. (1998) identify the single-chambered Structure 2 at the site of Ake as a variant that potentially fulfilled the same purpose. Like the Cuartito, Structure. 2 is constructed of masonry with a vaulted roof, though it is round rather than rectangular (Roys and Shook 1966). In the
interpretation of Suhler et al. (1998), these subsurface features offered places to reenact descent into and reemergence from the Underworld.

As a subsurface chamber, the Cuartito is a purposefully constructed earth entry. There is justification to think that it operated within the same semiotic framework as other natural and manmade features that pierce the surface of the earth. In Maya and broader Mesoamerican cosmology, such locations are considered to symbolize Underworld portals.

5.4.2 Vaulting and Quadripartite Symbolism
The quadrilateral vault further suggests that Structure M12-44 may be interpreted as a portal.

Four-part figures including quartered circles, quatrefoil, and cross motifs figure prominently in Mesoamerican iconography, including that of the Maya, from the Middle Preclassic onward (Coggins 1990; Egan 2011; Guernsey 2010). Quatrefoils and half quatrefoils are interpreted as representing the maw of the supernatural zoomorphic earth (Carrasco and Hull 2002; Joralemon 1976). They are used as fundamental orienting concepts of Maya cosmology; four-part figures are variably interpreted as representing the cardinal directions (Seler 1901-1902; Thompson 1934) and the structure of time through the solar cycle (Coggins 1980). Common interpretations of these figures connect them to the tightly coupled concepts of caves and Underworld portals (e.g. Bassie-Sweet 1991, 1996, 2008; Baudez 1996; Brady and Ashmore 1999; Freidel et al. 1993; Grove 1968; Guernsey 2010; Heyden 1975; Joralemon 1976; Love and Guernsey 2007; Stone 1995, 2005; Stross 1996; Taube 1998, 2004; Vogt and Stuart 2005).

Numerous architectural manifestations of four-part symbolism have been suggested in the Maya area, including the structure of quadrilateral pyramids and corbeled vault architecture (Carrasco and Hull 2002; Suhler et al. 1998). The Cuartito’s squared corners and quadrilateral vault display conscious choices. When those choices are considered alongside the significant
labor required to excavate a quadrilateral cavity of this size and line it with masonry, it is reasonable to assume that there are significant motives behind its design.

The isolated, subsurface room is not a common architectural form in the Maya area, nor is the four-sided vault as seen in Structure M12-44 (Figure 5.3). In fact, there is no feature previously described in Maya archaeology that combines these particular features. Interpretation therefore depends on analogy to other geographic and cultural features that bear physical or conceptual similarities to the Cuartito.

5.5 Classic Period Use of Structure M12-44
Like the structures discussed by Suhler and colleagues (Freidel and Suhler 1999; Suhler et al. 1998), Structure M12-44 is a deliberately constructed subsurface chamber that may have represented a portal to the Underworld and as such played a role in accession ceremonies. Its close proximity to the civic-ceremonial Structure M13-1 places the Cuartito within a plausible space of royal performance. Furthermore, the placement and later removal of (likely bundled) human remains is consistent with ancestor veneration seen at other Maya sites (e.g. Chase and Chase 1996; Fitzsimmons 2006; McAnany 1995).

However, even if Str. M12-44 was used in accession or other ceremonies to access the Underworld, the abundant faunal assemblage contained within still demands explanation. Why were these particular animals placed inside, and why are their bodies incomplete? Several ethnographically documented practices among the modern Maya offer potential insight.

5.5.1 Portal to the Underworld
Earth entries continue to be important ritual spaces for modern Maya communities, and ethnographic accounts suggest some continuity in both the activities performed and the sacred associations of these places. This is well documented by Vogt (1969, 1993) among the Tzotzil of
Zinacantán, Mexico, who view the underground, hollow interior of mountains as the realm of ancestral deities and the Earth Lord, a deity with ancient roots. Communication with these figures can be achieved through activities in earth entries.

Though variable legends surround the Earth Lord, two major components of his duties and abilities featuring animals occur in ethnographic accounts. He is the lord of wild animals with whom humans must negotiate when hunting as well as the custodian of the animal spirit that forms part of each human soul (Vogt 1969, 1993). Offerings made to this deity within the space of earth entries (similar to as the Cuartito) may reference both of these aspects of the Earth Lord’s influence.

**Hunting Shrine**

Appeal to supernatural figures, such as the Earth Lord, is an indispensable part of hunting rituals in Mesoamerica (Brown 2005). De Landa describes Colonial period Yucatec hunting rituals to bless future hunts and to appease the gods for the killing of animals during the hunt (Tozzer 1941:155, 162). Similar offerings to supernatural animal guardians have also been documented elsewhere in the Maya world (e.g. Redfield and Villa Rojas 1971:117-118; Thompson 1930:142, 1970:308; Villa Rojas 1945:103).

Brown and colleagues (Brown 2002, 2005; Brown and Emery 2008; Brown and Romero 2002) analyzed modern hunting shrines from the Highlands of Guatemala where the Guardian of Animals or Earth Lord is first petitioned for a successful hunt and subsequently thanked. Remains of captured animals are deposited at these sites and serve as “seeds” for the regeneration of new animal life. This belief is recorded in a myth from the Cuchumatán area in which animal bones sprout forth new creatures (La Farge 1947:50-1). The faunal assemblages from hunting shrines vary considerably in their composition and quantity of remains but bear
evidence for careful curation of bones prior to their deposition. Hunting rituals are often enacted in the liminal, portal space of an earth entry.

The Cuartito assemblage is not identical to those found in hunting shrines, but it does have notable similarities. Unlike the shrine sites described in the literature, however, it is not an open-air site (Brown and Romero 2002:675), nor is it located in an area away from human habitation (Brown and Emery 2008:315). Complete skeletons were not deposited, as is required according to certain modern beliefs and practices (Brown and Emery 2008:313). However, it is dense with remains, and observed taxonomic diversity is not unlike certain examples found in modern shrines (Brown and Emery 2008:325). There is a general predominance of subsistence-associated animals and significant overlap with those taxa documented by Brown and Emery (2008), including white-tailed deer, armadillo, peccary, agouti, opossum, brocket deer, dog, pocket gopher, felid, and turkey. The bones in the assemblage are relatively unfragmented, unmodified, and unrelated which is consistent with conscious selection for inclusion (Brown 2005:142; Brown and Emery 2008).

Animal Souls

A belief in animal souls may provide an alternative explanation for the deposition of animal remains within the constructed “portal” of the subsurface chamber. The concept that human souls are composed of multiple parts, one of which is animal in nature, is documented among modern Maya beliefs and has deep roots in Mesoamerican antiquity. The presence of a supernatural link between an individual human and a specific, usually non-domesticated animal, is a common theme in Mesoamerica (Dow 1986; Foster 1944; Gossen 1975; Linn 1989, Pitt-Rivers 1970; Vogt 1969; Wisdom 1940).
Epigraphers have identified the Classic period glyph *u way* (T549) as a Classic period expression for an animal spirit or co-essence ethnographically documented among modern Maya groups referred to as *wayob* (singular *way*) (Grube and Nahm 1994; Houston and Stuart 1989). This glyph co-occurs with Classic period iconography depicting anthropomorphized or otherwise supernatural animals (Calvin 1997; Grube and Nahm 1994). The exact nature of these figures as expressed in the Classic period remains a subject of some debate due to the variability in modern Maya conceptions of *wayob* (Matteo and Manjavacas 2009). Common features of *way* spirits include their supernatural status, zoomorphic form, and textual association with an individual.

Vogt (1969, 1993) discusses the notion held by the Tzotzil Maya of Zinacantan that each individual has an animal that forms part of his or her soul. These spirit animals are kept in underground corrals of the Earth Lord and tended by deified ancestors (Vogt 1969; 1993:19). The animal may be small and humble or large and powerful, depending on the social status of the individual (Vogt 1969, 1993). In the event of disrespectful behavior, these gods may punish an individual by releasing his or her spirit animal from its pen into the world, where it is vulnerable to harm (Vogt 1969:301). Forgiveness of transgressions through offerings (including sacrifice of animals such as chickens) may allow the safe return of the animal soul (Vogt 1969:301).

The Cuartito deposit may indicate that the belief that supernatural animals of all varieties were “kept” underground extends to the Late Classic period. The notion that all individuals have an animal soul reflecting their social status greatly opens the range of potential *wayob* and may help explain the great diversity seen in the Cuartito faunal assemblage. The animals represented may be physical expressions of a diverse society’s *wayob* or offerings to placate the gods who oversee the safekeeping of the community’s animal souls.
5.5.2 Ritual Disposal
In addition to a direct appeal to the Earth Lord or another animal-associated supernatural figure, the final Cuartito assemblage may represent an act of ceremonial disposal. This interpretation is supported by the incompleteness of the animal bodies (suggesting food remains rather than offering of complete carcasses) in combination with observed ceramic forms.

The traditional methods of preparing food in the Maya region, baking and stewing, do not tend to produce a highly visible taphonomic signature indicative of cooking (Götz 2014). The isolated and minimally modified elements of faunal skeletons found in the assemblage could therefore be the remnants of food items such as stews and tamales, where the elements themselves are disarticulated through gentle cooking rather than mechanical separation with a bladed implement. In contrast, paleoethnobotanical identification of unusually large fragments of tree fruit seeds suggest the fruit found in the assemblage were deposited whole (C. Cagnato, personal communication 2014). These fruits are consumed raw; if they were part of a food offering, they would likely have been deposited intact.

Palace-quality serving wares indicate consumption by the high elite. Cylinder vessels are associated with the high-status practice of cacao preparation and consumption (Ball 1983:136; Hall et al. 1990). The appearance of cylinders and other elite, Late Classic serving wares such as plates and bowls, may be a sign of ritual consumption events or the presentation of food offerings. The lack of complete refits for serving vessels suggests that any use of the vessels for serving was performed outside the confines of the Cuartito and the feature itself served as a place for the disposal of ritual refuse (Walker 1995; Kunen et al. 2002).

If the Cuartito assemblage is the result of the ritual deposition of prepared (and, in the case of fruits, unprepared) foods, for whom or what purpose were they intended? The associated consumption or food preparation event could be associated with any number of purposes,
including honoring the Earth Lord, paying tribute to the wayob in his keeping, or providing a taxonomically diverse “feast” for the individual once interred in the disturbed bundle burial of Lot 435 (Eppich et al. 2014).

5.6 Conclusion
The combined ceramic and zooarchaeological data indicate that the Cuartito was used for ritual activity during the Late Classic. The open cavity was then reused by sub-elite or commoner populations in the Terminal Classic to deposit refuse, as indicated by an abundance of coarse, utilitarian ceramic fragments. Although some amount of Terminal Classic faunal material deposition is possible, AMS provides a Late Classic date for all tested bone fragments. The upper portion of the midden deposit is similar to Terminal Classic sheet middens found elsewhere on and around Str. M13-1, which had minimal to nonexistent faunal remains (Navarro Farr 2009; Navarro Farr and Arroyave Prera 2014). These factors argue that the dense, fauna-rich deposit found in the Cuartito is evidence for Late Classic ritual rather than the subsequent Terminal Classic refuse disposal.

Structure M12-44 reflects the difficulties inherent in reconstructing archaeological ceremony, especially in disturbed or open contexts. The space itself is similar to pseudocaves, accession platforms, and other subsurface structures interpreted as points of access between the terrestrial world and the Underworld. Its unusual quadrilateral vault, similar to the quatrefoil motif associated with earth entries, reinforces the interpretation that the Cuartito functioned as a portal between the worlds. Yet despite these similarities, the physical structure does not have any direct archaeological or ethnographically known analogue. In the absence of such repetition, interpretation of activities enacted in the structure is only suggestive.
Although in itself an unassuming architectural feature, the location of the Cuartito in the site core, coupled with its very basic properties as a carefully manufactured hole in the earth clearly mark it as a ritual space. The inclusion of a cave stone offers credence to the idea that this feature was interpreted at one time as a pseudo-cave or portal to the Underworld. The placement of faunal remains in this supernaturally charged space during the Late Classic can therefore be considered a ritually meaningful act rather than simple disposal. Regardless of whether they were the remnants of a festive meal or agents to appeal to the Earth Lord, the entry of animals into the Cuartito marked their symbolic entry into the supernatural Underworld.

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Chapter 6: Exploitation of Commensal Mammals (Didelphimorphia, Lagomorpha, and Rodentia) by the Ancient and Modern Maya

Commensal animals are those that live in close contact with but are not deliberately raised or encouraged by humans. These taxa may have a symbiotic relationship with human populations or may have potentially deleterious effects (Reitz 1992:86; Reitz and Wing 1999:115-116). As common co-inhabitants of human settlements, commensals provide readily available and easily accessible resources. However, the extent to which they contributed to ancient Maya subsistence and figured in ancient ideology have typically been understudied relative to larger and more charismatic taxa.

In this paper, I consider the roles of a subset of commensal mammals—specifically opossums, large rodents, and rabbits—as economic and ideological resources. In contrast to the best-studied taxa in the Maya area, jaguar and deer, these small-to-medium mammals are far less “understood” as economic and ideological resources. This is in part because they are less likely to be represented in the archaeological record due to preservation and recovery biases as well as problems of taxonomic identification. Direct evidence for Classic period (ca. 250–750 CE) human-animal relationships is found in zooarchaeological remains of animal bodies as well as the representations of animal taxa found in Maya art, but these data sets are limited by their availability. A historic focus on excavation in elite ceremonial and royal residential areas, particularly in urban centers, presents a view of ancient animal use skewed toward the urban elite. Damage to the record through natural taphonomic processes and recovery bias both favor the preservation of large animals over small, and as a result, less is known about small mammals.
than large ones. From an ecological standpoint, though, smaller mammals are more diverse and often more numerous in the landscape than large mammals. In Mexico, 26.8% of all mammalian species weigh between 10 kg and 100 g, and over half weigh under 100 g (Ceballos and Navarro L. 1991). The ancient Maya thus shared an environment with a tremendous array of small taxa, some of which shared their settlements as commensals.

I discuss the ecology of seven species native to the Maya Lowlands as potential resources for economic and ideological exploitation. The taxa examined include three species of large-bodied opossums (*Didelphis virginianus*, the Virginia opossum; *Didelphis marsupialis*, the common opossum; and *Philander opossum*, the gray four-eyed opossum), two species of large rodent (*Dasyprocta punctata*, the Central American agouti, and *Agouti paca*, the paca), and two species of rabbits (*Sylvilagus floridanus*, the Eastern cottontail, and *Sylvilagus brasiliensis*, the forest cottontail or tapeti) (see Table 6.1 for Spanish and Mayan names). These specific taxa are discussed together for two reasons. First, they are mammalian scavengers that are drawn to gardens, fields, and fruit trees. They therefore are a definite and undeniable part of the human-inhabited landscape. Furthermore, with few exceptions, the behavioral plasticity of these taxa allows them to inhabit a variety of habitats in the Maya area. Second, they are somewhat similar in size, with body weights generally under 10 kg (Table 6.2). They fall into an intermediate range between the very small mammals, typified by mice and shrews, and the larger-bodied “medium” mammals such as procyonid carnivores. Moreover, these specific taxa are still consumed in the Maya region, demonstrating a long history of use.
Table 6.1 Common names of commensal taxa in English, Spanish, and Mayan

<table>
<thead>
<tr>
<th>Taxon</th>
<th>English</th>
<th>Spanish</th>
<th>Mayan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Didelphimorphia</td>
<td>Opossum (Didelphis sp.)</td>
<td>Tacuazín/tacuacín</td>
<td>Ajb’uch (Ch’orti’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tlacuache</td>
<td>‘Uch (Chol)</td>
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<tr>
<td></td>
<td></td>
<td>Zarigüeya</td>
<td>Uch/Wuch’ (Quiché)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Zorro/zorra</td>
<td>Ux/Och (Yucatec)</td>
</tr>
<tr>
<td>Lagomorpha, genus <em>Sylvilagus</em></td>
<td>Cottontail Rabbit</td>
<td>Conejo</td>
<td>T’ul (Chol)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T’ur (Ch’orti)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Imul (Quiché)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T’u’ul (Yucatec)</td>
</tr>
<tr>
<td><em>D. punctata</em></td>
<td>Central American Agouti, Agouti</td>
<td>Aguti</td>
<td>Alaw (Quiché)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Guatusa</td>
<td>B’oyom (Ch’orti’)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Guaqueque</td>
<td>Halaw (colonial Pokom),</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sereque</td>
<td>Haleb (Yucatec)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Jalaw (Chol)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Te’lal (Chol)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tsup (Yucatec)</td>
</tr>
<tr>
<td><em>A. paca</em></td>
<td>Paca; Gibnut</td>
<td>Paca</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tepescuintle</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tepezciuintle</td>
<td></td>
</tr>
</tbody>
</table>


Table 6.2 Physical characteristics of focal commensals

<table>
<thead>
<tr>
<th>Taxon</th>
<th>Body Length (mm)</th>
<th>Tail Length (mm)</th>
<th>Live Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Didelphis marsupialis</em></td>
<td>263–430</td>
<td>295–450</td>
<td>600–2,400</td>
</tr>
<tr>
<td></td>
<td>324–425</td>
<td>336–420</td>
<td>565–1,610</td>
</tr>
<tr>
<td><em>Didelphis virginiana</em></td>
<td>374–451</td>
<td>282–370</td>
<td>1,100–2,500</td>
</tr>
<tr>
<td></td>
<td>370–501</td>
<td>295–470</td>
<td>500–2,300</td>
</tr>
<tr>
<td><em>Philander opossum</em></td>
<td>253–315</td>
<td>273–329</td>
<td>263–1,400</td>
</tr>
<tr>
<td></td>
<td>250–302</td>
<td>253–315</td>
<td>200–660</td>
</tr>
<tr>
<td><em>Sylvilagus floridanus</em></td>
<td>377–423</td>
<td>47–66</td>
<td>630–1,400</td>
</tr>
<tr>
<td><em>Sylvilagus brasiliensis</em></td>
<td>289–400</td>
<td>13–35</td>
<td>680–1,250</td>
</tr>
<tr>
<td></td>
<td>269–395</td>
<td>10–35</td>
<td>450–1,200</td>
</tr>
<tr>
<td><em>Dasypodina punctata</em></td>
<td>450–570</td>
<td>20–40</td>
<td>3,000–4,000</td>
</tr>
<tr>
<td></td>
<td>480–600</td>
<td>20–55</td>
<td>3,200–4,200</td>
</tr>
<tr>
<td><em>Agouti paca</em></td>
<td>500–774</td>
<td>13–23</td>
<td>5,000–2,000</td>
</tr>
<tr>
<td></td>
<td>616–775</td>
<td>12–32</td>
<td>5,000–13,000</td>
</tr>
</tbody>
</table>

Size ranges from (A) Emmons 1997; (B) Reid 1999
After a review of the biology and ethology of these commensal mammals, I first assess them as economic resources, then review the ethnographic evidence of their use by the modern and ancient Maya. I conclude this section with a discussion of how the particular nature of ancient Maya urbanism and agriculture as currently understood would encourage the exploitation of these commensals. Next, I turn to the ideological roles of opossums, rodents, and rabbits among the modern and ancient Maya as delineated by ethnographic, ethnohistoric, and iconographic evidence. Finally, I present the archaeological evidence for the use of these taxa among the ancient Maya. The commensal animals discussed are well suited to the environments created by ancient Maya tropical urbanism; as a result, they would have provided rich resources for subsistence utilization through garden hunting. Their constant and familiar presence would also lend itself to their incorporation in ideology, similar to how larger, more charismatic animals like jaguars and deer were incorporated. The data gathered in this study indicate that commensal mammals played roles in ancient Maya life that, while not as dramatically visible in the archaeological record as those of jaguars, have certain distinct economic and ritual dimensions that cannot be overlooked in archaeological interpretation.
6.1 Biology and Ethology of Commensal Taxa

6.1.1 Opossums
A diverse array of American opossums (Order Didelphimorphia) lives in the Maya region. These animals vary widely in size, from the tiny mouse opossum (Genus *Marmosa*) that weighs less than 40 g to relatively large-bodied members weighing 2 kg or more (Nowak 1999a). The common opossum, the Virginia opossum, and the gray four-eyed opossum are discussed together because they are the largest species in the region and there is precedent in Tzeltal Maya folk taxonomy for grouping them (Hunn 1977:202).

The common opossum, *Didelphis marsupialis*, and Virginia opossum, *Didelphis virginiana*, are native throughout the entire Maya region (Emmons 1997; Reid 2009). They are similar in appearance and behavior and can be difficult to distinguish at first sight. Both species are predominantly covered in gray fur, with the exception of their hairless ears and long prehensile tails. *D. marsupialis* and *D. virginiana* are exceptionally adaptable, thriving throughout the Americas in a wide variety of habitats. They make terrestrial dens but climb to arboreal food sources, using the five digits on each foot for assistance. Both the common and Virginia opossum are omnivorous and feed opportunistically. The *Didelphis* sp. diet includes small vertebrates including carrion; invertebrates such as gastropods, insects, and earthworms; fruits and other plant parts; and garbage (Cordero and Nicolas B. 1987; Eisenberg and Redford 1989).

The gray four-eyed opossum (*Philander opossum*) is smaller and more restricted in its habitat than members of *Didelphis*. Gray four-eyed opossums are dark furred with pale bellies, black faces, and characteristic white spots above the eyes that give them their common name.
They are predominantly nocturnal and often make arboreal nests, though they spend considerable time foraging at ground level. Unlike *Didelphis*, *Philander opossum* is often found near water sources and is therefore not present in the Northern Lowlands of the Yucatán peninsula (Brito et al. 2008b; Emmons 1997; Reid 2009). Although less environmentally adaptable than the common and Virginia opossums, the gray four-eyed opossum can be found in a number of vegetation zones, including mature forest as well as garden and cultivated settings. It is also an adept swimmer (Brito et al. 2008b; Emmons 1997). *P. opossum* has a variable, broad, and omnivorous diet that includes plants, insects, earthworms, crustaceans, small vertebrates, and carrion (Castro-Arellano et al. 2000; Eisenberg and Redford 1989; Nowak 1999a).

The three taxa discussed above (*D. marsupialis*, *D. virginiana*, and *P. opossum*) are considered together because of their relatively large size, broad habitat, and the dietary and environmental plasticity that permits these species to thrive in areas near human settlements. This adaptability is reflected in their continued biological success and maintenance of stable populations despite ongoing development, destruction of forests, and habitat fragmentation (Brito et al. 2008a; Brito et al. 2008b; Cuarón et al. 2008a). These omnivorous foragers are widespread throughout Mesoamerica, particularly in the Southern Lowlands, partly due to their possession of broad dietary habits and relatively high fecundity (Leopold 1959).

### 6.1.2 Rabbits

Two species of cottontail rabbit (genus *Sylvilagus*) inhabit the Maya Lowlands: the forest cottontail, or tapeti (*Sylvilagus brasiliensis*), and the Eastern cottontail (*Sylvilagus floridanus*). They are discussed together here because both are described by the Spanish common name

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1 Other species not discussed here, such as the Central American wooly opossum (*Caluromys derbianus*) and the water opossum (*Chironectes minimus*) also remain common, but they are less able to survive in disturbed habitats. Their numbers are decreasing due to environmental changes and habitat loss (Cuarón et al. 2008b; Lew et al. 2008).
conejo and there are no gross differences observed in ethology, ideological associations, or their desirability as game. The two species are similar in appearance, with buff-colored fur and pale bellies, though the Eastern cottontail has a longer tail and more prominent ears than the forest cottontail. While the forest cottontail thrives in wet areas, the Eastern cottontail is better suited to arid environments. Thus, the forest cottontail is a resident of the Southern Lowlands of Guatemala and Belize and the Eastern cottontail is found in drier areas of the Northern Lowlands, including the Yucatán Peninsula (Eisenberg and Redford 1989; Reid 2009). The forest cottontail is the only species found in rainforests throughout Central America, where it is more common along the forest edge than in the interior (Emmons 1997:246). Both S. brasiliensis and S. floridanus tend to shelter in dense vegetation but are able to exploit a variety of primary and disturbed habitats within their specific regions (Eisenberg and Redford 1989; Emmons 1997; Reid 2009). The forest cottontail may be further drawn to inhabited areas by the salt in human urine (Emmons 1997:246). Like other members of Family Leporidae, cottontails are terrestrial herbivores. They browse and graze, preferentially on young leaves (Emmons 1997:246). Another feature these particular species share with other leporids is their high reproductive potential. A mature Eastern cottontail is capable of bearing 5-7 litters of 3-5 kits annually (Barkalow 1962).

6.1.3 Large Rodents: Agoutis and Pacas
Two of the largest rodent species in the Maya Lowlands are the Central American agouti (Dasyprocta punctata) and paca (Agouti paca). These taxa are members of Infraorder Hystricognathi, a group of large rodents that includes New World porcupines, capybaras, and guinea pigs. In addition to their close biological relationship, they are also closely linked in Itza Maya folkbiology (Atran 1994,1999; Nowak 1999b). Both agoutis and pacas are terrestrial
foragers with stocky bodies and short tails, but the specifics of their appearance and behavior vary.

Central American agoutis are brownish in color with naked ears (Reid 2009:248). They are largely diurnal, though this behavior may be subject to change under pressure (Leopold 1959:391; Smythe 1983:463). Agoutis exist in a variety of habitats, including mature and disturbed forests, fields, and gardens. They subsist on a primarily vegetarian diet occasionally supplemented by insects and fungi, though their preferred foods are fruits, seeds, and young plants (Emmons 1997:229; Reid 2009:248).

Pacas may be distinguished visually from agoutis by their much larger size, pale underparts, and the white spots on their flanks (Reid 2009:249). Unlike the diurnal agouti, pacas are exclusively nocturnal. They share a similar vegetarian and largely frugivorous diet based on fruit, seeds, tubers, and young vegetation (Collett 1981:553; Emmons 1997:225; Reid 2009:250). Pacas are frequently found near water sources, but like agoutis they can inhabit a variety of environments including primary and disturbed forests, swamps, thickets, fields, and gardens (Emmons 1998:225).

Neither agoutis nor pacas are as fecund as rabbits. In a typical year, an agouti female may give birth to 1-2 litters of 1-3 (usually 2) young, and a paca will generally have 1-2 singleton births (Collett 1981; Eisenberg and Redford 1989; Govoni and Fielding 1991; Merritt 1983; Reid 2009; Smythe 1978, 1983; 1991; Vergara 1975).

2 Similar in body form, agoutis are linked to rabbits in Carr’s [1986:210] survey in Yucatan, where she records both being referred to using the terms guatusa, liebre, and pataseca.
6.2 Commensal Exploitation by Maya Communities: Ethnography and Ethnohistory

The commensal tendencies of these taxa draw them to areas of human activity and increase the likelihood of their capture. Throughout the Maya area, birds and small mammals are hunted to protect *milpas*, fruit trees, and gardens. Pursuit may be incidental (e.g. while tending to crops) or part of a hunt, either solo or organized (Greenberg 1992; Roys 1972). Modern Maya groups acquire commensal game using several types of traps, deadfalls, and snares (Wisdom 1940:47; Greenberg 1992; Hunn 1977; Roys 1972:41; Villa Rojas 1945:58). Many of these methods are likely of deep antiquity. Illustrations of trapped and snared game are found in the late Postclassic Madrid Codex (Codex Tro-Cortesianus pages 38-49, Tozzer and Allen 1910:plates 29, 30, 33). Dog-assisted hunting also has ancient roots in the area and is a particularly useful strategy for the taxa in question.

The consumption of opossums, large rodents, and rabbits is ethnohistorically and ethnographically documented for modern Maya groups, although their stated desirability varies considerably (e.g. Anderson and Medina Tzuc 2005:63; La Farge 1931:63; Naranjo et al. 2004; Wisdom 1940; Redfield and Villa Rojas 1971:48; Roys 1972:41; Vogt 1970:55). Anderson and Medina Tzuc (2005:63) state that the Maya “do not like opossum,” but Hunn noted regular consumption of opossum during his study of the Tzeltal in Chiapas (1977:202). Widespread subsistence exploitation of rodent taxa is more widely accepted, and both Central American agoutis and pacas are frequently hunted taxa throughout their geographic range (Govoni and Fielding 2010). Maya hunting of agoutis and pacas is documented from the colonial period to the present day (Carr 1986; Tozzer 1941 [de Landa]:204; La Farge 1931:63; Naranjo et al. 2004; Redfield and Villa Rojas 1971:38; Steggerda 1941:160; Wisdom 1940:73). Both have high-quality meat, and pacas are sometimes especially favored. Agoutis contribute more to diet since
they are more commonly encountered than the nocturnal pacas in most environments, although they can be less desirable as game since they are smaller than pacas, their meat is less fatty, and their flesh may be tainted by musk (Smythe 1978:1, 1987:158). Like other rabbits and hares, cottontails are historically considered favorable game wherever they are encountered. Maya consumption of rabbits is well documented (Hunn 1977:205; La Farge 1947: 39; Wisdom 1940:73). Vogt (1969:66; 1970:55) notes that while Zinacantecos rarely hunted, they made an exception for hunting rabbits.

Captured or hunted commensals also serve purposes outside of dietary consumption. Agoutis, pacas, and rabbits can be used as sources of hide and are occasionally kept as pets (Naranjo et al. 2004; Steggerda 1941:145; Wilson 1940:73). Animal products, such as bones and fat, are also used in healing and sympathetic magic among modern Maya groups. Wisdom (1940:359) records the topical application of opossum grease to relieve swelling. Redfield and Villa Rojas (1971:177) note the use of amulets made from agouti cranial bones used to keep away “evil winds.” In these cases, the connection between these animals and the afflictions their bodies are used to treat is unclear. Further healing and magical qualities of the taxa are discussed below, where they are more easily connected to the broader ideological associations of specific animals. While there is not extensive documentation of these uses, it is possible that they reflect similar practices among ancient populations. Animal products also have non-medical magical properties: the same amulets made from agouti bones can be used to help locate root crops (Redfield and Villa Rojas (1971:177).

It is difficult, if not impossible, to reconstruct the relative importance of various game animals to the ancient Maya based solely on modern ethnographic accounts. First of all, the relative importance of hunted game varies with environment, and environment can change over
time (as it has in Mesoamerica). Several ethnographies state that hunting is rare or absent in modern Maya communities due to a lack of available game (e.g. Béhar 1968:116; Vogt 1969:66; Wisdom 1940:47). When assessing animal use based on ethnographic accounts, it is important to note that resources that are absent within a given environment cannot be utilized (unless acquired through trade), and modern availability of animal resources is not necessarily an accurate reflection of ancient environments. Furthermore, the centrality and prevalence of hunting varies according to economic need. During times of protein or monetary scarcity, hunting provides a supplemental source of calories and salable goods even in areas where hunting is not regularly practiced (Press 1977:283).

6.3 Commensal Exploitation by Maya Communities: Theoretical Potential

Opossums, rabbits, and rodents can persist or even thrive in human-disturbed environments, which is not always acknowledged in the archaeological literature. There is a notable disparity between the idealized behaviors described in natural history accounts and the documentation of human interaction with these taxa. Much of this information comes from outside of the Maya region: ecological studies of the same species in South America, for example, reflect a greater environmental plasticity than has historically been considered in Mesoamerican zooarchaeology (e.g. Akinnifesi et al. 2000; De Lima and Gascon 1999; Naughton-Treves 2002; Pohl 1976). While there are no modern analogues for urbanism as practiced by the ancient Lowland Maya, and though differences in the study populations may exist, these findings strongly suggest that opossums, rabbits, and rodents could thrive near ancient settlements.

Landscape studies in the Lowlands suggest that resource use by the ancient Maya was dependent upon the maintenance of a mosaic habitat including milpa fields, secondary growth,
and primary growth forest (see Atran 1993; Farrell 1997; Fedick 1996; Ford and Nigh 2009). This multi-environmental strategy is still practiced by Maya communities today (Nations and Nigh 1980). *Didelphis* sp. and Eastern cottontail rabbits are widespread inhabitants of human settlements and fields, and environmental heterogeneity also encourages commensalism by opossums and rodents. De Lima and Gascon (1999) have found that environmental heterogeneity in areas of swidden agriculture, for instance, positively affects populations of gray four-eyed opossum and other small mammals, particularly if they can use patches of denser vegetation as corridors to travel between fields. Cropland incidence of paca, agouti, and forest cottontail in addition to gray four-eyed opossum is higher where cultivated areas border dense vegetation (Cuarón 2000). These taxa can pose a significant threat to gardens and agricultural fields where such mosaic environments exist in Central and South America (e.g. Akinnifesi et al. 2000; Medellín and Equihua 1998; Nations and Nigh 1980; Naughton-Treves 2002). However, commensals are such a readily available resource through garden hunting that their attraction to crops can be viewed as a net positive for many communities (Linares 1976). Because landscape studies support widespread ancient habitat mosaicism, it can therefore be expected that ancient populations had access to these taxa.

### 6.4 Ideology and Folklore of Commensals: Evidence from Ethnography and Ethnohistory

As recounted in the *Popol Vuh*, the Quiché Maya origin story, the Hero Twins Hunahpu and Xbalanque interact with many different kinds of supernatural animals. During the course of the story, the Hero Twins hunt birds, turn into catfish, and are both thwarted and aided by a series of supernatural animals who act more or less naturalistically depending on the circumstances (Tedlock 1996). Before Hunahpu and Xbalanque descend to Xibalba, they face off against the
forest animals that destroy their garden each night. They break off the rabbit’s tail, leaving it short. They also catch a rat who trades future crops for the location of the Twins’ fathers’ ballgame equipment. The Hero Twins are soon summoned to the Underworld to play ball against the rulers of Xibalba. While they are there, an opossum brings the dawn by creating the first four streaks of red in the sky. Shortly thereafter, the Hero Twins conspire with a rabbit to help them trick the lords of Xibalba during a ballgame. When the rabbit appears, jumping on the court, the Underworld players mistake it for the ball. This distraction gives the heroes an opportunity to trick the Xibalbans and permits Xbalanque to reclaim his head, which he lost earlier in the Twins’ travels. Opossums, rabbits, and rodents thus act as agents and aid in the Twins’ journey.

In the Popol Vuh, and in the realm of Maya belief systems in general, there is no set division between the natural and the supernatural worlds, and plants and animals have connection to otherworldly forces. Any assessment of role that a given taxon plays in such a unified cosmology requires the integration of its associated ideological resonance. Sometimes there is a clear concordance between ethnography and the archaeological record: a connection between rabbits and the moon, for example, is visible in the iconography of ancient art as well as modern ethnographic accounts. Animals less commonly depicted in ancient art or whose remains are infrequently associated with ritual deposits, however, are more ambiguous. Opossums and rodents, though similar in body size and commensal habits, have less obvious presence in these records. In this section I examine the ethnographic and iconographic evidence that links these commensals to the world of belief and the supernatural.

6.4.1 Opossums
As marsupials, opossums are anomalous creatures in the New World landscape. Their bodies and method of reproduction are quite different from those of other mammals that share their habitat,
all of which are placental. Like humans, opossums have five digits with opposable thumbs (Blaffer 1972; Munn 1984). This anthropomorphizing peculiarity contributes to the role of the opossum in legends and folklore throughout the Americas (see López Austin 1993, 1996:81-89; Munn 1984). Munn (1984) provides an overview of how the unique physiology of opossums has inspired folklore and supernatural resonance throughout North and South America. For instance, the opossum is linked to motherhood by its pouch and the acquisition of fire due to its hairless tail in many native North and South American traditions. Although many of the folktales Munn discusses come from outside the Maya area, similar connections may be found in ancient and modern Maya beliefs. For instance, among the Tzeltal, ground opossum tail is used in a medicinal drink to aid childbirth. The Tzeltal advise caution when acquiring opossums (Didelphis spp.), however, for touching one may cause one’s hair to turn white (Hunn 1977:125).

Opossums are inauspicious in Colonial period documents and most modern Maya accounts. In the Chilam Balam of Chumayel, the fourth katun is presaged as a harsh and difficult time in which the rattlesnake and small mouse opossum (holil-och, Marmosa sp.) “raises its head <to bite>” (Redfield and Villa Rojas 1971:152). Opossums are also invoked in the prophecies of the seventh katun: “The dog is its tidings; the vulture is its tidings…. The opossum is its face to the rulers” (Redfield and Villa Rojas 1971:155). The katuns also mention a creature named the boboch that may be connected to the opossum (och= opossum). This creature destroys food supplies and is twice invoked in prophecies foretelling famine (Redfield and Villa Rojas 1971:155,166). The boboch also has the ability to frighten the breath out of someone and is mentioned in a 17th-century Yucatec incantation to cure shortness of breath (Roys 1965:67). In

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3 Although these characteristics mark opossums as distinct from other animals, anomaly itself does not preclude consumption. Blaffer (1972:81) notes that the armadillo is also considered anomalous, but is a desirable food source among the Maya of Zinacantan.
certain Maya belief systems, opossums are associated with evil spirits, which is indicated in part by their foul odor or “bad air” (Anderson and Medina Tzuc 2005; Blaffer 1972:80). Large opossums are particularly associated with bad omens, and the “grumbling” or noises they make are thought to indicate an evil spirit in disguise or predict death (Anderson and Medina Tzuc 2005:142; Redfield and Villa Rojas 1971:209). This association with misfortune is echoed in a modern belief recorded by Steggerda (1941:5) in Yucatán, where seeing an opossum is considered an ill omen.

Other supernatural opossum figures appear as positive or ambiguous in ethnographic accounts. In addition to the dawn-bearer opossum of the Popol Vuh, two figures are mentioned whose epithets begin with “the Maker, Modeler” and include the names “Hunahpu Possum” and “Hunahpu Coyote” (Tedlock 1996:63). Tedlock (1996:215, 232) suggests that these names refer to either Xpiyacoc and Xmucane, the grandparents of the Hero Twins, or the Twins themselves. In either situation, “Hunahpu Possum” is the name of a powerful ancestor of humanity. Bunzel (1952:429) also records the following story from Quiché informants in Chichicastenango on the relationship between humans and opossums:

For our ancestors said that rats are people of another epoch and that when God decreed that his sons should die from strong hurricanes and tempests certain people took refuge in caves under the earth. And when the hour of the tempest passed and it became calm again God decreed that all those who had dug themselves into the earth should become rats, tacuacines [opossums], and foxes. And so it is.

In these cases, opossums have positive or ambiguous status as positive creator figures or transformed humans.

There are few clear iconographic depictions of opossums, which complicates the analysis of their ideological associations. Scholars in search of opossums, Didelphis sp. in particular, focus on their most noteworthy features: a long, hairless tail, pointed snout and teeth, and dark
fur surrounding the eyes (Munn 1984). These characteristics are useful as a suite rather than in isolation, as they are individually found in the depictions of other animals in the region, particularly carnivores (e.g. Tozzer and Allen 1910:347).

Iconographic analysis supports affiliation of opossums with God N, a multifaceted deity who supports the universe at its cardinal directions in his quadripartite form as the four *Bacabs*, and oversees the dangerous, and unlucky end of the year as his aspect *Mam* (Spencer-Ahrens and Wren 2002b:169). During this five-day period, known as *Wayeb*, the boundary between the human world and the Underworld can be easily breached. Various rites are conducted to counteract bad luck and to ensure the start of the new year (Tozzer 1941 [de Landa]: 135-149; Spencer-Ahrens and Wren 2002a:253-4). The *Wayeb* is represented in the Postclassic Dresden Codex (pages 25-28), where the *Bacabs* who bring in the new year are represented as opossums, although it is unclear if they are meant to be dressed as opossums or anthropomorphic hybrids (Stempell 1908; Tozzer and Allen 1910; Figure 6.1).
The Bacabs are identifiable as opossums by their long, thin tails, long and toothy snouts, and black mask around the eyes. A text accompanying the year bearers in the Dresden codex refers to Mam (Kelley 1962:286; Pio Perez 183:437 in Tozzer 1941:139; Taube 1989). The mam glyph refers to an elder or ancestor, an honorific that can appropriately apply to aged deities like God N (Stuart 2000). Opossums are thus connected to elders in both the Popol Vuh and their connection to God N.

The Bacabs are sometimes referred to as ixtol och, or opossum actors. This may be because Didelphis virginiana is a noteworthy performer; when it “plays [o]possum” it seems to expire and then return from the dead (Munn 1984). In addition to the serious task of bringing in
the year, the opossum-\textit{Bacabs} are also clowns, musicians, and entertainers (Figure 6.2). The year bearers in the Dresden Codex carry staffs and fans and wear shell-fringed belts associated with mummers and dancers (Taube 1989). Taube (1989) argues that humorous performance and ritual clowning was an important part of ancient Maya ceremonial activity. Depictions of God N are often in the context of those with political power, and opossums may reflect mockery of political figures (Taube 1989:376). Inversion of authority through mockery may have been particularly important during liminal times like the \textit{Wayeb} (Taube 1989; Turner 1969).

![Figure 6.2 Drawing of Late Classic vessel depicting opossum musicians carrying gourd rasps (Taube 1989:Figure 24.1). Drawing by Diane Griffiths Peck. Image courtesy of Michael D. Coe.](image)

\textbf{6.4.2 Rabbits}

Rabbits feature in a number of modern Maya tales. In Zinacanteco folklore the rabbit is clever and mischievous. However, like other trickster characters, he does not always reap the rewards. In one folktale a rabbit steals the teeth from larger and more ferocious animals. The rabbit trades the teeth for a hat and sandals, which a deer immediately swindles him out of (Laughlin and Karasik 1988:140-143). In another tale, a rabbit succeeds in tricking the devil into rescuing a woman from death where stronger animals have failed, but he is unable to claim his reward.
because he is scared away by a loud noise (Teratol in Laughlin and Karasik 1988:215-218). Rabbits in these folktales are wily but still display the timidity of their species.

In Classic period iconography rabbits sometimes accompany God L, an Underworld merchant deity associated with rain and mist (Taube 1992:85). A rabbit scribe attends God L in his court in Xibalba on the Princeton Vase (K511) (Kerr and Kerr 2005; Figure 6.3). Elsewhere the rabbit is depicted holding God L’s distinctive regalia, a wide-brimmed headdress topped with a Moan bird, a type of screech owl (Figures 6.4 and 6.5). Taube (1992:85) suggests this may reflect “a poorly understood Classic myth concerning the theft of the regalia of God L.”
Figure 6.3 The Princeton Vase (K511), with rabbit scribe attending God L. Vase image courtesy of Justin Kerr.

Figure 6.4 A rabbit holds the regalia of God L on the Naranjo “Rabbit Vase,” K1398. Vase image courtesy of Justin Kerr.
Their association with God L may also contribute to their relationship with drought, which is linguistically demonstrated although unclear in meaning. The phrase “rain from a rabbit sky” (_thul can chacil_) is used in the *Chilam Balam of Chumyel* to refer to rainless period (Redfield and Villa Rojas 1971:154, 157).

The ancient Maya, like many other Mesoamerican cultures and peoples elsewhere in the world, associated rabbits with the moon (López Austin 1996). In iconographic depictions rabbits are most closely associated with the young version of the Moon Goddess Ix Chel (Goddess I) (Taube 1992). She is often depicted holding a rabbit in her arms, which is used frequently enough that the rabbit can be used to identify an otherwise-unidentified female figure as a depiction of the moon goddess (Figure 6.5).

![Image](image.png)

*Figure 6.5 The Moon Goddess holds a rabbit, who in turn holds the regalia of God L (K5166). Vase image courtesy of Justin Kerr.*

### 6.4.3 Rodents

Compared to opossums, specific ethnographic references to agoutis and pacas are far less frequent. Rats, squirrels, and other small rodents are present in folktales, but these larger taxa are
not. Agoutis and pacas appear in the Chapter of Questions and Answers in the *Chilam Balam of Chumayel*, but their textual meaning is ambiguous:

> Son, go get the heart of the stone and the liver of the earth…. I have seen one of them lying on its back, and one lying on its face as though it were going into hell. They are a Mexican Agouti [*A. paca*] and a Spotted Agouti [*D. punctata*], also the first Ah-kulel [town official]… Also <bring> the first sorcerers, there are four of them. They are the gopher, the Spotted Agouti, the Mexican Agouti and the peccary” (Roys 1967[1933]:129-130).

This link to sorcery may be reflected in a belief recorded among the Maya of Chan Kom that agoutis have the ability to transform into snakes and slither into holes to avoid hunters (Redfield and Villa Rojas 1971:208).

Tozzer and Allen (1910:355) first noted the difficulty in identifying animal figures as rodents, much less particular species. Other than the large incisors characteristic of order Rodentia, the rodent species of Mesoamerica share certain superficial physical characteristics such as body size, fur color, or short ears, with rabbits, certain carnivores such as kinkajous, and other mammals. Although there is some difference in their coloration, when reduced to their most basic representative features – a small, mostly brown body and a short tail – agoutis and pacas differ from rabbits only in the size of their ears. Rabbits even have long and prominent incisors in life, and these are sometimes depicted iconographically. Iconographic depictions of rabbits tend to focus on their noteworthy ears, which can be further exaggerated in size for emphasis (Figure 6.6). If large ears are absent, it is possible that some of the “rabbits” identified by iconographers are in fact agoutis, pacas, or even pocket gophers or other rodents (Figure 6.7). Unlike opossums and rabbits, there are no clear connections in ancient iconography between rodents and particular supernatural figures. This may be due in part to the difficulty of their iconographic identification.
Figure 6.6 A parade of wayob on a Chama-style vase (K3332). The exaggerated ears of rabbit way figure contrast with the small, rounded ears of way on the right, which may represent a rodent.

Vase image courtesy of Justin Kerr.
Figure 6.7 Depictions of supernatural rabbit, rodent, and ambiguous figures. A. K2026, large-eared rabbits; B. K1490, a rodent with small ears and a short tail; C. K3413, an ambiguous zoomorphic figure with short ears, probably representing a rodent. Vase images courtesy of Justin Kerr.

6.5 Human Animals: Metaphors and Souls

Animal names are used to name and describe individuals and groups among the ancient and modern Maya. The *Chilam Balam of Timizin* refers to military orders with animal names, such as the “opossum rats,” “jaguar opossums,” and “hanging rabbits” (Edmonson 1982: 62, 64, 142). In Classic period texts, polities, and lineages as well as particular individuals are given animal-derived names. Lady Six Sky of Naranjo conquered a location named *K’an T’ul* (Yellow Rabbit).
This place name is given on Naranjo Stela 22, and the basal register of Stela 40 shows a rabbit with prominent incisors and large ears being stepped upon (J. Baron, personal communication 2015) (Figure 6.8). Animal glyphs are also incorporated into personal names. An individual named T’ul Chiik (Rabbit Coati[?]) appears on Piedras Negras Panel 3 (J. Baron, personal communication 2015). It is unclear why places and people would be given such names, but it may have to do with the particular characteristics ascribed to the animals in question.

Figure 6.8 Naranjo Stela 40 shows an individual stepping on a rabbit, signifying the conquest of K’an T’ul (Yellow Rabbit) (Graham 1978:101; Drawing by Ian Graham (c) President and Fellows of Harvard College, Peabody Museum of Archaeology and Ethnology, PM# 2004.15.6.3.21 [digital file# 99200010])

In ethnographic accounts, individuals are often likened to animals as a form of social criticism. Sometimes the relationships between human and animal are clear, as is the case in Highland Chiapas where the teasing nickname volov (agouti) is given to those with a bulging head (Bricker 1973:160). In other cases, animals are used figuratively, especially as a means of
criticizing those in power (Bricker 1973). In the *Chilam Balam of Chumayel*, the fourth *katun* is a time of political corruption and bad fortune overseen by officials including “the opossum chieftain” and the negative “*tolil-och*” ([?]-opossum, *Marmosa* sp.). Opossums here are associated with avarice and malicious intent. “They deceive the town, the two town officials, the chieftain opossum and he who lies in wait on all fours. They bring the pestilence” (Redfield and Villa Rojas 1971:153). The opossums and other animals named by the authors refer to individuals, perhaps specific unwelcome rulers (Redfield and Villa Rojas 1971:196). Redfield and Villa Rojas note, however, that this is the only instance they have encountered in Maya art or ethnography where opossums like *Marmosa* sp. (*tolil-och*) are associated with rulership (1971:200).

**6.5.1 Animal Spirits: Chanuletik and Wayob**

Despite their differences, most, if not all, modern Maya groups hold certain beliefs about the interconnectedness of humans and the natural world. A particular manifestation of this is the notion that each human individual has a soul made of multiple parts, one of which takes the form of an animal. In Tzotzil Mayan, these spirits are referred to as *chanuletik* (singular, *canul* or *chanul*). Such animal soul companions, ethnographically documented among the Tzotzil, Quiché, and other Maya groups, have been linked to Classic period texts referencing creatures referred to as *wayob* (singular, *way*) (Bunzel 1952:317; Houston and Stuart 1989; Vogt 1967, 1970). It is a common belief among the archaeological community that the animal spirit companions of modern populations are rooted in similar beliefs held by the ancient Maya (Calvin 1997; Gossen 1996; Houston and Stuart 1989).

Although the idea of a human-animal soul is widespread in the Maya ethnographic record, there is considerable variability in conceptions and use of the concept. However, certain
aspects of ethnographically documented chanuletik are held in common, although it is overly simplistic to assign one interpretation to all modern and ancient expressions (Matteo and Manjavacas 2009). They are integral components of the soul, and each individual has his or her own chanul. The animal soul exists separate from the human body and may take physical form. Although they live apart, the wellbeing of the individual is inextricably tied to the wellbeing of his or her chanul, and injuries or death of the soul animal have terrible consequences for its human (Bunzel 1952:274-5; Gossen 1975; Vogt 1976:19,1970:11).

Chanuletik can take the form of insects, birds, and reptiles, but they are often mammals. The animal fits the personality or social standing of the individual (Gossen 1975; Linn 1989; Saler 1964). Powerful people are associated with more powerful spirit animals, such as big cats or coyotes. Those who are sickly or of lower social status are likely to have smaller, less deadly animals like squirrels, kinkajous, or hummingbirds. Certain animals, such as snakes, are associated with witches and sorcerers (Linn 1989). Although some creatures, such as jaguars, are always affiliated with particular kinds of people (in this case, the powerful), characteristics associated with other animals can vary. Opossums are humble, typically associated with the weak and poor (Gossen 1975,1996; Linn 1989; Vogt 1976; Watanabe 1989). In some interpretations, however, only the strong have opossum souls because opossums are not easily killed (Linn 1989: 257-8). When rabbits are included in the list of possible chanuletik (not all modern Maya believe a chanul can take the form of a rabbit), they are also associated with common folk (Gossen 1996; Linn 1989:255; Watanabe 1989:264). I did not find specific references to paca or agouti souls, although Rodentia such as squirrels do appear in the bestiary of documented chanuletik (Gossen 1975, 1996; Linn 1989; Vogt 1976).
Wayob are epigraphically identified as the Classic Maya manifestation of chanuletik. Houston and Stuart (1989) link the modern Maya concept of the chanul spirits to the Classic Maya way glyph (T539), which they translate as “co-essence.” Inscriptions with the phrase u-way (his/her/its co-essence) connect depictions of supernatural figures with the names of human individuals. This concept of personal ownership is similar to that seen in chanuletik. Wayob can appear as skeletons and other Underworld figures, but they are most frequently depicted as zoomorphic. Their supernatural status is indicated not only by the glyphic text but by non-natural or human-like behavior. They are often shown in a bipedal posture, wearing clothes and ornaments, and engaged in human activities (Calvin 1997; Grube and Nahm 1994). Grube and Nahm (1994:699-700) identify an anthropomorphic rodent way as a “yellow gopher rat” based on glyphic texts. The figure has the small, round head and prominent incisors distinctive of rodents.

### 6.6 Zooarchaeological Evidence for Commensal Exploitation

Opossums, large rodents, and rabbits are frequently present in the zooarchaeological record, but often only in very small quantities (Table 6.3). The relative absence of zooarchaeological remains has several possible, potentially overlapping explanations. It is certainly possible that ancient populations did not widely exploit the commensal taxa under study. However, given the paucity of zooarchaeological data relative to excavation of Maya sites, and given the historic focus of Maya archaeology on ceremonial centers, ritual, and high elite architecture, there may be a significant sampling bias. If consumption trends in the past mirror those practiced by modern and historic Maya populations in which large are favored over small game, there is no reason to expect an abundance of commensal taxa in high status or non-subsistence locations.
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<thead>
<tr>
<th>Site</th>
<th>Opossums</th>
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<th>Hystricognath Rodent</th>
<th>Rabbit</th>
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<td>D. punctata</td>
<td>Sylvilagus sp.</td>
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There are also several potential confounding factors to be acknowledged, although they do not erase these animals from the archaeological record. Preservation biases against smaller, more fragile mammal bones may exist, though they are unlikely to be a cause of absence in areas where well-preserved and fragile bones from birds or fish have been recovered. Relative to larger mammals such as deer, however, bones of small commensals are more fragile and more likely to have been completely destroyed by scavenging (including dogs) or taphonomic processes. Furthermore, unlike larger animals, use of small animals in craft production would have focused on perishable fur and leather rather than bone and teeth and only produced small quantities of material. When they are present, the commensal nature of these taxa can raise the question of whether their remains represent natural or cultural activity. These animals are also frequently
more difficult to identify than larger mammals because the region is home to an abundance of mammals in this size class, and not all skeletal elements are easily identifiable even to the order level within the size class. This “small-to-medium mammal problem” can inflate NISP values for unidentified mammals while leaving an apparent absence of certain taxa. These issues are likely contributors to the fact that while commensal mammals are often recovered in archaeological contexts, they are often reported in small quantities.

There are exceptions where one or more of the commensal taxa appear in notably higher quantities. Ritual use of opossums is clearly demonstrated at Holmul and La Corona. Merwin and Vaillant (1932:29) recovered 25 perforated opossum mandibles beneath six human skeletons buried in Holmul Group II, Building B. Pohl (1983:79) suggests that they were perforated to be sewn to the clothing of the interred individuals. Further evidence for the use of opossums in ceremonial activity comes from their presence in the Late Classic CR16B-1A chultun feasting deposit at La Corona (see Chapter 4, Fridberg 2013). The use of opossums as ornaments and festival food may be related to the association of opossums with God N (see Section 6.3.1).

Midden deposits in Rooms 1 and 3 of the G Group Palace structure at Tikal have high quantities of opossums as well as rodents and rabbits. These deposits were formed during the Terminal Classic (Eznab) period, when the site had waned in power and commoners inhabited the site core. The rooms were sealed, and refuse was deposited through the ceiling, leaving an intact and well-preserved midden (Pohl 1976). These deposits had a very high incidence of opossum (Didelphis spp.; NISP= 500, MNI= 29), as well as significant quantities of gray four-eyed opossum (60, 7), Central American agouti (59, 7), and cottontail (Sylvilagus spp.; 88, 9). A comparatively smaller quantity of paca remains (NISP= 2, MNI= 2) was also recovered (Pohl 1976:Fig. 4-3, 4-4).
6.7 Conclusion

Commensal animals are undomesticated co-inhabitants of the domestic sphere that are regularly visible and physically accessible to humans, but usually not subject to human control. It is this constant presence of commensals that makes rich resources for varying types of utilization, but that very constancy also allows them to fade into the background of human experience or archaeological interpretation.

There is unequivocal evidence that the ancient Maya made physical use of opossums, rabbits, and rodents and had places for them in their worldview, as do modern and historic Maya. The remains of these commensals are present, often in small quantities, in a wide range of archaeological contexts that are functionally, socioeconomically, and geographically diverse. This ubiquity is comprehensible in light of the adaptability of these taxa as well as their large populations and ubiquity in the world of the ancient Maya. They are well suited to the disturbed habitats that likely arose from ancient Maya settlement patterns, and I suggest they contributed to the sustainability of Maya urbanism by providing an exploitable source of protein.

In this chapter, I have demonstrated that the conceptual affiliations of these taxa revealed by ethnography, ethnohistory, and iconography that may be used to further interpret the zooarchaeological record. They figure in creation stories and associate with – or even stand in for – several deities; in the here and now, they feed mortal mouths, supply mortal material needs, and serve certain critical roles in mortal metaphor, both in terms of social commentary and the identities of both individuals as well as larger groups like polities and dynasties. There is ample reason for archaeologists working in the Maya area to reconsider commensal mammals for their clear resource value and the ideological resonances of these seemingly humble animals. They may not be as present in iconography or upper class archaeological contexts, but their identity as
“background noise” in the lives of most ancient Maya actually demands their consideration as a physical and ideological constant in the lives of everyday people.

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Zender, Marc and Stanley Guenter

Chapter 7: Discussion

In this chapter I address how a ritual-economic perspective is useful in considering the results presented in Chapters 4, 5, and 6. As discussed in Chapter 3, the archaeology of ritual functions as materialized ideology (DeMarrais et al. 1996), but it cannot be separated from the practical processes of resource acquisition, modification, transfer, and disposal. Ritual economy assesses the allocation of resources for ritual ends that in some cases can involve substantial investment of labor and/or materials. The value of ritual activity is reinforced by acts involving the expenditure of large quantities of resources or the use of rare, status-restricted, or hard to acquire materials. Activities involving substantial labor, such as the preparation of a feast or construction projects to create ceremonial spaces also speak to the value accorded the ritual activity. As stated by Sandstrom (2008:104), “people measure the cost of a ritual in proportion to the result they are seeking.” Unpacking how this economic decision-making articulated with ideological concerns to affect ritual choice is at the core of a ritual-economic analysis.

7.1 Ritual Economy of the La Corona Chultun Assemblage
I interpret the La Corona chultun presented in Chapter 4 as the remains of a high elite feasting event based upon its Late Classic date, high quality materials, and its architectural context adjacent to the palace Structure 13R-10. La Corona was affluent in the 8th century, and the absence of commoner-associated ceramics or other goods suggests that this was a status-restricted event. If this was an event restricted to the elite, all faunal remains must be assumed to reflect elite practice.

The chultun materials are only a partial record of the feasting event. I do not refer only to the incomplete ceramic vessels identified by Parris (2014) that indicate some of the festal refuse
was not included in the chultun deposit. The material remains of the feast directly implicate economic processes of resource acquisition and production, transfer, and disposal, but the underlying economic structures that supported this system remain invisible. Specialized production of ceramics and long distance trade, both well-established facets of Late Classic Maya life, are demonstrated by the fine ceramics and marine shells present in the chultun assemblage. There are other activities involved in the deposit’s creation, such as hunting, food preparation, and music making, for which specialization is less amply attested. Even without dedicated specialists, the creation of the festival meal and any associated performances (musical or otherwise) required labor. Although presumed to be locally acquired, the rest of the faunal profile still reflects multiple strategies including fishing, mollusk harvesting, raising domestic dogs, and various methods of hunting wild animals. These have variable labor and material requirements. Provisioning the feast was an economically complex act. The singular event of the feast thus exists on a foundation permitted by the successful functioning of an entire economic system that determined resource management.

In assessing the operation of ritual economy within the La Corona chultun assemblage, a basic question centers on the choice of animal products used in the feast. As members of the elite, participants are presumed to have had choice as consumers. Certainly, each choice reflects the practical considerations of acquisition, but with the exception of marine shell, there are no clear indicators of long-distance transport or use of exotic fauna. When the chultun is compared to other elite midden and feasting contexts in the Maya world, its opossums are an outlier. Elite consumption of deer and dogs is accepted, but opossums are typically considered a lower status food.
All of the taxa represented in the chultun may be assessed using a ritual economic perspective, but the anomalous presence of opossums draws special attention. It contrasts with accepted views on how animal resources were economically valued and draws attention to the potential that other, unrecognized systems of value were in play. As discussed in Chapter 6, the choice for inclusion of opossums may be a result of their ideological associations. Opossums are linked to the Wayeb and the New Year, and it is possible that this feasting event was performed in honor of this time. Their link to God N may likewise be implicated.

Ultimately, it is necessary to adopt a ritual-economic perspective in order to reconcile our two assumptions: that the feast was an elite ritual, and that opossums are not typically associated with elite consumption (as currently understood through iconography and zooarchaeological assemblages). If sufficient value for inclusion was not provided by elite preference, then we must examine the other frameworks in which opossums may have held worth. Ritual economy is a useful framework for interrogating the creation of ritual assemblages that do not fit neatly into what we understand about ancient systems of value. In the case of the La Corona chultun, the items of questionable value are opossums. I argue that the economic power and access held by the La Corona elites indicates that opossums were a conscious choice. Untangling the reasons for departing from typical dietary preference must include consideration of the ideological value of opossums as discussed in Chapter 6.

7.2 Ritual Economy of El Perú Structure M12-44
In Chapter 5 I discuss El Perú structure M12-44, a subterranean chamber with abundant faunal remains. The ritual-economic expenditure of Structure M12-44 can be assessed in terms of its architecture and its artifactual assemblage. Interpreting the artifacts from the Cuartito is complicated because the context was disturbed and spent an unknown quantity of time unsealed.
In Chapter 5 I suggest that the Late Classic materials found in Structure M12-44 represent either placement of animal parts in order to communicate with animal-associated supernaturals or the remains of a ritual consumption event.

Construction of the Cuartito required significant labor, though the precise methods of construction cannot be determined without excavations in the surrounding plaza. I operate under the assumption that Structure M12-44 was created by excavating the chamber and lining it with masonry. The other possibility is that the structure was built and then the plaza was filled in around it. In either method, substantial effort would have been required to create a structurally-sound, nearly squared subterranean chamber. The masonry walls, vault, and possible paving events represent another investment of both labor and materials. The interior of the chamber was not plastered or finely finished, which may be for drainage purposes or to better represent the interior of a cave. As a portal, the most important feature of the Cuartito was that it permitted entry and reemergence from the earth. Labor and material investments were directed at creating the physical earth entry rather than on decorative elements.

Due to their disturbed context, caution must be used when assessing the artifacts found in Structure M12-44. The inclusion of high value, palace-quality Late Classic ceramics including cylinder vases and polychrome wares demonstrates substantial economic investment. The obsidian present in the assemblage indicates trade, and a green obsidian blade fragment argues for long-distance trade with Central Mexico. The speleothem fragment likewise indicates travel to a cave. Stratigraphic disturbance precludes the firm conclusion that these materials are from the Cuartito’s Late Classic ritual use. However, it must be noted that these objects had high ritual and economic during the Late Classic period.
Variable labor and skill requirements were necessary for the acquisition of animals found in the Cuartito. The diversity of taxa represented implies different hunting strategies involving a variety of environments and, likely, multiple individuals and hunting parties. The isolated specimens of crocodile and large felid indicate both successful pursuit of predators and the economic power to acquire status-restricted materials. This is especially true if the felid remains are from a jaguar (*Panthera onca*), which operated as a symbol of kingship (e.g. Saunders 1994). This is in contrast to the presence of animals not restricted by status, including domestic dog, fish, and small commensals.

In a ritual-economic analysis, Structure M12-44 presents a mixed picture of high and low expenditure investments. The construction of its architecture was expensive, but the animal remains it includes are not dominated by high status taxa. The discrepancy between the expensive structure and the diverse, variable-status animals it contained suggests that the faunal taxa were chosen based in part on ideological concerns rather than strict expressions of economic value.

**7.3 Ritual Economy of Commensal Mammals**

In Chapter 6 I review the role of opossums, large rodents, and rabbits as potential and actualized resources. These taxa are widespread in Maya archaeological deposits, albeit often in minimal quantities. The ritual economic worth of commensals incorporates both their material and ideological values.

Compared to animals that avoid human habitation, commensals are a readily accessible resource. The cost of acquisition for small commensals is therefore typically much lower than that required to travel further afield for hunting. The effective use of dogs, traps, and snares further facilitates acquisition. The desirability as food resources cannot be assumed because
these preferences are highly variable. The lack of soft tissue preservation means that modern uses of hides and furs may or may not mirror ancient patterns. Regardless, they all provide potential sources of meat and skin in close proximity to human settlements. Commensals may therefore be considered, in Polanyi’s (1944) formal definition, an economical choice.

The ideological associations discussed in Chapter 6 must be considered when opossums, large rodents, and rabbits are found in zooarchaeological assemblages. For those remains that fall neatly into archaeological definitions of ritual deposits, they may be representative of materialized ideology associated with a particular religious or social concept, such as a deity or an aspect of identity. It is highly unlikely that the inclusion of an animal in a burial or cache, for example, is a meaningless act.

The ritualized aspects of subsistence animal use are less immediately definable and therefore less subject to interrogation. However, archaeologists regularly make assessments based on the perceived ancient value of different food sources. Although the evidence of their consumption varies across time and space, the commensal taxa discussed are rarely considered to have been particularly desirable food taxa. This is especially true of opossums. Contexts clearly demonstrating the incorporation of such taxa into ritual subsistence like the chultun discussed in Chapter 4 are therefore useful spaces for examining how food choice expresses more than just matters of taste.

7.4 Conclusion
Archaeological consideration of human-animal relations make the most of a fragmentary record by including all available lines of evidence, including zooarchaeology, iconography, and ethnographic analogy. The advantages of a holistic approach may be seen in the consideration of commensal mammals discussed in Chapter 6. Interpretation of the La Corona chultun feasting
deposit discussed in Chapter 4 and assemblage found in the subsurface Cuartito discussed in Chapter 5, though heavily dependent upon zooarchaeological analysis, both reference concepts gleaned from these other methods of inquiry. The incorporation of multiple lines of evidence helps to make the cognitive and culture-bound aspects of “materialized ideology” more accessible (DeMarrais et al. 1996). The frame of reference provided by ethnographic analogy facilitates interpretation of the encoded messages in animal iconography.

A ritual-economic perspective helps to elucidate the multiple systems of value in which animals operate in human society. Difficulty of acquisition and desirability of consumption as food, fur, or feathers are only components of what accord an animal value. Ideological resonance and the ability of an animal to operate as a cultural symbol add dimensions of value that may not be obvious without reference to the insights provided by iconography and ethnographic analogy. The lens of ritual economy enables understanding of how an animal as seemingly lowly as the opossum can sometimes be food for feast, other times for famine, and perhaps also a messenger of the gods.

7.5 References


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Chapter 8: Conclusion

The objectives of this dissertation were to investigate the nature of animal use in the historically important and archaeologically understudied region of northwestern Petén and apply those findings to broader understanding of human-animal relations among the Late Classic Maya. In pursuit of these goals, I present two unique contexts that illuminate both human-animal relationships and ritual behavior and offer detailed discussion of the underappreciated world of commensal mammals. I chose to adopt a ritual-economic framework because it is well suited for addressing the combined economic/practical and ideological/ritual functions that animals play in human society. The dual roles of animal-as-object and animal-as-idea merit equal attention in archaeological discourse. This is especially true in the Maya world, where there is ample ethnographic, ethnohistoric, and iconographic material from which to approach the topic.

My research at La Corona and El Perú is the first faunal analysis of Classic Maya materials in northwestern Petén and contributes to a growing body of faunal studies in this region. In the analysis of the CR16B-1A chultun at La Corona, I demonstrate high status, ceremonial consumption of opossums alongside taxa considered to be more typically representative of the elite. This broadens the notion of what a “high status” diet actually was during the Maya Classic period and furthers the anthropological discussion of how ideology is deeply embedded in food choice. When considering ritual economy, the primary animal investment is not obviously “expensive” in what could be considered traditional market terms. The chultun is not laden with exotic fauna or only selected portions of animals with high meat utility. Rather, the “expense” lies in the selectiveness displayed; only three mammalian taxa were selected for inclusion. Notably, all were theoretically available in the local environment. This
intentionality represents a different sort of economic drawing power from that seen in procurement of exotic materials. The chultun reflects the economic power of choice—having the ability to be selective and involving only certain animals in the festal meal.

My analysis of El Perú Structure M12-44, the Cuartito, is a contribution to ongoing attempts to explore the diversity of ritual space in Maya archaeology. It also adds support to the definition of pseudocaves in ancient Maya sites. My analysis of the faunal remains from Structure M12-44 permits exploration of the function of these structures. I argue that the placement of animals within the Cuartito was in effect placing them into the Underworld. This connects the archaeological structure of the pseudocave to modern ethnographic understanding of how animals interact with the supernatural world. Although there are several potential explanations discussed for why animals were placed into the pseudocave “portal,” the diversity of the assemblage indicates procurement of many different taxa from multiple habitat zones. These taxa have variable projected acquisition costs, from rare and difficult-to-hunt large felid to more common commensal mammals and domestic dog. Various economic investments are therefore implicated: the labor of multiple hunting, trapping, and fishing events; travel into diverse habitat zones; as well as any market value.

The thematic study of commensal mammals I provide in Chapter 6 illuminates aspects of the faunal assemblages from CR16B-1A and Structure M12-44 while also linking these contexts to broader trends in the Maya world. I argue that opossums, rabbits, and large rodents had great economic potential for the ancient Maya. Although only small quantities of their remains are reported in many studies, the presence of one or more of these taxa is nearly ubiquitous. When coupled with the contexts that do demonstrate more extensive use of commensal taxa, it becomes clear that our understanding of ancient Maya animal exploitation lacks something when it comes
to commensal mammals. My discussion of opossums, rabbits, and rodents helps to address this gap and contributes to ethnographic, iconographic, zooarchaeological studies of Maya human-animal relations.

This dissertation draws attention to several key questions about ancient Maya human-animal relations related to food preference and the construction of animal value. How do we determine food preference among the ancient Maya? What was an elite diet? As discussed in Chapter 4, I believe there is sufficient evidence that opossums were not highly valued food resources for the Maya elite. However, we have yet to characterize what exactly comprised the ancient Maya “elite diet,” how this varied geographically and temporally, and what roles local cuisine played in determining preference. Similar questions may be asked about the symbolic use of animals. To what extent were ideological associations shared across time and space?

Future research at La Corona, El Perú, and elsewhere in the Maya area will bring new data to the discussion of ancient interactions with the animal kingdom. Increased excavation outside of site centers will permit analysis of how these relationships varied in society. The nature of and reasons for feasting, the use of portal spaces, and the economic and ideological value of commensal taxa are all likely to have varied along socioeconomic lines. With further research in the Maya area, new information will emerge the complex, vital, and archaeologically accessible realm of human-animal relations.