5-2016

Differential Maya Economies: A Comparative Zooarchaeological Study of Political Economies at the Postclassic Site of Mayapán

Katarina Spero
University at Albany, State University of New York

Differential Maya Economies: A Comparative Zooarchaeological Study of Political Economies at the Postclassic Site of Mayapán

Katarina Spero

Honors Thesis Advisor: Marilyn A. Masson

May 2016

Acknowledgements

I would like to express my deepest gratitude to Dr. Marilyn Masson, who so kindly took me under her wing during my sophomore year as a member of her Economic Foundations of Mayapán Project, not once but on four separate occasions. She taught me the value and enjoyment of archaeology in a world increasingly unconnected to its past; what it means to collaborate in a multicultural, multigenerational, and multidisciplinary work environment; and was always available to offer her support as my advisor and friend, and also as my personal nurse whenever I fell ill in Mexico. I would also like to thank the National Science Foundation's Research Experiences for Undergraduates Program, the Research Foundation for the State University of New York, and the Daniel H. Weiskotten Scholarship Fund for making all stages of this research possible.

Table of Contents

1. Introduction

Previous research on the archaeological site of Mayapán, the last political capital of the Maya, located in the Northwest of Mexico's Yucatan Peninsula, has focused mainly on urban life and the monumental architecture of the city center. In the 1950s the Carnegie Institution of Washington initially mapped and investigated Mayapán but the more recent contributions of both the Mexican government's National Institute of Anthropology and History (INAH) and the Economic Foundations of Mayapán Project (PEMY) have greatly expanded current knowledge regarding the social, political, and economic organization of the population that once inhabited the metropolis. The Carnegie Institution originally estimated the population of Mayapán to be between 10,000 and 12,000 residents, but Bradley Russell's recent Mayapán Periphery Project (MPP) found the site to be much more densely populated than previously imagined. By extending the range of study of the site to include those inhabitants living up to one kilometer beyond the city wall, the population of Mayapán was revealed to more likely be around 17,000 people at the height of its occupation (Russell 2008). Thus, the region beyond the wall merits just as much investigation as that within; this preliminary study offers a glimpse at ancient life at Mayapán by investigating the lives of the people who lived *outside* the city's circumferential wall and complements prior research on the city center.

Integrating new zooarchaeological data collected during the PEMY 2015 field season, this investigation takes a political economy and household archaeology approach by pertaining to the production and consumption of animal bones (including animal products) in *rural* domestic zones and comparing them to already established patterns within Mayapán's city wall. It was anticipated that Jabah, a particular household in Mayapán's periphery, would contain significantly lower densities of faunal bones and fewer types of taxa in contrast to houses within

the boundary of the city wall. The results of the study confirm this original hypothesis and may be due to such larger factors as the household's less nucleated surrounding population, relatively lower socioeconomic status, and greater distance from those resources, both local and imported, that were made readily available by the marketplace in Mayapán's monumental center. The existence of lower densities and fewer types of taxa at Jabah also seems to be indicative of an inclination toward subsistence, husbandry, and a stronger reliance on local sources of protein.

To answer the principal research question, "Are the densities and types of animal bones at Jabah lower and less diverse than those of the urban houses, similar, or greater and even more varied," quantitative comparisons are made between this more remote household's faunal assemblage and the faunal assemblages of three urban residences. The location of each dwelling and its relative distance from the circumferential city wall are also taken into consideration as influential economic factors. In this way, the zooarchaeological component of Postclassic household economies in the peripheral zone of Mayapán can be assessed, ultimately complementing past research on faunal products inside the city and painting a more complete picture of the site's production and consumption practices.

To do so, three specific, underlying research questions will be addressed. (1) How do the taxa, in general, from rural commoner households compare to their urban counterparts? (2) Do the representations of white-tailed deer skeletal elements outside the city wall show patterns that are similar or different than those found within the monumental center? And finally, (3) how do fish assemblages from the four different domestic contexts compare? The preliminary answers will hopefully facilitate the deeper evaluation of economic variation through animal products among the residents of Mayapán's center and periphery during the Postclassic period and, more extensively, of other sites that were also occupied during the same era.

2. BACKGROUND

From around A.D. 1100 to 1450 the Postclassic site of Mayapán functioned as the political capital of the Maya realm and was, in fact, the last major one before the arrival of the Spanish in the first half of the 16th century. Located in the Maya lowlands of northwest Yucatan (Fig. 1), Mayapán had an extensive peninsular trade network that could have reached as far as present-day Belize, Guatemala, and Honduras and through which exotic products such as salt, cacao, feathers, and a number of other luxury goods were exchanged for local crafts produced at Mayapán (Masson and Peraza Lope 2014:277-281). Even the non-crafting residents of the city consumed large amounts of goods produced in the center, including shell, chert or chalcedony, and obsidian, since the economies of Postclassic Maya sites were characteristically market-based and managed by nobles and commoners alike (Masson et al. 2014:10; Masson and Freidel 2013). Crafting and commerce thus played very large roles in daily life at Mayapán.

Economic consumption was not limited only to specialty goods, as parts of animals were also exchanged through the marketplace to be used in food, ritual, and craft production. While the majority of protein consumed at Mayapán was derived from local sources of white-tailed deer, dog, turkey, and iguana, the city also imported isolated elements of such non-indigenous animals as marine fish, puma, jaguar, spider monkey, manatee, and tapir, all of which were likely used for ritual purposes as they have been found in a number of non-standard locations in the center of the urban zone (Masson and Peraza Lope 2008:173-174, 2013:236, 2014:400).

In addition to the imported, more "exotic" taxa, the same local animals that comprised a large portion of the diet also seem to have had some degree of ritual significance to the occupants of the city. Dogs, for example, have been found in disproportionate amounts in monumental urban architecture, including the Round Temple group (Q-152, Q-87, and Q-87a)

and the Sanctuary (Q-72a) (Fig. 2) (Masson and Peraza Lope 2013:253-258), and, although white-tailed deer served as a heavy dietary staple, they also seem to have been used in ritualistic contexts. White-tailed deer, in particular, have been documented as a favorite food across Precolumbian Maya sites, but they have also occasionally been found in conjunction with ritualistic activity, such as at the Preclassic site of Cuello in northern Belize, where caches of deer mandibles were discovered (Carr 1996). Of a similar nature, concentrations of this taxon have been found at Mayapán in a number of burials, as well as in the Ch'en Mul cenote temple (Q-153), the Temple of Kukulcan (Q-162), and inside a shrine (Q-69) (Fig. 2) (Masson and Peraza Lope 2013:252, 261). Specific skeletal elements of white-tailed deer tend to experience either overrepresentation or underrepresentation in certain structures of the city center. A concentration of deer skulls has been found at the Temple of Kukulcan, for example, while very few deer vertebrae, ribs, scapulae, and pelvic bones have been located there and elsewhere (Masson and Peraza Lope 2008:176, 2013:267-268).

The monumental zone as a whole contains very diverse assemblages of taxa. In contrast, many imported animals that have been recovered from the city center do not appear in houses belonging to the settlement zone that is located at a greater distance from downtown Mayapán but still inside the wall. The same local animals (white-tailed deer, dog, turkey, and iguana), on the other hand, as well as catfish derived from nearby semi-saline lagoons, can be found in similar and even greater quantities in commoner households of the settlement zone as in the city center (Masson and Peraza 2008:173-174). As much detailed information regarding animal consumption in the more distant hinterland of Mayapán, however, is not currently available. Fortunately, this study will help to elucidate the types and representations of taxa at one non-elite

house outside the city wall and compare them to three different non-elite, urban households and the general, aforementioned patterns displayed within the city.

3. CONTEXTS

For nearly a century archaeologists explored the colossal temples, magnificent fortresses, elaborate burial chambers, and other elite structures of past societies across the world. A paradigm shift in the last several decades has altered the previous, almost exclusive focus on aristocratic architecture and its associated material culture to the more recent interest in the domestic environments of commoners. Household archaeology can provide a much more holistic perspective of a site since the elite constitutes only a small population and is in no way representative of society as a whole. While it is obvious that the peripheries of cities present stark contrasts to the urban centers by nature, a unilateral focus on the elite features of the urban zone excludes the data that represent the significant commoner demographic of the population (Masson and Freidel 2012:456).

According to Bermann, a household can be defined as a functional unit that provides archaeologists with a "view from the bottom," as it is comprised of different spheres of activity, which in turn contribute to the larger economic and social system (1994:22-23). The utilization of this domestic unit is often closely linked to a political economy approach, which fuses top-down and bottom-up perspectives regarding resources, in order to look at the economy in its entirety, from both the noble and commoner classes (Masson and Freidel 2012:456). Household archaeology, along with a political economy approach, tends to constitute a more balanced "dual economy" model than what is deemed "palace" or "temple" archaeology because it generally aims to eliminate the disconnect between the two economic sectors by revealing the other, more

mundane component of the urban zone and the mostly previously unexplored rural zone (Masson and Freidel 2013:209). Thus, instead of analyzing only faunal bones derived from Mayapán's monumental architecture and more elite population of the city center, the assemblages that will be utilized are from domestic structures that were inhabited by commoners, three of which are located inside the wall and the fourth is from a more distant location in the periphery. The general characteristics of each are described below.

3.1. Urban

Urban contexts include the three houses I-55, L-28, and Q-176a (Fig. 3). I-55 is a crafting household that engaged in surplus shell and obsidian production and is located in the northeastern section of the city (Masson and Peraza Lope 2014:Table 6.3; Masson et al. 2014:24, 27). This structure also created such animal bone products as mammal long bone picks, tools made from deer metapodials, one burned and polished animal bone, and bone splinter needles (Masson and Peraza Lope 2014:Table 6.4).

L-28 is located near the northern margin of the city wall. Unlike I-55, L-28 did not contain dense domestic middens because it did not engage in surplus production of obsidian, shell, or lithics. L-28 is thus an ordinary, non-crafter house (Masson et al. 2014:77-78, 86). The only animal bone tools it contained are a partially modified bone splinter and a piece of polished bone (Masson and Peraza Lope 2014:310, Table 6.4).

Like I-55, Q-176a is also a crafting house but is located in downtown Mayapán, significantly closer to the monumental center, and has a much greater variety of archaeological materials than both I-55 and L-28. Q-176a displayed surplus amounts of shell and obsidian, as well as the production of such crafts as pottery vessels, figurines, and obsidian blades (Masson

and Peraza Lope 2014:Table 6.3). Other artifacts recovered from Q-176a include bone tools made from deer metapodials and a splinter from a mammal bone (Masson and Peraza Lope 2014:Table 6.4).

3.2. Peripheral

Unlike the three previous urban contexts, 20P-7 is a rural commoner house located in Jabah, a small temple-cenote group to the Northeast of Mayapán, around one kilometer outside the circumferential city wall (Fig. 4). Extensive archaeological data similar to those of I-55, L-28, and Q-176a is not available for 20P-7; this study represents one of the first to investigate this peripheral structure as part of PEMY (2015). While each household displays different amounts and types of artifacts and archaeological materials, only the faunal assemblage of each household will be compared in the following section.

4. METHODS

After identifying the animals or species to which the bones from the assemblages belong, the sum of faunal bones and bone fragments was calculated in order to determine the NISP (Number of Identified Specimens) of each house (Table 1). I-55 contains 3,133 elements, the NISP of L-28 is 58, and 4,476 specimens were found at Q-176a (Table 1). The combined NISP of the three urban houses is thus 7,667, an incredibly larger sample size than that of peripheral 20P-7 in Jabah, which has an NISP of only 61 (Table 1). The NISP of 20P-7 is significantly lower than those of the urban crafting households, I-55 and Q-176a; however, it is comparable to the relatively low value of 58 of urban non-crafter L-28.

Following the completion of the NISP calculations for each house, the common taxa (white-tailed deer, large mammal (which is likely white-tailed deer), medium mammal (possibly deer), brocket deer, large bird (likely turkey), iguana, and turtle) of each structure were then classified together in one broad category (Table 2). Less common mammals (peccary, opossum, rabbit, very large mammal, ringtail, agouti, puma or ocelot, Mustelidae or weasel, armadillo, small mammal, rodent, dog, and gopher) were placed into a separate group (Table 3). Finally, marine taxa (marine fish, catfish, stingray, and shark) were placed into a third category (Table 5). Since white-tailed deer seems to function as both a dietary staple and a commodity that is highly correlated with ritualistic behavior in Mayapán's monumental center, a separate group was created for this taxon. Its skeletal elements were further isolated into the categories of skull, scapula, vertebra, rib, pelvis, front limb, rear limb, and foot bones (Table 4). Visual representations of the results in the form of column and line graphs were then generated in order to make quantitative comparisons between the three urban houses and one rural house (Figs. 5-8).

5. RESULTS

Interpretations of Figures 5-8 confirm the original hypothesis: the urban houses I-55, L-28, and Q-176a contain much more diverse and dense assemblages in comparison to the rural Jabah house, 20P-7. Each graph is individually analyzed below.

5.1. Major Taxa

Figure 5 of the major taxa reveals several notable features. We see that neither turtle nor turkey is present at 20P-7 and that the amount of iguana is quite low in comparison to the other

three households. Large mammal (likely deer) is the greatest taxon at 20P-7, with a proportion of 57.4%, and the houses inside the wall have lower densities of both white-tailed deer and large mammal when compared to Jabah. The combined proportions of white-tailed deer and large mammal are 33.7% for I-55, 34.5% for L-28, and 30.0% for Q-176a (Fig. 5). The value at 20P-7, surprisingly, is 73.8%, more than twice as much as the highest urban amount of 34.5% at L-28 (Fig. 5).

Brocket deer are particularly anomalous as they are present in the highest amount at 20P-7 and completely absent from L-28 (Fig. 5). With the exception of brocket deer, however, L-28 appears to have the most equitability, with relatively equal proportions of the remaining major taxa. The high density of brocket deer, as well as of white-tailed deer and other species of cervids, at rural 20P-7, on the other hand, may be due to 20P-7's greater proximity to surrounding forests. It is possible that non-crafter L-28 could not access brocket deer due to its position inside the wall, despite being in close proximity to land beyond the bounds of the wall, or its inhabitants simply preferred to not integrate the animal into their diet.

The facts that both turtle and turkey are absent from 20P-7, that the quantity of iguana is very low in this structure, and that nearly three quarters of the diet is comprised of white-tailed deer and large mammal reveal a lack of dietary diversification, a preference for larger, local animals, and possibly an inclination for hunting or husbandry. The abundance of white-tailed deer, large mammal, and brocket deer at 20P-7 also likely reflects a compensation for the lack of imported, "exotic" animals in the diet and, consequentially, a higher reliance on nearby, local sources of protein.

5.2. Less Common Mammals

Of the less common mammals (Fig. 6), L-28's assemblage is actually the least diversified, contrasting with the relatively equal proportions of major taxa in its diet. It resembles 20P-7 in that only three taxa (1.7% dog, 3.5% rodent, and 1.7% gopher) are represented, with a maximum of rodent (Fig. 6). The three taxa of 20P-7, however, are equally represented (1.6% peccary, 1.6% dog, and 1.6% Mustelidae) (Fig. 6). From these values it is clear that L-28 and 20P-7 have nearly equal proportions of dog bones.

The two remaining urban contexts I-55 and Q-176a are much more diverse than both L-28 and 20P-7. I-55 is comprised of peccary, very large mammal, small mammal, dog, opossum, Mustelidae, rodent, gopher, rabbit, agouti, and armadillo, while Q-176a has a similar assemblage that features ringtail instead of Mustelidae (Fig. 6). While there are fewer types of the less common mammals at both L-28 and 20P-7, the proportions of the three taxa represented at both structures are higher than that of any single taxon at I-55 or Q-176a. L-28 and 20P-7 thus both seem to have higher quantities of the relatively small, less common mammals (peccary, dog, Mustelidae, and gopher) in their diets than either of the urban households.

5.3. White-tailed Deer Skeletal Elements

The assemblages of I-55 and Q-176a both contain varying amounts of all skeletal elements of white-tailed deer (Fig. 7). I-55 has the most foot elements (44%), as well as the most skull elements (9%) of all four contexts, and Q-176a represents the highest quantity of vertebra (11%) (Fig. 7).

In contrast, not a single element from the axial skeleton was recovered from either L-28 or 20P-7 (Fig. 7). Both L-28 and 20P-7 contain only appendicular bones and, in fact, the highest

proportions of rear limb bones of the four houses. The proportions of rear limb bones at L-28 and 20P-7 are 50% and 66%, respectively (Fig. 7). More meat tends to be found on the appendicular skeletal elements, including the front and rear limbs. Since these bones seem to be favored by L-28 and especially by 20P-7, they may be another indicator of greater subsistence over craft specialization in both houses. The overrepresentation of white-tailed deer limb bones in all four contexts and the near absence of deer skulls, scapulae, vertebrae, ribs, and pelvis bones both inside and outside the wall also follow a similar, aforementioned trend at Mayapán by which skulls are largely underrepresented across the site, with the exception of the Temple of Kukulcan (Masson and Peraza Lope 2008:176, 2013:267-268). While some bones from the skull were indeed found at I-55, concentrations of deer skulls comparable to the Temple of Kukulcan have yet to be found elsewhere at Mayapán and seem to be especially absent outside the city wall.

5.4. Fish

The proportion of fish in the assemblage of each context is generally very low, but I-55 and Q-176a are the most diverse (Fig. 8). I-55 is comprised of 1.9% marine fish, 0.5% catfish, 0.03% stingray, and 0.2% shark, while Q-176a consists of 3.8% marine fish, 0.5% catfish, and 0.02% of both stingray and shark (Fig. 8). In stark contrast, L-28 contains no single type of fish at all and the only taxon found at 20P-7 is marine fish with a value of 1.6% (Fig. 8).

Since Mayapán is not a coastal site it engaged in trade for both fish and salt with sites that *did* have access to these resources. I-55 and Q-176a clearly both participated in this type of exchange network. 20P-7 also seems, to some degree, to have interacted in the marketplace for marine taxa, but solely to acquire marine fish. L-28 is an outlier, as it did not consume any type of fish at all. In combination with its complete lack of brocket deer, it is possible that the

inhabitants of L-28 were very selective, or they simply did not have the economic means to diversify their diet as much as the other two urban households, I-55 and Q-176a, and, to some degree, Jabah (20P-7).

6. SUMMARY

In analyzing Figures 5-8, some definite correlations can be observed. The consumption patterns of 20P-7, a rural commoner house situated in the small temple-cenote group of Jabah about one kilometer to the northeast of Mayapán, differ in several ways from urban diets both in the city center of Mayapán and in the domestic zone that is located at a greater distance from the city center but still within the wall near its interior margin.

In general, there is a high degree of variability of all taxa in the relatively diverse diets of the urban contexts. In contrast, the diet of peripheral 20P-7 displays less diversified patterns, yet similarities to that of the urban non-crafting house, L-28, which lies to the north of the city center but inside the wall. When I-55, L-28, Q-176a, and 20P-7 are compared, both 20P-7 and L-28 represent the highest combined amounts of white-tailed deer and large mammal, which is also likely white-tailed deer. They additionally display overrepresentations of white-tailed deer rear limb bones, in contrast to all other skeletal elements, and contain very little fish.

Minor differences between the two are also notable. 20P-7 has higher densities of white-tailed deer, large mammal, brocket deer, and white-tailed deer rear limb bones, in particular. Also, whereas this residential structure contains somewhat low densities of peccary, Mustelidae, and marine fish when compared to I-55 and Q-176a, these three taxa, as well as brocket deer, are all absent from L-28. A significant variable that may have led to these differences but broadly

similar diets of 20P-7 and L-28 is each house's spatial relationship to the wall and city center, that being of greater or lesser proximity.

The broad parallels, despite slight contrasts, between 20P-7 and L-28 likely reflect similar household economies. Both I-55 and Q-176a, urban crafting commoner houses, present stark contrasts to L-28, an urban non-crafting commoner house, and to 20P-7, a rural commoner house located in the hinterland of Mayapán. These collective differences, as well as the general similarities between 20P-7 and L-28, seem to suggest subsistence strategies and husbandry, more so than the use of animal bones for crafting and ritualistic activity. While both households did engage in craft production of animal bones and other materials and may have utilized animals or animal parts in ritualistic activities, subsistence and husbandry appear to have had more importance to the inhabitants of 20P-7 and L-28, as both houses lack the surplus production of faunal products common to I-55 and Q-176a, display an absence of the imported animals that are found in the city center, and engaged much less in trade with coastal sites than their urban counterparts. They both also relied heavily on the particularly meat-abundant rear limbs of white-tailed deer.

White-tailed deer present a particularly interesting case at Mayapán, both inside and outside the urban zone, with broad absences of axial elements and an anomalous concentration of skulls at the Temple of Kukulcan. H. Sorayya Carr documents the use of deer at a number of Precolumbian Maya sites in the Petén region of northern Guatemala and southeastern Mexico and contends that deer and meat in general were actually a largely elite food (Carr 1996). The results of this study beg to differ, however, since the periphery of Mayapán clearly demonstrates a greater consumption of white-tailed deer, brocket deer, and large and medium mammals than any other taxa in comparison to the diets of the people who once inhabited the urban zone.

The similar relationship between L-28 and 20P-7 supports the hypothesis that these two households both invested more time in subsistence practices than in the modification of animal bones for the aesthetic purposes of craft production found at I-55 and Q-176a. It may also facilitate the establishment of broader trends between non-crafting commoner houses in the settlement zones that lie inside the wall and the more remote households located far from the city center in the periphery.

Due to the small sample sizes of both rural 20P-7 (NISP of 61) and urban non-crafter L-28 (NISP of 58), as shown in Table 1, however, the ability for these houses to illustrate broader trends between rural and urban contexts is somewhat questionable. It is for this reason that this study constitutes only a preliminary approach and does not intend to claim a larger, more general relationship between central and peripheral households. Additionally, the low numbers of faunal bones at these domestic structures could have caused misrepresentations of certain taxa. The relative proportions of elements in these contexts could have thus been inflated in comparison to the much larger sample sizes of I-55 (NISP of 3,133) and Q-176a (NISP of 4,476) (Table 1). Further research should include more contexts outside the wall or simply incorporate larger sample sizes for L-28 and 20P-7 to compare to those within. In this way, a truly representative relationship between commoners inhabiting the periphery and commoner households situated in the city of Mayapán may be gleaned so that we may fully understand the other component of the political economy of this ancient but significant Postclassic Maya site.

References Cited

Bermann, Marc

1994 Household Archaeology. In *Lukurmata: Household Archaeology in Prehispanic Bolivia*: pp. 19-41. Princeton University Press, Princeton.

Carr, H. Sorayya

1996 Precolumbian Maya Exploitation and Management of Deer Populations. In *The Managed Mosaic: Ancient Maya Agriculture and Resource Use*, edited by Scott L. Fedick, pp. 251-261. University of Utah Press, Salt Lake City.

Masson, Marilyn A., and Carlos Peraza Lope

2008 Animal Use at the Postclassic Maya Center of Mayapán. *Quaternary International* 191(1):170-183.

Masson, Marilyn A., and Carlos Peraza Lope

2013 Animal Consumption at the Monumental Center of Mayapán. In *The Archaeology of Mesoamerican Animals*, edited by Christopher M. Götz and Kitty F. Emery, pp. 233-280. Cambridge Scholars Press, Cambridge.

Masson, Marilyn A., and Carlos Peraza Lope

2014 *Kukulkan's Realm: Urban Life at Ancient Mayapán*. University Press of Colorado, Boulder.

Masson, Marilyn A., and David A. Freidel

2012 An Argument for Classic Era Maya Market Exchange. *Journal of Anthropological Archaeology* 31:455-484.

Masson, Marilyn A., and David A. Freidel

2013 Wide Open Spaces: A Long View of the Importance of Maya Market Exchange. In *Merchants, Markets, and Exchange in the Pre-Columbian World*, edited by Kenneth G. Hirth and Joanne Pillsbury, pp. 201-228. Dumbarton Oaks Research Library and Collection, Washington, D.C.

Masson, Marilyn A., Timothy S. Hare, Carlos Peraza Lope, Bárbara C. Escamilla Ojeda, Elizabeth Paris, Elizabeth France, Betsy Kohut, Bradley Russell, and Wilberth Cruz Alvarado

2014 Household Craft Production and the Pre-modern Urban Economy of Mayapán, Yucatan, Mexico. *Journal of Archaeological Research.* In press.

Russell, Bradley W.

2008 *Postclassic Maya Settlement on the Rural-Urban Fringe of Mayapán, Yucatán, Mexico*. Ph.D. dissertation, Department of Anthropology, State University of New York at Albany.

Figures

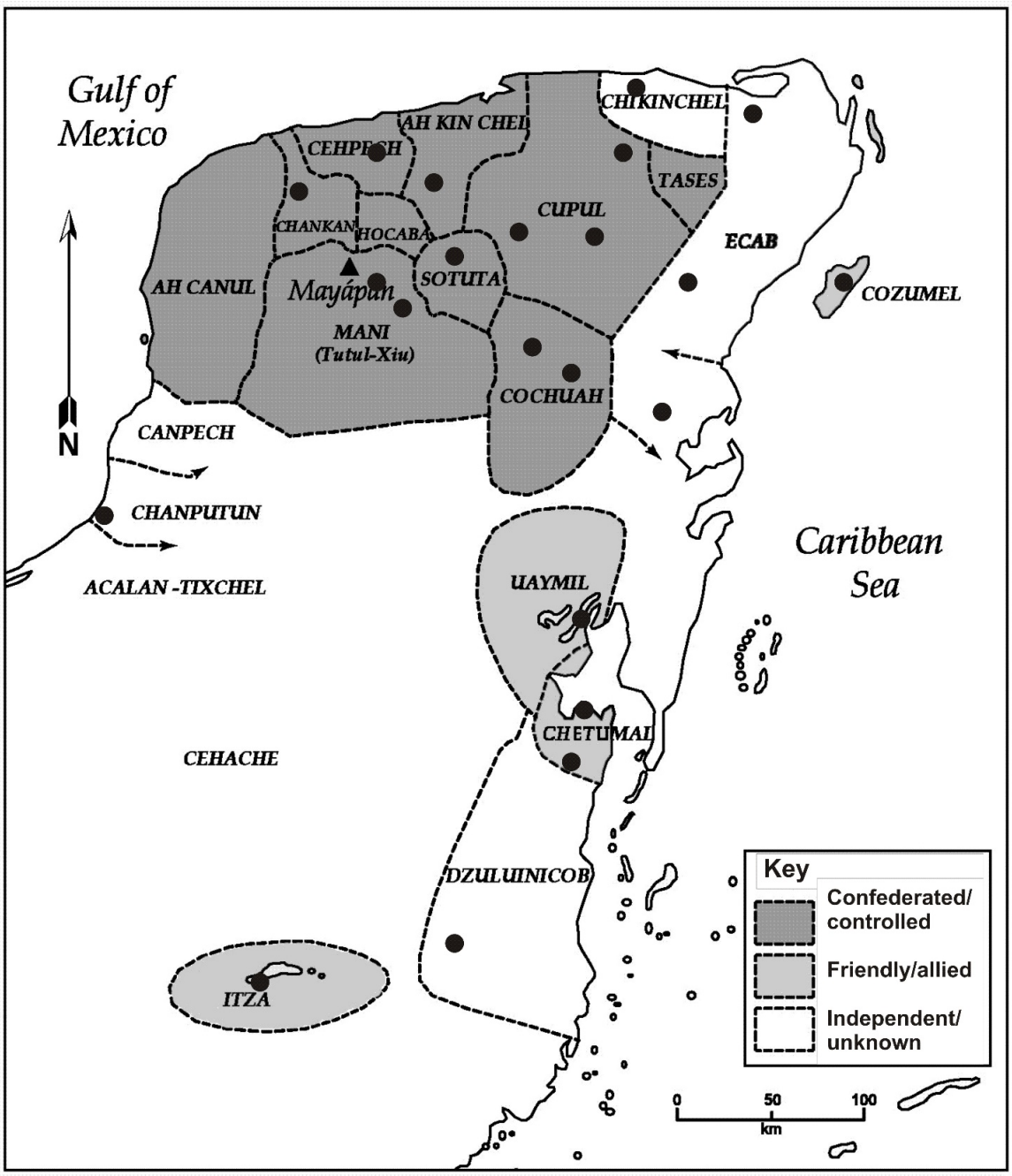

Figure 1. Regional map of the Yucatan Peninsula showing nearby polities and territories that were contemporaneous with Mayapán during the Postclassic period (Masson and Peraza Lope 2014:4).

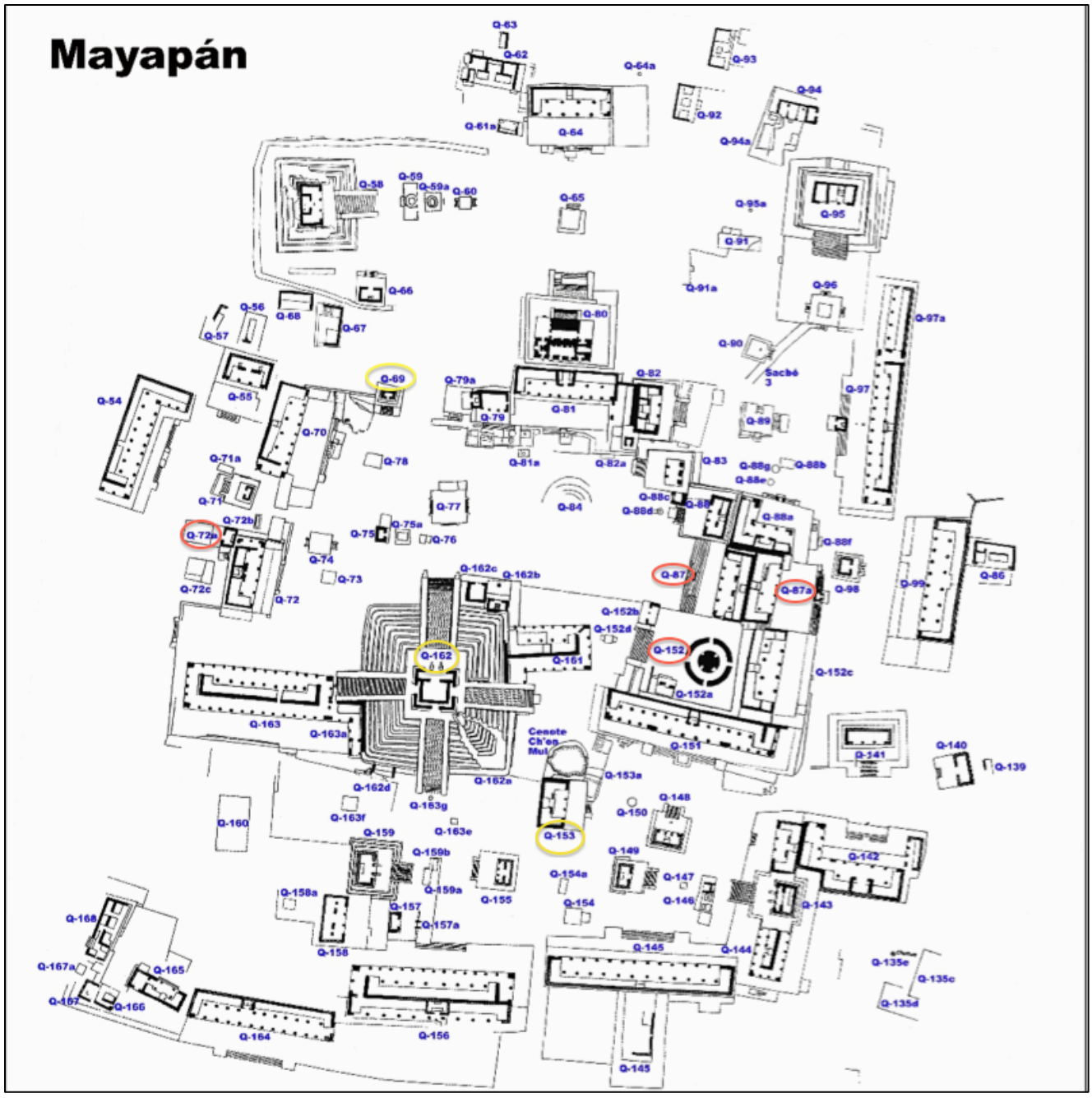

Figure 2. Archaeological map of the northern portion of Mayapán's monumental center showing relative locations of contexts where dog elements were found (circled in red) and contexts where white-tailed deer elements were found (circled in yellow) (modified from Masson et al. 2014:74).

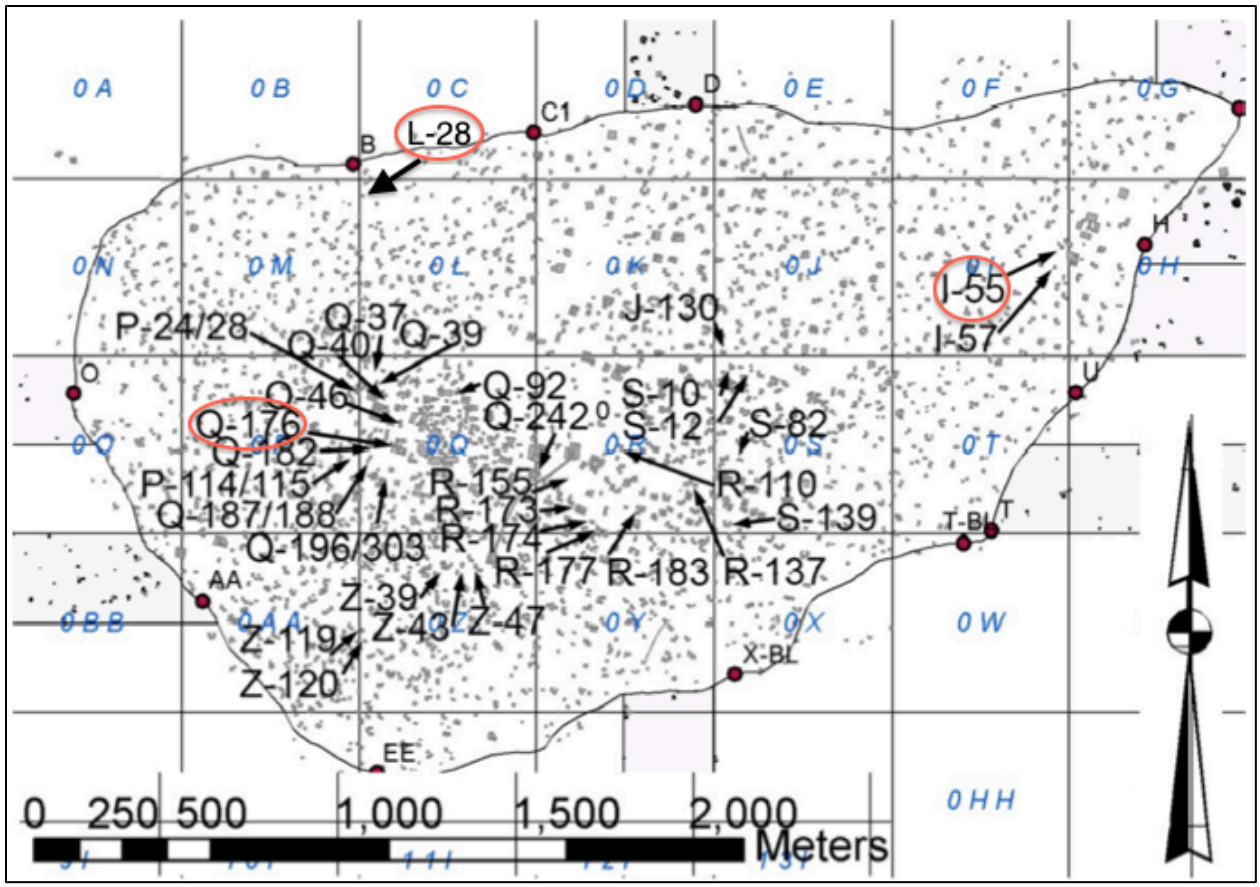

Figure 3. Regional map of Mayapán showing relative locations of urban contexts I-55, L-28, and Q-176a (modified from Masson et al. 2014:91).

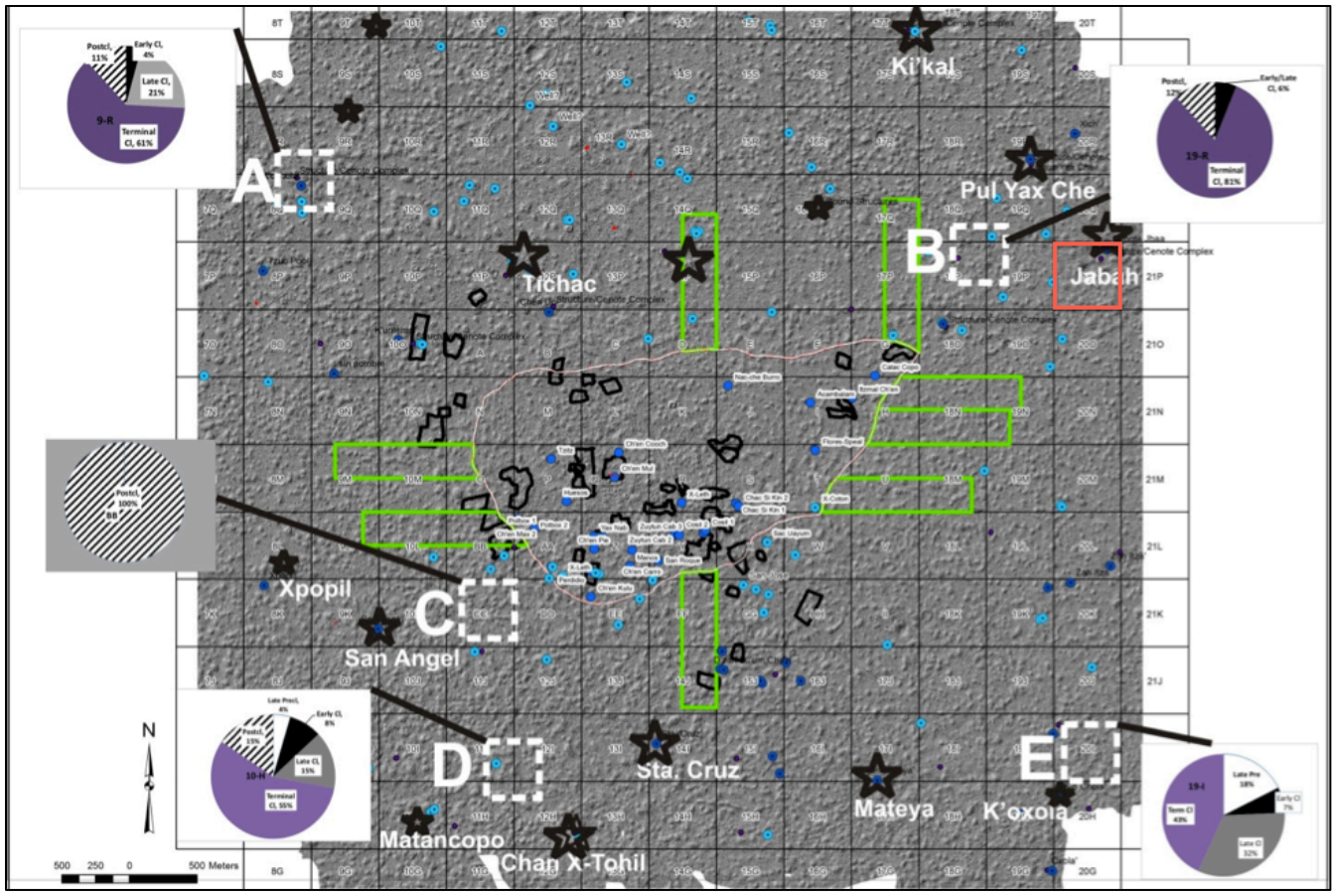

Figure 4. Red outline indicates relative location of rural context 20P-7 in Jabah, a small temple-cenote group outside Mayapán's city wall (modified from Masson 2014 National Science Foundation Project Description of "Changing Agrarian Foundations of Urban Life at Mayapán").

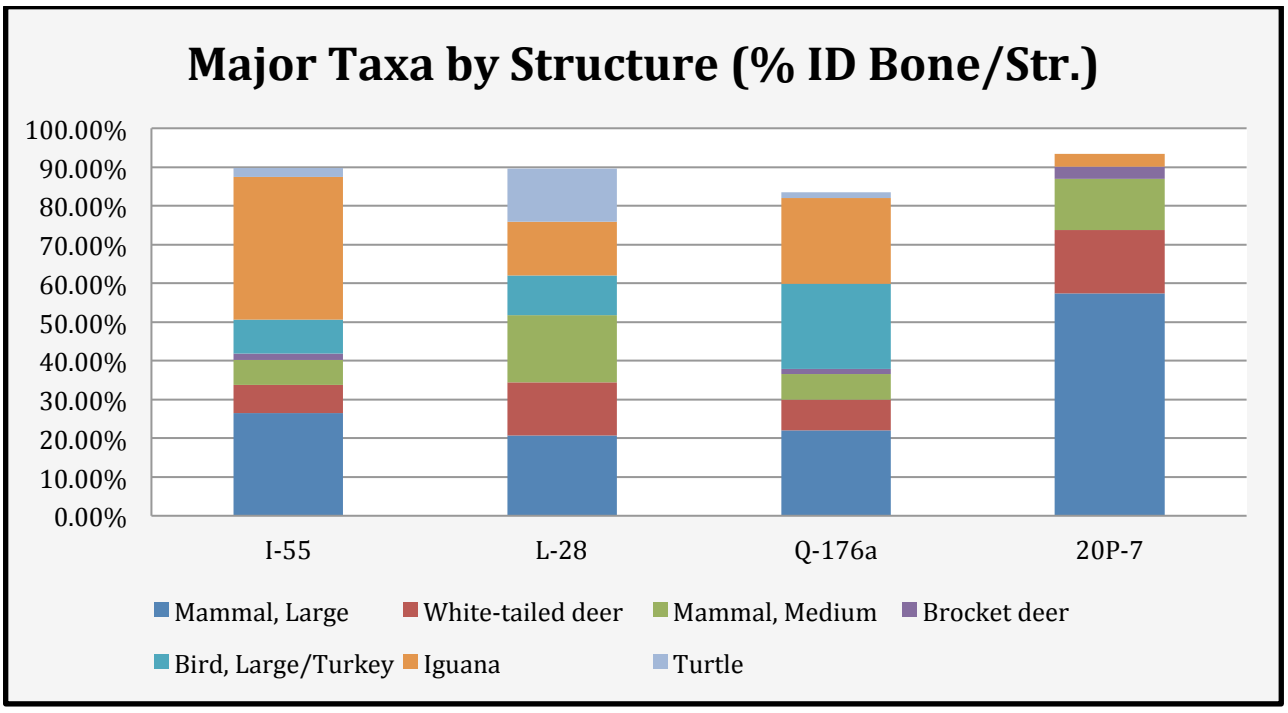

Figure 5. Percentages of major taxa from urban structures I-55, L-28, and Q-176a and rural structure 20P-7, as calculated from identified bone.

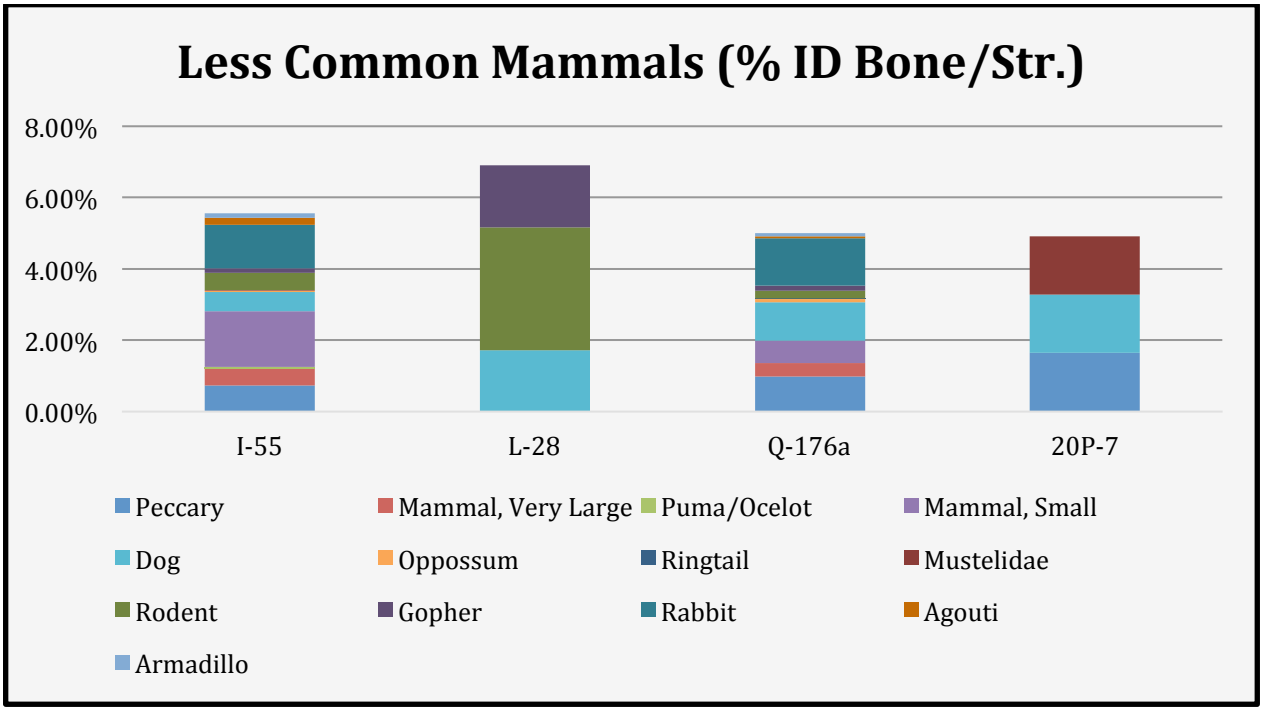

Figure 6. Percentages of minor mammals from urban structures I-55, L-28, and Q-176a and rural structure 20P-7, as calculated from identified bone.

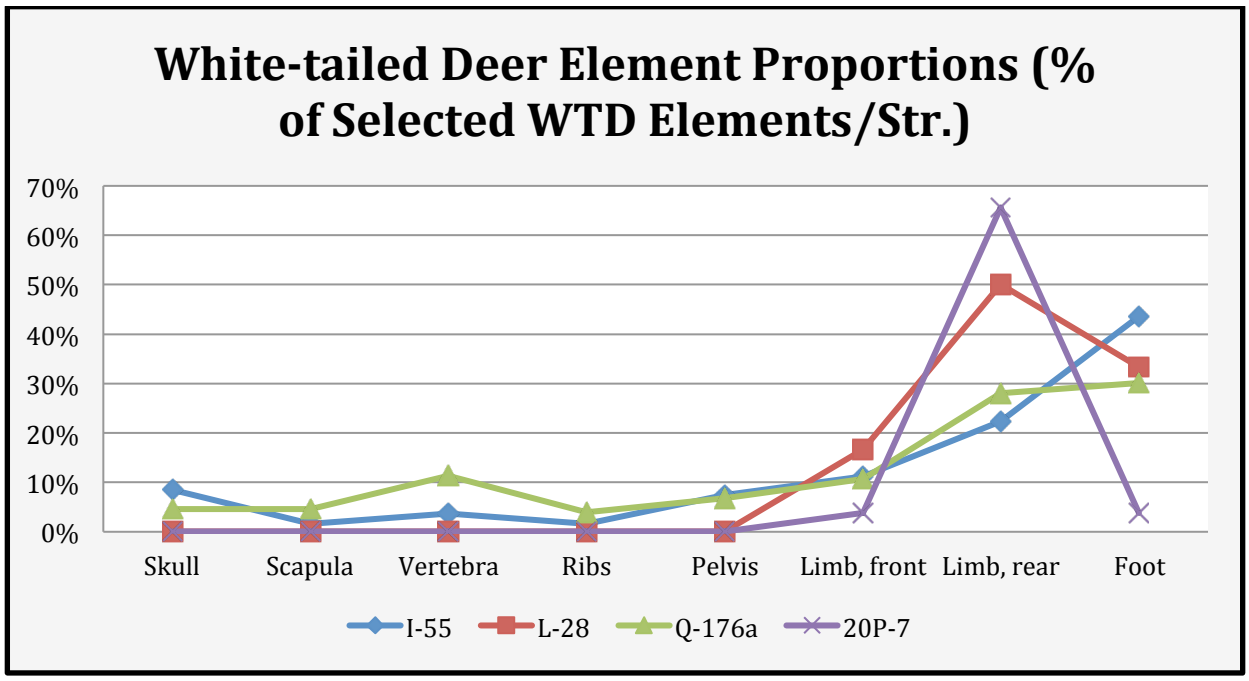

Figure 7. Relative proportions of white-tailed deer skeletal elements from urban structures I-55, L-28, and Q-176a and rural structure 20P-7, as calculated from identified bone.

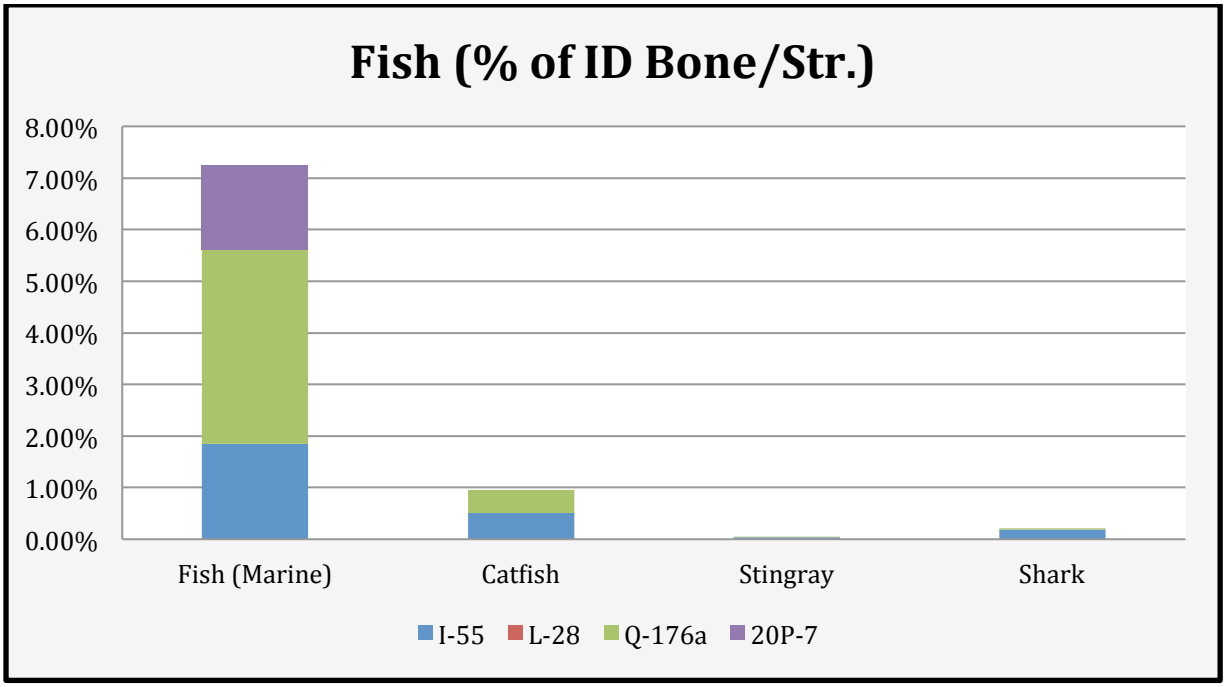

Figure 8. Percentages of fish from urban structures I-55, L-28, and Q-176a and rural structure 20P-7, as calculated from identified bone.

Tables

Taxa	Structure I-55	Structure L-28	Structure Q-176a	Structure 20P-7	Taxa Grand Total
Mammal, Very Large	15		17		32
Mammal, Large	832	12	987	35	1866
White-tailed Deer (WTD)	225	8	357	10	600
Mammal	12	2	66	1	81
Mammal, Medium	205	10	295	8	518
Brocket Deer	51		57	2	110
Brocket/Peccary	2		13		15
Brocket/WTD	1		4		5
Brocket/WTD/Peccary	4		3		7
Peccary	23		44	1	68
Peccary/WTD			1		1
Puma/Ocelot	1				1
Ringtail			1		1
Dog	17	1	48	1	67
Fox	1				1
Mammal, Small	49		28		77
Opossum	1		4		5
Mustelidae	1				1
Rodent	15	2	10		27
Gopher	4	1	6		11
Rabbit	38		60		98
Agouti	6		2		8
Armadillo	4		4		8
Bird	42		208		250
Bird, Large	172	1	646		819
Turkey	99	5	335		439
Turtle	72	8	69		149
Iguana	1158	8	994	2	2162
Snake			5		5
Reptile	2		22		24
Fish (Marine)	58		168	1	227
Catfish	16		20		36
Shark	6		1		7
Stingray	1		1		2
Structure Grand Total	**3133**	**58**	**4476**	**61**	

Table 1. Values of taxa represented at each household (I-55, L-28, Q-176a, and 20P-7) showing grand totals (NISP) of *identified* elements for both taxa and structure.

Most Common Taxa				
	I-55	L-28	Q-176a	20P-7
Mammal, Large	26.56%	20.69%	22.05%	57.38%
White-tailed deer	7.18%	13.79%	7.98%	16.39%
Mammal, Medium	6.54%	17.24%	6.59%	13.11%
Brocket deer	1.63%		1.27%	3.28%
Bird, Large/Turkey	8.65%	10.34%	21.90%	
Iguana	36.96%	13.79%	22.21%	3.28%
Turtle	2.30%	13.79%	1.54%	

Table 2. Percentages of the most common taxa represented at each structure.

Less Common Mammals				
	I-55	L-28	Q-176a	20P-7
Peccary	0.73%		0.98%	1.64%
Mammal, Very Large	0.48%	0.00%	0.38%	
Puma/Ocelot	0.03%			
Mammal, Small	1.56%		0.63%	
Dog	0.54%	1.72%	1.07%	1.64%
Opossum	0.03%		0.09%	
Ringtail			0.02%	
Mustelidae	0.03%			1.64%
Rodent	0.48%	3.45%	0.22%	
Gopher	0.13%	1.72%	0.13%	
Rabbit	1.21%		1.34%	
Agouti	0.19%		0.04%	
Armadillo	0.13%		0.09%	

Table 3. Percentages of the lesser common mammals represented at each structure.

White-Tailed Deer Skeletal Elements	I-55	L-28	Q-176a	20P-7
Skull	16	0	13	0
Scapula	3		13	
Vertebrae	7	0	32	0
Ribs	3	0	11	0
Pelvis	14	0	19	49
Front Limb	21	1	30	7
Rear Limb	42	3	79	120
Foot	82	2	85	7
TOTAL	188	6	282	183

Table 4. Values of white-tailed deer skeletal elements represented at each structure.

Marine Taxa	I-55	L-28	Q-176a	20P-7
Fish (Marine)	1.85%		3.75%	1.64%
Catfish	0.51%		0.45%	
Stingray	0.03%		0.02%	
Shark	0.19%		0.02%	

Table 5. Percentages of marine taxa represented at each structure.