UPPER CANADA FOODWAYS: AN ANALYSIS OF FAUNAL REMAINS RECOVERED FROM URBAN AND RURAL DOMESTIC SITES IN TORONTO (YORK), AD 1794-1900

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ABSTRACT

This thesis investigates foodways in 19th-century Toronto, providing a critical examination of the relationship between food and identity in an emerging city and new province. Specifically, it asks if zooarchaeological remains can provide a nuanced understanding of how food was used in the expression of identities by early Ontarians. Faunal analyses were conducted for a number of urban and rural domestic assemblages located in and around the city and these were compared to published and unpublished faunal reports from across Upper Canada. Historical documents were examined for information on foodways and then contrasted with the zooarchaeological data. The discussion describes how various sources of meat were incorporated into 19th-century Toronto and Upper Canada foodways.

Previous scholarship suggests pork was highly favoured by Upper Canadians and featured in most meals. It was also generally understood that the province's earliest settlers needed to rely on wild sources of meat upon initial settlement and that British immigrants simply adapted their own foodways to local conditions. The results presented in this research challenges all of these assumptions and warns against the use of such homogenizing statements which only serve to mask realities. Zooarchaeological and historical data indicate individual households preferred different types of meat. Despite the variability in diet, British and American settlers maintained foodways that were traditional to them and did not 'adapt' to their new surroundings, relying instead on increased access to markets to supply themselves with the foods they prefer. This research also highlights the neglected/under-reported role of fish and seafood in the Upper Canadian diet and challenges some assumptions held by the Ontario zooarchaeological community.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

ABG – Associated bone group

ASI – Archaeological Services, Inc.

HHI – Historic Horizons, Inc.

MAU – Minimum animal units

MNE – Minimum number of elements

MNI – Minimum number of individuals

NSP – Number of specimens

NISP – Number of identified specimens

TRCA – Toronto Region Conservation Authority

CHAPTER 1 –

TOWARDS AN UNDERSTANDING OF FOODWAYS IN UPPER CANADA

Through the collection of archaeological and historical data, this study provides new insight into the diet and foodways of early residents living in the city of Toronto and throughout Upper Canada while critically examining the relationship between food and identity in an emerging city and its hinterland. In doing so, it addresses one of the most commonplace activities in people's lives (eating) and challenges traditionally held narratives concerning the significance of food in this province.

The foods we eat can be reflective of, and used towards, an active negotiation of identity (Twiss, 2007). Over the past few decades, archaeological studies linking food and social diversity have become increasingly popular in North America (e.g., Franklin 2001; Landon 1987a; Milne and Crabtree 2001; Scott 1996). Zooarchaeological evidence can address a variety of related research questions ranging from dietary and subsistence practices to the socio-economic patterning of foodways or even changes in human-animal relationships. Yet, despite its recognised potential to archaeology, the study of animal bones is often relegated to appendix status in reports or is only briefly discussed as a side note; seldom is it fully integrated as an initial study component within research projects (Landon 2009: 4-5). Such is the situation in southern Ontario. Despite the large number of published historical zooarchaeology studies in the United States and a growing body of work from Québec and the Maritime provinces (e.g., Bernard 2012; Betts *et al.* 2014; Cossette 2000; Cossette and Horard-Herbin 2003; Hodgetts 2006; Tourigny and Noël 2013), very little information is available from the historical period in Canada's most populous province. This research project addresses the situation through the primary analysis of animal bones from multiple archaeological sites located in the city of Toronto (formerly York) and its hinterland. Grey literature and historical documentation gathered from other parts of the province help paint a clearer picture of foodways in 19th-century Upper Canada, thus providing a better understanding of the settlement of this unique province and the daily lives of its inhabitants.

Research into past foodways is not simply a study of what people ate, but rather an examination of the ways people thought about and interacted with food: how and why they obtained it, distributed it, prepared it, preserved it and consumed it (Anderson 1971: 29). The usefulness of this concept as an interpretive framework lies in its all-encompassing definition as an interrelated network of decisions affecting the ways individuals eat (Landon 1996: 3). It helps us move beyond mere descriptions of practice, towards a better understanding of human behaviour and social relationships in the past. In the United States, where historical archaeology and, consequently, historical zooarchaeology, are perceived as having achieved greater levels of theoretical maturation relative to Britain (Moreland 2001: 98-99; Tarlow 1999: 271; Thomas 2009; West 1999: 2), a number of projects have successfully applied the concept of foodways to study cultural variations in subsistence patterns, animal husbandry practices, and food distribution among other topics (for an overview, see Landon 2009).

The period of study (late 18th to early 20th century) is an important one in Canada's history. It begins soon after the arrival in Ontario of large numbers of mostly British and Loyalist settlers who had recently witnessed their American neighbours fight for independence. Over 70 years later, they would see their own representatives taking part in the Confederation of Canada. This is a time when residents were constantly re-negotiating their own identities: perhaps ones that were distinct from their American neighbours and British forbearers due to their unique circumstances. Here I ask if this negotiation of identity was reflected in the foodways shared throughout the region.

Of course, historical archaeologists have investigated expressions of identity through foodways in the past. These studies often focussed on differences between ethnic groups (e.g., Franklin 2001; Greenfield 1989; Scott 2001; Stewart-Abernathy and Ruff 1989) or groups of differing socio-economic status (e.g., Mudar 1978; Otto 1984; Schulz and Gust 1982). To successfully address such research questions, archaeologists rely on a clear link between archaeological deposits and the people who created them. As a result, studies are based on the analysis of single or multiple household units where materials can be attributed to a specific social or ethnic group. Building on the theoretical explorations seen in historical archaeology, this research focuses on household archaeological deposits of all types related to British immigrants or American Loyalists and their descendants in and around the city of Toronto, to investigate expressions of identity in foodways in an emerging city and developing country. Unlike previous studies of foodways or cuisine for a particular city, I track patterns in a rapidly growing city and relate these observations to those seen across an ever expanding province, as the city become a key settlement in the development of a new country.

1.1 RESEARCH QUESTION

The central question in this research asks: **Can faunal remains recovered from archaeological sites in Toronto and elsewhere in southern Ontario inform upon the foodways of an emerging city and the expression of identities of its inhabitants?**

1.1.1 RESEARCH AIMS

The complexities inherent with such a research question require it to be broken down into a series of concise aims and objectives. The following lists a series of research aims posed within this project whose answers will serve to address the primary research question:

- A1 – What meat items were people consuming in southern Ontario during the 19th century?
- A2 – To what extent does the zooarchaeological data correlate with historical documents from this time period?
- A3 – Are there similarities or differences in food consumption patterns between various households within the city? Between the city and its hinterland? Between the Toronto area and other parts of the province?
- A4 – What are the possible reasons people chose to consume certain products over others and how might this relate to expressions of identity?

A secondary aim of this research is to reflect upon the current state of historical zooarchaeology in Ontario and the challenges of undertaking a zooarchaeology of the 'modern' era in general.

1.1.2 RESEARCH OBJECTIVES

The objectives presented here describe how each one of the aforementioned research aims is addressed. First, I began by gathering information from various historical sources (e.g., private correspondence, newspaper articles, published books) to gain insight into what people in Upper Canada documented they were eating/consuming throughout the 19th century (A1 and A2). Then, through the primary analysis of zooarchaeological assemblages, I gathered data from select urban and rural deposits of occupations spanning the late 18th through to the early 20th century in the city of York/Toronto. These data provide information on the animals exploited and consumed in and around the city during this period (A1). Subsequently, I collated and synthesised zooarchaeological data obtained from multiple sites located throughout southern Ontario and compared these to the Toronto data in order to generate a discussion concerning meat consumption practices in the former province of Upper Canada and the early province of Ontario (A1 and A3). Comparisons were then made between the historical and zooarchaeological records and discrepancies/similarities were highlighted (A2). Through comparisons to previously published archaeological studies linking foodways and identity and the adoption of related theoretical frameworks, I provide an interpretation of the patterns observed in the Toronto and Ontario materials (A4).

1.2 ORGANISATION OF THESIS

The current chapter serves to present the research question and sets out the aims and objectives used to answer it. It introduces the research context by summarizing the current state of knowledge on 18th and 19th-century diets and food consumption practices in southern Ontario, colonial North America and Britain. The remaining chapters are structured around answering these objectives.

Chapter 2 discusses the foodways concept, its application to zooarchaeological research projects, the links between the foods people eat and negotiations of identity and outlines the theoretical concepts employed in the interpretation of results. This chapter also details how traditional narratives relating to Ontario's settlement history can easily mislead the formation and interpretation of archaeological research.

Chapter 3 provides a brief history of the founding of the city of Toronto and describes trends in population growth before detailing the various assemblages used in this study. A brief description is provided for each site, noting the history of its occupants and the nature of the archaeological contexts. The chapter also provides details on the data assembled from the grey literature to be used as comparative materials to the Toronto area assemblages.

Chapter 4 begins with a critical look at some of the most cited historical sources on foodways in 19th-century Ontario. Historical references to food procurement and preparation strategies are summarised followed by a brief discussion on the historical evidence of home food consumption practices.

Chapter 5 provides a description of the methods employed in the identification and analyses of animal bones from archaeological sites.

Chapter 6 presents the results of the zooarchaeological analyses, including taphonomic considerations, and uses these to answer research questions such as which species were exploited, their age of death, which body parts were most utilised and describes the butchery patterns observed.

Chapter 7 collates data from contemporaneous sites in southern Ontario. These datasets were sourced from the grey and published literature. Similarities and differences to results presented in the previous chapter are highlighted.

Chapter 8 provides a critical examination of the archaeological and historical evidence presented in the previous chapters in order to deconstruct widely held historical narratives and present a more nuanced understanding of past foodways in the province. It begins with a discussion of the role of each species in the local diet and goes on to discuss shared and differential foodways between sites. Results from southern Ontario are then compared and contrasted to interpretations of other North American and British assemblages. This is followed by a discussion on how personal identities defined Upper Canadian foodways.

Chapter 9 concludes the dissertation with a summary of the results and interpretations presented in the previous chapters. The research question, aims and objectives are addressed in light of the preceding results and discussions. The secondary aim of the thesis is also explored: a reflection of the status of historical zooarchaeology in Ontario. Here, I discuss the current ministerial criteria for zooarchaeology reports required for the commercial sector, and present future directions for historical zooarchaeology in the province. The thesis concludes with a summary of the original contributions to archaeological knowledge provided by this project and offers ideas for future research directions.

1.3 CONTEXT: RESEARCHING FOOD IN UPPER CANADA

The following section provides a brief summary of our current understanding of the history of food production and consumption practices in 19th-century Upper Canada. Most of our knowledge on food history in southern Ontario derives from historical accounts detailing personal experiences with food in Upper Canada (e.g., Fowler 1832; Traill 1846, 1857) (further discussed in Chapter 4). Consequently, attempts to reconstruct past dietary practices are based on the information presented in these documents and what we know of English customs of the time (e.g., Boyce 1972; Kenyon and Kenyon 1992). Many of the primary sources consist of books, pamphlets and letters designed to promote emigration from Europe to Upper Canada and the researchers making use of this information are at times uncritical of their sources. Although claiming to be truthful in their representations of life on the Canadian frontier, these documents were often misleading and exaggerated some aspects of life while completely omitting others (James 1997). Catherine Traill, author of *The Canadian Settler's*

Guide (1857), was said to admit that she portrayed life on the frontier too favourably (Boyce 1972: 99). Others have made incredible statements on available resources such as the ability to go out at any time and procure any number of deer with ease (Radcliffe 1952), or rivers so full with fish it became impossible to paddle a canoe (Conant 1903: 30).

According to general descriptions present in these documents, eating habits were somewhat different then prevailing English customs at the time (Moodie 1852, 1853; Traill 1846, 1857). These sources suggest Upper Canadian meals kept a focus on dietary staples such as meats, breads and tea; however, like their American counterparts, Upper Canadians were able to include a large variety of foods as a result of their geographic location. Ingredients such as maple sugar, maize, pumpkins and a variety of wild fruits were reportedly common at the Upper Canadian table (Abonyi 1993), along with various types of wild meat including venison, turkey, partridge, passenger pigeon, squirrel, hare, duck and other bird species (Traill 1846, 1857). Upper Canadians did apparently share the contemporary general distaste by the English for moist or liquid foods, preferring dry (but greasy) meals as opposed to soups or stews, including an increased reliance on pork and potatoes (Bates 1978; Kenyon and Kenyon 1992: 9). Some believe this is reflected in the archaeological record by a higher ratio of plates to bowls in general domestic assemblages (Kenyon and Kenyon 1982; Ferris and Kenyon 1983; MacDonald 2004). However, this is likely a reflection of a change in tableware types observed throughout the English speaking world beginning in the late 18th through to the 19th century where plates became more popular and a greater variety of wares were used to serve food (Deetz 1977: 84-87; Ferris 2009). Documents suggest those living in the outer urban areas or near the backwoods, traded wild meats with Native American hunters for European commodities such as salted pork, wheat flour and various garden vegetables (Traill 1857:155). Few mention fish as a staple food type, despite their ready availability in the many freshwater lakes and rivers. Harrington (1915: 89) notes it was only enjoyed once in a while and would never substitute for meat, suggesting a continuation of medieval attitudes towards fish (Serjeantson and Woolgar 2006: 102).

Canadian meals were described as containing far more meat then typical English menus but were criticised for the lack of variety in recipes and preparation methods (Kenyon and Kenyon 1992: 8). As was the case in other urban centres, residents of the city of York relied on food markets for provisioning, where wild meat was also available for purchase (Kenyon and Kenyon 1992: 5). Meat supplies were often preserved and barrelled due to the lack of refrigeration in the hot summers. Cheese and dairy products were not commonly produced by Canadian settlers until the mid-19th century (Traill 1855: 192) and residents relied on breads, porridges, corn meal and wild foods at times of low supply (Boyce 1972; Kenyon and Kenyon 1992).

In rural southern Ontario, pork played an important role in the general diet, and pigs were especially valued as livestock for new settlers in the earlier half of the century as they could be fed on almost anything, fattened quite readily and were easy to care for (James 1997: 28; Kenyon and Kenyon 1992; Moodie 1852: 357). Oxen were used to clear land and plough fields. Horses on the other hand were not commonly seen on farmsteads in the area until later in the 19th century. The ability to rear cattle is thought to have improved as farmers became better established and more land was cleared for pasture. Sheep were similarly easier to raise in the later 19th century as more land was developed and enclosures were built to help keep away predators (Ferris and Kenyon 1983; Need 1838: 90).

By 1867, the backwoods diet in southern Ontario was more varied and the second half of the 19th century was generally marked by a refinement in food preparation and manufacturing, including the appearance of the packaged food industry. By the arrival of the 20th century, when infrastructure and technology dramatically improved, life for those living in the backwoods settlements became easier, as did travel to and from the city markets (Bates 1978: 44-45). Living on the Canadian frontier, food sources were not always abundant and rural farmers were not entirely self-sufficient and often required access to markets for commodities they could not produce themselves (Traill 1857: 124). Many of the farmers living on the frontier looked to participate in the market economy but long distances and lack of time and resources did not always allow it (Henretta 1978; M'Donald 1822 in James 1997; Smith 1923).

Archaeological evidence drawn from human skeletal material, palaeobotanical remains and animal bones inform upon historical dietary habits in 19th-century Ontario. A study of human dental pathology and stable isotope analysis has identified a diet that was particularly rich in carbohydrates and sugars, to a degree far greater than that seen in other British or American skeletal assemblages (Blackbourn 2005, Saunders *et al.* 1997). The analysis of botanical remains at a 19th-century fort in southern Ontario identified mostly locally grown plants with a few imported species (Lyall 2010; Moyle 1994).

Many areas of the province have undergone intense redevelopment in the past 20 years requiring archaeological mitigation along the way. Most of these are historical period sites excavated by Culture Resource Management (CRM) firms and are producing large assemblages that include faunal remains. However, faunal analyses from historical assemblages in the region are uncommon in the published literature. This is unsurprising as operational and budget constraints result in unpublished reports that remain largely forgotten while only a few firms devote time and resources to publishing on the more exceptional materials. Most academic studies of animal bones relate to excavations undertaken by Parks Canada at National Historic Sites (e.g., Betts 2000; Rick 1993) and a few Masters dissertations (e.g., Henderson, 1992; James 1997).

1.4 CONTEXT: FOOD IN THE WIDER BRITISH WORLD

To better comprehend the development of food consumption habits in Upper Canada, one must first understand the state of British attitudes towards food in Britain and colonial British North America as well as the effects of industrial and technological developments on food procurement and consumption. Scientific and industrial improvements in the mid-18th century introduced new technologies eventually allowing for new ways to create, distribute, preserve, consume and appreciate food products. However, the availability of new products and technologies did not always equate to their rapid adoption by society as a whole. Geographical circumstances along with social and economic pressures heavily influenced an individual's personal attitude and relationship with food (Broomfield 2007: 11).

Nineteenth-century Britain saw an influx of people moving away from villages and small market towns and into the city. In 1800, approximately 20% of Britons lived in cities but that number grew to 80% by the arrival of the 20th century. The result was high levels of unemployment and increased government efforts encouraging emigration to places such as Upper Canada (Flanders 2004: xxxvi; Russell 1973: 18). Additionally, migration into the city resulted in fewer than 12% of males working in the agricultural sector (Spencer 2004: 276), thus leading to a reduced capacity for the population to produce and/or procure their own food (Broomfield 2007: 11; Spencer 2004: 246). With the new-found reliance on local markets, cattle and sheep carcasses became increasingly valuable relative to their by-products (e.g., dairy and wool) and livestock management was reflective of this (Rixson 2000: 213). Cattle and sheep were bred to reach larger sizes at a quicker pace leading many historians to identify this period as a time of livestock "improvement", an important feature of Britain's "Agricultural Revolution" (Beckett 1990; Overton 1984; Tarlow 2007: 64). The Agricultural Revolution saw a number of innovations and farming technologies which lead to greater outputs from local farms over time. Some scholars argue that this revolution consisted of a series of slow, gradual changes occurring in different periods based on geographic location (e.g., Allen 1991; Beckett 1990; Thirsk 1987) while others contend it was relegated to the 18th and 19th centuries in correlation with the Industrial Revolution (e.g., Campbell and Overton 1993; Mingay 1989; Overton 1996a, 1996b; Turner *et al*. 2001). Zooarchaeological evidence for the size of livestock supports the former hypothesis (Davis and Beckett 1999; Thomas 2005a; Thomas *et al.* 2013).

In the late 17th and early 18th centuries, when most people lived in a rural setting, it was common for each household to raise livestock of their own, mostly pigs and poultry, and to maintain kitchen gardens or allotments in which to grow some of their own produce. Communal lands were occasionally available on which anybody could graze livestock and raise grain and cereal crops (Broomfield 2007: 4). Swine could easily be raised by most due to their low-cost maintenance; they did not require much care and could be fed on household rubbish while growing quickly. Indeed, pig rearing remained the basis of animal husbandry throughout most of 18th-century Britain (Walsh *et al*. 1997: 42). A single pig could provide enough food to last a small family throughout the winter (Broomfield 2007: 4). Oxen were widely used as draught animals through to the beginning of the 19th century; however, since the 14th century, the working horse was slowly taking over ploughing tasks and by the end of the 19th century, few oxen were used to plough fields in Britain (Cannif 1971: 220; Guillet 1963: 77; Rixson 2000: 215).

For those few items that people could not provide for themselves, they ventured to the nearest market town to purchase what was needed (Broomfield 2007: 4). Access to gardens, some livestock and common lands meant that even those of lower socio-economic status had a varied diet that included some protein and fresh vegetables. Common vegetables included lettuce, cucumbers, radishes, peas and a variety of root vegetables which could be eaten fresh or stored for winter consumption. These included parsnips, carrots, onions, beets, turnips and rutabagas. Cabbages and kale were also popular winter vegetables (Broomfield 2007: 4-5). Staple grains included oats, wheat and barley. Dairy products such as milk and butter were easily accessible from neighbouring farmers. This all reformed during the 19th century along with other changes related to the advent of the Industrial Revolution and rise of urban living and market economies. Changes to land management in Britain that began in the 17th century led to reduced access to common lands and therefore the inability for everyone to raise livestock (Broomfield 2007: 5).

By the late 18th and early 19th centuries, perishable foods could be preserved by drying, smoking, pickling, stewing in sugar or salting (Broomfield 2007: 5). Summer provided difficult conditions for keeping meat; however, most animals were too lean at this time for slaughtering. It was not until the late fall or early winter, once animals had fattened off the stubble of the fall harvest, that they were ready for slaughter. The colder weather helped with the preservation of their carcasses (Broomfield 2007: 3) and meats that were not consumed right away could be properly preserved for later use. However, foodways were nonetheless marked by the seasonality of available foods. By the late 18th century, fruits and vegetables could be preserved in canning jars and it was not until the second decade of the 19th century that tin cans were used (Spencer 2004: 282). As the century progressed, new technologies emerged allowing products to keep longer and travel further. Steamships and steam powered railway cars, in North America and Britain, moved products for greater distances in shortened times. Increased speed and efficiency also lead to lower market prices (Broomfield 2007: 19). The importance of cooler temperatures was well known and insulated railway cars and steamships packed with ice were used by the mid-19th century to transport chilled carcasses (Rixson 2000). Ice huts or ice houses were being employed in some of the wealthier British homes in the later post-medieval period as a way to keep food cold during the summer. A mechanical cold air system was first used in 1879 to transport frozen shipments of meat (Rixson 2000: 274) but household refrigeration units only became common in the 20th century (Hempstead and Worthington 2004: 673). The advent of various and successful preservation techniques meant that geography and time of year were no longer a significant factor determining access to food (Broomfield 2007: 3). The later 19th century saw a new understanding of the role of bacteria and pasteurization was slowly adopted (Rixson 2000: 225; Spencer 2004: 287).

With better preservation capabilities in the second half of the 19th century, Britain began importing meat from North America and beyond (Broomfield 2007: 12; Rixson 2000: 302). Imported meat was cheaper than domestic varieties and people purchased more of it (Broomfield 2007: 12). It is around this time that large and powerful international companies became involved with the production, distribution and sale of meat on an industrial scale (Rixson 2000: 213). North American cattle production increased substantially, especially after the American Civil War (1861-1865). Maize now represented the principle feed crop for most livestock herds and North American products essentially replaced European imports to Britain (Rixson 2000: 302). In southern Ontario, wheat became the staple crop produced and exported from the region (Jones 1946: 30). As the century progressed, the increased migration to cities in combination with new technologies changing the way foods were produced may have contributed to a loss of traditional foodways. Or, to put it differently: new opportunities resulted in an adaptation of foodways to suit individual and group needs.

In the academic literature, dietary practices and local attitudes towards food in colonial North America are described from both historical and archaeological perspectives. The majority of zooarchaeological studies in British North America have focused on the Chesapeake and New England areas during the 17th and 18th centuries (e.g., Bowen 1975, 1990, 1992, 1998; Bowen and Manning 1994; Bowen and Trevarthen-Andrews 2000; Landon 1987a, 1987b, 1993, 1996, 1997; Miller 1984, 1988; Milne and Crabtree 2001; Scott 1985, 1991; 1996; Singer 1985; Walsh *et al.* 1997). Many of the settlers arriving in Upper Canada in the late 18th and early 19th century were Americans choosing to remain loyal to the British Crown following the United States' newly found independence; therefore, it is important to consider the dietary habits that formed elsewhere in British North America and the United States. Miller's (1984, 1988) analyses of 17th and 18th-century sites in the Chesapeake Bay area provides some of our best understanding of earlier British colonial food consumption habits in North America. He notes that wild animals, including deer, small mammals, fish and wildfowl, played a more prominent role in earlier colonial diets where the most important domesticates consisted of cattle and pigs. Sheep, he says, did not maintain a similarly important traditional role in the Chesapeake as it did in Britain. At this time, seasonal variability in diet was highly marked as people depended on the differential availability of wild and farmed resources. Domestic animals were relied upon in the fall and early winter and wild resources were exploited in the spring and summer months (Miller 1984, 1988; Shapiro 1979). Such a seasonal slaughtering cycle was observed in other parts of the United States, including the Northeast and extended to both urban and rural areas (Bowen 1988; Landon 1991, 1993, 2008). However, by the second half of the 17th century, general dietary patterns based on beef and pork consumption became increasingly uniform and dependence on wild resources significantly decreased. The loss of self-sufficiency of urban dwellers first described in Britain was also observed in America (Walsh *et al.* 1997; Landon 1996).

By the early 18th century, wild resources played a similarly insignificant role in New Hampshire urban diets (Pendery 1984: 22). By the second half of the 19th century, an increased availability of preserved and processed foods combined with the improved transportation of commercial products resulted in the increased consumption of market commodities and further reduction of the incorporation of wild taxa in diet for sites in the northeast. Kuehn (2007:203) suggests a combination of the increased availability of imported foodstuffs along with resource depletion as a reason for the homogenisation of diets throughout the northeast and in the Midwest (northern Illinois and southern Wisconsin). Analyses of a late 18th-century British fort located in a more remote location (Fort Michilimackinac) indicates British diet at the time was heavily reliant on meat from domestic animals but included slightly more wild animals relative to British sites further east (Scott 1996).

This brief food history of Upper Canada, colonial North America and Britain serves to contextualize the research in time and space. The information was presented more or less as a summary of our current understanding of food consumption habits in Ontario and the social, economic and technological factors likely to structure regional diets. Ultimately, if we are to address the primary research question posed at the beginning of this chapter, we will need to further contextualize the research within a theoretical framework concerning foodways and identity before linking observations made in the historical and archaeological records to expressions of identity. The following chapter works to that end.

CHAPTER 2 –

FOODWAYS, IDENTITIES AND COLONIALISM

This chapter presents the theoretical frameworks that helped guide the formulation of the research question and the interpretation of the data that will be presented in the following chapters. It serves to further contextualize the project within the current state of theoretical discourse in archaeology while paying particular attention to the investigation of foodways and identity within a North American British colonial setting. It begins with a discussion of the abstract concepts of foodways and identity and how they were first applied and later developed in historical archaeology. Particular attention is paid to how similar research was carried out in the past and how results informed the approach taken. Also included in this chapter is a cautionary note concerning how traditionally popular narratives of the history of European settlement of the province can influence the interpretation of archaeological data. The chapter ends with a discussion on how to best consider the archaeological data when developing a discussion on the role of foodways in the negotiation of identity in Toronto and Upper Canada in the 19th century.

2.1 FOOD, MORE THAN JUST CALORIES

Prior to describing what is meant by 'foodways', it is important to present what is meant by 'food'. Like Dietler (2007: 222), the definition of food adopted in this project goes beyond the old processual approach which simply considered food as calories and nutrients ingested for survival. Although eating food is physiologically essential for human beings, the act of eating, and the foods we choose to consume or avoid, represents culturally learned behaviour and a fundamental expression of identity. When thinking of food, we often think of meats, fruits, vegetables and other plant or animal derivatives consumed in our daily lives. Dietler (2007) makes a point of not forgetting to include alcohol and beverages in his definition of food. Indeed, these can also be used as symbols of identity and group cohesion in addition to providing nutrients. The research question investigated in this project focuses on the role of meat in foodways and so much of the following discussion on food will centre on meat. By meat, I am referring to animal flesh, muscle, fat or skin, consumed as food. This includes remains of mammals, birds, fish, molluscs, reptiles and amphibians.

2.2 FOODWAYS AND IDENTITIES

Something akin to the concept of foodways and how it is used today was first introduced in a book published in 1945 by the National Research Council of the United States entitled the *Manual for the Study of Food Habits: Report of the Committee on Food Habits* (NRC 1945). The study looked at the challenges involved in researching the habits and customs associated with food. It was one of the first publications to emphasize a need to understand food habits such as the production, preparation and consumption of food as expressions of culture. Later, the similar concept of 'foodways' was introduced to the field of American historical archaeology by James Deetz (1977: 73) and his acknowledgement of folklorist Jay Anderson's (1971) definition. The application of this concept allowed archaeologists to move beyond reconstructions of subsistence strategies towards the conscious and subconscious choices people were making in their daily lives.

Researching past foodways does not constitute a simple investigation of what people ate in the past. It represents the study of embedded social meanings within the process of eating; a process that includes the production, distribution, consumption (Anderson 1971: 29) and disposal of food (Graffam 1984: 1). It is about studying the choices people make in acquiring, preparing, distributing, consuming and discarding their food and how these choices represent a manifestation of their personal and cultural identity. With the appropriate data and a well-considered approach, archaeologists can address research questions looking at the reasons behind past human behaviours. Landon (1996), Mudar (1978) and Otto (1984) are only a few early landmark publications in which the concept was applied using faunal data to address archaeological research questions in the historical period.

The usefulness of foodways as an interpretive framework lies within its all-encompassing definition as an interrelated system of decisions affecting the various ways individuals eat (Landon 1996:3). It recognizes that dietary behaviour is not only influenced by circumstantial variables such as environment and market availability, but by a series of complex factors related to social diversity (e.g., ethnicity, gender, religious beliefs, and socio-economic status) (Kuehn 2007: 200; Twiss 2012: 381). All of these things contribute to an individual's sense of identity, an identity that is in constant negotiation and dependent on the environmental and social interactions at play (Funari *et al*. 1999; Jones 1996:70; Voss 2012: 304). That being said, the external display of personal identity is rarely at the forefront of people's thoughts as they go about their daily lives. Its manifestation into the world of material culture usually occurs at a subconscious level (Smith

2006: 480). Outward displays of identity can be expressed in a variety of ways whether through social interaction or through the manipulation of the material environment that one interacts with (Cipolla 2008; Smith 2007). However, identifying the relationship between foodways and identity is a difficult task (Twiss 2007: 3) as the identities expressed are not exclusive to a single sense of self (i.e., only gender or only ethnicity). Each individual can identify with a limitless blend of personal identities (e.g., as a parent and a child, as a middle class resident, as an urban dweller, as a farmer, as a British immigrant) all at once (Beaudoin 2013; Casella and Fowler 2004; Fowler 2004; Meskell 2007; O'Keeffe 2004). However, these are not limitless and people may choose to foreground specific identities in particular contexts.

The majority of zooarchaeological studies related to foodways are found in the literature surrounding the historical period in the United States (for examples, see Landon 2009). Those looking into questions linking specific trends in foodways to either cultural or ethnic identity will typically take one of two approaches: (1) an investigation into how a group consciously or subconsciously expresses their identity through the foods that they ate (e.g., Franklin 2001; Kuehn 2007); or, (2) an archaeological search for the presence of a cultural or socio-economic group as evidenced by the foodways left behind (e.g., Pigière *et al*. 2004; Muir and Driver 2002; Schulz and Gust 1983). Of the latter studies, the most successful do not build models searching for the 'presence' of an ethnic group based on the presence or absence of specific characters in archaeological remains related to food, but rather explore the extent to which traditional or stereotypical ethnic foodways were followed and discuss possible reasons for deviations from expected patterns (Twiss 2012: 371). This research follows the first approach but remains cautious about concluding that a diet maintained or deviated from tradition based on the presence/absence of a few ingredients, as is further explained later in this chapter.

Generally speaking, studies linking foodways and social diversity in historical archaeology focused on the household as the basic unit of analysis. This focus allows the archaeologist to link material evidence to specific groups of people known to have occupied the buildings. Some studies go on to compare households of similar and different socio-economic composition in order to find commonalities and differences between them and evaluate the extent to which these relate to an expression of social identity (e.g., Mudar 1978; Otto 1984). Some studies go a step further, looking at a number of household deposits within the same city to investigate foodways of cities. Landon (1996) looked at rural and urban household deposits from 17th- and 18th-century

Boston to investigate the implication of urbanism on urban foodways. He, like Maltby (1979: 84), emphasized how urban and rural areas did not exist in isolation from one another and the former strongly influences the development of the latter's economy. He mentions how studies contrasting urban/rural foodways should not simply focus on highlighting differences but rather work to elucidate the complex interrelationship between a city and its hinterland. Operating at a similar scale, Schweitzer (2010) examined the foodways of 19th-century Philadelphia using archaeological and historical evidence to document the development of a local cuisine and the foodways shared between local inhabitants, regardless of differential socio-economic status. Both projects investigated foodways at a city level by comparing and contrasting multiple household deposits from locations in and around the city.

Multiple lines of evidence can be used in the reconstruction of foodways (e.g., animal bones, plant remains, ceramics, glass) and a few recent studies were based on the combined analysis of two or more strands of evidence (Beaudry 2013; MacDonald and Needs-Howarth 2013). As a result of using zooarchaeological materials as its primary evidence, this project focuses on the role of meat in foodways and includes supporting evidence from historical documents. Like Landon (1996) this project compares and contrasts urban and rural faunal assemblages from a single city in an attempt to describe the emergent foodways of a growing Toronto. It additionally looks at other deposits from across Upper Canada to further differentiate trends unique to the city and those shared throughout the province. Like Schweitzer (2010), Reitz (1986) and Kuehn (2007) I am searching for aspects of foodways shared at large by a majority of residents (those of British ancestry) regardless of socio-economic standing. Stark and Chance (2008: 2) emphasize a need to track changes in patterns as opposed to identifying specific identities in a particular time and place. Such an approach investigates the factors leading to changes in identity as opposed to chasing the impossible task of recreating conscious and sub-conscious processes involved in past decision making. Looking at changes in symbols, patterns and practices through time and space can also lead archaeologists to observe how identities were conceptualized, how commonalities were formed and how these can lead to forms of group identity (Beaudoin 2013: 39; Gosselain 2000: 188; Jones 1999: 226). It is important to realize that the results of this project will not assign a specific world view to all inhabitants of 19th-century Upper Canada nor will it presume to understand the individual thought processes that resulted in the deposition of particular food deposits. Instead the project acknowledges diversity between assemblages while searching for shared patterns amongst residents of the city and within the province. It then discusses how these are reflective of both shared and individual identities.

2.3 HISTORICAL BIASES

The traditional narrative or dominant history of the foundation and settlement of Upper Canada is one that is easily accepted and often goes unquestioned (Beaudoin 2013: 132). It is a romanticized history of groups of British settlers and American Loyalists moving onto a largely uninhabited and wild landscape, transforming it into productive fields, villages and cities, all connected to the world beyond by road, rail and water (Stanley 2000: 82). Such a narrative, besides being overly simplistic and sometimes erroneous, has the potential to influence the framing of archaeological research questions and the interpretation of archaeological data, including reconstruction of identities. All categories of things from material culture to ascribed identities are constructed in the present (Meskell 2007: 31; Shennan 1989:10). It is important to recognize this; that identities changed overtime, were interpreted differently by different people and interpreted differently between different contexts (Brighton 2004; Ferris 2009; Harrison 2003; Silliman 2004).

While it is true that a large influx of British and American immigrants made their way to southern Ontario in the late 18th and early 19th centuries, they did not step into an untouched wilderness that was to be tamed and conquered. Europeans had been getting increasingly familiar with nearly all areas of the province for a few hundred years. Various indigenous groups occupied the province. Included are the Mississauga people who lived along the banks and river mouths of the area where future Torontonians would later settle (Williamson, 2008). The road networks built in the 19th century were likely built overtop previously existing indigenous trails and paths (Boyle 1896 in Fairburn, 2013:46) and travel routes by water were well known (e.g., Humber River was well known as the primary passage way north to Lake Simcoe and from there the northern Great Lakes) (Benn 1994: 4). A French fortified trading post had already been established near the site of where the British would build their fort in Toronto (Robinson 1933). The city of Toronto is one of the youngest major settlements in the province meaning the British were quite familiar with establishing settlements set within a similar environment. Furthermore, the land was very well surveyed (Alfred 1944-45). The population growth of the first half of the 19th century resulted in an increase in surveys leading to the organization of the province into Counties and Townships that were further subdivided into 100 or 200 acre lots with strict requirements for either forest clearing or a minimum number of hours worked towards road construction. The surveying process resulted in the construction of major and secondary roads or laneways providing access to settlers throughout the province (Beaudoin 2013: 128). The narrative ignores the wealth of land speculation data available at the time and the nature of land portioning and distribution. That process was a well ordered one and individual 'settlers' did not have the choice to purchase any property they wished, as the best and most fertile land often went to more prestigious and well-connected members of society. In fact, the real estate market in the earliest years of settlement was quite competitive and many land patents were sold and re-sold for the purpose of land speculation without being settled (Fairburn 2013: 43). Beaudoin (2013: 132) notes how the land value of the Toronto Gore Township (Peel County), was significantly higher than other properties in Ontario due to its proximity to the city and its fertile nature. Land patents located near or along the lakefront in York were passed along to prominent persons such as government and military officials and well-connected loyalists who remained loyal to the British Crown in the wake of the American Revolution (e.g., Ashbridge family (see Chapter 3)) (Fairburn 2013: 43). The narrative also forgets the fact that people moved around the landscape in response to environmental and economic pressures, such as infertile soils and access to markets (Gagan 1981; Gagan and Mays 1973; McIvor 1975).

As noted above, such a narrative removes the numerous ‘other’ groups present in Upper Canada and Toronto at the time. Indigenous people remained in the province and the archaeological and historical evidence indicates they did not just retreat to other areas but instead interacted with European and Loyalist settlers (Beaudoin 2013). Other non-British or Loyalist groups were also present within the city of Toronto, including French-Canadians, Irish, Germans, African-Americans and Metis among others (Beaudoin 2013; Burwell 1833; Faux 2002; MacDonald 2004). The focus of this project is to identify the foodways of Upper Canada's English-speaking settlers, primarily those of British or Loyalist descent who formed the majority of the population. Unfortunately, the terms used by the Ontario government to label archaeological site types supports the aforementioned dominant narrative, effectively hiding the presence of other groups. According to the most recent guidelines by the government, nearly all sites dating to the 18th and 19th centuries are classified as ‘Euro-Canadian’ (Ontario Ministry of Tourism and Culture 2011). A few sites are simply labelled as ‘Indigenous’, which is the only other site classification available, and emphasises a cultural separation between the two groups (Ferris 2007: 3; Beaudoin 2013: 34). As for the ‘Euro-Canadian’ designation, assumptions are made with the application of this term that rarely gets addressed by archaeologists. It implies those who lived in the province's historic sites were of white European (likely British) culture and heritage (e.g., Kenyon 1987, 1992, 1997; Kenyon and Kenyon 1992, 1993) which itself leads to an unquestioned assumption that they were living as Europeans simply adapting their lifestyles to local environmental conditions. While it is true the majority of settlers fit with this description, the term homogenizes the population allowing the archaeologist to avoid variability in local groups (Beaudoin 2013: 34, 130). Even other white European cultures and identities, who would not consider themselves British, are lumped together without critical evaluation of their differences (Abele and Stasiulis 1989: 268; Beaudoin 2013: 134). Beaudoin (2013: 135) notes that we must engage with the heterogeneity and complexity of the make-up of the social fabric in 19th-century Ontario. To do so, he suggests we continuously explore "those included within these identities by understanding the fluidity and arbitrariness of the present day process of identity delineation, selective remembering and forgetting and reimagining the past" (Beaudoin 2013: 135). This project focuses on the primary actors of the traditional narrative (white, English speaking British or Loyalist settler) and risks reinforcing a homogenizing classification. However, by exploring the heterogeneity present within this group, the resulting discussion emphasizes the diversity within it and speaks to the failures of generalizations applied to all-encompassing categories of people.

In the context of this project, I make an effort to never suggest that trends in foodways are representative of all Upper Canadians. The case studies chosen to represent the city of Toronto originate from households inhabited by people of English, Scottish, Welsh or American descent. Certain urban assemblages could not be defined by single family occupation; however, the list of tenants obtained for these properties all suggest a heritage belonging to an English speaking culture. As will be discussed in Chapter 3, there was an influx of Irish settlers into the city in the mid-19th century. However, studies suggest the Irish colonial identity became 'embedded' within a British coloniser identity (Brighton 2011) with the majority being Protestant (Akenson 1984). It remains important to note that others may have inhabited these spaces as well and contributed to assemblages. Additionally, I draw on multiple datasets arising from 'Euro-Canadian' sites from across southern Ontario. The majority of the information is from commercial sector reports that do not always engage with the heterogeneity masked by the term forced upon them by the province's guidelines and regulations. In this project, I am challenging the assumed heterogeneity in Euro-Canadian assemblages by exploring it. Care is taken in any subsequent discussions to consider the diversity of the local population. The last 33 years of the study period deal with the first three decades of life in the new country of Canada. However, the narrative adopted for this project should not erroneously be taken to suggest the development of an early 'Canadian' identity as it is a vast country that surely encompasses a variety of different foodways, even to this day. Not only are multiple groups within Upper Canada not included in this project, I am not talking about those living in Quebec, the Maritimes or the west of the country, whose sense of identity may be different from those living in southern Ontario/Upper Canada.

2.4 INTERPRETING PATTERNS, IDENTIFYING FOODWAYS

After collecting the data for this research, the question remained: what can the zooarchaeological data tell us about foodways in southern Ontario and do these provide an indication for people's expressions of identities? The null hypothesis being tested here states that British and American immigrants and their descendants made efforts to maintain foodways consistent with the descriptions of those held in late 18th- and 19th-century Britain and America. Certain trends were observed in the faunal data and these were qualified according to how they changed or remained the same in both time and space. Comparisons were then made with contemporaneous assemblages from various groups living in North America and to assemblages from the United Kingdom. Where the concept of foodways provides a framework to make the link between foods consumed and expressions of identities, other concepts would be needed to characterize which identities are being expressed.

In previous research, changes in the expression of identity through material culture within a colonial context is often described as some type of mixture or blend between elements of two or more cultures, typically the one acting as coloniser and those being colonised (Silliman 2009, 2013, 2015). The archaeology of colonialism (and post-colonialism) therefore represents the larger theoretical umbrella covering many of these theoretical frameworks. Beaudoin (2013: 12) describes these as having evolved over time from explanations based on unbalanced power relations and acculturation (e.g., Foster 1960; Gordon 1964; Spicer 1962) to creolization, hybridization and entanglement (e.g., Alexander 1998; Burley 2000; Cusick 2000; Jordan 2010; Rogers and Wilson 1993; Silliman 2009, 2013, 2015; van Dommelen 2005) to de-colonisation (e.g., Atalay 2006; Rubertone 2000) and post-colonial theory (Leone 2009; Liebmann and Rizvi 2008; Lyndon and Rizvi 2010).

Traditionally, previous studies were framed along a coloniser/colonised dichotomy (Beaudoin 2013; Ferris *et al*. 2014:5) and most studies looking at the introduction of one group's material culture into another's has focused on the colonised or sub-altern groups. This interaction is often framed according to the hierarchy of the coloniser's world where the colonised group is seen as appropriating elements of a culture and the coloniser is seen as adapting to a new environment. This type of framework emphasizes the asymmetrical power balances rather than critically deconstructing individual relationships (Beaudoin 2013: 16-17) and the dichotomy is easily used to confirm differences on either side (Ferris *et al*. 2014: 4). Furthermore, such a framework in North America compares all interactions with Europeans to a pre-contact period where any post-contact changes are the result of acculturation and loss of traditions. It does not allow archaeologists to view people as constantly renegotiating their identities but rather sees Indigenous groups as traditionalists stuck in the past or as acculturated to the coloniser's way of life (Ferris *et al.* 2014; Silliman 2009). Others add that such ways of thinking emphasise a relationship based on dominance on the part of the coloniser and resistance on the part of the colonised which does not adequately reflect the true situation (Beaudoin 2013: 213; Jordan 2008, 2009, 2010; Silliman 2005, 2009, 2010; Silliman and Witt 2010; Wagner 2011).

As this project deals with the foodways of the 'coloniser' rather than the 'colonised', I do not make any pretence of rectifying these issues. However, it is important to recognize that theoretical frameworks can be biased, emphasizing the act of colonisation rather than allowing for individual relationships to be parsed out for what they were. The reality of the situation is that although most people living in 19th-century Toronto and Upper Canada were of British descent, other groups were present and all interacted with one another to varying degrees. The idea of cultural entanglement is used in archaeology as a way to describe long-term interaction between groups where concepts of asymmetrical power are set aside in favour of non-directional processes of interaction (Alexander 1998; Jordan 2010). Cultural entanglement occurs over the long-term in a non-directional way where no group is considered politically or economically superior (Alexander 1998: 485 in Jordan 2010: 81). In terms of exploring expressions of identity through material culture, it places an emphasis on the individual choices people made. Discussion following the presentation of results in this thesis follows Beaudoin's (2013: 30-31) argument that colonialism should not be replaced with entanglement but rather that the study of colonial contexts should not solely engage with colonialism; it includes complex sets of relationships emerging over time that are built by the interaction of individuals in their negotiations of personal identities on a daily basis. This project emphasises how examining diversity, even between similar assemblages, elucidates these individual negotiation with personal identities.

Archaeologists have long acknowledged that our constructions of the past are strongly influenced by our own lives in the present and that our own backgrounds, personal experiences and world views shape the knowledge we produce (Childe, 1956; Charest 2009; Ferris *et* al. 2014: 16; Haber 2007, 2012; Hodder and Hutson 2003; Shanks and Tilley 1987; Voss 2010; Wilcox 2009; Wylie 1993). The archaeologist's search for and identification of manifestations of identity in material remains is influenced by our colonial past and researchers studying this for the coloniser typically go about it in one of two ways: (1) they either search for an iconic symbol as a representation of specific identity; or (2) they use historic records to "contextualize symbolic dispositions of identities" (Beaudoin 2013: 35-36). Beaudoin goes on to describe the first method as a 'fetishization' of symbols that connect the researcher's own preconceived notions of a specific identity to a subject group. These symbols take on a variety of forms but are always considered emblematic (for the researcher) of a specific identity (e.g., flint tools = indigenous; refined earthenware = European). With identities pre-designated to materials, archaeologists use these symbols to ascribe meaning to the subject's previous engagements with material culture. The second approach of using historic records for contextualisation contrasts greatly with the simplicity of the first. Its goal is to describe the complexity of the conscious and subconscious engagements with its use of symbolic dispositions and historical records to describe how individuals negotiate their relationship with objects while being engaged with multiple identities (Casella and Fowler 2004; Cipolla 2008; Jones 1997; Lele 2006; Meskell 2007). Thus it recognizes the nuances implicated in the way individuals negotiate their identities and how these can manifest themselves in the material world and archaeological record. The latter is the approach adopted in this research whereby historical information presented in Chapters 3 and 4 show the complexity of the food and social situations in the province and helps contextualise the archaeological data presented in Chapters 6 and 7.

The first approach discussed in the previous paragraph (search for iconic symbols) is heavily criticised by this research, particularly in its application to the analysis of Euro-Canadian foodways. The coloniser/colonised dichotomy extends to the interpretation of material culture where, for example, use of European ceramics and metal by indigenous groups is viewed as appropriation of another culture's tradition. Silliman (2009: 215) argues we should not only be looking at what objects are being used for but rather how they are being used and who is using them. Such an approach would emphasize the investigation of social and embodied memories as opposed to reinforcing a colonial perspective. A similar dichotomy exists with foodways. It is often held that, in colonial North America, domestic animals are associated with colonisers while wild animals, especially deer, are associated with indigenous groups (e.g., Allard 2015; Norman 2012; Sportman *et al*. 2007). Such an association only furthers the colonist/colonised dichotomy inherent in previous discourse. Again, most studies taking this approach investigate the colonised or sub-altern groups and equate the use or avoidance of domestic animals for food as an adoption or rejection of the coloniser's foodways (Graesch *et al.* 2010: 213).

From the perspective of the coloniser, the inclusion of wild animals into the diet does not necessarily indicate adoption of indigenous foodways but is often seen as an adaptation or a response to their new environment (Beaudoin 2013: 247; Lawrence 2003: 29) and changes in foodways are interpreted in other ways suggestive of social diversity (Cheek 1998; Peres 2008) rather than as 'loss' of European identity. The question is: should traditional ingredients (meat) of both cultural groups be considered a part of their traditional foodways? Or are the ingredients irrelevant and should the focus be more on the holistic nature of foodways (i.e., preparation, consumption practices, etc.)? In this research, I do not contend that the incorporation of wild resources into the diet equates to the adoption of indigenous ingredients or even that it represents the adoption of new ingredients and therefore suggestive of a change in foodways. Although many species of birds, fish and game were unique to North America, their meat products were not necessarily ‘new’ to British foodways. Other deer, small game, wildfowl and fish species were present in Britain and played specific roles in their foodways (further discussed in Chapter 8). This research investigates the roles these types of food played in Upper Canada, colonial North America and Britain in order to investigate whether a continuity or change in foodways occurred upon the settlement of Toronto and Upper Canada.

This chapter served to highlight the current state of discourse for topics linking foodways to identities in southern Ontario and elsewhere. The majority of these conversations are centred on indigenous foodways and their negotiations of identities in a colonial or post-colonial world. This research borrows from this conversation in order to address foodways and identities from the perspective of the British and American immigrant and their descendants. The research highlights how individuals struggle with multiple identities some of which are unique to them and others that are shared with a larger group. While looking for common trends in the archaeological and historical records, I also highlight how the diversity inherent within these records further illustrate how individual preferences and identities played an important role in household foodways. Furthermore, I critique the notion that Euro-Canadians associated all wild animals indigenous to North America with an Indigenous way of life or that the decision to incorporate or reject these from their diet was an adoption or a rejection of new or different foodways.

CHAPTER 3–

TORONTO AND UPPER CANADA, HISTORY AND ARCHAEOLOGY

This chapter serves to identify the zooarchaeological assemblages used in this study. However, in order to contextualize these assemblages in time and space, the chapter begins with a short history of the city of Toronto and its role in the provinces of Upper Canada and later, Ontario. This includes a discussion on the initial settlement of the city, the people who lived there and the events and developments that defined its history. Details of each archaeological assemblage used in this research are presented in relation to the city's history. This includes a discussion on how the archaeological contexts relate to the people who deposited the materials. Comparative assemblages from which data were gathered from unpublished literature are also presented.

3.1 CITY OF TORONTO

Today, Toronto is Canada's largest urban centre whose population, which includes the surrounding area, accounts for 18.1% of the entire country's (over 6.5 million people according to the 2011 Census). The city emerged through the 20th century as the country's pre-eminent financial, commercial and, arguably, cultural centre. Unlike other large northeast North American population centres such as New York, Boston and Montreal, the city of Toronto is relatively young. It was founded at the very end of the 18th century and grew modestly throughout the early 19th century. It was only in the mid- to late 19th century that the city experienced rapid growth. This unique historical situation provides an opportunity to explore colonial foodways of newly transposed British and Loyalist settlers as they adapted to early Canadian life on the North American frontier in the 19th century. To better situate the historical and theoretical contexts in which the proposed research takes place, this section presents a brief historical background to the city and illuminates some of the biggest developments affecting its citizens throughout the period of study.

3.1.1 HISTORY OF THE CITY

Now recognized as one of the world's big metropolitan centres and the largest city in Canada, it is difficult to imagine Toronto as it was less than two hundred years ago. Since then, groves of oak trees, forests of maple, beech and basswood, and adjacent marshes have given way to skyscrapers, elevated highways, and landscaped parks. The city has expanded in every direction it could while natural and human activities have significantly changed the landscape. Geographical features that originally caught the attention of settlers continue to play prominent, yet different roles in the everyday lives of Toronto's citizens.

Located on the north shore of Lake Ontario, between the Humber and the Don Rivers, the city centre's shoreline is protected to the south by the Toronto Islands, a small chain of islands forming the southern limit of the Toronto Harbour (Figure 3.1). When European settlers first arrived, these islands were linked together by low-lying sandy banks, thus forming one long peninsula stretching from east to west and limiting entrance to the harbour to a single access point from the west. The first permanent European settlement in the city was located in the area overlooking the harbour entrance.

A DEEP HISTORY

People have intermittently occupied these particular shores of Lake Ontario for the past 11,000 years (Williamson 2008). The Humber river is often referred to as the "carrying place" or the "Toronto passage"; an important, 28 mile long portage route connecting the mouth of the Humber River to the west branch of the Holland River, thus offering a link between Lakes Ontario, Simcoe, and beyond to the upper Great Lakes via Georgian Bay in Lake Huron (Robinson 1933: 1). The banks of the Humber River and the northern shores of Lake Ontario were home to multiple generations of hunter-gatherers followed by village farmers whose identities have since been lost (Ellis and Ferris 1990; Munson and Jamieson 2013). A few centuries prior to the arrival of Europeans, the area was occupied by the Huron-Wendat until their demise in 1649 whereupon the land was settled by the Iroquois (Seneca and Mohawk) (Birch and Williamson 2013). The Mississauga people inhabited the area of Toronto at the time the city we know today was first permanently settled by Europeans (Williamson, 2008).

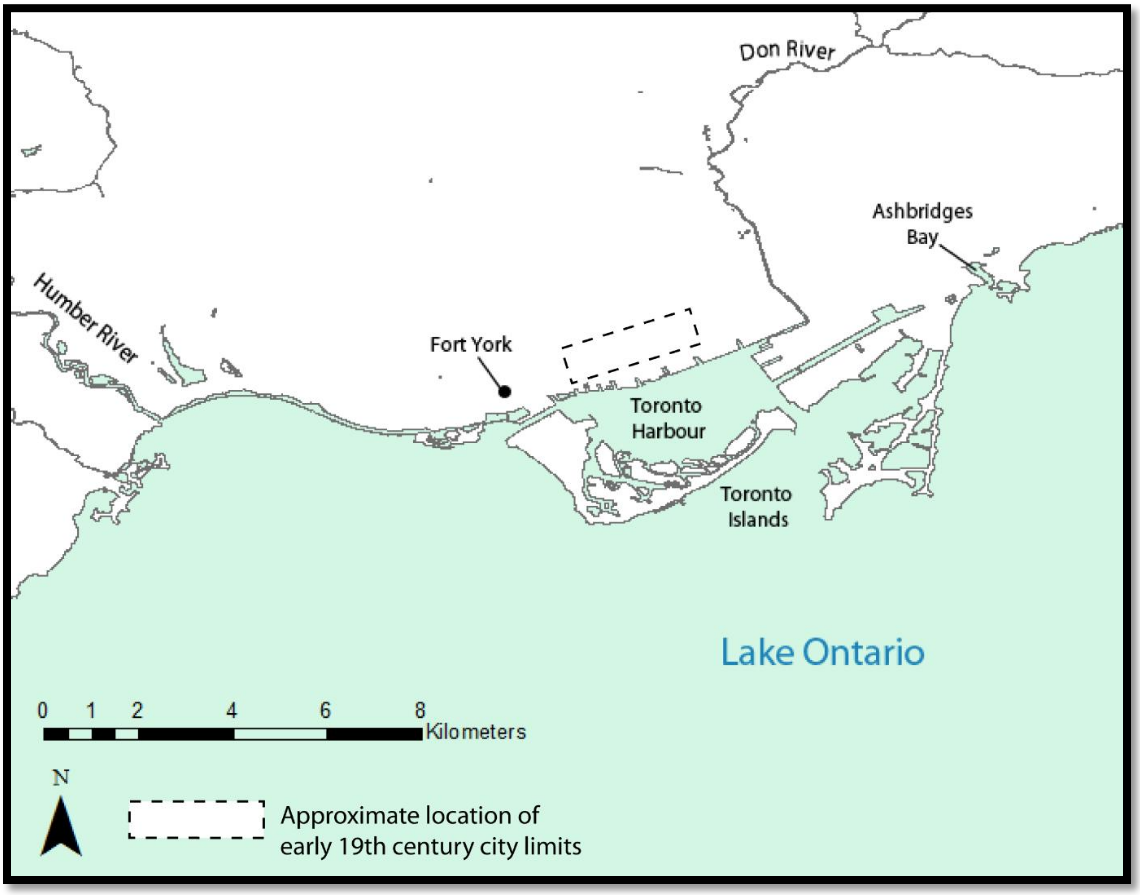

FIGURE 3.1: MAP OF TORONTO AS IT IS TODAY, HIGHLIGHTING APPROXIMATE LOCATION OF EARLY 19TH-CENTURY SETTLEMENT. NOTE TORONTO ISLANDS WERE ONCE CONNECTED TO THE MAINLAND, LIMITING ENTRANCE TO TORONTO HARBOUR VIA A NARROW WESTERN OPENING OVERLOOKED BY FORT YORK.

Not long after Europeans made their way to the North American coast, European goods, such as glass, iron and copper objects, first appeared along the north shore of Lake Ontario through trade via intermediaries (Ramsden 1978: 102). This was soon followed by Europeans themselves when fur-traders, missionaries and explorers arrived in the area. Samuel de Champlain is recorded as having travelled to the northern shore of Lake Simcoe in September 1615, on a joint expedition with the Huron against the Iroquois. Étienne Brulé accompanied Champlain on this trip acting as an interpreter. From here, Brulé was dispatched with some Huron people south to the Great Lakes along what some believe was the "carrying place". Early historians believed Brulé was the first documented European to set foot on soil that would become the city of Toronto (Robinson 1933: 6). However, this is disputed and it is now thought Brulé travelled further west, arriving at Lake Erie (Benn 2004).

Political relations between First Nations and Europeans centred upon the fur trade. The "carrying place" offered the French easy access to Huron-occupied areas by way of the St. Lawrence and Lake Ontario. However, they continued to opt for a much more difficult passage in the north, travelling along the Ottawa River, due to tensions with the Iroquois who did not allow for easy passage through a section of the St. Lawrence (Robinson 1933: 12). By 1650, the Hurons, Neutrals, Petuns and Eries who had been located north of the lower Great Lakes, were either “dispersed, destroyed or incorporated among the Five Nations [Iroquois]” (Fenton 1978: 296; Trigger 1978). By 1665, the Iroquois had captured the fur trade and diverted it to the English, Dutch and Swedes. This resulted in the French Jesuits abandoning southern Ontario and moving further west to Michilimackinac at the junction of Lakes Superior, Huron and Michigan (Robinson 1933: 14). It was later in the 17th century that Anishinabeg bands began to move into southern Ontario from the Upper Great Lakes, eventually pushing the Iroquois out of the region (MacLeod 1992: 200). The Anishinabeg in southern Ontario later became known as the Mississaugas. In 1702, a group settled at the mouth of the Humber River (Rogers 1978).

In 1750, (1749 according to Hounsom (1970)) the French established Fort Rouillé (Fort Toronto) in what is now the east end of the city. Fort Rouillé was yet another French post providing a travel and communications link between the St. Lawrence, Michilimackinac and beyond. Better described as a fortified trading post, it was occupied by less than 10-15 soldiers and mostly served to protect the trade goods stored within (Benn 2004). Ten years later, the French burnt down and abandoned this post before the British arrived after having captured Fort Niagara. The Seven Years War between France and Britain ended with the Royal Proclamation in 1763, in which the French gave up possession of New France to the British.

BRITISH OCCUPATION

Despite an abundance of natural resources and the presence of important travel routes, it was military strategy that finally led to the establishment of a permanent British settlement in the area. The American Revolutionary War was a time of great tension between Britain and what would become the United States of America. That conflict ended with the Treaty of Paris in 1783, when the British passed over all of its territory south of the Great Lakes to the United States. However, the British felt it was necessary to maintain a line of defence against possible American invasions and to maintain good relations with First Nations in the area. Consequently, Britain continued to occupy what was known as the “Western Posts” located within territory ceded to the United States in the treaty. These included the following locations: Osegatchie (Ogdensburg), Oswego, Niagara, Presqu’île (Erie), Sandusky, Detroit and Michilimackinac (Figure 3.2).

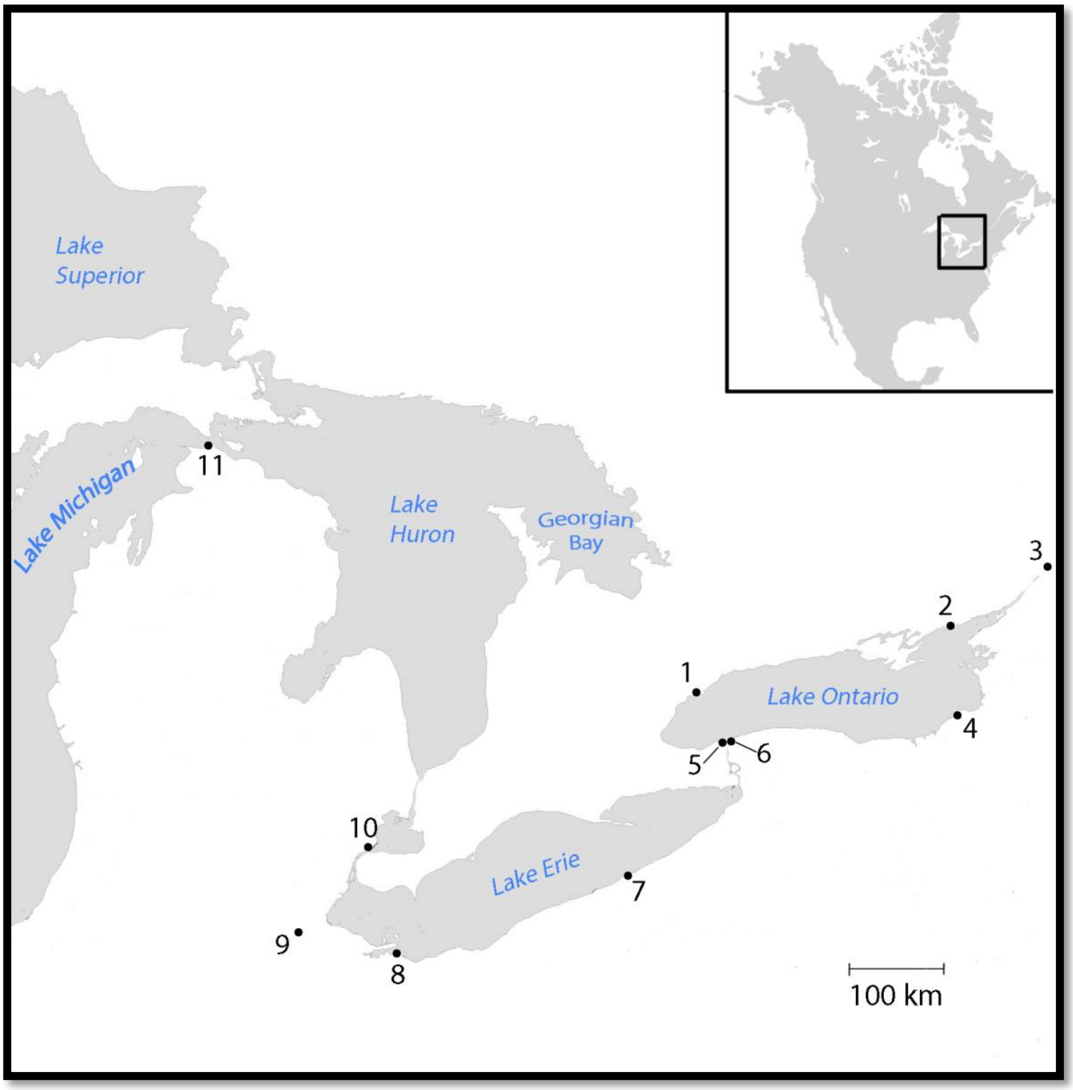

FIGURE 3.2: LOCATION OF BRITISH AND AMERICAN FORTIFICATIONS MENTIONED IN TEXT. 1. YORK (TORONTO), 2. CATARAQUI (KINGSTON), 3. OSEGATCHIE (OGDENSBURG), 4. OSWEGO, 5. NEWARK (NIAGARA-ON-THE-LAKE), 6. NIAGARA, 7. PRESQU' ILE (ERIE), 8. SANDUSKY, 9. MIAMIS, 10. DETROIT, 11. MICHILIMACKINAC

As the American Revolution was coming to an end, many American colonists preferring to remain loyal to the British Crown began moving to British held areas. Once the war ended in 1783, these settlers known as 'Loyalists' were encouraged to settle in the Canadas where they were offered land grants as well as the necessary equipment to clear these properties and establish their farms. This was accompanied with a two years' supply of food rations to help them through the initial settlement period. These incentives were offered until 1789 and many, including several from Quaker and Mennonite communities, settled throughout what is now southern Ontario (Jones 1946: 17; Russell 1973: 15-16).

British relations with indigenous groups improved over the 1780s whereas relations between First Nations and the Americans rapidly deteriorated leading to multiple clashes along the frontier. In 1790, American forces set out to the Ohio Valley to battle First Nations and, at the same time, send a warning to the British regarding their encroachment on American territory (Benn 1989: 305). Unfortunately for the Americans, this expedition ended with their own defeat, as did two subsequent expeditions aimed at quelling Indigenous revolts.

Despite failures on the part of the Americans, the result was a tense atmosphere among British military officials stationed in the Great Lakes area. In 1791, John Graves Simcoe, the first Lieutenant Governor of the newly established province of Upper Canada, was responsible for maintaining its defences. He felt it important for the British to establish a strong naval presence on Lakes Erie and Ontario and that the provincial capital should be moved from Newark (Niagara-on-the-Lake) to a more defensible location away from the American border (Benn 1989: 306). Simcoe believed that, with its easily defensible harbour located between two rivers, Toronto was a “natural arsenal for Lake Ontario” (Benn 1989: 306). He also mentions the added value of the Toronto Passage providing a portage route to Georgian Bay should the Americans ever gain control of the Detroit river route (Benn 1989: 306). Its geographic position in Lake Ontario meant that spring and therefore open water, came to Toronto earlier than it did in Kingston (where its current naval base was located), thus potentially allowing vessels to navigate open waters two weeks earlier than those stationed in eastern Lake Ontario (Benn 1994: 4).

Simcoe’s plans had a Toronto garrison forming part of a series of defence posts connected to each other by proposed road networks that could be built through the forests thus linking the Western Posts within Upper and Lower Canada (Benn 1989: 307). He hoped to establish military posts at Long Point, Georgian Bay and the Thames among other places. However, rapidly deteriorating peace talks between the Americans and the First Nations combined with a new war with France in 1793 meant that Britain had to act fast in preparations for the defences of Upper Canada. Simcoe had to cancel most of his plans and was told to quickly establish a military post at Toronto (Benn 1989: 308). This new post was to serve as a location where supplies could be stored, communications kept open, and if necessary, from where the British could mount a counter attack in the event Fort Niagara was overcome.

In the summer of 1793, Simcoe reportedly sent 100 men of the Queen’s Rangers to the site of Toronto to further survey the area, begin erecting buildings, and build roads (Benn 1993: 12; Fairburn 2013: 332). They were followed by Simcoe himself who arrived at the site on July 30th, 1793 along with his family and government officials. A month later, on August 27th, Simcoe changed the name of the settlement from Toronto to York after hearing of the

Duke of York's victory over the French in a battle earlier in May. By the end of August, twelve houses were erected on the site (Hounsom 1970: 27) and war had resumed between indigenous people and the Americans.

Simcoe's plans for a great garrison and naval base at York never came to fruition. While the site of York as a civil settlement was approved, Baron Dorchester, then the governor-in-chief of British North America, was not in favour of Simcoe's decision to establish a military post there. He believed the entire colony's military reserves too small to support a new post and preferred to utilize whatever resources they had in maintaining a strong defence in Kingston in order to protect the St. Lawrence supply route (Benn 1994: 6). He also believed York was far too isolated to be used as a naval base (Benn 1994: 6). However, Simcoe did have access to some funds which he used to establish barracks and small defences "for the local function of protecting the temporary capital" (Benn 1994: 6). Little work occurred on site in its early days. By October, a government sawmill was set up and some older artillery pieces arrived on site. Further development of York was postponed in 1794, when war with Americans seemed inevitable. Under orders from Dorchester, Simcoe now focused on shoring up defences south of Detroit at Fort Miamis (Benn 1989: 314).

Despite shifting military focus elsewhere on the continent, Simcoe managed to attract between 70 and 100 families to settle in York. He had the Queen's Rangers build round-log huts, a log storage house, defensible storehouses, a guardhouse and roads linking present day Hamilton to Toronto, as well as much of Yonge and Dundas streets (Benn 1989: 315; Fairburn 2013: 332). Yonge Street stretched from York north to Lake Simcoe providing an easier alternative to the traditional carrying place (Spelt 1955: 27, 29-30). Lieutenant Governor Simcoe also continued his push for York as the colony's prime naval base in Lake Ontario but sustained resistance from his superiors preventing this (Benn 1989: 316). The initial town layout consisted of ten blocks stretching to George Street in the east. The northern boundary had moved to Lot Street (later Queen Street) by 1797 and Peter Street to the west, where the Garrison Reserve lands were located (HHI 2011: 5). This reserve was later seen as redundant and the area was divided into town lots of approximately one acre in size.

In 1795, new peace treaties were signed between Britain and the United States and between the Americans and the Western Tribes. In the Treaty of Amity, Commerce and Navigation (Jay's Treaty), the British agreed to hand over the Western Posts to the Americans in return for trade access within American territory (Benn 1989:316). A part of this handover included Fort Niagara, which was ceded in August 1796, leaving the unofficial capital of

Newark across the river and within cannon range of a strong American fort. With this new reality, Simcoe (who would leave office in August of that year) received approval to move the provincial government across the lake to York, a task that was completed by his successor, Peter Russell (Benn 1989: 317).

Although a small garrison and a minor military presence were maintained in York, the city never became the strategic military base that Simcoe had envisioned and instead played a modest role in the province's defence. Despite its military beginnings, the city's survival ultimately depended on the growing civilian population and its role as the seat of provincial government (Benn 1989:317).

WAR OF 1812

A period of relative peace followed the treaties of 1794 and 1795; however, tensions were elevated once again as early as 1807 when a war with the Americans seemed inevitable. In 1811, the United States carried out military strikes at Tippecanoe and declared war with the Western Tribes. Around this time, some British military officials re-opened the debate regarding whether York was a better naval station than Kingston; however, its current fortifications were not strong enough to support such a move. Work began to strengthen York's defences in 1811, but relations with the Americans fell apart too quickly for any progress to be made and a serious move to York became untenable. War was officially declared between Great Britain and the United States in 1812 (Benn 1993).

During the war, the city was attacked three times while the better defended Kingston was never attacked at all. The first attack came in April of 1813; it resulted in the loss of a nearly completed frigate, the *Sir Isaac Brock*, being built in York's dockyards. This ship would have given the British naval fleet an advantage on the lake had it managed to leave the dockyards (Benn 1994: 8). Before evacuating the town, the British set fire to the frigate and multiple naval stores and the city was then captured by the Americans. American occupation of the city only lasted six days during which time the British continued to use the Toronto Passage to access the upper Great Lakes as the Americans went on to defeat the British in Lake Erie (Benn 1994: 8). The second attack on York occurred a few months later in July; the Americans occupied the city for two days after this attack. The third attack occurred in August of 1814; however, stronger defences at Fort York succeeded in staving off the Americans in their bid (Benn 1994: 8). Despite multiple invasions of the capital, Upper Canada never fell to the Americans during the war of 1812.

Plans for improving city defences followed the war, none of which came to fruition. There were other times, throughout the 19th century when military tensions became elevated and notions of stronger defences were entertained. The Rebellion Crisis of 1837-38 was one such event when people revolted against the current form of government and numerous raids occurred along the American Border in the Great Lakes and St. Lawrence regions. Some improvements to the city's defences were made at this time (Benn 1994: 10). The American Civil War (especially at the time of the Trent Affair in 1861), and the Fenian Raids (1866-71) also raised military tensions in the city (Benn 1993: 116). A military presence was maintained in Toronto until 1870 but the city continued to grow, as it mostly had, as an important government and commercial centre (Benn 1996: 79).

POPULATION GROWTH

The uncertain times of war gave way to a period of peace in Britain and North America by the early 1820s. This was also a time of great unemployment in Britain and government sponsored relocation programs reappeared in 1815 and saw nearly a million settlers move to British North America (Russell 1972: 18). State sponsored population growth initiatives would scale down by the early 1830s; however, private companies and parish sponsorship programs continued throughout the 1830s (Coleman 1978; Karr 1974; Lee 2004). This mix of government and private sponsored immigration efforts proved to be quite successful: Upper Canada was the fastest growing North American region between 1825 and 1851 (Lewis 2001: 175). Other factors that led to increased immigration include the Irish Potato Famine of 1845-46 and the dispossession of crofters in the Scottish Highlands (Careless 1984: 79, Russell 1972: 18). The area north of Lake Ontario known as 'The Front' was especially enviable to the English middle class. Although undeveloped at the time and comprising mostly of forests, lakes and rivers, it still attracted large numbers of families eager to transform the landscape into a productive agricultural centre (Russell 1972: 18).

In the beginning, York's population grew slowly. The first town meeting in 1797, counted 241 residents (Firth 1962: lxxvii) and that number more than doubled to 630 civilians by 1809-11. A total 720 people lived here by 1814 (Hounsom 1979:28). Prior to the war of 1812, the majority of the town's migrants came from the United States, latecomers to the original Loyalist movement. Most of these settlers established farms in the backwoods leading to differing demographics between a mostly American countryside and predominantly British urban centre in York (Careless 1984, 25). Shipping across the ocean proved an especially unsafe decision during the Napoleonic Wars, and therefore few British migrants made their way to the Canadas in this period. Those arriving at York were predominantly from the upper and middle classes and there to fill military, civil or professional posts. Careless (1984: 27) states those early British migrants helped further establish British traditions and patterns in York.

With the Napoleonic Wars and the War of 1812 both ending in 1815, the dangers associated with migration to York were greatly reduced. The industrialisation of Britain was increasingly displacing its people and mass movements across the Atlantic increased (Careless 1984: 33). Toronto's population more than doubled by 1825, reaching 1,600 at a time when the provincial total was about 157,000 people (Careless 1984: 39). With a population of 5,505 in 1832, York surpassed Kingston to become the largest urban centre in Upper Canada. Its growing commercial centre benefited from the expansive countryside it serviced by way of the Humber and Don Rivers and expanding road systems (Careless 1984: 43). The population reached 9,250 by 1834 when the city officially changed its name back to Toronto (Benn 2004). The agrarian expansions in the rural areas surrounding the city attracted enterprising British townsfolk to Toronto, thus growing its middle class. By 1846, the population reached 20,000. From 1845 to the early 1850s, large numbers of Irish refugees escaping the Potato Famine made their way to North America. The year 1847/48 saw 38,560 migrants pass through Toronto, many of them refugees but only some of them would end up settling in the city and the population reached 24,000 (Careless 1984: 73). The Grand Trunk Railway arrived in Toronto in 1856 and forever changed the direction of industrial development in Toronto. The city no longer relied on the waterfront as its centre for trade. The railway provided year-round links to rural and bigger trading centres throughout Upper Canada, North America and the world beyond (Careless 1984; Fairburn 2013: 62). British immigration numbers eventually dwindled by the 1860s as rural land became increasingly unavailable. For the first time, Canadian born people were the biggest contributors to Toronto's population growth. In the late sixties, a smaller influx of British migrants once again began arriving to the city. For example, over 7,200 English, 1,550 Scots and 811 Irish immigrated to Toronto in 1869 (Careless 1984: 76). The 1871 Census of the city of Toronto identified 11,000 English born, 10,300 Irish born, 3,200 Scottish born, 2,000 American born and 29,500 Canadian born (Careless 1984: 76). As the city's economy moved toward manufacturing in the late 19th century, its population numbers rose exponentially, reaching 181,000 in the 1891 Census (Careless 1984: 109).

By the 1860s, the situation changed markedly and the country's population growth, although elevated by comparison to other countries, had slowed considerably as emigration to the United States increased and birth rates decreased (McInnis 2000: 385). The overall impression of population growth throughout the 19th century did fluctuate and population numbers were negatively affected by a number of events in addition to the War of 1812. There were various economic downturns that included a depression in 1825-26, a worldwide depression in 1837, the Rebellion crisis of 1837-38, cholera outbreaks in 1832 (273 deaths), 1834 (500+ deaths) and 1848/49 (424 deaths) and a typhus outbreak in 1847-48 coinciding with the arrival of Irish refugees (Benn 2004; Careless 1984: 73).

In 1840, the respective governments of Upper Canada (later, Ontario) and Lower Canada (later, Quebec) were abolished and replaced with a single governing body to look over the affairs of a now united Province of Canada. This action represents one of the Crown's responses to the aftermath of the Rebellions of 1837-38. The capital changed locations six times during this province's 26 year history and was located in Toronto between 1849 and 1852, and then again in 1858. In 1857, Queen Victoria chose the construction site of a permanent seat of government for the Province of Canada. It was in Ottawa, in the eastern part of what was once Upper Canada. On July 1st, 1867, the Province of Canada joined Nova Scotia and New Brunswick into confederation to form the new Dominion of Canada, a country formed of four federally united provinces. What was once Upper Canada became the province of Ontario and Toronto once again became its provincial capital. The national capital remained in Ottawa. The city and province changed names multiple times over the course of its history. For the sake of clarity, I will refer to the city of Toronto and the province of Upper Canada throughout this thesis even though these entities may have been known by other names during the period(s) under discussion. I chose to refer to the city as 'Toronto' as this is how it was known through most of its history. I chose to refer to the province of 'Upper Canada' because this research focuses on the geographic area within that province as opposed to all regions within the boundaries of the current province of Ontario.

3.2 ARCHAEOLOGICAL ASSEMBLAGES

Data for this project were collected from a number of rural and urban household deposits recovered from within the Greater Toronto Area by commercial firms and heritage conservation organisations. Rapid development within the city of Toronto during the early 20th century resulted in the destruction of much of the archaeology within the downtown core. As a result, most sites in the city are partially disturbed. The following sites are described according to their original urban or rural location at the time of occupation. Their locations within and around the city of Toronto are identified in Figures 3.3 and 3.4.

3.2.1 URBAN ASSEMBLAGES

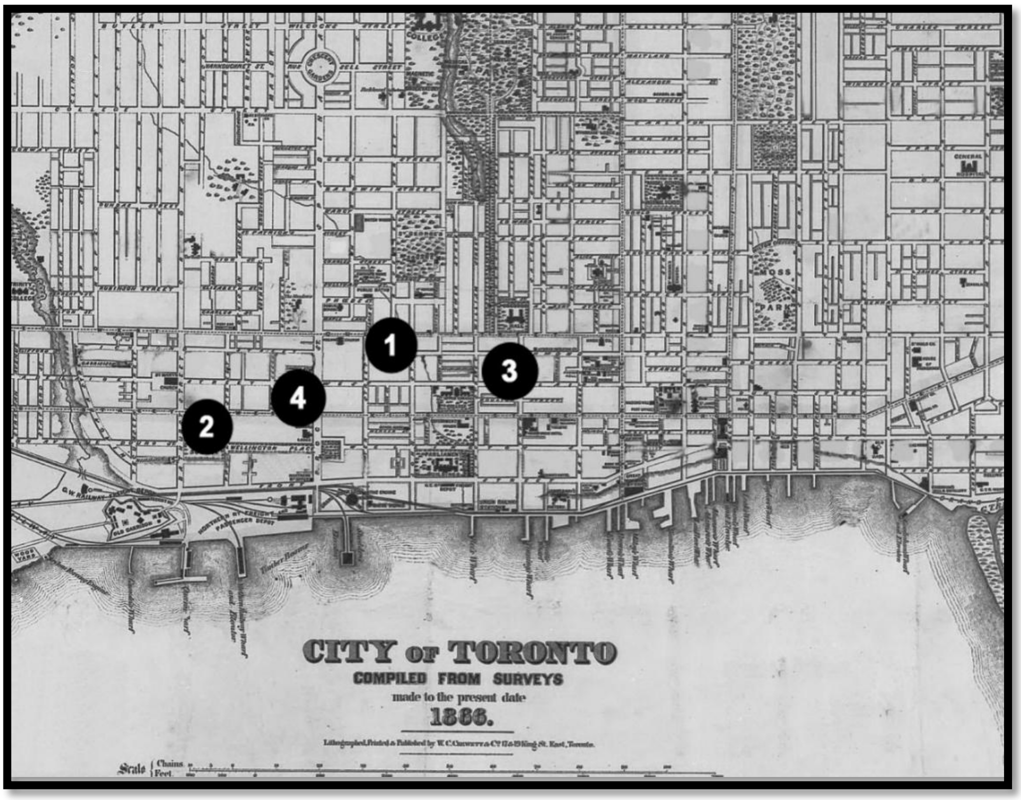

FIGURE 3.3: LOCATION OF URBAN ASSEMBLAGES WITHIN THE CITY OF TORONTO. 1) 327-333 QUEEN STREET WEST, 2) BELL, 3) BISHOP'S BLOCK, 4) DOLLERY. MAP MODIFIED FROM CHEWETT AND COMPANY (1866).

327-333 QUEEN STREET WEST (HHI 2011)

The site located at this address represents excavations undertaken by Historic Horizons Inc. in the back garden of extant buildings prior to redevelopment. At the time of excavation, two standing buildings were located at this address, one was built in the 1890s and the other in the 1960s-70s. Areas in their back garden were mostly undeveloped and it is here that archaeologists found a number of features dating to the 19th century. Stage four archaeological mitigation took place in 2009 using a mixture of machine and hand excavation techniques. A total of 38 new features were identified including eight privies. The privies proved to be the most artefact rich deposits and three of them produced enough faunal remains to provide fair sized samples used in this study. All soils from units and features were screened through a 6mm mesh (HHI 2011: 1-2).

The site is located on land that formed the original settlement of Toronto. Its street was first surveyed in 1790 but appears to have remained undeveloped until the early 1830s. The first buildings on the site were built prior to 1842 (HHI 2011: 1). The street was initially composed of house lots and urban estates but these larger homes were eventually replaced by a mixture of small businesses and residences in townhouses later in the 19th century. The area became more business-centric throughout the 20th century and is now a popular commercial, media and entertainment district.

The site consists of two lots that were initially identified on the 1797 survey as lots 17 and 18 (Smith map, 1797). These lots were patented in 1801 but no development appears to have taken place until after 1820 when someone named Alex Burnside acquired the properties. In 1836, he sold lot 17 to an artist named Edward Robson and lot 18 to David Robertson, a farmer from eastern Upper Canada. Lot 17 remained with the Robson family until at least 1860, when it was sold to the Honourable John Ross. Lot 17 transferred ownership multiple times: Ashley Cole purchased it in 1871, and transferred it to Henry Jordon in 1880. After he died, the property was acquired by Jacob Singer who owned it until the 1930s. The property was further divided into halves in 1942. The building on lot 17 was torn down between 1941 and 1954. Its owners were not always living at the property as it is known to have housed a variety of tenants that changed frequently over time (HHI 2011: 5-6).

Lot 18 was owned and partly inhabited by the Robertson family for most of the 19th century. David willed it to his daughter Mary Ann in 1865. She and her husband John Grant appear to have lived on the property for a number of years, even before taking ownership. Like lot 17, a number of tenants came to occupy the property through the years. Cottages were built in the rear of the building by 1858 to lodge more tenants. Mary and John's eldest children remained at the property well into their early twenties. The lot was sold in 1882 to Alex Gemmel, who quickly sold it to William Windeler, a shoe merchant who had been a tenant of lot 17 in 1878. He lived there with his large family of at least 12 children until 1893. The original timber frame structure was replaced by a brick building in 1890. Richard Wist purchased it in 1894 and it was occupied by a number of changing businesses until the 1930s.

Table 3.1 lists known tenants of lots 17 and 18 and notes their occupations. A large number of tenants occupied the site in the mid- to late 19th century, reflective of a high turnover rate. The names and surnames suggest mostly people of British/Anglo-speaking ancestry. A wide variety of mostly working class occupations are noted speaking to the type of neighbourhood this was throughout the 19th century. A Chinese laundry owned and operated by Jong Suig, operated out of lot 17 from 1908 to 1934; however, no artefacts or features suggesting an early Chinese-Canadian occupation were identified (HHI 2011: 6).

TABLE 3.1: LIST OF KNOWN TENANTS FOR LOTS 17 AND 18, 327-333 QUEEN STREET WEST, AND THEIR STATED OCCUPATIONS. INFORMATION OBTAINED FROM A NUMBER OF SOURCES SUMMARISED IN HHI (2011: 7-11).

Year of tenancy	Tenant	Occupation
1833-1834	Henry McCabe	Boot and shoemaker
1830s-1882	John and Mary Ann Grant (become owners)	Wheel wright/waggon maker (John)
1840-1846	E. Robson listed with Jos. Pearson as tenant	N/A
1852-1857	Thomas Darcy + various tenants	Agt. [agent?]
1855	D. Bardett	Student
1855	R. Johnston	Constable
1855	August Grosshurt	Cabinet maker
1855	Alex Erikson	Artist
1855	H. Farache	Mason
1855	S. Augustin	Tailor
1857	E. Murphy	Carpenter
1857-1858	Michael Walker	Shoemaker
1857	Blake (living in boarding house)	N/A
1857	Smith (living in boarding house)	N/A
1857	Ferguson (living in boarding house)	N/A
1857	Johnston (living in boarding house)	N/A
1857	Lawrence (living in boarding house)	N/A
1857	Dorothy Lawrence	N/A
1857	John Mills	N/A
1857	Francis Bradly	N/A
1858	Wm. Webster	N/A
1858	Henry Taylor	N/A
1858	John Hammal	N/A
1858	Samuel Harte	Shoemaker
1860-61	Michael Gaffeny	Labourer
1860	Jos. Williams	N/A
1860	Michael Ryan	Teamster
1860	Geo. French	N/A
1861	Mary Pollard	Laundress
1862	Michael Gavin	Labourer
1862	John Osborne	Willow worker
1862	William Pollard	Carpenter
1862	Samuel Mulholland	Teamster
1865	Wm. McGibbon	Shoemaker
1867	Harriet Basset	N/A
1867-68	John Scholes	Shoemaker
1867	Mary Philbrick	N/A
1867	Henry McFarlane	Shoemaker
1867	Chas. Noble	N/A
1868,[-] 1871	James Denham,	Carpenter

Year of tenancy	Tenant	Occupation
1868	John Allan	Labourer
1868	Mrs. M.J. Campbell (widowed)	N/A
1868	Patrick Riley	17th Regiment
1868	Fred. Chapel	17th Regiment
1871	Robert Claxton	Labourer
1871	George Grant (Mary's son)	Salesman, dry goods
1871	Adolphus Sharp	Mariner
1871	Thomas Carigan	Pensioner
1873	Ashley Cole	N/A
1873	Francis Cole	Machinist
1873	William Dickie	Labourer
1874	William Woodhouse	N/A
1874	D.J. Grant (Mary 's son)	Carpenter
1880	M. Gordon	Clothier
1880	Jas. Howard	Fish dealer
1880	G.R. Grantgoods	N/A
1880	Robt. Colby	Labourer
1880	Jos. Wright	Labourer
1880	Wm. Lankin	Machinist
1889-90	Harris Wineberg	Confectionary
1889-90	L. Gordon	Second hand goods
1889-90	William Windeler	Shoes
1908-1934	Jong Suig	Chinese laundry owner
1908	Herbert Brown	Shoemaker
1908	Isidore Shessel, Moses Narral and P. Taube	Furniture
1908	Alma Koropp	Furrier (owner: Isidore Shessel)
1915	Sam'l Roth	Clothes repair
1915-1921	Morris Nudelman	Shoes
1915-1921	Jules Brown	Gentleman's furnishings
1921	David Trackman	Cleaner and presser
1941	Mose Rosenstein	Retail
1941	Oscar Smith	Shoemaker
1941	Sam Ikaezuk	Butcher
1941	James Katzman	Furrier
1941	Joseph Bernhardt	Barber

QUEEN STREET PRIVY FEATURES

The three privy assemblages used in this study are labelled as features 36, 38 and 46. Feature 36 is a 1.5m by 1.2 m square, wood-lined privy found with a wooden plank resting on subsoil lining one side and four wooden corner posts. The surface of the feature contained a large number of shoe fragments, an articulated cat skeleton and a number of cow mandibles that were mostly found against the wood lining around the edge of the deposit. The privy is located at the back of lot 18 and was cut by the workers cottages built by 1858. Therefore this deposit dates from the 1830s to the 1850s.

Feature 38 is a privy located in lot 18. It had total of 1,620 artefacts, approximately 40% of which were faunal remains. Its dimensions were 1.23 by 1.63 metres and it was abutted by a brick wall from an addition to the back of the building at 331 Queen Street West. Unfortunately, the instability of the brick wall and the location of a tree stump did not allow archaeologists to fully excavate this feature. Dates obtained from ceramics and smoking pipes suggest an 1830s to 1850s deposit (HHI 2011: 20-21).

Feature 46 is a privy feature located in the original lot 17. Its upper deposits were partly disturbed by later intrusive activities. Artefact assemblages suggest its deposits likely date to the first half of 19th century (except for one anomalous artefact dating to post 1890s) (HHI 2011: 24). The feature is cut by another feature likely built in the 1870s. A total of 103 leather fragments were identified and initially thought to relate to one or both shoemakers occupying the site between 1860s and 1880s or to shoemaker Michael Walker who lived here in the late 1850s.

THE BELL SITE (ASI 2012A)

Located at the intersection of King Street West and Bathurst Street, the Bell site was located within 1000 yards of Fort York and surrounding garrison. The property is situated on land that was originally intended as part of a military reserve for Fort York; however, the usefulness of the reserve was questioned after the resolution of the War of 1812. When combined with population growth pressures, this provided added incentive for the subdivision and sale of this land. As part of this sale, this particular property was patented to a local land agent named Thomas Bell Jr. in 1840. Bell was a member of one of the earliest families to settle in Toronto and owned a number of vacant lots and houses throughout the city. He later became an alderman serving on Toronto's city council.

By 1842, Thomas and his wife Katherine built a small, timber-frame house and outbuildings on the property where they lived with their family. In 1858, a larger dwelling was built immediately west of the original house. Thomas died in 1857 but Katherine lived here until her death in 1864. The buildings were briefly occupied by a few tenants (William McCune, a driver and M. Octavius Miller, Captain of the Military Store staff) and vacated by 1869 (ASI 2012a: 1-2).

In 1870, the property was sold to Herman Henry Cook, a member of the influential Cook family, heavily involved in the lumbering trade and a member of federal and provincial parliaments for Simcoe County in the 1870s and 1880s. He retained the 1858 house but demolished the original 1842 structure and the outbuildings. He built a new house where his family likely took up residence and operated a lumber yard on the remainder of the property well into the twentieth century until it was appropriated by the T. Milburn Company Ltd., who operated a patent medicine manufacturing business out of both the 1858 and 1870 buildings.

Both structures were demolished between 1958 and 1960 to make way for a car park. A three-storey motel was built in 1965 further back on the property to where the original residential structures were located. Archaeological investigations conducted in 2011 by Archaeological Services Inc. (ASI), investigated the area beneath the car park for remains of the 19th-century deposits. These investigations lead to the full scale salvage excavation of multiple features from the 1840-1870 homelot, including a crawl space identified beneath the floor of the 1842 structure and portion of the basement interior of the 1870 structure. All soils were sieved through a 6mm screen. Artefacts suggest the Bells were fairly affluent members of society and that the lot was possibly occupied before the initial 1840 patent.

THE BISHOP'S BLOCK SITE (ASI 2012B)

In 2007, ASI conducted archaeological excavations in downtown Toronto on land slated for the development of a high-rise building. This piece of land was known as Bishop's Block, a name originally given to five townhouses built on this property in the 1830s, of which, two remained standing at the time of excavation. This excavation represented one of the first large scale urban excavations in the city. Seven trenches revealed the structural remains of four townhouses and associated structures and features. Three of these houses were constructed in 1830 and the other in 1860. One of these buildings was briefly occupied by the author Anna Jameson in 1836, who wrote about her experiences living in Upper Canada (Jameson 1838).

This property was first subdivided in 1797, as part of Toronto's early westerly expansion. In a great example of land speculation, the property passed through many owners before being developed (ASI 2012b: 5). Its first land patent was issued to John Matchefskey on May 20th, 1801, a German settler and one of the first bakers in the town of Toronto (Mosser 1984: 13, 20). He sold the lot in 1803, to John Walden Meyer who sold it a year later to Angus McDonell, the first clerk of the Legislative Assembly. Mr McDonell served between 1792 and 1801, and later represented the east riding of York from 1801 to 1804. After his accidental drowning in 1804, the property passed to his brother, Sheriff Alexander McDonell who sold it to Joshua Leach in 1811. Leach sold it to David Lick in 1813, who sold it to John Bishop in 1817. John was an Englishman who arrived in Toronto the previous year via New York. Records indicate him living with a family of seven in Toronto in 1818 (Moser 1984: 129). A plan of the city, drawn in 1818, indicates that the property at the corner of what is now Adelaide and University contained a formal garden and a residence. Whether or not the structure was erected by Bishop or a previous land owner is uncertain (ASI, 2012b: 6).

A butcher by trade, Bishop rented a stall at the St. Lawrence Market and owned as many as 11 town or building lots within the city. In 1833, Bishop had the second highest realty assessment in Toronto with over 11 townhouses (Robertson 1894: 376). He died in December of 1845 (Hancocks 1983: 9). The five townhouses located on this property appear to have been built sometime between 1829 and 1833 (Dendby 1978: 105; ERA 2005: 4; Robertson 1894: 529). Four residences were identified on a map of the site from 1833 as “Bishop’s Buildings” and the occupants included “G.A. Barber, a writing-master at the college; Robert Sympson Jameson, Esq., Attorney General; Captain William Elliott Wright; and, J. Morgan, Gentlemen’s and families boarding house” (Robertson 1894:376). John Bishop was not listed as a resident of the property. An 1837 entry listed one unoccupied building and the other tenants as “Miss Ross, ladies school,” “G.A. Barber, Wriging-master U.C. College”, “R.S. Jameson, Attorney General”, “Colonel Cameron”, and “Dr. Bartley, Surgeon 15th Regt.”(Walton 1833: 3, 8, 23, 39 in ASI 2012b: 7). A map depicting all five townhouses was produced in 1842 and listed the following tenants: “Aeneas Bell, yeoman”, “Mrs. King”, listed as a seminary and “A. Rennie, gentleman” (Lewis 1843: 21, 48, 65 in ASI 2012b: 7).

The properties were formally subdivided into 10 building lots in 1846. The existing buildings and rear stables were located in lots 6 through 10. A narrow laneway was added in 1849 along the north side to access the stables. The five townhouses remained on the property until 1962 when the most easterly one was destroyed. Those on lots 7 and 8 were demolished in 1981 and those identified as houses “1” and “2” were dismantled and rebuilt between 2010 and 2012; however, these did not yield any archaeological deposits (ASI, 2012b: 7-8).

Archaeological investigations revealed a high level of preservation of the building lots and associated artefacts, allowing archaeologists to identify the sequence of construction activities in the area over the previous 200 years. Excavations focused on all five backyards and on two of the houses. It appears that the buildings were originally built with a subterranean addition in the rear of the houses likely serving as cold storage spaces. Every backyard had at least one cistern and privies were located at the far rear of the properties. These were later filled and abandoned. Deposits associated with the construction and use of the buildings were identified; however, the majority of the materials, including all of the faunal remains analysed in this project, were recovered from deposits associated with the abandonment and fill of the cisterns and privies in the late 19th century. Recovered artefacts suggest primarily domestic activities and include glass, ceramics, toys and smoking pipes among other things. Soils were sieved through a 6mm mesh screen.

A total of 17,025 faunal specimens were recovered, analysed and reported on by Dr Suzanne Needs-Howarth (2011). Access to her dataset was provided to me and I re-analysed the data entries for this project. The Bishop's Block site has produced the most comprehensive collection of faunal remains thus far for 19th-century residential occupations within the city of Toronto. In her original faunal report, Needs-Howarth (2011) combined zooarchaeological data from all four house deposits and interpreted a single Bishop's Block assemblage. In this report, I separate the data into four house deposits in order to investigate if there are differences or similarities between them.

THE DOLLERY SITE (ASI 2012C)

The Dollery site is located at what is now 426-432 Adelaide Street West, less than a kilometre from Fort York, in the area that previously formed the military reserve. In 2012, ASI carried out archaeological excavations beneath the car park located on the property prior to development activities on land that encompasses two mid- to late 19th-century working class urban house lots. The earliest structures on these two lots include two semi-detached, single-storey frame houses located towards the rear of the property. These were built sometime around 1856 and demolished in the mid- to late 1870s when they were replaced by a series of frame houses built towards the front of the property, abutting Adelaide Street. These buildings remained until 1899/1900 when they were either demolished and replaced or heavily renovated.

The property was first subdivided from the reserve and patented to James Fitzgibbon in 1835, a military officer associated with the government of Upper Canada. It was then transferred to the Toronto Hospital Endowment, who in turn leased one of the lots in 1852 to John Rankin, a local carpenter who resided on the property. City directories from 1856-63, 1868-73 and 1878 identify a railroad conductor named William Dollery as occupier of the eastern-most house. William was married and had six children; however, the 1871 census lists the children as residing with their married sister and her husband at another address. Other residents listed as living in this house include Susan Richardson (1864-66), Hannah Hughes (1874-75), William Lennox (1876) and George McDonald (1877-1878). Rankin's leasehold was then transferred to Dollery in 1874 who later transferred it John Duncan in 1878 (ASI 2012c: 1). The second lot located on the site was occupied by a series of working class tenants; however, most of the deposits associated with this occupation were destroyed by early 20th-century development on the site.

Excavations revealed a number of deposits, mostly associated with the Dollery era occupation (1855-1878) and a few deposits relating to the neighbouring house that was occupied at the same time by multiple tenants. All soils were sieved through a 6mm screen. A total of 1,524 faunal remains were recovered and analysed by Dr Suzanne Needs-Howarth (2012). Her dataset was provided to me and a re-analysis of these data entries was undertaken in order to arrive at results that could be directly compared with other assemblages investigated in this thesis.

3.2.2 Rural assemblages

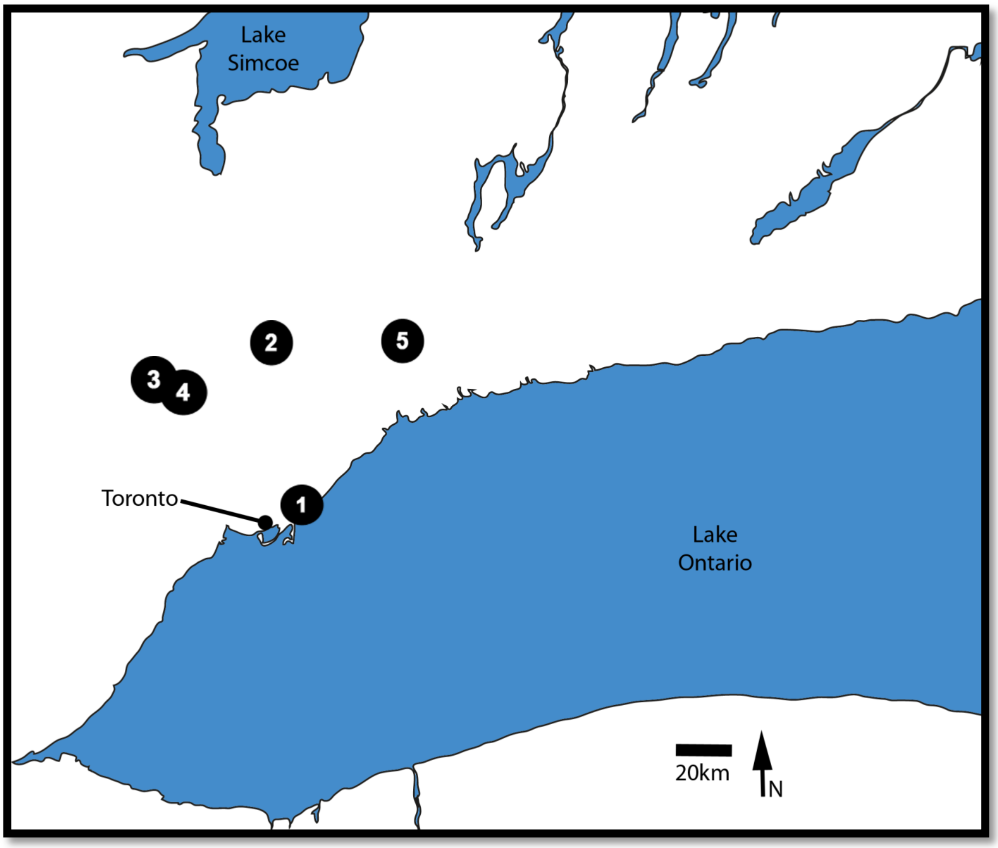

Figure 3.4: Location of rural assemblages around the city of Toronto. 1) Ashbridge Estate, 2) Graham, 3) Hall, 4) John Beaton II, 5) Lewis.

THE ASHBRIDGE ESTATE (LATTA 2000)

Faunal remains recovered from the Ashbridge Estate offer a unique perspective on life on the periphery of an emerging city. Once in a rural area off the main road connecting Toronto and Kingston, on the shore of Ashbridges Bay, the farmstead became enveloped by the city of Toronto later in the 20th century. Located eight kilometres east of historic Fort York, along the north side of a military road connecting it with the other major Upper Canadian settlement of Cataraqui (now Kingston), the property represents a 117 acre parcel of land granted to Jonathan Ashbridge in 1796, as well as a 200 acre lot located immediately to the east granted to Jonathan's older brother John. South of the military road was the shore of Lake Ontario as accessed through Ashbridges Bay (originally York Bay, see Figure 3.1). The military road is now believed to be under Queen Street and the lake shore is more than a kilometre south of the property due to 20th-century landfill activities. Prior to landfill, a series of interior lagoons in Ashbridges Bay provided a natural landscape for migratory birds and waterfowl and the marshes were home to an array of plants and other wildlife (Fairburn 2013: 127).

John and Jonathan Ashbridge were the great-grandchildren of George Ashbridge, who settled in a Pennsylvania Quaker colony after emigrating from England in 1698. Complications with neighbours in the United States and their experience with forest clearance and frontier farming attracted the family to Upper Canada in 1793 where they were welcomed as 'Late Loyalists'. It was at this time that Colonel John Graves Simcoe was encouraging the settlement of the city of Toronto and offered free parcels of land to 'all bona fide settlers of good character' to Americans Loyal to the British Crown. Sarah Ashbridge, the mother, knew the Simcoes well and even overwintered with them in Toronto in 1793. It comes as little surprise then that the family settled on prime, waterfront real estate (Fairburn 2013: 135). The Ashbridge brothers lived on these two plots of land with their mother, who died in 1801. The property remained in the hands of the Ashbridge family for nearly 200 years until 1974, when it was bequeathed to the Ontario Government by Mrs. Dorothy Ashbridge Bullen on the condition that she could reside there until her death. Upon her passing in 1997, the property became the responsibility of the Ontario Heritage Foundation.

The property was originally heavily wooded but quickly cleared by the Ashbridges. Shortly after receiving the grant, Jonathan Ashbridge built a log cabin on his parcel of land which is recorded as being adjacent to the military road. Later on, in 1809, the Ashbridges built a two-storey, Georgian Neo-Classic frame house with horizontal cladding and a stone foundation. This building was located east of a small, unnamed drainage that ran through the property and stood there until its removal in 1913 (Latta 2000: 8). A larger dwelling known as the "Great House" is still seen on the property today. It was built in 1854 and had a second storey added to it in 1899 (Figure 3.5).

Image removed from digital copy

FIGURE 3.5: THE GREAT HOUSE LOCATED ON THE ASHBRIDGE ESTATE.

In the summers of 1998, 1999 and 2000, the University of Toronto's Department of Anthropology in association with the Ontario Heritage Trust, organized an archaeology field school on the Ashbridge Estate. The purpose of the field school was to provide undergraduate archaeology students with instruction and experience in archaeological field techniques, historical research and to evaluate and examine the archaeology of the site (Latta 2000: 3). Excavations resulted in the successful identification of the remains of the original log cabin although no associated deposits could be uniquely dated to the earliest period of occupation (1796-1809). All soils were screened through a 6mm screen and the various archaeological deposits were dated to general occupation periods. The faunal remains analysed in this research are grouped into three different assemblages according to dates associated with the deposits from which they came. The first assemblage is labelled Ashbridge I/II and comprises of materials dating from the late 18th century through to the arrival of the 20th century. The second deposit is labelled Ashbridge IV/V and dates to the early twentieth century while the third is labelled Bullen/OHT and relates to Dorothy Ashbridge-Bullen's occupation of the property. It is suspected that some of the early twentieth century materials may have been originally deposited in the late 19th century. I include the 20th century materials in this project in order to get a sense of how faunal assemblages from this period compare to those of the

19th century. Material culture suggests only domestic deposits were recovered during excavations due to the lack of farming related materials.

THE GRAHAM SITE (TRCA 2012)

The property known as Lot 12, Concession VII, South Half in the city of Pickering, Durham Region, was first owned and settled by Samuel Boyer and his family in the early 19th century. He and his wife Mary, along with seven children lived on the site where they first built a log house and eventually, a second house, a barn, a flour mill, a grist mill and a timber dam. Boyer was a millwright, an active woodsman, hunter, beekeeper and a farmer who kept cattle livestock to graze about the mill area. Samuel died in 1878 and passed the property to his son Abraham who continued to operate the mill after his father's death.

George Graham was the son of Scottish immigrants and first arrived to Canada in 1852 with his parents and stayed with relatives in the Markham area before moving to Claremont. George became a blacksmith apprentice in the 1860s and set up shop on Lot 12, Concession VI, across the way from Concession VII. Historical letters indicate that George and his wife, Cinderella, inhabited a house located on lot 12, Concession VII. They did not own the house or property but likely made some kind of arrangement with the Boyers in order to live there. George's father worked for the Boyers at the mill. Census documents from 1871 indicate that George had six children and employed two men as blacksmiths. Cinderella suddenly died in an accident in 1875 and three years later, George remarried his housekeeper, Annie Smith. Archival documents indicate that in 1877, the family was living in a structure located in the southwest corner of the Boyer property. The Graham family moved to Toronto by 1891.

Archaeological investigations by the Toronto Region Conservation Authority (TRCA) focused on the area of George Graham's house, as identified by the Census records. They organized a fieldschool on the property for high school students in 2008, 2009 and 2010. The site was located on unmaintained private parkland and excavations have identified 13 archaeological features in addition to foundations of the Graham house. All soils were sieved through a 6mm screen and over 57,000 artefacts were recorded. These date from the early through to the late 19th century, though the majority of them are from the late 19th century (TRCA 2012: 32).

THE HALL SITE (TRCA 2005)

The Hall site is located on Lot 5, Concession XI in the township of King, which is north of the city of Toronto. The archaeological site represents a 19th-century cabin or cottage structure located 50 metres south of the Humber River. The property on which this cabin is located was first patented to John Thomas Craven in 1831, who then petitioned to lease the lot and paid rent to the Clergy Corporation. In 1837, Craven fell into arrears and assigned his land interest to James Hall, a carpenter and yeoman from Yorkshire who first came to Upper Canada in 1830s with his wife, Hannah. Unfortunately, little is known about James' early occupancy of the lot. He died in 1843, leaving his wife in possession of the land until his eldest son, James B. Hall, reached 21 years of age. Assessment records from 1846 indicate Hannah as the property owner and enumerated the presence of horses, dairy cows and horned cattle. In 1851, James B. Hall ran a farm on the property whose crops included wheat, peas, oats, potatoes and turnips while livestock included bulls/oxen, dairy cows, calves, horses, sheep and pigs. Farm products included butter, wool and barrels of pork. It is unclear if the Halls were always residents on the property since assessment rolls from 1859-60 name Hugh McGilvray as the householder.

By 1871, James B. Hall had a wife and six children, owned two houses, five barns/stables, wagons, plough, reaper, horse rake and fanning mill. He had 80 acres in cultivation, 20 in pasture and three in orchards/gardens. Their crops included "wheat, barley, oats, peas, buckwheat, potatoes, turnip, hay, hops, apples and pears/plums. His livestock included horses, oxen dairy cows, horned cattle, sheep, pigs and bees. Produce included cord wood, barrels of beef and pork, wool, cloth, butter and honey (TRCA 2005: 6). However, James was heavily mortgaged and apparently had issues making payments. That year, the Canada Landed Credit Company seized some of his land and sold it to John Corless. The Corless family retained the property through to 1905 when it was sold to Robert L. Defries and then to Lawrence Heyden later in that same year. His sister Barbara Keith Dalton took possession of the property in 1917, followed by the city of Toronto in 1969 (TRCA 2005: 6).

The TRCA excavated the property in 2003 prior to the commencement of building activities on the site and exposed parts of the building and its backyard. The TRCA's examination of the archaeological and historical evidence led them to conclude no structure could have existed legally on the property before 1831. An 1837-38 map does not note the presence of any building and, while it is possible the cabin was built between 1837 and 1846, the archaeology suggests the building of one relates to the period Hall occupied the site. Archaeological investigations are indicative of a cabin/cottage structure that was occupied year round and an artefact assemblage that dates from the ca. 1850s to 1910s. Records from 1854 indicate James B. Hall was an "innkeeper" suggesting the property may have been used as an inn for a brief period. All soils were sieved through a 6mm screen.

THE JOHN BEATON II SITE (ASI 2011)

A patent for the property on which the John Beaton II site is located was first given to the Canada Company in 1831 and later sold to Duncan Beaton in 1838, although it appears that Mr. Beaton had already settled onto the property at least a year before purchasing it. After his death, the property was divided between his two sons, John and Duncan. Documents indicate that Duncan acquired the southern half of the property in 1850 and that a quit claim was registered for John Beaton in 1859 for the northern half. The 1852 census identifies John Beaton as a 39-year old farmer originally from Scotland who lived on the property with his wife Mary and five children within a one-storey log structure. Records indicate he managed 50 acres of farmland, 32 acres of which were under cultivation at the time of that survey. His crops included wheat, peas, oats and potatoes. His younger brother Donald was 36 years old at the time and lived on the southern half of the original property in what is described as a "one-storey shanty". Archaeologists therefore assume that the house John inhabited is the original structure built by Duncan. On his 50 acres, Donald grew the same crops with the addition of turnips. It is also said that he had sheep and a cow.

The 1861 census describes John's dwelling as a one and a half-storey log house containing two families and also describes Donald's property as a house rather than a shanty. Two years later, Donald sold his house and property to Peter Witherspoon, another Scottish immigrant. The 1871 census continues to identify Peter Witherspoon owning and living on the southern lot, he was 63 at the time with a wife and three kids and was growing wheat, barley, oats, peas, potatoes and hay. By this time, John was 57 years old and remained living on site with his family in one house. He grew wheat, barley, oats, peas, potatoes, hay and apples. Later, in 1871, John granted the eastern half of his property to Elisha Routledge who in turn, granted it to Peter Witherspoon in 1872.

The property on which this site is located underwent a pedestrian survey as part of the mitigation process prior to the development of new residential subdivisions on what was, until then, farmed land. These surveys identified three archaeological sites known as the John Beaton I, John Beaton II and John Beaton III sites. The properties were later subjected to Stage 3 excavations conducted by Archaeological Services Inc. in 2011. These excavations identified deposits dating from the 1840s to the 1870s. These are associated with the main residence of John Beaton and his family. All soils were sieved through a 6mm screen and recovered artefacts included a preponderance of kitchen, food related and personal class items, suggesting a residential deposit and the possibility of a substantially sized midden being located in the top soil. Archaeological excavations of the John Beaton III site, revealed possible outbuildings associated with the Beaton residence.

THE LEWIS SITE (TRCA 2013)

The Lewis site is located on a plot of land formerly recognized as Lot 35, West Half, Concession V in the former township of Markham, in the town of Whitchurch-Stouffville, just north of Toronto. This 200- acre property was first granted to French Royalist émigré Julian Le Bugle in 1808, who, within a month, sold the property to Thomas B Gough, a future elected member of the Parliament of Upper Canada. Mr. Gough did not own the property for a lengthy period of time either and within eight months sold it to John Doner, a Brethren minister from Pennsylvania who would own the property for twenty years. Maps of the area do not indicate any buildings on the property. In 1829, the property was sold to Richard Lewis whose wife Barbara was related to the Doner family. Four years later, Richard sold the property to his brother Thomas Lewis. The Lewis brothers were from Wales and both married sisters from local Whitchurch, Upper Canada. Thomas and his wife Margaret remained at the property for at least 45 years.

The 1851 Census records show Thomas, 48, and Margaret, 35, along with seven children living in a two storey mud-brick house located on site. Although an 1854 map does not indicate any buildings on the property. Agricultural records show that 120 acres were under cultivation at this time and only a quarter of an acre remained wooded. Mixed crops were grown on the property, including wheat, peas, potatoes and oats. The Lewis family also produced wool, maple sugar, fulled cloth, butter and barrels of beef and pork. The 1861 Census identifies Thomas, Margaret and ten children living on the property within a two-storey frame house, which is illustrated on an 1861 map. This map also indicates two men, one of whom is married with four children, living on the same lot within a one and a half storey frame house. Information suggests that these were not employees or labourers of the Lewis family farm. The 1871 Census continues to show the Lewis family inhabiting the lot although with only four children remaining with them and reduced farming activity. No crops were reported in the Agricultural Census for that year although some livestock were present on the site, including horses, cattle, sheep and swine. The property featured a steam powered shingle factory capable of producing 400,000 pine shingles a year.

In 1875, the lot was divided and 50 acres was given to Thomas' eldest son Richard. In 1879, Thomas sold 40 acres of the west half of the property to John Oxendale, a Brethren from England believed to be one of Lewis's co-workers from the sawmill which was located across the road from the property. Oxendale, his wife Sarah and their teenage daughter Louisa may have resided on the property, although the 1881 Census recorded them as living on the adjacent lot. This same census identifies Thomas and Margaret as well as two of their adult children (one single and one married) as living within the township but does not specify on which property. In 1891, a 36 year old farmer by the name of John Smith and his wife Addie, 28, are indicated as living on the property, perhaps as tenants of John Oxendale's land. Four years later, Oxendale sold his forty acres to John Wideman who then sells the northwest quarter acre to Hannah Noble in 1897. In 1898, Wideman sold the remainder of the property to Jacob A. Heise who kept it until 1901.

A late 19th- to early 20th-century photograph of the property identifies a structure with several attached outbuildings believed to be the former Lewis household. Stage 4 archaeological investigations carried out in 2007 and 2008 uncovered the outbuildings associated with this house and 2009 excavations focused on the house itself and on areas immediately east of the building. All soils were sieved through a 6mm screen and a number of features and artefacts related to two distinct uses of the site were uncovered. The western half of the site is associated with a homelot with features dating to the period between 1870 and 1880 whereas the eastern half of the site is related to industrial activities (pottery kilns) dating between 1825 and 1850. Unlike previous student faunal reports of the site (TRCA 2013: Appendix F), I treat the faunal remains from the two occupation components separately. Unfortunately, no known period maps can further elucidate on the nature of the activities associated with the kilns.

3.2.3 Comparative assemblages

The assemblages recorded in this project are compared to a number of other faunal assemblages from Toronto and other areas across Upper Canada in order to gain insight into consumption behaviour in the province. This information is gathered from faunal reports produced by zooarchaeologists with differing levels of expertise and to various standards. Many reports simply generate a list of taxa and the number of identifications towards each one, while other reports provide greater detail, such as body part representation and butchery analyses. The comparative sites are summarized in Tables 3.2 to 3.5 and their locations are mapped in Figures 3.6 to 3.9. Other sites from urban and rural Toronto are contrasted to the results obtained in this study in order to get a better idea of what is happening in and around the city. Comparisons to other sites in southern Ontario will serve to show if animal bones from other Euro-Canadian assemblages in Upper Canada were similar to those of Toronto and its surrounding area. A few of the comparative assemblages from the Toronto area were not included into my own analysis because they were only excavated after the data collection phase of my research.

TABLE 3.2: OTHER SITES FROM URBAN TORONTO

Site (Borden #)	Assemblage date	Site type	Publication type	Year of report	Faunal analyst
Front Street, Feature 144 (AjGu-15)	19th century	Brick and mortar drain flotation sample (Old Parliament site)	CRM report	1985	R. Prevec
King-Caroline (AjGu-82)	ca. 1820-1870	House lots/ storefront	CRM report	2013	S. Needs-Howarth
Lowry-Hannon (AjGu-79)	Mid- to late 19th century	Working class urban house lots	CRM report	2014	S. Needs-Howarth
Toronto General Hospital (AjGu-51)	ca. 1819-1862	Hospital	CRM report	2011	S. Needs-Howarth

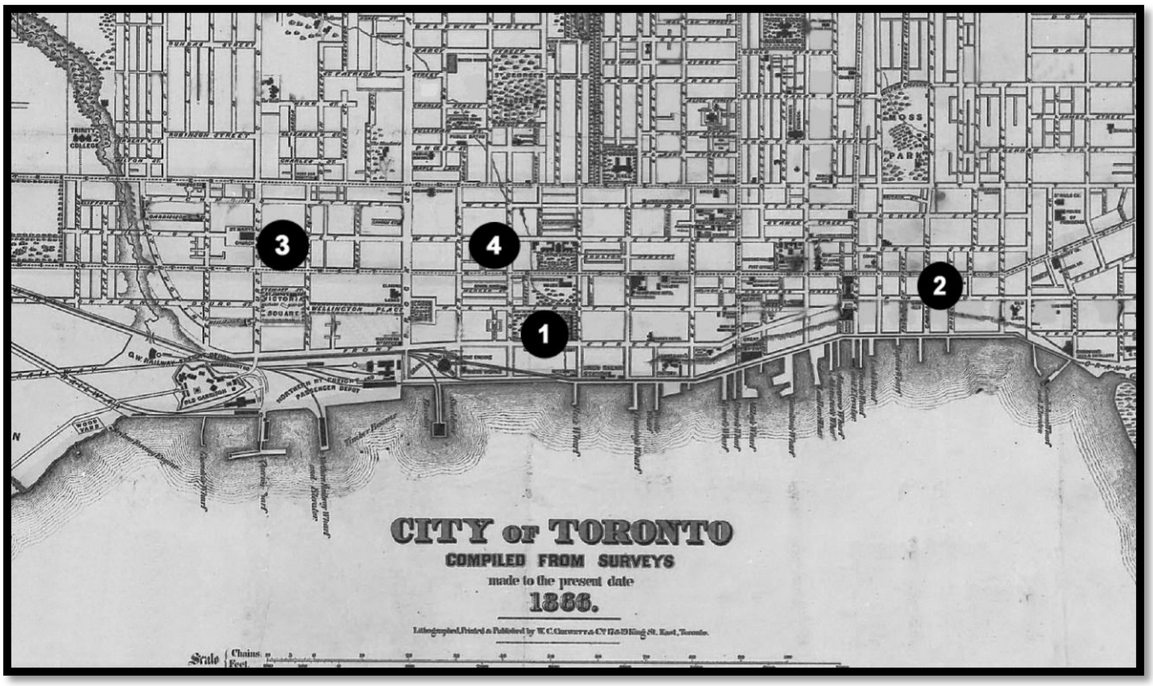

FIGURE 3.6: LOCATION OF COMPARATIVE ASSEMBLAGES FROM URBAN TORONTO/YORK. 1) FRONT STREET, 2) KING-CAROLINE, 3) LOWRY-HANNON, 4) TORONTO GENERAL HOSPITAL. MAP MODIFIED FROM CHEWETT AND COMPANY (1866).

TABLE 3.3: COMPARATIVE URBAN/VILLAGE DOMESTIC OCCUPATIONS IN UPPER CANADA/ONTARIO

Site (Borden #)	Period of assemblage	Location	Site Type	Study type	Year of report(s)	Faunal analyst
The Cartwright Compound (BbGc-92)	1790s-1820	Kingston	Urban residential at first; Officers' HQ from 1815-1820	CRM report	2009	S. Needs-Howarth
Fralick's Tavern	ca. 1840s-1850s	Niagara Falls	Urban House/tavern	CRM report	2001	R. Prevec
Inge-va	ca. 1823-late 19th century	Perth	Urban domestic occupation	Faunal report	1988	F. Dieterman
Marsden (AiHd-105)	Mid-19th Century	Waterloo	Urban domestic occupation	CRM report	1995	R. Prevec
Smith's Knoll (AhGw-132)	1875-1910	Stoney Creek	Urban domestic occupation	CRM report	1998; 1999	R. Prevec
Ste. Famille Separate School (BiFw-88)	1861-1881	Ottawa	Urban domestic dwellings and outbuildings	CRM report	2009	S. Needs-Howarth

TABLE 3.4: OTHER SITES FROM RURAL TORONTO/YORK

Site (Borden #)	Period of assemblage	Location	Site type	Study type	Year of report	Faunal analyst
55 H3 (AlGv-383)	ca. 1831-1860s	City of Vaughan	Rural domestic occupation	CRM report	2015	D. Berg
Deacon (AkGw-428)	1828-mid-1850s	Caledon	Rural domestic occupation	CRM report	2014	S. Needs-Howarth
Dunsmore (AkGw-397)	1840s to early 20thC.	Caledon	Rural domestic occupation	CRM report	2014	D. Berg
Edgar (AlGu-196)	ca. 1830s-1870	City of Vaughan	Rural domestic occupation	CRM report	2007	S. Needs-Howarth
Fletcher (AkGv-74)	1840-1860	City of Vaughan	Blacksmith shop/house	CRM report	1989	R. Prevec

FIGURE 3.7: LOCATION OF COMPARATIVE ASSEMBLAGES FROM URBAN UPPER CANADIAN SITES. 1) CARTWRIGHT COMPOUND, 2) FRALICK'S TAVERN, 3) INGE-VA, 4) MARSDEN, 5) SMITH'S KNOLL, 6) STE. FAMILLE SEPARATE SCHOOL.

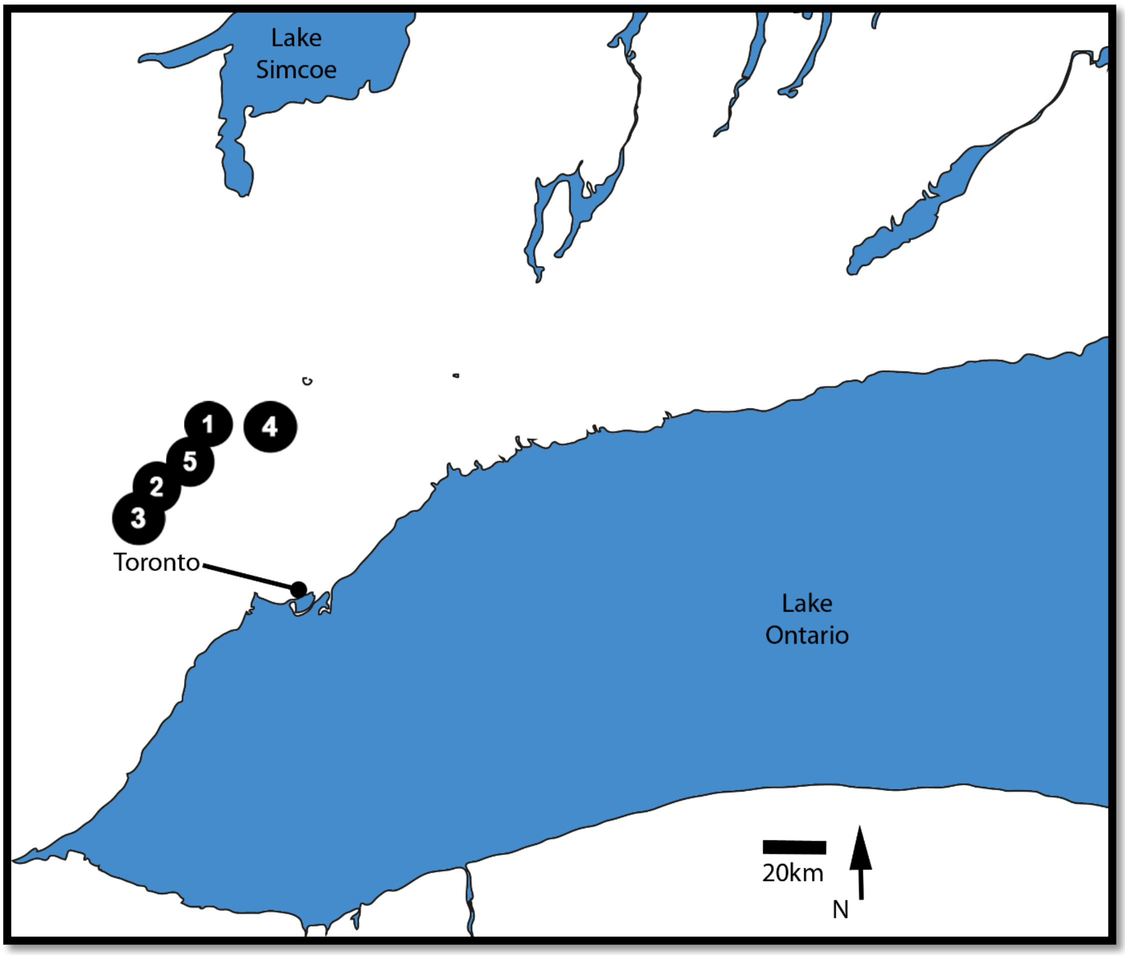

FIGURE 3.8: LOCATION OF COMPARATIVE ASSEMBLAGES FROM RURAL TORONTO. 1) 55 H3, 2) DEACON, 3) DUNSMORE, 4) EDGAR, 5) FLETCHER.

TABLE 3.5: OTHER SITES IN SOUTHERN ONTARIO

Site (Borden #)	Period of assemblage	Location	Site Type	Study type	Year of report(s)	Faunal analyst
Barnum House (AlGm-6)	ca. 1812-1900	Grafton	Rural domestic occupation	CRM report	1982; 1986	R. Prevec
Benares (AjGv-30)	1835-1857	Mississauga	Rural domestic occupation	MA thesis	1997	D. James
Bethune-Thompson House	ca. 1783-1905	Williamstown	Rural domestic occupation	Report (?undergrad)	1994	J. Casey
Botanical View Estates (AhGx-273)	19th century	Dundas	Rural farm and domestic occupation	CRM report	1992	R. Prevec
Butler (AhGs-18)	1784-1813	Niagara-on-the-Lake	Rural domestic occupation	Journal publication	2013	S. Needs-Howarth
Crinan Creek (AdHj-15)	1850-1860	Crinan	Cabin site	CRM report	1982	R. Prevec
Delong 1 (AlGr-139)	ca. 1830-1870	Whitby	Rural domestic occupation	CRM report	2014	D. Berg
Duff-Bâby (AbHs-10)	ca.1798-1850	Sandwich	Rural domestic occupation	MA thesis	1997	D. James
Macdonell (BjFo-2)	1788-1850	Point Fortune	Rural domestic occupation	MA thesis	1997	D. James
Moodie Farmstead* (BcGn-9)	1833/34- early 1860s	Douro township	Rural domestic occupation	Report; MA thesis	1989; 1997	R. Prevec D. James
Rasputine (AjGw-34)	ca. 1900	9th line and Burnhamthorpe Road	Rural domestic occupation?	CRM report	1983	R. Prevec
Speers (AiGw-547)	ca. 1830s-1860s	Milton	Rural domestic occupation	CRM report	2014	S. Needs-Howarth
Wilson Tenant (AlGr-194)	1830s-1850s	Whitby	Rural domestic occupation	CRM report	2014	D. Berg
Yeager (AhGw-256)	Early to mid-19th century	Hamilton	Rural domestic occupation	CRM report	2011	S. Needs-Howarth
Yeigh (AgHc-1)	1803-1829	Burford Township, Brant County	Pottery manufacturing site	CRM	1981	R. Prevec

*occupied by author of *Roughing it in the Bush* (Moodie, 1852)

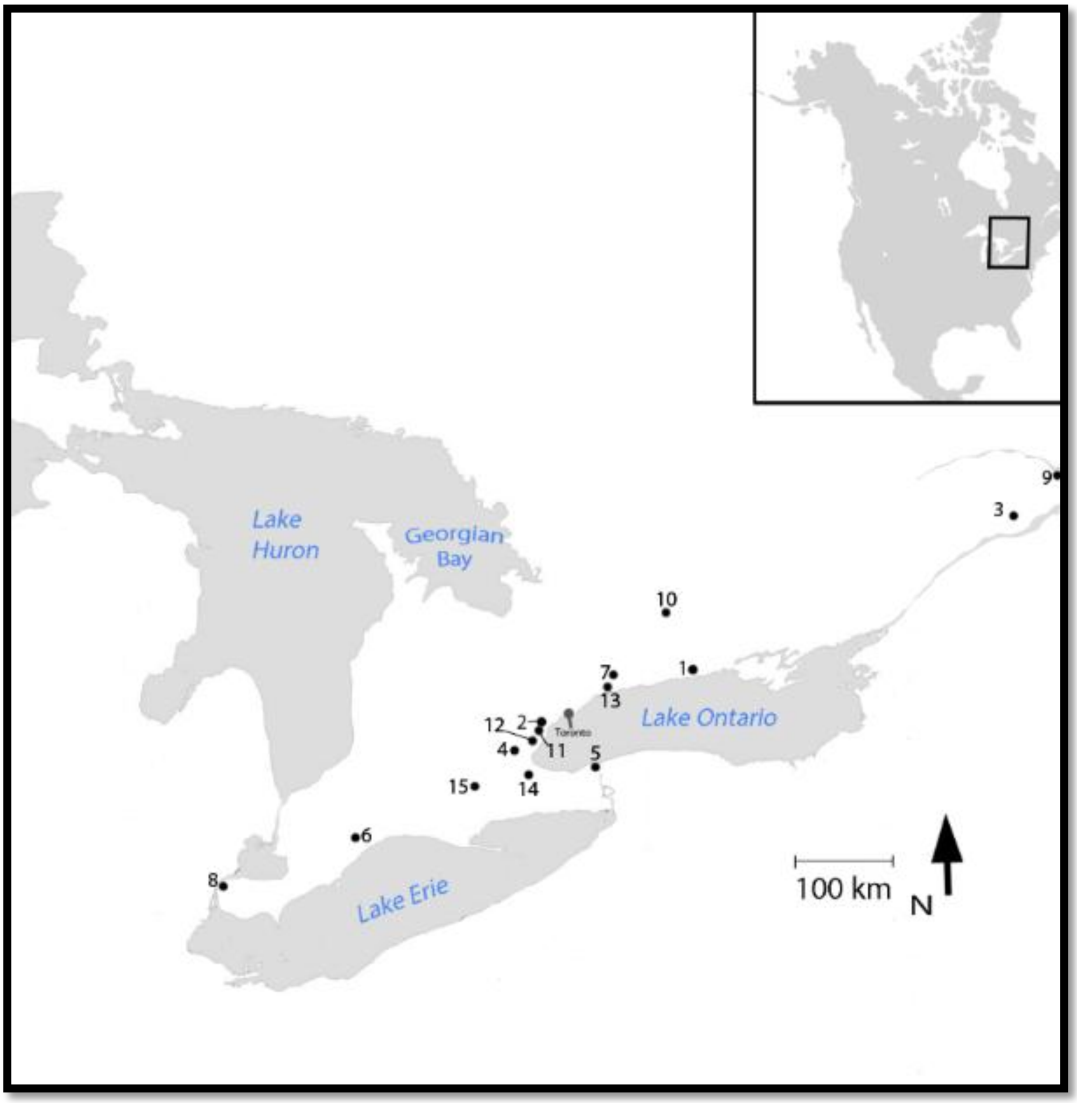

FIGURE 3.9: LOCATION OF COMPARATIVE ASSEMBLAGES FROM RURAL AREAS THROUGHOUT UPPER CANADA. 1) BARNUM HOUSE, 2) BENARES, 3) BETHUNE-THOMPSON HOUSE, 4) BOTANICAL VIEW ESTATES, 5) BUTLER, 6) CRINAN CREEK, 7) DELONG 1, 8) DUFF-BÂBY, 9) MACDONELL, 10) MOODIE FARMSTEAD, 11) RASPUTINE, 12) SPEERS, 13) WILSON TENANT, 14) YEAGER, 15) YEIGH.

3.3 SUMMARY

This chapter provided a summary of Toronto and Upper Canada's settlement history and highlighted the unique personal histories and circumstances of the people who created the archaeological deposits that are analysed in this research. The following chapters will focus on examining the foods that people ate through an investigation of historical documents before presenting the archaeological data and interpreting these in light of the information presented in this chapter.

CHAPTER 4 –

HISTORICAL EVIDENCE

This chapter describes foodways in 19th-century Upper Canada based on evidence recovered from documentary sources. It is a summary of written references describing how people obtained, prepared, presented and consumed food, and, perhaps more importantly, what they thought about it. This evidence is gathered from a number of different sources that include personal letters, published books, recipe books and newspapers. The chapter begins with a brief discussion of methods employed in the analysis of historical documents for archaeological research. The sources used in this chapter are then presented and further described. The second part of the chapter presents this evidence according to various themes related to different facets of foodways.

The analysis of historical documents addresses the first two aims of this research which seek to identify the meat items people consumed in 19th-century Upper Canada (Aim 1) and will later be used to observe whether these correspond to the archaeological record (Aim 2). The nature of the latter question can be taken to suggest historical and archaeological data are competing sources of evidence, one being more valuable than the other and/or about to prove the other to be incorrect: this is not the case. The material world, including texts, artefacts and food, was constantly drawn into negotiations of identities in the everyday lives of individuals (Hall 2000: 26). The analysis of similarities and differences observed between what people said about food and material remains related to food (e.g., bones, botanical remains, pots, etc.) is complimentary and can help elucidate how people expressed themselves and interacted with the world around them (Moreland 2001).

4.1 HISTORICAL DOCUMENTS AND ARCHAEOLOGY

4.1.1 THE DOCUMENTS

Prior to presenting evidence from historical documents, it is important to provide a brief discussion on the use of historical texts in archaeological research and the methods employed when reading and researching these. Archaeologists and historians have long been aware that archaeological and documentary data are not unbiased or inherently neutral records of the past; they are biased in different ways (Cipolla 2012: 91; Voss 2007: 149). Sources must be subjected to critical analysis if they are to work towards creating meaningful statements about the past. Artefacts are subject to preservation, curation and contextualization issues and how this affects the data in this project is addressed at the beginning of Chapter 6. Biases affecting historical documents relate to the fact they were written for particular purposes and their authors may have purposefully omitted information or presented false statements as truth (Howell and Provenier 2001: 18). It is thus important to keep in mind the nature or type of document (i.e., consider the intended message and the intended audience for which the document(s) was/were created). Subject matters discussed in historical documents often centre on the noteworthy, or the unusual while the mundane aspects of the lives of everyday people go undocumented. Many historical archaeologists argue their discipline has the capacity to investigate these invisible records; the everyday lives of common people, the illiterate, the poor and dispossessed among others, through the study of the physical evidence they left behind (Deagan 1991: 103; Deetz 1991: 6; Orser and Fagan 1995: 17; Tarlow 1999: 264; West 1999: 8; Wilkie 2006). However, Moreland (2001: 103) argues this position is fundamentally flawed. He believes that historical documents do not simply provide evidence about the past. Like materials remains, they were produced to play a role in the production of identity "and the reproduction of structures of power" (Moreland 2001: 26). With respect to foodways, such arguments suggest documents (e.g., newspaper adverts, cookbooks, and personal letters) may generally record the range of food items for a particular area/time period, though the authors may have had other goals in mind when creating them (e.g., a letter convincing a loved one back home not to worry or adverts trying to sell off a surplus of products before they spoil). Documents such as cookbooks may have provided instruction on how to prepare a general range of ingredients but do not necessarily reflect what food consumption habits looked like for various households. Here archaeological data can elucidate what was eaten in the home (Pendery 1984: 9).

A variety of different sources were examined concerning foodways in 19th-century Upper Canada. It is fortunate that many publications from the mid-19th to early 20th century focused on matters of daily life in Upper Canada. Many of these relate to life in a new country as experienced by recent British immigrants and also describe a variety of other subjects. Most focus on life in the backwoods rather than life in the town or city and are from the period between 1830 and 1855, when greater numbers of British immigrants were first arriving to the province. It is important to remember that their experiences may not be similar to those living in a larger urban centre like Toronto, nor will they be reflective of those living in the province in the second half of the century. As people became better settled and adapted to life in Upper Canada, it appears they felt less of a need to document matters of the everyday. The parameters of this dissertation did not involve original archival research and relied on the published materials available for the area. However, a few primary sources were uncovered from online digital archives. The following describes the sources cited in this research and some background information on the authors while discussing potential biases.

PUBLISHED SOURCES

Four sources used in this research were written by two sisters: Catherine Parr Traill and Suzanna Moodie. Part of the Strickland family, Catharine was born in 1802 in Rotherhithe, London, and Suzanna was born in 1803, in Bungay, Suffolk. Four out of five of the Strickland daughters (Catherine, Suzanna, Agnes and Jane Margaret) eventually became well regarded authors in Britain; Suzanna had published a book of poems, while Catharine published a series of children's books from 1818 through to 1831. Agnes wrote a number of biographies concerning various queens and princesses of Britain as well as a series of children's books from the 1820s through to the early 1870s. Jane Margaret published a couple of books in the 1850s and a biography of her sister Agnes in 1887 before passing away herself (Ballstadt 1982; Peterman 1990).

CATHERINE PARR TRAILL

Catharine made her way to Canada in 1832 with her husband, Thomas Traill, a lieutenant who served in the Napoleonic Wars. They settled in Douro Township on the shores of Lake Katchewanooka, north of Peterborough (see Figure 4.1 for a map of all locations mentioned in text), where her younger brother Samuel had been a surveyor (Peterman 2000). Her experiences travelling through Canada and observations concerning life in this new land were penned in a series of letters and journal entries which she later published under the title *The Backwoods of Canada* (1846). Later on, she published *The Female Emigrant's Guide* which was retitled *The Canadian Settler's Guide* (1857) in which she describes what she believed were the necessary skills required for domestic life on the Canadian Frontier. The Traills did not really enjoy life on the Frontier and prospects were dim following the depression of 1836/37. In 1839, they sold their property and lived in various locations in and around Peterborough before moving to Rice lake in 1847/48 and then to the east of Gores Landing in 1849. Following the loss of their home to fire in 1857 and the loss of her husband in 1859, Catherine moved into a cottage in Lakefield, a town located on the southern tip of Lake Katchewanooka, in 1860. Here, she continued publishing on subjects related to plant life and her local natural environment (Traill 1885). She died at 97 years of age in 1899 (Peterman

1990). Traill's publications on life in Canada are generally viewed as the best instructions available on 19th-century Ontario cookery (Driver 2009: 264).

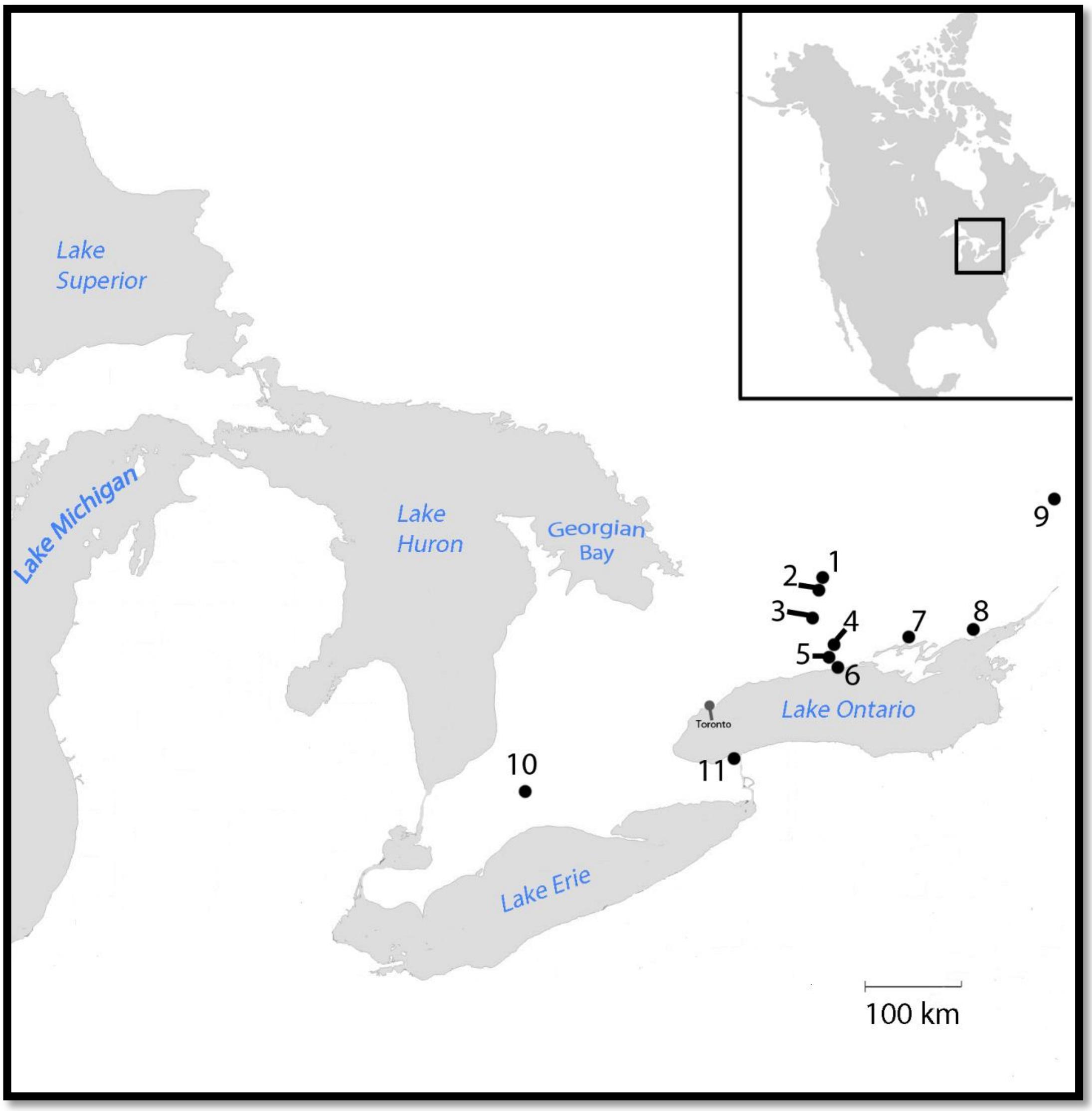

FIGURE 4.1: MAP OF LOCATIONS MENTIONED IN THE TEXT. 1) LAKE KATCHEWANOOKA, 2) LAKEFIELD, 3) PETERBOROUGH, 4) RICE LAKE, 5) GORES LANDING, 6) COBOURG, 7) BELLEVILLE, 8) KINGSTON, 9) OTTAWA, 10) LONDON, 11) NIAGARA.

SUZANNA MOODIE

Suzanna arrived in Canada in 1832, shortly after her sister, with her newlywed husband John Moodie, a retired officer who was friends with Catharine's husband and also served in the Napoleonic wars. They first purchased a tract of cleared land near Cobourg, but moved in 1834 to be close to her sister on Lake Katchewanooka. Despite having four children during her time in Canada, Suzanna found the time to have poems and short stories published in American newspapers. She wrote many letters over the years describing her experiences and observations on life on the Upper Canada frontier, or the 'bush' as she referred to it. These were later published in London in the book *Roughing it in the Bush* (Moodie 1852). The

Moodies also found it difficult on the frontier and in 1840, she and her husband moved to Belleville, located on the shores of the Bay of Quinte, just over 70km west of Kingston. Her book enjoyed great success in Britain and America, and her publisher requested a sequel leading to the publication of *Life in the Clearing versus the Bush* (Moodie 1853) which documented her time living in town compared to her life on the frontier. Suzanna passed away in 1885 (Ballstadt 1982).

Traill's and Moodie's publications offer tremendous insight into daily lives of 19th-century Upper Canadians and include many descriptions of meals, food preparation techniques and strategies as well as anecdotes on animal husbandry. However it is important to note that these were published for an intended audience of potential British emigrants with the goal of describing what life in Canada was 'really like'. Catherine's second book was geared to women, especially young women intending to have a family in Canada. Both sisters found life on the frontier quite difficult and it does not appear as though either tried to make life in Canada sound romantic or preferable to life in England. Both authors hoped to educate prospective emigrants about the challenges of pioneer life in Canada and place an emphasis on some of the struggles they faced as they went about their daily lives. However, Catherine reportedly admitted later in her life that she sometimes portrayed life in Upper Canada a little too favourably (Boyce 1972: 99).

EDWARD TALBOT

Edward Talbot was born in Ireland in 1796, and emigrated from there with his family to Canada in 1818, where they settled in the London District. Edward apparently always demonstrated aptitude for scientific and innovative pursuits and was not keen for life on the frontier. He planned to return to Ireland via Montreal in 1820, but ended up staying in Montreal where he met and married an Irish woman. He returned to see his family in the London District in the summer of 1821. It was during this time that Talbot worked on a book describing his travels through Upper and Lower Canada. He set out for England in 1823 via New York State and it was there that he published the book entitled *Five years' residence in the Canadas: including a tour through part of the United States of America in the year 1823*. His writings often allude to his discomfort with life on the frontier and feelings of superiority over those who inhabited it. However, Talbot was noted by some to be a rather perceptive observer on life in the Canadas (Brock 1988).

Upon his return to Britain, Talbot became a captain of the 4th Regiment of Middlesex militia. He returned to Upper Canada in 1825 and became an important figure in the London District. In 1832, he was co-publisher of the *London Sun* and in 1833/34, he and his wife opened a school in London, both of which did not operate for very long. Unfortunately, Talbot made poor decisions with money and property and was forced to move to Niagara in 1836, where alcoholism became a problem. As alcohol increasingly took control of his life, he would leave his family behind and moved to various locations in the United States before dying in Lockport, New York in 1839 (Brock 1988).

JOHN LANGTON

Upon his arrival to Canada from Britain in the early 1830s, John Langton penned a number of letters to his father in England. These letters were kept and later compiled by his son into a book published in 1926 under the title *Early Days in Upper Canada: The Letters of John Langton*. The first section of the book comprises of letters written between 1833 and 1837. John's father, mother, sister and aunt joined him in Canada in 1837, but John continued to write letters to his eldest brother, William Langton, a renowned banker in Manchester, until 1869. It should be noted that these letters were not always published whole in the book and are occasionally only published as extracts.

John was born in Lancashire in 1808, the youngest son to Thomas Langton, a successful businessman who was able to invest his fortune prior to marriage in 1802. The money he made subsequently allowed Thomas to devote most of his time on farming his land and teaching his children. His grandson suspects Thomas was the principle influence for sending his youngest son to Canada (Langton 1926: xiii). The family suffered from a financial crisis in 1826, but John was able to receive a degree at Cambridge and immigrated to Canada in 1833. Upon arrival to the country, John settled in the backwoods near Peterborough and the majority of his letters deal with life and events from his time there. His writing is thought to offer keen and reflective observations on daily life in the backwoods (Cameron 1990). His father died in early 1838, not long after arriving to Upper Canada. John married in 1845, and his mother and aunt both died in 1847. John became less enthused about farming and more interested in the lumbering trade. He invested in mills near Peterborough where he eventually moved. He represented that county in the Legislature from 1851 to 1855. After this, he moved to Toronto and functioned as Auditor of public accounts. He was later appointed to the Senate of the University of Toronto, and eventually became Vice Chancellor from 1856-60. In 1866, Langton worked in Ottawa to help prepare for confederation by conducting audits and preparing the government's accounts for the new dominion (Cameron 1990). Following confederation, he became Auditor General and the Deputy Minister of Finance until 1878. He died in Toronto in 1894.

NEWSPAPER SOURCES

At least 82 different print media publications operated in the city of Toronto throughout the 19th century. The earliest newspaper appeared in 1798, but it was not until the 1820s that unofficial publications made their appearance (Firth 1961: 2). *The Globe* is arguably one of the most important news publications to have come out of the city. It was first published on March 5th, 1844, and in August introduced the first cylinder press in the province, capable of producing 1,250 papers an hour (Firth 1961: 16). It was begun by George Brown and, like the majority of other local newspapers at the time, featured few local news stories and plenty of political rhetoric. George Brown was known for his strong views against the Tory-Conservatives government of the time and would later enter politics himself (Careless 2003). Heavily biased editorials and new stories aside, the paper also reported the range of prices for commodities being sold at the Toronto market on the previous day and these are used to document food prices later in this chapter. Some of the earlier publications are available digitally through the *Proquest Historical Newspapers* database for *The Globe and Mail*. It appears the paper stopped regularly reporting on these prices in June 1847. Commercial advertisements and classified ads also provide us with some information on the sale of food products from this time period.

PERSONAL LETTERS

A series of personal letters, all originating from Canada and sent to family and friends in or near Sussex in England, were compiled by Cameron *et al.* (2000) as part of a history project documenting the immigrant experience to Upper Canada in the 1830s. These immigrants arrived in Canada between 1832 and 1837 and were all sponsored through the Petworth Emigration Scheme which chartered ships and organized immigration to Canada in an effort to reduce rural poverty in their own parish. The letters originate from multiple different locations across Upper Canada; from rural settlements to urban centres, including Toronto. They describe the personal experiences of recent immigrants during the first few years of their life in this new province. Letter authors were often intent on detailing everyday activities to their families, discussing various topics including the weather, local nature, lodging, and food. It is noteworthy that recent emigrants felt the need to communicate the costs of living and a few letters hint that it is their loved ones who enquired about the prices of various items because of rumours that they have heard back in Britain. The majority of letters list the costs of various commodities in a matter of fact manner while a few others simply state that something is more costly then another or make comparisons to costs in England. The frequency of this type of information seems to diminish over time as the emigrants become increasingly settled in their new locations. The costs of living reported by individuals may occasionally be biased. It is obvious when reading the letters that some residents were trying to persuade their own friends and families to join them in Canada while others were trying to convince them that they made the correct decision by emigrating from Britain. The motives behind these letters may have led to the underreporting of costs. However, since multiple individuals were unbeknownst to one another and recording these prices from different areas of the province, the similarities observed suggests accurate reports.

4.2 MONETARY SYSTEM

The following sections make reference to various monetary valuation systems used in 19th-century Upper Canada and these are briefly described here in order to help with better understanding the data. Prices at the time were often depicted in pounds, shillings and pence (£, s. and d.). However, multiple monetary valuation systems were in place, which can lead to confusion when interpreting past documents. In 1796, the Canadas adopted the Halifax rating system which issued 5 shillings to the dollar. Despite legislation, the previously used York rating system widely persisted in Upper Canada, especially in rural areas, until 1841 when a new monetary system was established (McCullough 1984; Powell 2005). Further complicating matters was the use of a competing currency based on dollars and cents. Growing trade with the United States after its introduction of the American Dollar in 1792, combined with an increasing scarcity of British specie in Upper Canada, made it increasingly difficult for people to use the Sterling (Powell 2005). While regular publications such as newspapers were consistent with the use of a specific monetary unit, the majority of personal letters used in this research do not. Of those that do, some specifically reference the Halifax system while others state they are referencing an English system. In one letter, George and Ann Hills of Ancaster allude to a familiarity with multiple currency systems when they state the price of tea is "3s. 9d. or $1 per lb." (Cameron et al. 2000: 109). As a result, caution is urged when comparing costs of food in different areas of the province from data obtained in personal letters. What is important here is not to focus on the monetary value of goods. Rather, this research looks at the relative costs of different commodities mentioned within the same document and compares these between documents to offer insights into how people valued different foods.

4.3 HISTORICAL EVIDENCE

4.3.1 GETTING FOOD IN UPPER CANADA

The majority of the province's earliest settlers were drawn to the backwoods of Upper Canada, where they could purchase vast expanses of land and were given the opportunities to transform these into productive farms. It comes as no surprise then that many historical documents discuss life on the farm, the rearing of livestock and the growing of crops. Other settlers were drawn to urban centres, small and large, where they held other vocations. Others lived in rural areas, working on farms, but did not own the land. This section summarizes information obtained from the historical documents on the various forms of food provisions in 19th-century Ontario, namely livestock rearing, crop harvesting, hunting, fishing, and market provisioning.

RAISING LIVESTOCK

Upon purchase and arrival to an undeveloped plot of land in the backwoods of Upper Canada, one of the farmer's first tasks dealt with clearing the property of vegetation. Initial years of settlement were typically unprofitable as the farmer needed to invest a lot of time and money on tasks related to the maintenance of the property and setting up the farm. The best time of the year to purchase new cattle was in the spring (Traill 1846: 102). Cattle were valuable creatures to have on a new farm. Oxen were the preferred draught animal used to help clear the land of trees and vegetation and a yoke (pair) of oxen were preferred to harrow these newly created fields (Traill 1846: 49). Cattle could be left to roam free in the woods where they could eat wild foliage. Some people put bells around their necks so they can be easily found if they did not return home. One person notes providing cattle with salt once a week encourages them to return (Edward Longley 1835, in Cameron *et al*. 2000: 202-203). People did lose some of their stock from time to time as some animals simply never returned (Traill 1846: 103-104). Traill (1846: 137) notes that rearing calves differed in Canada when compared to England and cites a number of different observed techniques stating some farmers never let the calf suckle from their mother and preferred to hand feed them instead whereas older settlers tended not to wean the calf until it was nearly six months old.

Fodder and a warm shelter were needed for cattle in the winters. This could be particularly expensive in the first years of settlement when recently cleared fields had not yielded significant crops. Langton (1926: 60) had this to say on the matter: "Cows, pigs, and fowls must eat, and if you have nothing to give them unless you purchase it, and perhaps have to bring it from some distance, you had better not be troubled with them, as the trouble is certain and the profit doubtful." Various different foods were used as winter fodder. Traill (1846: 137-138) notes the use of pumpkins, corn and straw in the winter. Moodie (1852:118) mentions the use of flax and straw while *The Globe* regularly listed hay, straw and timothy (a type of grass, *Phleum pratense*) for sale. The lack of good quality fodder in the winter could result in inferior quality milk incapable of producing good quality butter; Traill (1857: 180) recommended boiling oats and feeding it morning and night to the cows in such times. Tables 3.1 and 3.2 summarize the advertised price range of fodder in the Toronto markets in the 1840s and 1850s. The central urban location of this market suggests the prices probably reflect the cost of fodder for people keeping livestock in town settings. Both sources show consistency between them and indicate a general increase in prices over time and slight price fluctuations in the short term.

Pigs were not necessarily the best animals to have upon first settling on a new farm according to Catherine Parr Traill. She noted they were "great plagues on a newly cleared farm if you cannot fat them off hand" meaning one could incur unwanted expenses in the need to purchase fodder (Traill 1846: 80). She goes onto to say they can be a great nuisance and quite destructive on young crops if allowed to run loose. However, general understanding of farming history and a number of other documents from Upper Canada suggest this was not the case. For example, Cornelius and Elizabeth Voice of Blandford (Woodstock) wrote in 1835, that soon after their arrival on the farm they had four cows, four calves, four sows and 20 young hogs that they hope to fatten with beech-nuts, which were apparently plentiful on their property (Cameron *et al*. 2000: 185). Pigs were relatively easy to care for in that they did not require fields for pasture and fattened quite readily on smaller amounts of fodder that could include household rubbish and waste (James 1997: 28; Kenyon and Kenyon 1992; Moodie 1852: 357).

TABLE 4.1: HIGH AND LOW PRICES OF ANIMAL FODDER IN 1840S TORONTO MARKETS AS REPORTED IN *THE GLOBE* AND REFLECTING THE PREVIOUS DAY'S PRICES.

Date	Hay (ton)		Straw (ton)		Timothy (60lb. bushel)	
	Low	**High**	**Low**	**High**	**Low**	**High**
February 11, 1845	35s.0d.	45s.0d.	22s.6d.	25s.0d.	3s.6d.	4s.10d.
February 18, 1845	35s.0d.	-	22s.6d.	-	3s.6d.	-
April 22, 1845	35s.0d.	45s.	22s.6d.	25s.0d.	3s.6d.	4s.10d.
September 2, 1845	42s.6d.	55s.3d.	20s.0d.	25s.0d.	4s.0d.	5s.0d.
November 11, 1845	70s.6d.	75s.0d.	25s.0d.	30s.0d.	4s.0d.	5s.0d.
November 25, 1845	70s.0d.	-	30s.[?]d.	-	4s.[?]d.	-
January 6, 1846	70s.0d.	90s.0d.	40s.0d.	50s.0d.	4s.0d.	5s.0d.
September 29, 1846	30s.0d.	40s.0d.	25s.0d.	30s.0d.	4s.0d.	5s.0d.
November 4, 1846	40s.0d.	50s.0d.	25s.0d.	30s.0d.	4s.0d.	5s.0d.
December 5, 1846	35s.0d.	50s.0d.	20s.0d.	25s.0d.	4s.0d.	5s.0d.
December 9, 1846	35s.0d.	50s.0d.	20s.0d.	25s.0d.	4s.0d.	5s.0d.
December 12, 1846	35s.0d.	50s.0d.	20s.0d.	25s.0d.	4s.0d.	5s.0d.
December 16, 1846	35s.0d.	50s.0d.	20s.0d.	25s.0d.	4s.0d.	5s.0d.
January 2, 1847 (for prices 31/12/46)	30s.0d.	40s.0d.	20s.0d.	25s.0d.	4s.0d.	5s.0d.
January 9, 1847	30s.0d.	40s.0d.	20s.0d.	25s.0d.	4s.0d.	5s.0d.
February 6, 1847	30s.0d.	40s.0d.	20s.0d.	25s.0d.	4s.0d.	5s.0d.
February 20, 1847	30s.0d.	40s.0d.	25s.0d.	30s.0d.	4s.0d.	5s.0d.
March 6, 1847	30s.0d.	40s.0d.	25s.0d.	30s.0d.	5s.0d.	5s.6d.
March 13, 1847	40s.0d.	50s.0d.	25s.0d.	30s.0d.	5s.6d.	6s.2d.
March 17, 1847	40s.0d.	50s.0d.	25s.0d.	30s.0d.	5s.6d.	6s.2d.
March 20, 1847	35s.0d.	45s.0d.	25s.0d.	30s.0d.	5s.6d.	6s.3d.
April 17, 1847	35s.0d.	45s.0d.	25s.0d.	30s.0d.	5s.6d.	6s.3d.
April 29, 1847	35s.0d.	45s.0d.	25s.0d.	30s.0d.	5s.6d.	6s.3d.
May 15, 1847	35s.0d.	45s.0d.	25s.0d.	30s.0d.	5s.6d.	6s.3d.
May 29, 1847	35s.0d.	45s.0d.	25s.0d.	30s.0d.	5s.6d.	6s.3d.

TABLE 4.2: HIGH AND LOW PRICES OF ANIMAL FODDER IN THE TORONTO MARKET ACCORDING TO TRAILL (1857).

	May, 1845		May, 1849		July, 1853		December, 1854	
Product	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
Hay (ton)	40s.	55s.	35s.	45s.	40s.	50s.	120s.	140s.
Straw (ton)	22s.6d.	25s.	25s.	30s.	30s.	35s.	60s.	90s.9d.

Traill (1857: 172) believes sheep represented a profitable stock to have on the farm as they multiply easily and can be fed without much expense on "pea straw, a little hay and roots, with salt occasionally" and their meat and wool easily found their place in the markets. The Cheviot breed or a cross between the Merino and Cheviot breed were thought by some at the time to be best suited for the environment and climate of Upper Canada (Anonymous 1824). However, these were not the only breeds imported into the province and a variety of them likely found their way into Upper Canada: Edward Francis Heming of Nyton Farm near Guelph wrote in 1836 that he arranged to have Southdown and Leicester sheep sent to his farm from England (Cameron *et al*. 2000: 60). The climate was indeed the primary factor influencing sheep husbandry at the time. A roughly five month gestation period meant that rams would be allowed to go to the ewes at about mid-to late November so the lambs would arrive by mid- to late April, when milder weather increased their chance of survival and there was enough fresh grass ready for fodder (Anonymous 1824; Traill 1857:172).

Although horses were highly valued for transportation and ploughing in Britain and America, earlier settlers in 19th-century Ontario valued the awkward looking ox to clear the fields and find sure footing amongst stumps and fallen logs of rudimentary roads and trails (Harrington 1915: 42; Traill 1846: 89). That being said, Traill (1846: 89) believed horses were more skilled and patient in Canada as opposed to Britain and seemed to her to be more skilled and willing to navigating difficult and challenging paths. In the city of Toronto, thousands of horses transported people across the city and were the city's most common labour animal through to the arrival of the 20th century (Kheraj 2013: 123).

Poultry, although they require shelter and protection, were relatively easy to care for and were common on the early farms. Traill (1857: 190) suggested feeding them boiled up refuse vegetables mixed with grains and corn. Other fowl present in Upper Canadian farms include the Guinea fowl and "tender pea-fowl" which apparently were kept easily enough (Traill 1857: 193) although some individuals would occasionally be lost to wildlife such as skunks, foxes or predatory birds (Traill 1846: 230). She also notes that turkeys bred well in Canada but that many farmers were hesitant to raise them as they could be destructive to grain crops when left to wander. Geese and ducks were also raised on farms that had access to natural water features such as ponds, wetlands, lakes or other waterways (Traill 1857: 191). Ducks were easily managed but she notes that goslings, which hatch in the spring, were quite susceptible to the varying weather changes of that season and needed extra care from the cold and wet if they were to survive.

Livestock were as common in the city of Toronto as they were in the surrounding rural areas, as was the case with American cities at the time (Grier 2006: 253). Kheraj (2013) paints a picture of animal life in the city throughout the 19th century, highlighting evidence for different species in a range of historical records (e.g., census documents, laws passed by the city council, and old photographs). Chickens were very popular as they did not require much space and could provide eggs and meat to their owners. Pigs were also a common sight in the city as they took up relatively little space and could be fed on a wide range of foodstuffs, including household waste products. Certain residents kept one or a few dairy cows that produced litres of milk daily for their owners. Dairy cow numbers in the city declined by the end of the 19th century (Kheraj 2013). An 1861 census notes very few sheep were present in the city (only 59); however, over 1,102 dairy cattle and 1,368 pigs were counted. Their numbers would decline by the end of the century but horse and chicken populations would rise. Reasons for the decline of Toronto's urban cattle population have not been fully explored. A similar trend occurred in 19th-century London, England where overcrowding and unhygienic conditions led to several disease outbreaks and overall poor health of the urban cattle stocks (Velten 2013: 30-32). The decline might also relate to improved transportation capabilities of bringing in fresh milk from areas outside of the city. Chickens were the most numerous livestock in the city with 16,714 enumerated in 1891 and, twenty years later, that number grew to 21,226 despite the decline in other urban domestic livestock (Kheraj 2013: 126). Conflicts over free-roaming animals emerged throughout the 19th century as did a number of city by-laws meant to restrict their free movement. Horses were important for transportation within the city and they were so numerous that bylaws were put in place to ensure they were all harnessed and that only police were allowed to mount them when on the streets of Toronto. Kheraj (2013: 126) documents a few tragedies highlighting the dangers horses could sometimes pose in early Toronto traffic.

GROWING CROPS

Describing the role of meat in local foodways is the objective of this project; however, it is important to note that meals did not always revolve around or even contain meat. Therefore, in an effort to better understand foodways in general, a brief discussion of the grains, vegetables and fruits available to local residents is provided here. Wheat and maize were the predominant crops for the backwoods farmer in the early 19th century (Talbot 1824: 181; Traill 1846). Wheat was Upper Canada's primary export and is responsible for most of its export economy in the first half of the 19th century (Jones 1946). Maize grew equally well in the region and it apparently required little maintenance to yield successful harvests. Traill

(1846: 136-141) mentions planting pumpkins in with the corn as she thought they grew well together. Grazing wild animals (racoons, bears, squirrels, and birds among others) and free-ranging or escaped livestock were the biggest problem for crop growers and the latter were often the source of animosity between neighbours (Traill 1846: 145).

Other crops commonly grown by farmers, but usually on a smaller scale, include barley, oats, rye, potatoes and turnips. Peas are also mentioned in multiple letters and Traill (1846: 235) mentions sowing beans (French, kidney, white runner and bush-bean), lettuce and cabbages (savoy) in her vegetable garden. Her second book provides instructions for emigrants on how to plant these as well as cucumbers, carrots, celery, hops and asparagus (Traill 1857: 62-65). Fruit orchards were present allowing for apple, plums, pears, cherries and even peaches in some areas of the province. Traill noted the availability of various wild fruits including wild grapes, raspberries, strawberries, black and red currants, gooseberry, plums, cranberries and blackberries and that these and wild rice were often purchased from indigenous people (Traill 1846: 110).

HUNTING

Of course, living in rural areas in Canada at this time should mean easy access to the forests and to the various creatures that inhabited it. Wild game and fowl appeared to be plentiful according to many 19th-century Euro-Canadians, especially along the Toronto waterfront when it was first settled (Fairburn 2013: 68). Deer is the most frequently mentioned game animal in historic documents. Multiple references are also made to indigenous people selling or trading joints of venison to Euro-Canadians at prices that were cheaper than the market value of other meats. The following represents a selection of excerpts from various documents about hunting:

> "*We have plenty of game here, and deer plenty, your gun has killed three deer, we have all liberty to carry a gun*." –William Voice of Blandford (Woodstock) writing to his sister in West Sussex on October 27th, 1834 (Cameron *et al*. 2000: 170-173).

> "*They who live in the backwoods often have venison brought in either by their own people or by the Indian hunters who gladly exchange it for salt-pork, flour or vegetables* (Traill 1857: 151).

> "*For game- we have an abundance of venison, which is becoming more plentiful as the clearings increase affording them more food and driving off the wolves; you may buy it off the Indians at [one pence half-penny per pound], and sometimes for less*." (Langton 1926: 35).

> "*There is plenty of deer, rabbits, pheasants and pigeons to shoot at*" –Edward and Catherine Boxall of Adelaide township writing to "Mother" in England on the 28th July, 1832 (Cameron *et al*. 2000: 85).

> "*We have plenty of deer, rabbits, black squirrels, racoons, porcupines, ground hogs that are all good for food; […] The Indians […] love hunting. They will bring venison cheaper than we can kill it*." –William Cooper of Adelaide Township writing to his brother in West Sussex on the 5th of February, 1833 (Cameron *et al*. 2000: 23).

> "*And we have plenty of game in America; plenty of deer, turkeys, pheasants, partridges, and black squirrels and red squirrels*." –William Pannell of London District writing to his father and mother in West Sussex on October 14th, 1832 (Cameron *et al*. 2000: 65).

> "*We take our gun and go deer hunting when we want*" –James S and William Goldring of York writing to their uncle in West Sussex on April 9th, 1833. (Cameron *et al*. 2000: 115).

> "*At times, I have seen fine deer pass close by my house, but they took great care not to wait until I had got my gun out for them; not but we get a great plenty of venison at* [one pence half-penny] *per pound.*" –John and Ann Gamblen of Blandford (Woodstock) writing to Daniel King in Brighton on February 18th, 1835 (Cameron *et al*. 2000: 180)

Deer, ducks, pheasants (partridges and grouse) appear to be the most popular game as they feature in a number of letters. Other animals, such as squirrels, muskrat, beaver, bear, lynx and fox were more valued for their fur although Traill (1857: 155) suggests they may be eaten along with porcupine and woodchuck when food was scarce. She mentions Canadian hares (eastern cottontail or snowshoe hare) as being smaller and less flavoursome than those available in England, but they do offer a "pleasant variety" to the salt meat diet (Traill 1857: 156). Other birds she mentions being consumed are the snipe, woodcock, Canada robin, and quail as well as wild geese (?Canada geese), whose flesh she describes as fishy and oily. Eagles once nested along the waterfront on the Scarborough Bluffs and were reportedly hunted to extinction or extirpated from the area (Fairburn 2013: 68). Large flocks of passenger pigeon also migrated through the area (in spring and autumn), possibly numbering in the billions and easily caught by gunshot, rocks, cannon or even potato (Greenberg 2014: 91-96; Simcoe 1965: 111). The ease with which they were caught encouraged many to kill them for sport.

FISHING

Fish represent yet another source of wild protein available to Upper Canada residents in the 19th century and a large variety of locally available species are listed in historical documents in addition to a few imported varieties. The most popular species in terms of taste were salmon or trout, muskellunge, white fish and black bass. Other species such as perch, sunfish, the 'pink-roach' [species uncertain], rock bass and freshwater eel were also occasionally eaten at the dinner table (Brown 1849: 83; Langton 1926: 34-35; Traill 1857: 162). The fish in some places were apparently so plentiful that "in some parts of the lake, if you are short of meat for dinner, you may put the potatoes on to boil and before they are done enough, you may have ten or twenty bass on the grid-iron" (Langton 1926: 34-35).

The early spring was the best time for fishing according to Traill (1846: 122) although fish could be caught year round using a variety of different methods. Smaller fish such as perch, bass and sunfish were caught with hook and line from the shore or from a boat while the larger species, such as the muskellunge, were typically caught using a spear, either from a canoe by night, attracting them with candlelight or in the winter through a hole in the ice (Langton 1926: 34-35; Robertson 1911: 208; Traill 1857: 158). A substantial commercial fishery appears to have been established on the south shore of what is now one of the Toronto Islands (Bonnycastle 1833) and a local fishing industry based in Lake Ontario supplied products for the Toronto fish market (Fairburn 2013: 138). Off the shores of Port Union, just east of Toronto, a robust commercial fishery operation began around 1840 and survived through to the 1920s, providing mostly whitefish for the local market, where individual catches could include up to 2000 pounds of fish (Spilsbury 1973, in Fairburn 2013: 58).

MARKETS

Scathing (1873, as cited in Careless 1984:27) makes the earliest reference to an official public market in Toronto in 1803. It is in a central location near the water's edge where cattle and produce were brought on weekly market days. It was not until 1831, that a brick structure was built on site and the market no longer operated temporary structures. This became known as the St. Lawrence market and continues to operate in the same place today (in a newer building). The area became a commercial and political centre for the city where residents could buy and sell live animals and other food and non-food products (Kheraj 2013: 131-132). As the city grew, the St. Lawrence market expanded and other markets appeared (e.g., St. Patrick and St. Andrew Markets). Butchers were only allowed to set up shops outside of the public markets after a by-law was passed in 1858 (Kheraj 2013: 133). In the early 19th century (1820s to 1840s), almost all livestock and meat available in the markets were supplied from the United States (Bonnycastle *Canada and the Canadians,* vol. II: 211, in Jones 1946: 133). Tariffs imposed in the mid-1840s did not necessarily result in a booming local livestock industry but reports at the time suggest an exclusion of product (mainly cattle) from the local markets (*Examiner,* April 1, 1846, in Jones 1946: 134).

Various stores were available in the smaller towns and villages spread throughout the remainder of Upper Canada. These were generally limited in supply in the earlier half of the 19th century and ceramic goods were mostly provisioned by Montreal based wholesalers

(Kenyon 1992: 13). Fresh food products, if available were likely locally supplied. Making the most out of their situation, rural farms would often trade meats and other products between neighbours (Traill 1857: 171).

A variety of different sources specified prices for food and various other commodities in 19th-century Ontario. The following paragraphs recount market prices of different food types from the 1830s to 1854. Information for the early 1830s to 1840 was obtained from the series of personal letters originating from various different locations throughout Upper Canada (both urban and rural). The published sources, such as those published by the Strickland sisters also casually mention the cost of various items in their narratives and these will be highlighted here. The majority of prices from the 1844 to 1847 period are retrieved from *The Globe* newspaper's reporting on market prices. Market prices can inform us on a variety of research topics including: (1) which foods were regularly/seasonally available at the market; (2) the products people expected to find in their local markets; and, (3) the values markets and consumers associated to different products.

A variety of factors can affect commodity prices. As an example, many personal communications make reference to an increase in the price of flour in 1836 due to bad weather leading to multiple crop failures throughout Upper Canada. Other factors such as the pressures of seasonal demand, the availability of products or, difficulties in trade supply may also have an effect. In the following analysis, I make an effort to compare the same information from multiple, independent sources in order to confirm the relative price rankings for products. It is important when evaluating the values associated with different foods (i.e. whether or not something was more or less expensive than another item) to not compare the absolute prices for the same products between different sources but rather compare the relative costs of different items as reported by the same source and look to see if similar patterns held across multiple sources. Although people and newspapers report specific costs of certain items, a bartering system was likely employed or acceptable in most markets, thus adding a bit of flexibility to the prices which sometimes included payment with other goods instead of money. Langton (1926: 20) provides an example when he expected pork and flour to form a large part of his payment for cleared land in the backwoods.

MEAT

Tables 4.3 through 4.5 present the cost of various meat products according to different sources. It is interesting to note that specific meat cuts are never described in letters, published sources or newspapers. Instead, prices are given per pound according to the type of meat which may suggest a wholesale or barrelled product. It appears that only beef and pork were regularly sold in high quantities as many sources denote prices per 100 lbs. and this may be suggestive of barrelled products.

The few references to specific cuts of meat include a 1932 letter from Toronto that mentions the sale of "good steaks" for five pence [?each] and "bullocks heart" for seven and a half pence [?each]. Upon describing a scene at a market in Belleville, Suzanna Moodie mentions a butcher offering "sirloin, ribs or a tender steak" to a woman inspecting the side of an ox hanging in his shop. At a Christmas market in Toronto, she notes a gentleman asking a butcher for "four ribs of that tempting looking beef" (Moodie 1853: 43-46). The last two references suggest individual cuts were procurable from a butcher's shop. James (1997: 17) discusses the idea that a concern for specific cuts of meat may not have been a priority for 19^{th}-century Upper Canadians in the same way it is today. At the very least, the data suggest that the purchase of specific cuts of meat was not commonly undertaken.

Many of the letters discussed the price of various types of meat in order to help convey to their families or sponsors in England the costs of living in Canada. Only five types of meat (excluding fowl) were mentioned. Beef, pork, mutton, and veal were mentioned most frequently in market listings from the newspapers. Veal was only mentioned twice in the letters despite being a constant feature of newspaper market prices. Venison was mentioned fairly regularly in letters where it is noted to be the least expensive of all the meats but never appeared in market listings. It may be that letter writers are making reference to venison sold by indigenous people or that venison was more common in small town or rural markets. The sale of lamb is only mentioned by Traill (1857) in reference to Toronto market prices.

TABLE 4.3: PRICE OF MEAT IN 1830S UPPER CANADA. INFORMATION FROM PERSONAL CORRESPONDENCE PUBLISHED IN CAMERON *ET AL*. (2000)

Source		Price of meat				
Origin of letter	**Date**	**Beef**	**Pork**	**Mutton**	**Veal**	**Venison**
Dundas	August 26, 1832	-	3½d. per lb	2 ½d. per lb	3 ½d. per lb	-
South Easthope township	August 28, 1832	2½d. [per lb]	-	3d. per lb	-	-
Dundas	September 11, 1832	3 to 3½d. per lb	3 to 3½d. per lb	3 to 3½d. per lb	-	-
Nelson township	September 16, 1832	2½d. per lb	3d. per lb	2 ½d. per lb	-	-
Toronto	October 25, 1832	3½[d.] per lb	3½d. per lb	-	-	-
Hamilton	December 15, 1832	2 to 3d. per lb	2½d. per lb	2d. [per lb]	-	-
Galt	January 1, 1833	2½d. per lb	-	2 ½d. per lb	-	1d. [per lb]
Adelaide township	March 13, 1833	2d. per lb	4d. per lb	-	-	1s.6d. per quarter
Waterloo township	June 25, 1833	3d. per lb	4d. per lb	3d. per lb	-	-
Galt	June 25, 1833	3½d. per lb	4d. per lb	-	-	-
Wilmot township	July 14, 1833	$6 per 100 lbs	$14-$18 per 200lbs	-	-	-
Blandford (Woodstock)	October 27, 1834	2½d. per lb	-	2 ½d. per lb	-	1 d. per lb
Blandford (Woodstock)	February 18, 1835	3d. per lb	3d. per lb	3d. per lb	3d. per lb	1 to 1½d. per lb
St. Catherines	January 9, 1836	2½d. per lb	2½d. per lb	-	-	-
Plympton township	February 8, 1836	-	4d. per lb	-	-	-
Guelph	March 20, 1836	3d. per lb	6 d. per lb	3d. per lb	-	-
Delaware township	October 16, 1836	4d. [per lb]	4d. [per lb]	-	-	-
Bronte	November 10, 1836	£1.5 [per 100lbs]	£1.10 per 100 weight	-	-	-
Toronto	January 1, 1837	-	$7 per 100 weight	-	-	-
Niagara District	January 10, 1837	1½ to 3d. per lb	£1.12s. per 100 weight	-	-	-
Woodstock	September 24, 1840	-	3d. per lb	-	-	-

TABLE 4.4: PRICES FOR VARIOUS MEAT PRODUCTS IN TORONTO MARKETS THROUGH THE 1840S AND 1850S ACCORDING TO TRAILL (1858).

		May 1845		May 1849		July 1853		December 1854	
Product	**Amount**	**low**	**high**	**low**	**high**	**low**	**high**	**low**	**high**
Beef	per lb	0s.2d.	0s.6d.	0s.2d.	0s.4d.	0s.3½d.	0s.4d.	0s.6d.	0s.7d.
Beef	per 100lbs	15s.	26s.	12s.6d.	2[4]s.	20s.	22s.6d.	25s.	27s.6d.
Pork	per lb	0s.2d.	0s.4d.	0s.2½d.	0s.2¾d.	0s.4d.	0s.4½d.	-	-
Pork	per 100lbs	16s.3d.	22s.6d.	16s.3d.	20s.	25s.	27s.6d.	25s.	30s.
Mutton	per lb per quarter	0s.3d.	0s.5d.	0s.2½d.	0s.4d.	0s.4½d.	0s.5½d.	0s.6d.	0s.7d.
Mutton	per lb per carcass	-	-	0s.2d.	0s.3d.	0s.3½d.	0s.4d.	0s.4d.	0s.5d.
Veal	by quarter	0s.2d.	0s.3d.	0s.2½d.	0s.4d.	0s.3½d.	0s.4d.	0s.4½d.	0s.5d.
Lamb	per quarter	-	-	2s.6d.	5s.	2s.	2s.6d.	-	-

TABLE 4.5: HIGH AND LOW PRICES OF MEAT PRODUCTS (EXCLUDING FOWL) IN 1840S TORONTO MARKETS AS REPORTED IN *THE GLOBE* AND REFLECTING THE PREVIOUS DAY'S PRICES.

Date	**Beef/100lbs.**		**Beef/lb.**		**Pork/100 lbs.**		**Pork/lb.**		**Mutton/lb.**		**Veal/lb.**	
	Low	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
February 11, 1845	10s.0d.	17s.6d.	0s.2d.	0s.6d.	15s.0d.	20s.0d.	0s.2d.	0s.4d.	0s.2.5d.	0s.3d.	0s.2d.	-
February 18, 1845	10s.0d.	-	0s.2d.	-	15s.0d.	-	0s.2d.	-	-	-	-	-
April 22, 1845	12s.6d.	20s.	0s.2d.	0s.6d.	16s.3d.	22s.6d.	0s.2d.	0s.4d.	0s.3d.	0s.5d.	0s.2d.	0s.3d.
September 2, 1845	15s.0d.	20s.0d.	0s.3d.	0s.4d.	20s.0d.	22s.6d.	-	-	0s.2.5d.	0s.3.5d.	0s.2d.	0s.4d.
November 11, 1845	12s.6d.	17s.6d.	0s.3d.	0s.4d.	20s.0d.	27s.6d.	-	-	0s.2d.	0s.3d.	0s.2d.	0s.4d.
November 25, 1845	10s.[?]d.	-	0s.3d.	-	20s.0d.	-	-	-	0s.2d.	-	0s.2d.	-
January 6, 1846	10s.0d.	20s.0d.	0s.3d.	0s.4d.	20s.0d.	27s.6d.	-	-	0s.2d.	0s.3d.	0s.2d.	0s.4d.
September 29, 1846	12s.6d.	17s.6d.	0s.2d.	0s.3d.	17s.6d.	20s.0d.	-	-	0s.2d.	0s.3d.	0s.2d.	0s.4d.
November 4, 1846	12s.6d.	17s.6d.	0s.2d.	0s.3.5d.	21s.0d.	22s.0d.	-	-	0s.2d.	0s.3d.	0s.2d.	0s.4d.
December 5, 1846	10s.0d.	18s.9d.	0s.2d.	0s.3.5d.	17s.6d.	22s.6d.	-	-	0s.2d.	0s.3.5d.	0s.2d.	0s.4d.
December 9, 1846	10s.0d.	18s.9d.	0s.2d.	0s.3.5d.	17s.6d.	22s.6d.	-	-	0s.2d.	0s.3.5d.	0s.2d.	0s.4d.
December 12, 1846	10s.0d.	18s.9d.	0s.2d.	0s.3.5d.	12s.6d.	20s.0d.	-	-	0s.2d.	0s.3.5d.	0s.2d.	0s.4d.
December 16, 1846	10s.0d.	18s.9d.	0s.2d.	0s.3.5d.	12s.6d.	20s.0d.	-	-	0s.2d.	0s.3.5d.	0s.2d.	0s.4d.
January 2, 1847 (for prices 31/12/46)	10s.0d.	18s.9d.	0s.2d.	0s.3.5d.	12s.6d.	20s.0d.	-	-	0s.2d.	0s.3.5d.	0s.2d.	0s.4d.
January 9, 1847	10s.0d.	18s.9d.	0s.2d.	0s.3.5d.	12s.6d.	20s.0d.	-	-	0s.2d.	0s.3.5d.	0s.2d.	0s.4d.
February 6, 1847	12s.6d.	20s.0d.	0s.2d.	0s.3.5d.	12s.6d.	20s.0d.	-	-	0s.2d.	0s.3d.	0s.2d.	0s.4d.
February 20, 1847	15s.0d.	22s.0d.	0s.2.5d.	0s.3.5d.	15s.0d.	21s.[?]d.	-	-	0s.3d.	0s.5d.	0s.2d.	0s.4d.
March 6, 1847	15s.0d.	22s.6d.	0s.2.5d.	0s.3.5d.	25s.0d.	27s.6d.	-	-	0s.3d.	0s.5d.	0s.2d.	0s.4d.
March 13, 1847	1[?]s.9d.	22s.6d.	0s.2.5d.	0s.3.5d.	25s.0d.	27s.6d.	-	-	0s.3d.	0s.5d.	0s.2d.	0s.4d.
March 17, 1847	15s.0d.	22s.6d.	0s.2.5d.	0s.3.5d.	25s.0d.	27s.6d.	-	-	0s.3d.	0s.6d.	0s.2d.	0s.4d.
March 20, 1847	15s.0d.	22s.6d.	0s.2.5d.	0s.3.5d.	25s.0d.	27s.6d.	-	-	0s.3d.	0s.4d.	0s.2d.	0s.4d.
April 17, 1847	15s.0d.	22s.6d.	0s.3d.	0s.4d.	20s.0d.	25s.0d.	-	-	0s.3d.	0s.4d.	0s.2d.	0s.4d.
April 29, 1847	15s.0d.	22s.6d.	0s.2d.	0s.4d.	20s.0d.	25s.0d.	-	-	0s.3d.	0s.4d.	0s.2d.	0s.4d.
May 15, 1847	15s.0d.	22s.6d.	0s.3d.	0s.4d.	20s.0d.	25s.0d.	-	-	0s.3d.	0s.4d.	0s.2d.	0s.4d.
May 29, 1847	15s.0d.	22s.6d.	0s.3d.	0s.4d.	20s.0d.	25s.0d.	-	-	0s.3d.	0s.4d.	0s.2d.	0s.4d.

A trend worth noting is the price of beef relative to that of pork. In the 14 cases where the price of beef and pork are mentioned in the same letter, seven list pork as more expensive, five state they are the same price, and only one letter identifies beef as the most expensive meat. Another letter notes the price of beef ranging from less to more expensive than pork. The price of mutton is generally listed as the same as that of beef. A similar valuation of meat products is observed in the Toronto markets with pork generally being the most expensive. Fresh beef and fresh pork, or beef or pork sold by the pound are similarly priced; however, the cost of beef or pork by the 100 weight (?barrelled product) is substantially greater for pork than it is for beef. Prices fluctuated over time and generally increased over the years. The price of veal and mutton does not seem to have changed much over the examined period. In 1843, urban centres such as Hamilton began to bring in already butchered meat and this was apparently considered a new development, suggesting fresh meat was unusual prior to then (*British American Cultivar*, April, 1843: 55, in Jones 1946: 128). In the Toronto Market, pork only appears to have been sold by the pound for the first three months *The Globe* began reporting prices, afterwards, prices were only given by the 100 weight. John Barnes of Toronto noted in 1837, that its market receives nearly daily shipments of hogs brought in by the waggon and ready-dressed being sold by the hundred weight (Cameron *et al*. 2000: 249). This indicates that the hundred weight measures do not necessarily point to barrelled products but that fresh pork could simply be sold in wholesale units. Difficulties in identifying differences between fresh and preserved pork in the historical documents suggests both were sold at similar prices. Fresh beef continued to be available by the pound when *The Globe* stopped printing market prices in 1847. Hams were sometime sold separately as dried or smoked product. Traill (1857: 150) does say that barrelled products were cheaper than fresh meats.

It is perhaps surprising that historical documents suggest pork was the most consumed product in Upper Canada, given its expense. Archaeological studies have also suggested pork played a more prominent dietary role at many sites (see Chapter 1, Section 1.3) and this may be due to greater availability of the product over beef or the Upper Canadian's ability to raise pork on their own. Langton (1926: 76) notes "Pork is our greatest expense; […] we have ordered thirty barrels between us [him and his neighbour, from a connection in Ohio]". Indeed, large quantities of barrelled pork were recorded passing through Upper Canada and beyond to foreign markets. In 1833, Montreal received over 30,000 barrels from Cincinnati by way of Upper Canada. On the other hand, barrelled pork produced in Upper Canada for export markets were almost negligible. Only 1,800 barrels landing in Montreal originated from the province that year (Jones 1946: 128). Langton (1926: 129) notes that, although decent pork can be grown in the backwoods of Upper Canada, the land is not as extensively cleared or long enough settled to allow for large numbers to be produced and he relied on the cheaper pork from Ohio. At the time, Cincinnati was the primary pork packing production centre of the United States and was often referred to as 'Porkopolis' (McGlone and Pond 2003: 6; Pate 2005: 65). The completion of the Welland canal in 1829, and later the Miami and Erie canals in 1840, would have allowed Cincinnati or other major American pork packing centres (e.g., Kansas City, St. Louis, Chicago) to easily move their products by water into southwest Upper Canada, Toronto, and its hinterlands (Guiry *et al*. 2015: 22; McGlone and Pond 2003: 6).

There was a range in the quality of barrelled pork available for purchase. Although the price is usually given per hundredweight (cwt *or* per 100lbs), barrels should have each contained approximately 200lbs of product. An advertisement for provisioning Fort George at Niagara-on-the-Lake called for barrels with a capacity of lasting 12 months without spoiling (*Upper Canada Gazette* November 12th, 1803, reproduced in Betts 2000: 12). They could be purchased in full (208 pounds) or in halves (108 pounds), the barrel itself weighing eight pounds (Moore 1820). Barrels were graded based on the body parts and the ratio of skeletal parts contained within this grading system varied depending on the source; however, archaeological evidence suggests variability in body parts between barrels of the same grade. This indicates that strict standardization was not practiced (Brophy and Crisman 2013: 72-73, 82). The highest quality barrels, known as "Mess Pork", contained nothing but "side pieces" and were sold at the highest price (Traill 1857:148). A state mandated definition was published in the *Louisiana Daily Public Advocate* in 1839 indicating that "Mess Pork" should only contain "side[s] between the shoulder and flank" (Brophy and Crisman 2013: 72-73). Slightly lower quality pork was known as "Prime Mess" and contained hams, shoulders, as well as sides, and retailed for a slightly lower price (Traill 1857: 148). The lesser quality barrels are known as "Prime" and contained entire hogs, including heads and feet, indiscriminately cut up (Traill 1857: 148). Moore (1820: 9) states "Prime" pork should consist of "[from three large hogs] three shoulders, twenty pounds of head, and every other part of the hog to make up the quality or weight". He goes onto say that the "Prime" pork should not contain any legs or, if it does, they need to be "cut handsomely above the knee and gambrel joints". Packers would often fill empty spaces in their pork barrels with pig's feet (Wilson and Southwood 1976: 124). In her guide for emigrants, Traill cautions people to beware the quality of barrel being purchased, alluding to the fact that the naming conventions may be confusing. The Louisiana article states that "Prime Pork" has three shoulders with shanks cut off at the knee and one and a half heads that were halved and rid of ears, snouts and brains. Other elements included side, neck, tail pieces and up to two hams. That article does not use a “Prime Mess” grade but instead makes reference to “Cargo Pork”, a grade considered inferior to “Prime Pork”. It contained any part of the animal but no more than two processed heads and no lower shanks, brains, ears, and snouts (Brophy and Crisman 2013: 72-73). The presence of heads in pork barrels was noted by Langdon (1926: 129) who mentions that most of them are found with a rifle ball inside. Archaeological evidence suggests the mandibles were disarticulated from the skulls prior to being barrelled (Brophy and Crisman 2013: 79). Betts (2000: 30) estimates each “Prime” grade barrel could provide about 54 kilograms of edible meat, which is approximately twice as much that you would get from the average dress hog at the time (Reitz and Scary, 1985: 70).

The various cuts present in a barrel of pork were not the sole criteria upon which people judged the quality of the product. Traill (1857: 150) notes the quality of the meat was equally important and attributes this to the breed of pig and the ways they were fattened prior to slaughter. She notes some pork was too soft, oily and prone to “running away to oil, in the act of frying”. For these she recommended drying or smoking the joints rather than cooking straight from the brine.

Barrelled beef products were graded according to the age and weight of the animal when it was slaughtered. The grades and cuts of meat were then packed into different category barrels. “Mess beef” was deemed the highest quality barrel and was to contain “choicest pieces only” which included briskets, thick flanks, ribs, rump and sirloin from “well-fatted and properly aged animals” (English 1990: 64). “Prime beef”, followed by “Cargo beef” barrels, contained increasing levels of lesser choice parts from lower grade animals which include necks and shanks. No documents suggest heads or feet were included in barrelled beef. A legislative act passed in Lower Canada in 1839, required that all meat segments be cut ‘as nearly square as may be’ in order for it to be well packed into the barrel and limited their weight. Beef could not be cut into pieces that weighed more than eight or less than four pounds (more than six and less than four for pork) (English 1990: 65). As many of the products leaving ports in Montreal were passing through Upper Canada at the time, the legislation passed in that province likely applied to the barrels consumed in Upper Canada if they were purchased whilst making their way to Lower Canada.

Significant technological innovations in transportation and food preservations technologies along with population growth and industrialization of the city resulted in important changes in the way Toronto was supplied with food in the second half of the 19th century. The arrival of the railway in 1856, allowed for products to be brought in from further distances at faster speeds. Mechanical refrigeration technology became increasingly prominent by the end of the 19th century, allowing meat to remain unspoilt for increasingly longer periods of time (Rixson 2000: 268-277). Urban consumers came to rely on retail grocers selling tinned or pre-cut and packaged meats originating from industrial meatpacking facilities (Kheraj 2013: 135). Toronto itself eventually became known as a centre for the pork packing industry after the arrival of the railway allowed for the shipment of live pigs to the city and a way to export packed products to an ever expanding global market. Further technological innovations allowed one meat packing plant in Toronto to process 75,000 hogs a year by 1886 (Kheraj 2013: 135), giving the city a popular moniker it continues to hold today (Hogtown).

Prices are provided for mutton and veal in *The Globe* newspaper but little is mentioned about their sale at local markets in the historical documents. The prices suggest they were available as fresh meat cuts in Toronto rather than in wholesale form. There is no indication of mutton, lamb or veal packing industries supplying Upper Canadian markets.

Fowl prices were mentioned in the newspaper but no reference to their sale from local markets was made in the personal communications or publications examined in this research. This is not too surprising as most people, whether living in urban or rural areas, would have had access to their own chickens. Chickens and ducks were sold by the brace while the larger birds, geese and turkeys, were sold individually. The price of chicken remained relatively stable in the mid-century. Prices for geese and ducks were only mentioned in the first few months of *The Globe's* publication of market prices, suggesting these were not highly sought after purchases for their readership. Traill's (1857) documentation of chicken prices at the Toronto Market would indicate prices rose slightly in the early fifties (up to 2s.6d.) before lowering in 1855 (high of 1s.10d.). She notes the price of turkey reaching highs of five shillings in 1850, and costing only four shillings in 1853 and 1855. Passenger pigeons killed in Upper Canada counties such as Middlesex, Simcoe, York, Lincoln and Welland supplied local urban markets where they were reportedly sold for five cents each if caught by gunfire or six cents if poled or netted (Mitchell 1935: 109-112). Many of the birds were also packed in barrels and shipped to the United States where they fetched a higher price (Greenberg 2014: 79-80).

TABLE 4.6: HIGH AND LOW PRICES OF FOWL IN 1840S TORONTO MARKETS AS REPORTED IN *THE GLOBE* AND REFLECTING THE PREVIOUS DAY'S PRICES.

Date	Fowls, couple		Ducks, couple		Geese, each		Turkeys, each	
	Low	High	Low	High	Low	High	Low	High
February 11, 1845	1s.3d.	1s.6d.	1s.3d.	2s.0d.	1s.3d.	1s.10d.	-	-
April 22, 1845	1s.6d.	2s.0d.	1s.8d.	2s.6d.	1s.8d.	2s.6d.	2s.6d.	[Illegible]
September 2, 1845	2s.0d.	2s.4d.	1s.6d.	2s.5d.	1s.6d.	2s.0d.	2s.6d.	3s.9d.
November 11, 1845	1s.3d.	2s.0d.	-	-	1s.3d.	2s.0d.	1s.10d.	3s.9d.
November 25, 1845	1s.3d.	-	-	-	1s.[?]d.	-	2s.[?]d.	-
January 6, 1846	1s.3d.	1s.[?]d.	-	-	-	-	-	-
November 4, 1846	1s.3d.	2s.0d.	-	-	-	-	2s.6d.	3s.9d.
December 5, 1846	1s.3d.	2s.0d.	-	-	-	-	2s.6d.	3s.9d.
December 9, 1846	1s.3d.	2s.0d.	-	-	-	-	2s.6d.	3s.9d.
December 12, 1846	1s.3d.	2s.0d.	-	-	-	-	2s.6d.	3s.9d.
December 16, 1846	1s.3d.	2s.0d.	-	-	-	-	2s.6d.	3s.9d.
January 2, 1847 (for prices 31/12/46)	1s.3d.	2s.0d.	-	-	-	-	2s.6d.	3s.9d.
January 9, 1847	1s.3d.	2s.0d.	-	-	-	-	2s.6d.	3s.9d.
February 6, 1847	1s.0d.	1s.3d.	-	-	-	-	2s.6d.	3s.9d.
February 20, 1847	1s.3d.	2s.0d.	-	-	-	-	1s.8d.	3s.0d.
March 6, 1847	1s.3d.	2s.0d.	-	-	-	-	1s.8d.	3s.0d.
March 13, 1847	1s.3d.	2s.0d.	-	-	-	-	1s.8d.	3s.0d.
March 17, 1847	1s.3d.	2s.0d.	-	-	-	-	1s.8d.	3s.0d.
March 20, 1847	1s.6d.	2s.9d.	-	-	-	-	2s.6d.	3s.9d.
April 17, 1847	1s.8d.	2s.3d.	-	-	-	-	2s.6d.	3s.9d.
April 29, 1847	1s.8d.	2s.3d.	-	-	-	-	2s.6d.	3s.9d.
May 15, 1847	1s.8d.	2s.3d.	-	-	-	-	2s.6d.	3s.9d.
May 29, 1847	1s.8d.	2s.3d.	-	-	-	-	2s.6d.	3s.9d.

LIVESTOCK

The cost of purchasing livestock was mentioned in a few personal communications (Table 4.7). Pigs and sheep were the cheapest of the larger livestock. Personal communications suggest fowl and geese were only purchased as livestock as opposed to butchered products. Oxen were more expensive than cows highlighting their demand in the clearing and ploughing of fields amongst other purposes. Traill (1846) mentions the importance of oxen in the backwoods of Upper Canada multiple times and their effectiveness in clearing the land and navigating the terrain. Cattle in Upper Canada are thought to mostly originate from either French-Canadian or American ancestors of the north eastern states (Jones 1946: 42). In the early half of the 19th century, town markets were supplied from droves often originating in the United States (Jones 1946: 129). Horses remained more expensive than oxen. The purchase of a horse was less important for the backwoods farmer who would generally wait until their land was cleared and farm well established prior to purchasing some (Jones 1946: 142).

ANIMAL BY-PRODUCTS

Only two animal by-products are mentioned in *The Globe*'s daily market price listings: butter and eggs (Table 4.8). Traill additionally mentions the cost of cheese and lard (Table 4.9). The price of butter appears to be stable throughout the 1840s, rising slightly in the 1850s. The costs of commodities such as eggs and butter were fairly consistent throughout the province, regardless of rural or urban locations, in the 1830s and did not rise very much in the 1840s. The majority of people also had the capacity to provide many of these products for themselves. Edward Longley of Guelph wrote in 1836 that even "the poorest persons keep a cow and make their own butter" (Cameron *et al*. 2003: 170-173). The price of eggs appears to fluctuate most depending on the time of year. As was the case for chickens, the letter writers from rural areas neglect mentioning the cost of eggs suggesting they may be producing their own. Traill (1857: 191) notes that her farm produced an excess of one hundred dozen eggs which she sent with her children to sell at a market at prices varying between one shilling to seven pence halfpenny per dozen. A few personal letters give a price for cheese (Table 4.10) while one letter states that cheese is quite dear in Upper Canada (Cameron *et al*. 2000: 109).

As for other commodities, sugar is the least expensive. Tea is mentioned fairly often, suggesting its importance to the settlers, or at least the need for them to mention it to their correspondents in Britain. A few letters mention the price of "best tea" while another mentions "capital tea", possibly referring to a brand name or perhaps simply making reference to the quality of the product. Tobacco seems to be consistently priced around one shilling per pound.

TABLE 4.7: LIVESTOCK PRICES IN 1830S UPPER CANADA. INFORMATION FROM LETTERS PUBLISHED IN CAMERON ET AL. (2000).

Source		**Price of livestock**									
Origin of letter	**Date**	**Cow**	**Oxen***	**Horse**	**Hog**	**Sheep**	**Fowl**	**Duck**	**Goose**	**Turkey**	**Guinea fowl**
Adelaide township	March 13, 1833	£2 to £6	£9 to £14	£15 to £30	1 to 20s.	5 to 7s.	6d.	6d.	1s.	1s.	1s.
Waterloo township	June 25, 1833	£4 to £5	£15 to £18	£10 to £20	-	7s.6d.	-	-	-	-	-
Wilmot township	July 14, 1833	$16 to $24	$60 to $80	-	-	-	-	-	-	-	-
Blandford [Woodstock]	February 18, 1835	-	-	-	-	-	7 1/2d.	-	1s.3d.	3s.6d.	-
St. Catherines	January 9, 1836	-	-	-	-	-	6 1/2 d.	-	1s.1d.	-	-
Niagara District	January 10, 1837	£3 to £3.10	£12 to £16	-	-	-	-	-	-	-	-

*Prices given per yoke (pair)

TABLE 4.8: HIGH AND LOW PRICES OF BUTTER AND EGGS IN 1840S TORONTO MARKETS AS REPORTED IN *THE GLOBE* AND REFLECTING THE PREVIOUS DAY'S PRICES.

Date	Butter/lb.		Eggs, dozen	
	Low	High	Low	High
February 11, 1845	0s.6d.	0s.8d.	0s.10d.	1s.0d.
February 18, 1845	-	-	-	-
April 22, 1845	0s.8d.	1s.	0s.5d.	0s.7d.
September 2, 1845	0s.8d.	0s.10d.	0s.5d.	0s.6d.
November 11, 1845	0s.9d.	0s.11d.	0s.8d.	0s.10d.
November 25, 1845	0s.[?}d.	-	0s.5d.	-
January 6, 1846	0s.9d.	1s.0d.	0s.10d.	1s.[?]d.
September 29, 1846	0s.8d.	0s.10d.	-	-
November 4, 1846	0s.9d.	1s.0d.	0s.8d.	0s.9d.
December 5, 1846	0s.8d.	0s.10d.	0s.10d.	1s.0d.
December 9, 1846	0s.8d.	0s.10d.	0s.10d.	1s.0d.
December 12, 1846	0s.8d.	0s.10d.	0s.10d.	1s.0d.
December 16, 1846	0s.8d.	0s.10d.	0s.10d.	1s.0d.
January 2, 1847 (for prices 31/12/46)	0s.8d.	0s.10d.	0s.10d.	1s.0d.
January 9, 1847	0s.8d.	0s.10d.	0s.10d.	1s.0d.
February 6, 1847	0s.8d.	0s.10d.	0s.10d.	1s.0d.
February 20, 1847	0s.8d.	0s.10d.	0s.10d.	1s.0d.
March 6, 1847	0s.7d.	0s.9d.	0s.10d.	1s.0d.
March 13, 1847	0s.9d.	0s.10d.	0s.10d.	1s.0d.
March 17, 1847	0s.9d.	0s.10d.	0s.10d.	1s.0d.
March 20, 1847	0s.9d.	0s.10d.	0s.9d.	0s.11d.
April 17, 1847	0s.9d.	0s.10d.	0s.7½d.	0s.8d.
April 29, 1847	0s.9d.	0s.10d.	0s.7½d.	0s.8d.
May 15, 1847	0s.9d.	0s.10d.	0s.4d.	0s.4½d.
May 29, 1847	0s.6d.	0s.8d.	0s.4d.	0s.4½d.

TABLE 4.9: PRICES OF ANIMAL BY-PRODUCTS ACCORDING TO TRAILL (1857).

		May 1845		May 1849		July 1853		December 1854	
Product	**size/amount**	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
Butter	per lb	0s.6d.	0s.7d.	0s.7d.	0s.9d.	0s.7½d.	0s.8d.	1s.10d.	1s.3d.
Butter	per firkin	-	-	0s.6d.	0s.7½d.	0s.6½d.	0s.7d.	0s.9d.	0s.10d.
Cheese		-	-	0s.3½d.	0s.5d.	0s.5d.	0s.6d.	0s.10d.	1s.0d.
Lard		-	-	-	0s.3½d.	0s.5d.	0s.6½d.	0s.6d.	0s.7d.
Eggs		0s.3½d.	0s.4½d.	0s.5½d.	0s.6d.	-	0s.7½d.	1s.0d.	1s.3d.

TABLE 4.10: PRICES OF PRODUCTS IN 1830S UPPER CANADA. INFORMATION OBTAINED FROM LETTERS PUBLISHED IN CAMERON ET AL. 2000.

Source		Product				
City	**Date**	**Butter**	**Cheese**	**Sugar**	**tea**	**Tobacco**
Dundas	August 26, 1832	7½ d. [per lb]	-	-	-	-
South Easthope township	August 28, 1832	9½d. [per lb]	-	-	-	-
Dundas	September 11, 1832	-	-	4 to 5d per lb	4s.to5s. per bushel	-
Nelson township	September 16, 1832	7½d. [per lb]	-	6d. [per lb]	3s.9d. [per lb]	1s. per lb
Hamilton	December 15, 1832	6d. [per lb]	-	6d. [per lb]	3s.9d. per lb	-
Ancaster	March 8, 1833	7½d. [per lb]*	7½d. per lb	-	3s.9d. [per lb]	-
Adelaide township	March 13, 1833	7½d. [per lb]	-	2d. to 9d. [per lb]	4s. [per ?]	1s. [per lb]
Waterloo township	June 25, 1833	7½d. to 9d. [per lb]	-	6d. [per lb]	5s.4d. per lb	-
Galt	June 25, 1833	6½d. [per lb]	-	-	-	-
Wilmot township	July 14, 1833	7½d. [per lb]	-	6 to 8d. per lb	5s. per lb.	-
London	August 18, 1833	5d. per lb	-	-	-	-
Blandford (Woodstock)	February 18, 1835	-	-	-	-	1s. per lb
Guelph	March 20, 1836	-	-	-	3s.9d. per lb	1s. per lb
Delaware township	October 16, 1836	7½ [d. per lb]	7½ [d. per lb]	-	-	-
Niagara District	January 10, 1837	9d. [per lb]$^{\delta}$	-	6 or 7d. [per lb]	2s.6d. [per lb]†	6d. [per lb]
Woodstock	September 24, 1840	-	-	-	3s.6d. per lb	-

*Notes the price rises to 1s. in the winter.

$^{\delta}$Denotes the price in winter

† Notes a price of 3s. for "good green tea"

OTHER FOODS

As for the price of grains and vegetables, flour appears to be the most volatile in the 1830s (Tables 4.11; 4.12; 4.13). Earlier letters refer to the inexpensive nature of flour as do accounts from 1832 by Catherine Parr Traill (Cameron *et al*., 2000; Traill 1846: 146). Talbot (1824: 181) notes the price of wheat in 1818 to be five shillings per bushel in the London district but that it rose substantially by 1822 and 1823 when “a half crown could not, without great difficulty, be procured for it.” He notes that barley varied little in price at about 2s. per bushel. Later in the decade, one letter notes a bad year for wheat crops in 1836 leading to an increase in the price of flour. Another letter in 1838 mentions the scarcity of available flour that year. Flour is the most frequently mentioned commodity in the letters hinting at the importance of the product and the concern citizens have for getting it. Sold by the 196lbs. barrel, flour is always the first commodity mentioned in *The Globe*’s report on market prices. Prices fluctuate only slightly in the 1840s, eventually increasing as the decade progresses. They appear to have increased markedly by the mid-1850s.

TABLE 4.11: PRICE OF CEREALS AND VEGETABLES IN 1830S UPPER CANADA. INFORMATION OBTAINED FROM LETTERS PUBLISHED IN CAMERON *ET AL.* (2000).

Source		**Product***									
City	**Date**	**Wheat**	**Buckwheat**	**Rye**	**Barley**	**Oats**	**Flour**	**Maize**	**Peas**	**Potatoes**	**Turnips**
Dundas	August 26, 1832	-	-	-	-		12s.6d. per cwt	-	-	-	-
South Easthope township	August 28, 1832	-	-	-	-	-	$7 per barrel	-	-	-	-
Dundas	September 11, 1832	-	-	-	-	-	-	5s. per lb	-	1s.6d.	-
Nelson township	September 16, 1832	-	-	-	-	-	£1.5 per 196lbs [barrel]	-	-	-	-
Hamilton	December 15, 1832	-	-	-	-	-	14-15s per cwt	-	-	-	-
Galt	January 1, 1833	$1[ψ]	-	-	-	-	5s. per bushel	-	-	-	-
Ancaster	March 1, 1833	3s.6d.	-	-	-	-	-	-	-	-	-
Ancaster	March 8, 1833	-	½ dollar	½ dollar	½ dollar	-	-	½ dollar	-	-	-
Adelaide township	March 13, 1833	-	-	-	-	-	8d. per gallon	-	-	-	-
Waterloo township	June 25, 1833	-	-	-	-	-	$4 per 196lbs [barrel]	-	-	-	-
Galt	June 25, 1833	-	-	-	-	-	$4 per barrel	-	-	-	-
Wilmot township	July 14, 1833	-	-	-	-	-	22s.6d. per 200lbs barrel	-	-	-	-
London	August 18, 1833	3s.9d.	-	3s.†	3s.†	1s.3d.†	-	2s.6d.†	-	1s.3d.†	-
Blandford [Woodstock]	February 18, 1835	-	-	-	-	1s.3d.	3s. to 3s.6d. per bushel	2s.6d.	3s.6d.	1s.	1s.3d.
St. Catherines	January 9, 1836	4s.	-	-	-	-	-	-	-	-	-
Plympton township	February 8, 1836	-	-	-	-	-	$6 ½ per 196 lbs [barrel]	-	-	-	-
Guelph	March 20, 1836	-	-	-	-	-	$3 ½ per 196 lbs(in 1835); $5-6 per 196lbs (in 1836)	-	-	-	-
Delaware township	October 16, 1836	3s.9d. to 5s.	-	-	2s.6d.	2s.6d.	-	-	2s.6d.†	1s.3d.†	-
Bronte	November 10, 1836	6s.3d.	-	-	-	-	-	-	-	2s.6d.	-
Toronto	January 1, 1837	-	-	-	-	1s.8d.	$7 per barrel	-	-	4s.	-
Niagara District	January 10, 1837	-	-	-	-	-	8s.per bushel~	-	-	-	-
Adelaide township	May 26, 1838	$1†	¾ dollar†	¾ dollar†	½ dollar†	¼ dollar†	$6 to $8 per 100lbs	-	$1†	¼ dollar	-
Woodstock	September 24, 1840	-	-	-	-	-	10s. per cwt	-	-	-	-

*Prices given per bushel unless otherwise stated

~ Lists this as official price but notes "common price to be 3s.6d. to 4s. per bushel

† Indicates uncertain unit of measure

[δ] Notes that one barrel = 3½ bushels

[ψ] Price of wheat in Warwick, not in Galt (author hints at this being more expensive).

TABLE 4.12: PRICE OF CEREALS AND VEGETABLES IN *THE GLOBE* NEWSPAPER. NOTE THE REPORTED STOCK PRICES OFTEN REFLECT THAT OF THE PREVIOUS DAY'S.

Date	Flour (196lb barrel)		Wheat (60lb bushel)		Barley (48lb bushel)		Rye (56lb bushel)		Oats (34lb bushel)		Oatmeal (196lb barrel)		Peas (60lb bushel)		Potatoes (bushel)	
	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
February 11, 1845	15s.0d.	20s.0d.	3s.4d.	3s.10d.	2s.4d.	3s.0d.	3s.0d.	3s.6d.	1s.0d.	1s.4d.	16s.3d.	18s.9d.	1s.6d.	2s.0d.	1s.4d.	1s.8d.
February 18, 1845	15s.0d.	-	3s.4d.	-	2s.4d.	-	3s.0d.	-	1s.0d.	-	16s.3d.	-	1s.6d.	-	1s.4d.	-
April 22, 1845	15s.0d.	20s.	3s.4d.	4s.2d.	2s.4d.	3s.0d.	3s.0d.	3s.6d.	1s.5d.	3s.6d.	16s.3d.	18s.9d.	1s.8d.	2s.6d.	1s.2d.	1s.8d.
September 2, 1845	20s.0d.	23s.9d.	3s.4d.	4s.7d.	2s2d.	2s.6d.	3s.0d.	3s.4d.	1s.4d.	1s.10d.	17s.6d.	20s.0d.	2s.0d.	2s.6d.	2s.0d.	3s.0d.
November 11, 1845	22s.6d.	25s.0d.	4s.6d.	5s.2d.	2s.2d.	2s.4d.	3s.9d.	4s.10d.	1s.9d.	2s.0d.	17s.6d.	20s.0d.	2s.0d.	2s.6d.	1s.2d.	1s.8d.
November 25, 1845	[illegible]	-	4s.6d.	-	2s.4d.	-	3s.9d.	-	1s.[4]d.	-	17s.6d.	-	2s.4d.	-	1s.3d.	-
January 6, 1846	23s.9d.	26s.10.5d.	4s.6d.	5s.4d.	2s.6d.	3s.0d.	2s.6d.	3s.0d.	1s.9d.	2s.0d.	17s.6d.	20s.0d.	2s.5d.	3s.0d.	1s.8d.	2s.2d.
September 29, 1846	18s.0d.	21s.3d.	3s.3d.	4s.4d.	2s.0d.	2s.6d.	3s.0d.	3s.4d.	1s.2d.	1s.3d.	25s.0d.	30s.0d.	2s.0d.	2s.6d.	1s.0d.	1s.6d.
November 4, 1846	22s.6d.	26s.3d.	4s.3d.	4s.10d.	2s.0d.	2s.6d.	3s.0d.	3s.4d.	1s.9d.	2s.0d.	20s.0d.	21s.3d.	2s.3d.	2s.9d.	1s.3d.	2s.6d.
December 5, 1846	22s.6d.	25s.0d.	3s.9d.	4s.9d.	2s.9d.	3s.4d.	3s.0d.	3s.4d.	1s.5d.	1s.8d.	20s.0d.	22s.6d.	2s.3d.	3s.0d.	2s.11d.	4s.0d.
December 9, 1846	22s.6d.	25s.0d.	3s.9d.	4s.9d.	2s.9d.	3s.4d.	3s.0d.	3s.4d.	1s.5d.	1s.8d.	20s.0d.	22s.6d.	2s.3d.	3s.0d.	2s.11d.	4s.0d.
December 12, 1846	21s.3d.	23s.9d.	3s.6d.	4s.6d.	2s.6d.	3s.0d.	3s.0d.	3s.4d.	1s.2d.	1s.4d.	22s.6d.	25s.0d.	2s.3d.	3s.0d.	2s.11d.	4s.0d.
December 16, 1846	21s.3d.	23s.9d.	3s.6d.	4s.6d.	2s.6d.	3s.0d.	3s.0d.	3s.4d.	1s.2d.	1s.4d.	22s.6d.	25s.0d.	2s.3d.	3s.0d.	2s.11d.	4s.0d.
January 2, 1847 (for prices 31/12/46)	16s.3d.	21s.3d.	3s.0d.	4s.2d.	2s.6d.	2s.9d.	3s.0d.	3s.4d.	1s.2d.	1s.4d.	22s.6d.	25s.0d.	2s.3d.	3s.0d.	2s.6d	3s.9d.
January 9, 1847	16s.3d.	21s.3d.	3s.0d.	4s.2d.	2s.6d.	2s.9d.	3s.0d.	3s.4d.	1s.2d.	1s.4d.	22s.6d.	25s.0d.	2s.0d.	2s.9d.	2s.0d.	3s.0d.
February 6, 1847	16s.3d.	21s.3d.	3s.0d.	4s.3d.	2s.6d.	2s.9d.	3s.0d.	3s.4d.	1s.2d.	1s.5d.	22s.6d.	25s.0d.	2s.0d.	2s.9d.	2s.0d.	3s.9d.
February 20, 1847	22s.6d.	23s.3d.	4s.6d.	5s.3d.	2s.6d.	2s.[?]d.	2s.9d.	3s.0d.	1s.4d.	1s.6d.	22s.6d.	26s.3d.	2s.6d.	2s.9d.	3s.0d.	4s.0d.
March 6, 1847	22s.6d.	25s.0d.	4s.0d.	4s.6d.	2s.3d.	2s.6d.	2s.9d.	3s.0d.	1s.5d.	1s.10.5d.	22s.6d.	25s.0d.	2s.6d.	3s.0d.	2s.6d.	3s.9d.
March 13, 1847	22s.6d.	25s.0d.	4s.2d.	5s.0d.	2s.3d.	2s.8d.	2s.9d.	3s.0d.	1s.5d.	1s.10.5d.	22s.6d.	25s.0d.	2s.5d.	3s.0d.	2s.6d.	3s.9d.
March 17, 1847	22s.6d.	25s.0d.	4s.2d.	5s.0d.	2s.3d.	2s.8d.	2s.9d.	3s.0d.	1s.5d.	1s.10.5d.	22s.6d.	25s.0d.	2s.6d.	3s.0d.	2s.6d.	3s.9d.
March 20, 1847	21s.3d.	24s.6d.	4s.2d.	5s.1d.	2s.3d.	2s.8d.	2s.9d.	3s.0d.	1s.7d.	1s.10.5d.	22s.6d.	25s.0d.	2s.6d.	3s.3d.	2s.6d.	3s.9d.
April 17, 1847	25s.0d.	27s.6d.	4s.6d.	5s.5d.	2s.3d.	2s.8d.	2s.9d.	3s.0d.	1s.6d.	1s.9d.	22s.6d.	25s.0d.	2s.8d.	3s.6d.	4s.0d.	5s.0d.
April 29, 1847	25s.0d.	27s.6d.	4s.6d.	5s.5d.	2s.3d.	2s.8d.	2s.9d.	3s.0d.	1s.6d.	1s.9d.	22s.6d.	25s.0d.	2s.9d.	3s.4d.	4s.0d.	5s.0d.
May 15, 1847	25s.0d.	28s.0d.	4s.6d.	5s.2d.	2s.3d.	2s.8d.	2s.9d.	3s.0d.	1s.10d.	2s.0d.	22s.6d.	25s.0d.	2s.9d.	3s.4d.	3s.9d.	4s.6d.
May 29, 1847	26s.3d.	28s.9d.	4s.9d.	5s.10d.	2s.3d.	2s.5d.	2s.9d.	3s.0d.	1s.8d.	2s.0d.	25s.0d.	26s.6d.	2s.9d.	3s.4d.	2s.6d.	4s.0d.

TABLE 4.13: CEREAL AND VEGETABLE PRICES IN THE MID-19TH-CENTURY TORONTO MARKETS ACCORDING TO TRAILL (1857)

		May 1845		May 1849		July 1853		December 1854	
Product	**size/amount**	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
Flour	barrel (196lbs)	15s.0d	20s.0d.	16s.3d.	21s.3d.	17s.6d.	19s.0d.	35s.0d.	37s.6d.
Wheat (Spring)	bushel (60lbs)	3s.9d.	4s.0d.	3s.0d.	4s.0d.	4s.0d.	4s.9d.	-	-
Wheat (Fall)	bushel (60lbs)	3s.4d.	-	3s.6d.	4s.6d.	5s.0d.	5s.3d.	7s.0d.	7s.6d.
Barley	bushel (48lbs)	2s.4d.	3s.0d.	1s.8d.	1s.10d.	2s.6d.	3s.0d.	4s.6d.	4s.8d.
Rye	bushel (56lbs)	3s.0d.	3s.6d.	3s.0d.	3s.4d.	2s.6d.	3s.6d.	6s.9d.	7s.6d.
Oats	bushel (34lbs)	1s.8d.	1s.10d.	1s.0d.	1s.2d.	1s.10d.	2s.0d.	3s.3d.	3s.6d.
Oatmeal	barrel (196lbs)	16s.3d.	18s.9d.	17s.6d.	20s.0d.	22s.6d.	23s.9d.	38s.9d.	40s.0d.
Peas	bushel	1s.8d.	2s.6d.	1s.6d.	2s.0d.	2s.6d.	2s.10d.	4s.0d.	5s.0d.
Potatoes	bushel	1s.2d.	1s.8d.	3s.6d.	3s.9d.	1s.8d.	2s.0d.	1s.10d.	2s.6d.

Oats appear to be the least expensive grain followed by rye, buckwheat and barley. Of the four vegetables mentioned in the personal correspondence under study, potatoes are consistently the least expensive vegetable, followed by turnips, maize and peas. It is interesting to note that all four of the mentioned vegetables are starchy ones, giving us a sense of the meals being prepared. Market updates in the newspapers only report on potato and pea prices, suggesting these two represent the staple products of the markets.

Upon receiving an inquiry as to the cost of goods in Canada, Traill (1846: 134-135) admits the answer is variable according to location. She states products are cheaper in the older towns located on long established and well used roads or navigable waterways but were almost double the price in the newly established townships where transportation is difficult. The struggle for those living in more frontier areas to obtain supplies from the nearest shops is well documented. Poor road conditions, great distances and challenging weather would all factor in the time and expenses one needed to devote to restocking one's food supplies. Langton (1926: 57) offers the following account of such a challenge in a letter he wrote to his father about life in the backwoods:

> "*I give you these details to show you that twelve barrels of flour and a barrel of beef are not got up either without labour or expense. Allowing McAndrew [his neighbour] and myself 5/- a day for our work, which I am sure we deserved, the trip cost us almost 2/-p. 100lb. making it all about ½ d. a pound upon every article which we got from Peterborough. But if this extra ½ d. adds considerably to the cost of pork and flour, what will you think of a most unfortunate cargo of potatoes which we got from Ops, which besides being frozen on the road, cost us at least 1/- p. bush. in freight not to mention two days lost in going to buy them*." (Langton 1926: 57)

Langton goes on to say that his biggest reason for being frugal when it comes to going through his food supplies is his consideration of the "time and hassle" it takes to go out and retrieve the items rather than financial limitations.

4.3.2 MEALS AND MENUS

Now that we know what ingredients were available in Upper Canada and how people obtained them, the next logical question is: how did people prepare their food? How did they combine ingredients and create meals? On what occasions were various ingredients or types of foods eaten? The very nature of these questions make them difficult to inquire via the archaeological record and therefore we turn to the historical documents to get a sense how people perceived various different types of food.

Since most available records document daily life in the backwoods of Canada in the first half of the 19th century, we begin by exploring the dietary experience of these residents. Salted meat, mainly pork, and potatoes appear to represent the most typical component for those living on the frontier on newly established farms. Sometimes this diet simply consisted of potatoes served alongside unleavened bread or cakes baked in a pan, while others served pork up to three times a day (Moodie 1852: 48; 84). Kenyon and Kenyon (1992) characterized the diet of Upper Canadians as one that is focussed on pork and potatoes. Of course, this is a bleak description of what meals can be like and things normally improved as farmers became increasingly settled, successfully raised crops and livestock and as the infrastructure leading to and from towns improved. As the workload decreased, more time could be spent hunting and fishing. Langton (1926: 58) notes that in the summer, fish, ducks, pigeons and deer were widely available and that the salt pork and potatoes diet was more typical of the winter months (November to April) whether it be for "breakfast, dinner [or] tea". On May 24th, 1834 he wrote to his father describing ways in which he improved upon his regular pork and potatoes diet. At this time of year, the deer are not yet in season and the masquinongy is out of season but he takes advantage of the pigeon flocks arriving in large numbers and of the partridge. He states he has a goat kid that will be ready for the butchers in a few weeks' time and that he will continue milking its mother afterwards for milk. He states he is currently depending on the black bass as an alternate source of meat. He even recently shot a porcupine which he describes to his father as follows:

> "*The other day I shot a porcupine which upon the second trial I pronounce very good eating and what is better, there is a great deal of solid substantial food on them; there is a peculiar smell and taste about the meat which I judged it prudent to mitigate by parboiling, but after that he made a most excellent stew*." – John Langton, May 24th, 1834 (Langton 1926: 115).

It is impossible to know whether or not he was most trying to sell his father or himself on the taste of porcupine.

When an occasion was special, meals could be rather elaborate and sophisticated affairs. Moodie (1853: 93-94) describes a dinner party she attended at a "substantial yeoman's" home in the backwoods in the 1830s. Here, a small party was served enough food to feed twenty, she said. They were presented with several different types of fowl, ham and joints of roast and boiled meat. They were also served pies, puddings, custards and cakes. She states that cheese was offered with the apple pie and several little dishes are present on the table containing preserves, honey and apple sauce. Langton (1926: 58) recalls that for his Christmas dinner, he and his neighbour attempted to make a plum pudding, which unfortunately resulted in failure.

As a young bachelor in the backwoods, Langton (1926: 137-138) recalls hosting a dinner party that he felt very proud of. Here he served top fried bass, bottom haunch of venison with currant jelly sauce, a brace of roasted partridges with bread sauce and even a curry. The curry spices were obtained from the Toronto market and he used salt pork as the meat, thrice boiled to remove salt and rancidity. Contrary to Moodie, Traill and Langton's bleak descriptions of everyday fare in Canada, Talbot (1824:67) believed Canadians ate "far too sumptuously". His experience is mostly of living in towns and cities where he describes breakfast being composed of several different ingredients including green tea, fried pork, honey-comb, salted salmon, pound cake, pickled cucumbers, stewed chickens, apple tarts, maple-molasses and pease pudding, ginger bread and sour crout. Clearly his experience is a different one to most living in the backwoods and reminds us that foodways in the city likely differed from those in rural areas.

Recent immigrants writing letters back home to their families were apparently a little rosier in their descriptions of food in their daily lives:

> "[describing how to keep warm in winter] *plenty of good beef, pork, venison, mutton, bread, brandy, rum, whiskey –yes, all this for the poor, honest working man;* […]*we eat green peas in abundance*[…] *turnips are very good here, and potatoes excellent –much better flavoured then I have eaten in England; but perhaps you will say there is reason for this, when I tell you that we never eat them but with good beef, mutton, pork, –yes , and plenty of butter*." –George Coleman of Woodstock, 17th of December, 1835, after one year of settlement in Upper Canada (Cameron *et al*. 2000: 189).

> "[writing to his mother and father in England] *come to Upper Canada and you won't go to bed without your suppers; there is plenty to eat in Upper Canada: any man work three* [days] *in a week will get a good living.* […] *There is plenty of deer; pheasants; poultry; rabbits; squirrels, are black; ducks.*[…] *You can get plenty of whisky, and rum, brandy six pence a quart, beer sixpence, cider, two pence a quart* […]" –William Baker, of Delaware Township, November 3rd, 1833 (Cameron *et al*. 2000: 156).

In the town in the early 19th century, Talbot (1824: 12-15) describes a dinner he ate at a London hotel that consisted of "a young roasted pig, a pair of boiled chickens, some cold beef, apple pies and gooseberry tarts, with tea and cakes of various descriptions". He goes onto say gravy was available. The pies and tarts were handed out after the meat and, following this, they drank their tea.

DRINK

Alcohol is a common subject in many of the letters. According to historic accounts, whiskey is the most important of all. Traill (1846: 104) referred to it as that "Canadian nectar", although Canadian whiskey, by all account, tasted nothing like whiskeys people were used to in Britain (Moodie 1852: 62; Langton 1926: 58-59). The price of whiskey seems to vary according to location rather than through time and various measures were referenced. Some letters mention the price of beer but they also mention the scarcity of it in Upper Canada (William Voice 1834, in Cameron *et al.* 2000: 173). Other spirits such as port wine, brandy and rum are also mentioned but, perhaps due to their need to be imported, are not common in the early 19th-century Upper Canadian home.

TABLE 4.14: PRICE OF ALCOHOL IN 1830S UPPER CANADA. INFORMATION FROM LETTERS PUBLISHED IN CAMERON *ET AL*. (2000).

Source		Product					
City	Date	Beer	Cider	Whiskey	Port Wine	Brandy	Rum
Galt	September 9, 1832	-	-	1s. per quart	-	-	-
Toronto	October 25, 1832	-	-	9d. per quart	15d. per quart	1s.6d. to 2s. per quart	-
Galt	January 1, 1833	7½d. per pot	7½d. per pot	2s.6d. per gallon	-	-	-
Ancaster	March 8, 1833	-	-	1s.10½d. to ½ dollar	-	-	-
Galt	June 25, 1833	7½[d.] per quart	-	2s. per gallon	-	-	-
Sandwich	August 11, 1833	-	-	7½d. per quart	-	-	9d. per quart
Niagara District	January 10, 1837	10d. per gallon	8½d. [per gallon]	6d.per quart	-	-	-

According to Talbot, who often had an unfavourable opinion of Upper Canadians, men in Canada had a propensity for drinking. He says they are partial to "Jamaica spirits, brandy, shrub, and peppermint; and do not often use wine or punch. Grog, and the unadulterated aqua vitae, are their common drink; and of these they freely partake at all hours of the day and night" (Talbot 1824: 28). Of course, Talbot would later succumb to alcoholism himself. A similar sentiment is repeated by Moodie (1853: 67) who states the low price of whiskey and ready availability as a too tempting to resist for many.

FOOD PREPARATION

In her guide for emigrants to Upper Canada, Catherine Parr Traill offers much advice on how to prepare various ingredients and make meals out of them. Here I present some of this advice as it relates to the preparation, cooking and presentation of various meats. Many other recipe books and cooking guides were published during the 19th century, from Upper Canada, colonial North America and abroad (see Driver (1989) and Yentsch (2013) for examples). To fully study and summarize the data presented in these merits a dissertation of its own. However, it is important to note that food recipes presented in such documents do not necessarily reflect the daily food habits of Upper Canadians at the time.

BUTCHERING TECHNIQUES

Prior to the 20th century, butchers passed on knowledge of their trade through apprenticeships. Beginning in the early 19th century, butchery diagrams and instructions on the process began to appear in a number of market guides and cookbooks, suggesting a need to pass along information that was no longer universally known (Schweitzer 2010: 180). This also follows the desire to 'improve' various aspects of life during the 19th century (Tarlow 2007) by professionalising the trade and making food preparation cleaner and more sanitary. The appearance of market guides in general suggests that those responsible for purveying the household with products from the farm or market needed to be instructed with information they were not generally familiar with (De Voe 1867; Schweitzer 2010: 181). Accompanying the butchery diagrams were texts listing the cuts of meat, indicating how each were processed, how to judge the quality of a cut and how to best prepare these cuts. Brophy and Crisman (2013: 83) note that little information exists on pork butchery during the 1800s for the same reason that it was such a commonplace activity that there was no need to report on it. However, they do note that the general practices did not differ significantly from modern day butchery (Savell 2000).

The historical evidence from Upper Canada supports the idea that butchery often occurred at the household level. Cattermole (1831) lists the many trades and occupations sought after in early 19th-century rural Upper Canada. However, he fails to mention the need for butchers, thus suggesting farmers were slaughtering and butchering their livestock themselves (James 1997: 30). Langton (1964: 77, 94) recounts women in the household slaughtering and processing small pigs and quarters of beef while implying that larger livestock were often initially processed by the men of the household. Historical documents suggest none of the carcass went to waste and the animals were processed in the most comprehensive manner (Haight 1885: 28; Scherck 1905: 197). Two primary tools were employed in the dismemberment of a carcass: the cleaver and the bone saw (for images, see Mettler 1986: 3-4). The cleaver was operated in a chopping/hacking motion and acted as a rather blunt tool to split or fracture the bone and cut through surrounding muscle, tendons and ligaments. Physically, this action resulted in a semi-circular, u-shaped scar on the bone (Landon 1996: 59; Reitz and Scarry 1985: 85). However, its use often resulted in splintered bone fragments rendering the identification of chop marks difficult (Lyman 1987: 299). The bone saw was a much more precise tool whose teeth capably sawed through the dense bone material, preventing the fracturing or splintering of bone and creating more aesthetically pleasing cuts of meats (Seetah 2004: 22). Use of the bone saw also left behind characteristic markings that are easily identified on the bone (Landon 1996: 59; Reitz and Scarry 1985: 85). It allowed for cleaner, finer cuts of meat. In 17th- and 18th-century North America, the cleaver appears to be the tool of choice; however, the bone saw appears to have become increasingly popular by the end of the 18th and into the 19th century (Landon 1996: 64, 94). Once disarticulated, a knife could be used to de-flesh the meat away from the bone and these left fine, v-shaped marks on the surface of the bone, usually perpendicular to the direction of muscle attachment (Lyman 1994a: 297-298).

Following the slaughter of the animal, the primary step in the butchery process is to reduce the size of the carcass of large animals by removing heads and feet, allowing for division of the torso along the spine thus creating left and right halves. Secondary cuts are then applied to create smaller divisions of the primary cuts; these can be referred to as wholesale cuts. The secondary cuts can then be further subdivided into tertiary or retail cuts representing the cuts used in individual dishes or portions. Meat can be sold as wholesale cuts and further subdivided in the home or it can be sold as retail cuts (Davidson 1982). For interpretive and comparative purposes, it is then important for zooarchaeologists to compare their materials to culturally relevant units of butchery.

There are many indications in the literature to suggest there were differences in the approach to butchery between different centres of the northeast United States. De Voe (1867) notes distinct butchering styles existed between Boston, New York and Philadelphia. Schweitzer (2010) mentions multiple sources presenting evidence for regional differences relating to butchering practice and nomenclature (De Voe 1867; Kitchiner 1822; Parloa 1881; Stephens 1838). Regional differences are not surprising as local butchers, through daily interaction with their clientele, would learn the values of preparing certain cuts of meat and cater their practice for the local populace (Horowitz 2006: 26). Unfortunately, no available documents detail complete butchery standards for the city of Toronto or any area in Upper

Canada in the 19th century. James (1997) developed a list of expected wholesale cuts for Upper Canada by combining information obtained from the zooarchaeological record of four 19th-century rural farmsteads in the area with butchering standards described in early to mid-20th-century documents. Schweitzer (2010) looked at a number of 19th-century British and American texts and found that, despite the elusion to pronounced regional differences, the published documents mostly depict similar butchery styles when it comes to wholesale cuts of meat. Therefore, she defined a series of cuts described by Plumptre (1816) and Ward (1882) as the most “general” or “usual” methods for butchering livestock.

Schweitzer (2010) summarized the more popular 19th-century publications describing butchery standards for Britain and north-east United States. James (1997) did the same using 20th-century documents in conjunction with archaeological materials derived from Upper Canadian sites. In an effort to be true to 19th-century sources and create results that are compatible to other sites in Upper Canada, both summaries were compared and a remarkable level of similarity was found between the wholesale or secondary meat cuts defined by both researchers. Although they occasionally make use of different nomenclature, the bone elements contained within the joints are quite similar. Tables 4.15 to 4.18 list the secondary meat joints referenced in the results of this project. They were developed through a careful study of the works of Schweitzer (2010) and James (1997) and include elements normally associated with primary butchery (i.e. head and feet) in order to account for the possibility of whole animals being present on site.

It is noteworthy that not all bone fragments identified in this study can be associated with one specific cut of meat. For example, the ‘chuck/shoulder’, ‘brisket and short plate’ and ‘rib’ wholesale cuts all contain segments of rib. The ribs analysed in this study were not identified to position and so it is possible that a rib segment can originate from any one of these joints. A similar case can be made for any vertebral fragment. The butchery guides and recipe books originally referenced in the creation of these tables were not necessarily the same instructions followed by meat packing factories in the production of barrelled products. In this study, secondary butchery cuts are employed to interpret faunal remains in light of the fact that urban and rural sites had the skills to create and further break down secondary cuts or butcher medium-sized animals themselves (Belanger 1994: 7; Landon 1996: 121; Stewart-Abernathy 1986: 5).

Table 4.15: List of secondary/wholesale joints of beef. Information combined from data gathered by Schweitzer (2010) and James (1997).

Wholesale Cut/Anatomical region	**Bones included**
Head	Skull; mandibles; hyoid
Neck	Atlas; axis; cervical vertebrae
Chuck/shoulder	Scapula; proximal humerus and its diaphysis; thoracic vertebrae 1-5; proximal ends of ribs 1-5
Rib	Proximal end and shaft of ribs; thoracic vertebrae
Brisket and short plate	Sternal ends and shafts of ribs; sternum
Thin flank	-
Elbow joint	Distal humerus; proximal radius; proximal ulna
Shin and foreshank	Distal or complete radius/ulna; carpals; metacarpals; phalanges
Anterior loin	Lumbar vertebrae; thoracic vertebra T13; proximal end and shaft of rib 13
Posterior loin	Ilium; sacrum
Rump/edge	Ischium; acetabulum; pubis; proximal femur
Tail	Caudal vertebrae
Buttock	-
Mouse buttock	-
Round	Diaphysis of femur
Stifle	Distal femur; patella; proximal tibia
Leg	Tarsals; metatarsals; phalanges
Hind shank	Mid-shaft and distal tibia; astragalus; calcaneus

Table 4.16: List of secondary/wholesale joints of veal. Information from data gathered by Schweitzer (2010)

Wholesale Cut/Anatomical region	**Bones included**
Head	Skull; mandible; atlas; axis; vertebrae C1 to C4
Neck, scrag end	Vertebrae C4 to C7; vertebrae T1 to T7; proximal ends of ribs 1 to 7; proximal scapula
Neck, best end	Vertebrae T7 to T13; proximal ends of ribs 7 to 13
Blade bone or oyster part	Sternal ends of ribs 1 to 7; distal scapula; humerus; proximal ulna/radius
Fore knuckle	Distal ulna/radius
Breast	Sternal ends of ribs; sternum
Loin, best end	Lumbar vertebrae
Loin, chump end	Innominate; sacrum; caudal vertebrae
Fillet	Femur; patella; proximal tibia
Hind knuckle	Distal tibia
Foot	Carpals; metacarpals; tarsals; metatarsals; phalanges

TABLE 4.17: LIST OF SECONDARY/WHOLESALE JOINTS OF MUTTON. INFORMATION COMBINED FROM DATA GATHERED BY SCHWEITZER (2010) AND JAMES (1997)

Wholesale Cut/Anatomical region	Bones included
Head	Skull; mandible; atlas; axis
Boston butt	Vertebrae C3 to C7; vertebrae T1 to T2; proximal ends of ribs 1 to 2; proximal scapula
Hand or picnic	Sternal ends of ribs 1 to 2; distal scapula; humerus; radius; ulna; sternum
Ribs	Sternal ends and shafts of ribs 3-14
Loin	Thoracic vertebrae; lumbar vertebrae; proximal ends of ribs
Leg	Innominate; sacrum; femur; patella; tibia; fibula
Tail	Caudal vertebrae
Feet	Carpals; tarsals; metapodials; phalanges

TABLE 4.18: LIST OF SECONDARY/WHOLESALE JOINTS OF PORK. INFORMATION COMBINED FROM DATA GATHERED BY SCHWEITZER (2010) AND JAMES (1997)

Wholesale Cut/Anatomical region	Bones included
Head	Skull; mandible
Neck	Atlas; axis; cervical vertebrae
Shoulder	Vertebrae C3-C7; vertebrae T1-T5; ribs 1-5; scapula; proximal humerus and its diaphysis
Breast	Distal humerus; radius; ulna; sternum; sternal ends and shafts of ribs
Rack/ribs	Vertebrae T6-T12; proximal ends and shafts of ribs 6-12
Loin	Lumbar vertebrae; lower thoracic vertebrae; ribs
Leg	Innominate; sacrum; femur; patella; tibia; fibula
Feet	Carpals; tarsals; metapodials; phalanges

PRESERVING MEATS

The best way to preserve pork, or beef for that matter, was by salting or brining the meat joints (Traill 1857: 148). The process for preserving pork in this way began with hanging the carcass in a cool, dry place until it became stiff. The carcass was then butchered first by taking off the head, then the hams [hind legs] and forelegs, followed by the "ham shape" [uncertain of body part] and dividing the rest of the carcass into pieces, cut cleanly through in "chine fashion" [sawn in half through the spine]. All of the meat pieces were then rubbed with clean salt and further packed with salt as tightly into a barrel as they could fit. The barrel was then filled with strong brine. A similar process could be done for beef, but Traill notes that additional layers of salt should be strewn between the layers of packed meat in the barrel and she suggests adding a quarter pound of saltpetre to the brine and four pounds of sugar in order to improve the colour (Traill 1857: 153).

Another option was to pickle the meats. The instructions for creating the pickling liquid were as follows: take "three gallons of pickle [salt brine], strong enough to float an egg, add ½ lb. of alum, 1 qt. of treacle, 1 oz. of potash; mix them well together; pack the beef or pork and pour the pickle on it; cover it close: in about three weeks it will be fit for use. The meat must not be salted, but packed as it comes from the butcher and the pickle poured over it." (Traill 1857: 151).

COOKING METHODS

Discussion of foodways in southern Ontario would not be complete without a brief word on the preparation and cooking techniques employed at the time. Initial settlers to the province often inhabited simple dwellings consisting of one or two rooms in which the cooking was mostly accomplished in the main room which was equipped with a table or surface area on which to prepare foods and a hearth in which to cook them. In order to avoid overheating the home during the hot and often humid summers, many houses were equipped with a summer kitchen, either built as a separate wing to the house or as a lean-to attached to the outside (Bates 1978: 18). Some homes had access to brick or clay ovens used to bake breads, cakes, pies and puddings (Beecher 1841; Traill 1846: 41-42). Alternatively, outdoor open fires could also be used to cook meals at this time. While a variety of equipment was available to the home cook (for exhaustive list, see O'Brian 1968), the majority of residents relied heavily on only a few utensils to cook their meals, these would include a bake-kettle, a saucepan and a frying pan.

The hearth was very much the centre of the home and not only provided heat and a place to gather during the cold winters but was central for food preparation. Where modern cooks are afforded the luxury of heat controlled hobs and ovens, the 19th-century cook needed to master the art of fire and temperature control. They needed to know the quality of the wood used as fuel, to be able to judge the proper amount of draught required and adjust the flue accordingly, to understand the proper balance of ashes and flames and use the proper utensils depending on what it is they were trying to cook (Bates 1978: 18). The most basic utensil in the majority of homes was a pot, kettle or cauldron that was hung over the fire via a crane or an iron bar attached to the side of the fireplace and fitted with a tight lid meant to keep out the smoke and errant ashes. Other pots or saucepans could be set on embers drawn out from the base of the fire (Bates 1978: 20-21). Meats could be boiled, fried, broiled or baked inside one of these pots or pans while joints could be exposed directly to the fire by attaching them to a mechanized or hand spun spit or by simply hanging over the fire.

Pots, cauldrons and frying pans mostly resemble those used in modern kitchens except the majority were made of cast-iron, had longer handles (to avoid burning yourself) and often sat on a trivet placed over a bed of embers (Bates 1978: 22). Bake-kettles (Dutch ovens) were heavily relied upon to bake bread or other items if the kitchen did not have an oven. These iron pots had a tight-fitting lid and stood on short legs over the coals (Bates 1978: 22). More ashes could be piled on top of the lid or along the sides in order to allow for a more even heat distribution inside. Traill (1846: 41-42) notes bread baked in bake-kettles had a peculiar taste and that the bakers did not always succeed in keeping ash and smoke separate from the bread.

It was not until the mid-century that the open hearth began to be replaced by the cooking stove, although not all Upper Canadian homes immediately adopted this new technology (Haight 1885: 11). The stove simplified the process of cooking and allowed for easier control of cooking temperatures while providing better support for pots and pans thus creating a more standardized and specialized form of cooking that could be easily approached by anyone (Bates, 1978: 25). Open hearth cooking was gradually phased out and mostly replaced by the cooking stove by the arrival of the 20th century. Bates (1978: 25) notes that while these were commonly in use in the second half of the 19th century, the majority of cookbooks published before the 1880s were reluctant to acknowledge them as cooking tools. The majority of stoves used in Upper Canada were manufactured in the United States (Bates, 1978: 25).

The following describes a home kitchen.

> "At one side of the fire-place was the large brick oven with its gaping mouth, closed with a small door, easily removed, where the bread and pies were baked. Within the fire-place was an iron crane securely fastened in the jamb, and made to swing in and out with its row of iron pot-hooks of different lengths, on which to hang the pots used in cooking. [...] Joints of meat and poultry were roasted on turning spits, or were suspended before the fire by a cord and wire attached to the ceiling. [...] Meat was fried in long-handled pans and the short-cake that so often graced the supper table and played such havoc with the butter and honey, with the pancakes that came piping hot on the breakfast table, owed their finishing touch to the frying pan. The latter, however, were more frequently baked on a large griddle with a bow handle made to hook on the crane. This, on account of its larger surface, enabled the cook to turn out these much prized cakes, when properly made, with greater speed; and in a large family an expert hand was required to keep up the supply." (Haight 1885:11).

4.4 SUMMARY

The goal of this chapter was to use historical documents to help identify the meat products and other foods people were eating in 19th-century Toronto and Upper Canada. The information gathered here will later be compared to archaeological data from the area. Unfortunately, little evidence is available from these documents to suggest why people chose to eat the foods they ate. To rely solely on accounts that came specifically from the city of Toronto or its immediate surrounding regions would have yielded little information.

Fortunately, published accounts of daily life in other Upper Canadian towns and rural regions are numerous enough and offer good parallels for what life in these areas was like. Historic accounts describing foodways and various other aspects of daily life appear to be plentiful for the period between 1830 and 1855, corresponding to a time of increased migration from the British Isles. Here we have a large group of people leaving the familiarity of their lives in Britain to settle in the small towns or barely developed backwoods of Canada where they undoubtedly lived very different lives. As a result, it seems many felt the need to document the ways they go about their daily lives whether it be for the purpose of informing others thinking of immigrating to Canada, to reassure their loved ones back home of their health and safety or just to satisfy the curiosity of those living outside of Canada on life in their new country. Such descriptions are far less prevalent in the published records from the 1860s onwards, perhaps a sign that people were now settled into and familiar with their daily lives and no longer interested in documenting the seemingly mundane. Or, perhaps this is evidence for improved provisioning of towns and of farming practices leading to fewer difficulties with matters of everyday life and, consequently, less of a need to document things.

CHAPTER 5 –

ZOOARCHAEOLOGICAL METHODS

This chapter discusses the identification procedures and recording methods used for all assemblages analysed by myself (327-333 Queen Street West, Bell, Ashbridge Estate, Graham, Hall, John Beaton II and Lewis). Complete datasets were provided to me for the Bishop's Block and Dollery assemblages and these materials were analysed by Dr Suzanne Needs-Howarth following methods described in her reports (Needs-Howarth 2011, 2012). These conform to the standards and guidelines for zooarchaeological identification developed by the Government of Ontario (Ontario Ministry of Tourism and Culture 2011). These guidelines are presented and further discussed in Section 9.3 of this thesis. Given the slight differences in recording procedures undertaken by Dr Needs-Howarth and myself, this chapter describes which of her data can be directly compared to that gathered by myself, and which could not. The chapter also describes how data was quantified and summarized in order to provide meaningful information on the diet and foodways of 19th-century Torontonians.

5.1 IDENTIFICATION PROCEDURES

Taxa identification was accomplished according to morphological examinations and comparisons to reference materials from the Howard G. Savage zooarchaeological collection at the University of Toronto. All entries were recorded into a Microsoft Access™ database specifically designed for this project to include information on provenience, taxa designation, skeletal element, portion present, state of fusion, sex determination, evidence of butchery, evidence of taphonomy, state of preservation, measurements, pathology, and the state of tooth eruption and/or wear for mammalian teeth (Figure 5.1). This database allowed for the consistent and easy input of information and for queries to be made within and between the various sites included in this project.

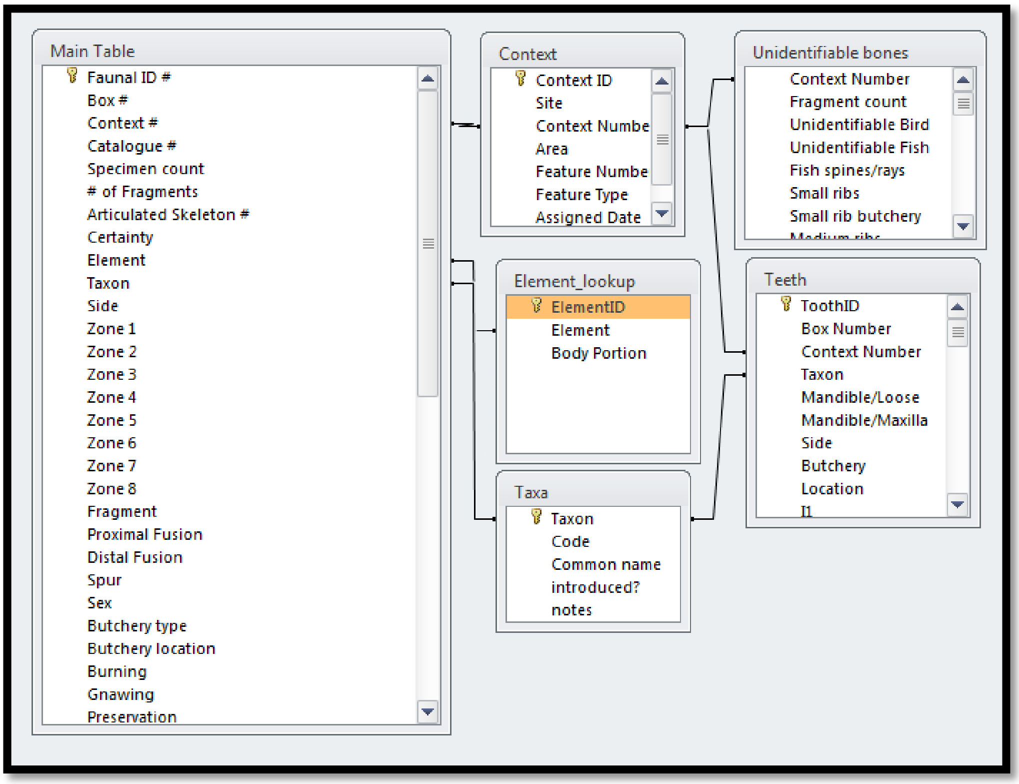

FIGURE 5.1: RELATIONSHIPS BETWEEN TABLES IN THE MICROSOFT ACCESS™ DATABASE.

5.1.1 SPECIES IDENTIFICATION

Specimens were identified to the most specific taxonomic designation possible and recorded using the Linnaean system of classification. Common names are provided alongside scientific names at their first mention in each chapter. The scientific name shall take precedence in any case where the reader may consider a common name to be assigned to a different animal than the one referred to (e.g., North Americans associate Elk with the species *Cervus canadensis* while some Eurasians refer to *Alces alces*). The initials "sp." provided at the end of a taxonomic designation (e.g., *Canis* sp.), references any species from within that taxonomic group (any member of the *Canis* genus in the previous example). In cases where I am reasonably secure that the identification is correct but believe the specimen should be further compared to other reference materials, the initials "c.f." (Latin for *confere*) follow the identification (Reitz and Wing 2008: 36).

Due to the fragmentary nature of the archaeological samples, avian and mammalian bones that could not be identified beyond taxonomic class were recorded under different size categories (Table 5.1). Criteria used to classify specimens into these categories include: general size, the thickness of the cortex and the size of the trabecular bone. This is a rather subjective practice as many species can blur the line between size categories (e.g., a young calf (medium sized mammal) and full grown cattle (large mammal) and the various ways in which bones fragment can make it difficult to judge appropriate size categories. This information serves to provide some idea on the relative contribution of smaller and larger species to the unidentifiable materials.

TABLE 5.1: EXAMPLES OF MAMMAL AND BIRD SPECIES ASSOCIATED WITH GENERAL SIZE PARAMETERS.

	Mammals	**Birds**
Small	Domestic cat or smaller	Small perching birds
Medium	Large rodent, dog, lamb/kid, small pig	Chicken/duck sized birds
Medium to large	Mature caprines and pigs, immature cattle, deer	Larger than chicken, smaller than turkey
Large	Cattle, moose, horse	Turkeys , geese and larger birds

Caprine skeletal morphology makes it difficult to visually distinguish between sheep (*Ovis aries*) and goat (*Capra hircus*) skeletons. In North American historical archaeology, researchers tend to adopt one of two approaches to this problem. Either they identify all remains as caprine, thus underrepresenting both sheep and goat species (e.g., Bowen 1975), or, and this is especially the case in southern Ontario, they assume the majority will be sheep and so identify their remains as such (e.g., James 1997). I have chosen to adopt the former strategy, identifying remains as caprines but, whenever possible, I made an effort to further identify to species through comparisons with the reference collection and according to published guidelines (Boesnneck 1970; Payne 1969; Rowley-Conwy 1998). While historical information suggests the majority of caprines kept in 19th-century Upper Canada were sheep (few goats are ever mentioned), goats were indeed present and have been identified in archaeological collections (James 1997; Needs-Howarth 2011). Therefore, I prefer the individual identifications be as accurate as possible without being incorrect. However, the final discussion makes the assumption that the majority of caprine identifications in Southern Ontario at this time likely represent sheep.

5.1.2 ELEMENT AND PORTION PRESENT

Whenever possible, each specimen was recorded according to anatomical element based on the zone system first proposed by Watson (1979) and later refined by Dobney and Reilly (1988). The latter's method of subdividing the bones is based on the identification of morphologically distinct portions of a particular element where a zone is recorded as present if 50% or more is accounted for. Unlike previous attempts at breaking down elements into different zones, the Dobney and Reilly method includes less morphologically distinct zones, such as long bone shafts, in order to account for the entire bone. A few issues with this method include: the omission of the skull (although they briefly suggest a number of ways one could go about creating zones for this), and; an unsystematic ordering of different numbers of zones between elements requiring constant reference to work sheets during and after analysis.

Mahoney (2015) refined the zoning method developed by Dobney and Reilly to address some of these issues and her modifications are applied in this project. This system offers a compromise between those that fail to define the limits of each zone and those that rely entirely on morphological landmarks. Like Cohen and Serjeantson's (1996) method, the system divides each element into eight zones with the added difference of identifying the limits of each one, thus providing the recorder with definite parameters. However, following Dobney and Reilly, the zones are based on a combination of morphological features combined with how the element typically breaks apart in the archaeological record. Cohen and Serjeanston's (1996: 110-111) system was used to record avian elements encountered during this project.

5.1.3 Sex determination

Unfortunately, there are few mammalian and avian osteological characters that explicitly indicate an animal's sex and the identification of sex among fragmentary remains is limited even further. Examples of features or characteristics that can lead to the identification of sex include the presence of a spur in the tarsometatarsi of galliformes (De Cupere *et al*. 2005; Silver 1970), medullary bone in birds (Driver 1982; Gilbert *et al.* 1996; Rick 1975; Simkiss 1967), the shape of the pelvis (e.g., Greenfield 2006), the presence of a baculum in certain carnivores and rodents, as well as the presence of antlers in most cervids (Carey 1982, West 1982). Differences in the morphology of canine teeth of pigs and equids can lead to the identification of sex among those taxa (Getty 1975). Given the paucity of secondary sexual characteristics in fragmentary skeletal remains, it is difficult for archaeologists to compare frequencies between different sexes in faunal assemblages (Greenfield 2006: 68). Metrical data can also be used to investigate the distribution of sexes within an assemblage (Albarella 1997; Bartosiewicz 1987; Davis 2000; Guintard and Lallemand 2003; Higham 1969; Sykes and Symmons 2007; Thomas 1986); however, the specimens in each assemblage were too fragmentary to recover large enough datasets to investigate this.

5.1.4 Butchery

Evidence for butchery was recorded by the type of tool mark: "cut", "chop", "saw" or a combination of these. In an effort to remain consistent in the recording of butchery, reference was made to Lauwerier's (1988) cataloguing system for tool marks, later modified by Sykes (2001). This system consists of a series of codes linked to images identifying locations for tool marks on different elements. The code is entered into the database if a mark is present in the area it represents. If more than one mark is present in an area, the number of marks is identified next to the code. The system was developed for Roman sites and is modified for the historic period by adding a new code to represent cuts that were not initially included in Lauwerier's schemes (Appendix A). This strategy allows for a fairly accurate recording of the location of tool marks in a way that is efficient, replicable and easy to summarize.

5.1.5 Taphonomy and preservation conditions

Originally developed in paleontological research, taphonomic studies investigate the processes of deposition and burial of archaeological materials (Denys 2002: 469; Efremov 1940; Lyman 1994a). Various processes leave marks on artefacts and ecofacts and this can inform us on depositional and post-depositional history (Denys 2002; Landon 2009). Although taphonomic processes alter the conditions of archaeological materials or whether or not they are even recovered, taphonomic studies allow the archaeologist to better understand formation processes and critically evaluate their impact on assemblage composition prior to interpretation.

Evidence for post-depositional modifications were recorded, such as evidence for exposure to fire (singed, burnt or calcined), gnawing (by rodent or carnivore) and soil staining. The general condition of a specimen's integrity was recorded using the York System protocol (Harland *et al*. 2003): "Excellent preservation" displays no evidence of abrasion, "Good preservation" for specimens that display less than 25% abrasion, "Fair preservation" for specimens displaying 25 to 50% abrasion and "poor preservation" to specimens displaying over 50% abrasion.

5.1.6 Measurements

Measurements obtained from animal bones can provide answers to a variety of research questions including body size and shape, sex and taxonomic attributes among others. Although not directly answering any of the research questions posed in this study, certain measurements were taken during the data collection phase of this project in order to provide a legacy dataset for future scholars. Measurements chosen were those that can provide information on three anatomical planes (length, breadth and depth) and likely to be measurable from the fragmentary remains recovered in the archaeological record. Only skeletally mature mammalian and avian bones were measured and the elements chosen for measurement only include those that are not affected by post-fusion growth or whose size may be affected by age, sex or repetitive activities (Bartosiewicz *et al*., 1997).

Measurements were taken primarily according to the standards described in von den Driesch (1976). Horn core measurements were taken according to the standards set out in Sykes and Symmons (2007). Greenfield (2006) identifies two features of the innominate; the ilio-pubic ridge and the medial border of the acetabulum that are shaped differently between male and female ungulates. Measurements were taken of the height of the medial wall of the acetabulum at the ilio-pubic junction (H1) according to the directions set out in Greenfield (2006). All measurements were recorded to 0.1mm accuracy and are listed in Table 5.2.

5.1.7 Pathology

Bones and teeth exhibiting evidence of pathology were described according to zone and precise anatomical position along with the size and nature of the lesion. Digital photographs were taken to better document pathologies. Bone pathologies were first described according to lesion type and then according to the specific adjectives identified in Table 5.3. Tooth pathologies were first described according to which tooth/teeth are affected and descriptors for these pathologies followed the criteria set out in Table 5.4.

TABLE 5.2: LIST OF MEASUREMENTS TAKEN. ALL FROM VON DEN DRIESCH (1976) UNLESS OTHERWISE STATED

Element	Measurement	Species
Humerus	GL SD	Bovids, Cervids, Suids, Galliformes
	BT	Bovids, Cervids, Suids
	SC	Galliformes
	HTC*	Suids
Coracoid	GL BF	Galliformes
Radius	GL SD Bp	Bovids, Cervids
Ulna	GL SD SC Did	Galliformes
Femur	GL Bd	Bovids, Cervids, Suids, Galliformes
	SC	Galliformes
	DC/Dp	Bovids, Cervids, Galliformes
Tibia	GL SD Bd Dd	Bovids, Cervids, Suids
Tibiotarsus	GL SC Dp Bd	Galliformes
Astragalus	GLl Bd	Bovids, Cervids, Suids
	Dl	Bovids, Cervids
Calcaneum	GL GB	Bovids, Cervids, Suids
Metapodial	GL SD	Bovids, Cervids, Suids
	Bd Dd	Bovids, Cervids
	Bp	Suids
Distal metapodial**	a b 1 3 4	Caprids
Tarsometatarsus	GL SD SC Bd Dd	Galliformes
Innominate[#]	H1	Bovids
Horn cores†	BA BB BC OC	Bovids

*After Payne and Bull (1988); **after Davis (1992); [#] after Greenfield (2006); †after Sykes and Symmons (2007).

TABLE 5.3: DESCRIPTIVE TERMS FOR BONE PATHOLOGIES ACCORDING TO LESION TYPE. ADAPTED FROM VANN (2008) AND THOMAS AND WORLEY (2014A).

Bone Formation	**Bone Destruction**	**Fracture**
Extension of Bone Ridge Osteophyte Enthesophyte Periostosis Callus Ankylosis Other	Cavity Porosity Articular Depression Articular Destruction Articular Groove Necrosis Cloaca Hypervascular Other	Transverse Comminuted Oblique Hairline Impacted Incomplete Spiral Greenstick
Alteration of Size	**Alteration of Shape**	
Enlarged Reduced	Bowing Diaphyseal expansion Metaphyseal expansion Articular extension Displacement Thickening of epiphyseal plates Other	

TABLE 5.4: PATHOLOGY DESCRIPTORS FOR TOOTH SPECIMENS. ADAPTED FROM VANN (2008) AND THOMAS AND WORLEY (2014B)

Cavity	**Enamel Hypoplasia**	**Intra-Dental Attrition**	**Calculus**
Y/N Caries Pulp cavity exposure	Y/N Line Pit	Normal Mesial Distal Mesial and distal	Y/N
Alveolar Recession	**Abscess**		
No recession Recession of alveolar margin only Alveolus widened out Pitted margins More recession Ante-mortem tooth loss Alveolus infilling Infilling advanced but not complete New bone formation nearly complete	Y/N Low-grade infection (evident internally) Medium-grade infection (evident externally) High-grade infection (ante-mortem tooth loss)		
Tooth Rotation			
Y/N Lingual Labial 90 degree			

5.2 AGEING

Constructing age at death profiles provides evidence for research questions related to animal husbandry practices and the extent to which different herds were raised for products (Bowen 1975, 1998). Age at death profiles may also serve to identify the seasonality of a deposit at the site (Bowen 1988, 1990; Landon 1996) and, when applied to wild animals, identify seasonal hunting patterns (Thomas 1969). The construction of age at death profiles from a faunal assemblage assumes that it is representative of the original population, which is not always the case due to differential preservation (Maltby 1982) and other factors related to the creation of the initial deposit. Juvenile bone tends to be porous and fragile and is subject to greater risk to taphonomic agents. One must be aware of the various taphonomic processes acting upon a site and refer to these factors when carefully considering age at death profiles (Landon 1996). A careful consideration of the context in which bones are recovered is needed to judge whether or not specimens are representative of the kill-off pattern at a site, or if they are representative of other cultural factors, such as the influence of a market economy. In this project, age at death profiles are re-constructed utilizing three sources of information: state of epiphyseal fusion, dental eruption patterns and levels of dental attrition.

5.2.1 AGEING BY EPIPHYSEAL FUSION

Long bones and some irregular bones such as the vertebrae and the bones of the innominate, grow through a process known as endochondral ossification whereby bone forms from a cartilage precursor at three different centres of ossification: a primary centre and two or more secondary centres (O'Connor 2000: 92; Reitz and Wing 2008: 70). As an individual grows, the secondary centres eventually fuse with the primary centre, forming a single bone. The primary centre of ossification is known as the 'diaphysis' and forms the shaft of a long bone whereas the secondary centres form the epiphyses. A line of epiphyseal fusion is visible on the bone at the location where both centres of ossification unite. This line eventually disappears as the individual becomes skeletally mature. Not all bones in the body fuse together at the same moment in an individual's life; some epiphyses fuse earlier than others as individuals mature. Fortunately, studies performed on modern populations identify at which age various elements complete their fusion. Therefore, information recovered from the archaeological record can be compared with known ages of fusion.

Information on the state of fusion was recorded for relevant specimens. Elements were recorded as "fused", "fusing", "unfused metaphysis", "unfused epiphysis", "unfused metaphysis and epiphysis", "juvenile" or "indeterminate". The term "juvenile" was used when bone fragments displayed evidence of juvenile cortex characteristic of bones of very young mammals or birds. Specimens that did not exhibit evidence of juvenile cortex or feature a centre of ossification were classified as “indeterminate”.

Ageing a specimen based on epiphyseal fusion is quite simple. However, one must be explicit as to what constitutes a fused, fusing or unfused specimen. An unfused specimen is completely detached from other centres of ossification. Unfused specimens were recorded according to the centre of ossification they represent: “unfused metaphysis”, “unfused epiphysis” or “unfused metaphysis and epiphysis”. A fusing specimen is one where centres of ossification merge together but the line of fusion is clearly visible and the bone is not yet completely fused. These were recorded as “fusing”. Fused specimens are completely fused and the epiphyseal line is no longer visible on the bone. These were recorded as “fused”. If an epiphysis and a diaphysis are found separately but represent the same unfused bone, it was considered a single specimen (Crabtree 1989).

Multiple sources are used to identify ages of epiphyseal fusion. Silver (1969), Chaplin (1971) and Maltby (1979), as summarized by Amorosi (1989), provide the information on the timing of epiphyseal fusion for domestic pig (*Sus scrofa,* Linnaeus, 1758), sheep/goat (Caprinae) and domestic cow (*Bos taurus,* Linnaeus, 1758*)*. In order to combat some of the more questionable data presented by Silver (1969) (Bull and Payne 1982; Legge 1992, 2013; Payne 1984), additional information on age of epiphyseal fusion was sourced from Bull and Payne (1982), Hatting (1983), Moran and O’Connor (1994), Zeder (2006) and Zeder *et al.* (2015). When different sources provide different age ranges for the timing of epiphyseal fusion, the assigned age range of the specimen in question is taken as being between the lowest age and highest ages of fusion provided by the different studies. Information on the timing of epiphyseal fusion for white-tailed deer (*Odocoileus virginianus,* Zimmerman, 1780*)* is taken from Purdue (1983).

Unlike their mammalian counterpart, bird long bones do not have separate centres of ossification between the epiphysis and the metaphysis and instead grow by apposition from the shaft to the end. Only certain elements are first separated at birth and later join together as the individual develops (Serjeantson 2009: 17). These include the carpometacarpus, tibiotarsus, tarsometatarsus, notarium, pelvis and synsacrum. A bird’s skeleton reaches skeletal maturity very early in life, before becoming sexually mature (Serjeantson 2009: 35). Juvenile bird bones will also exhibit a porous, fragile cortex. Bird specimens were recorded as “adult”, “juvenile” or “indeterminate”.

5.2.2 Dental eruption patterns

Determining age of death based on information obtained from dental elements (mandibles and maxillae) is a common practice in zooarchaeology and is based on the premise that teeth will develop and erupt in sequence at an approximate time in an individual's life, notwithstanding individual variability (O'Connor 2000: 83). Live population studies identified the eruption pattern and associated developmental stages for different species (e.g., Bullock and Rackham 1982; Bull and Payne 1982; Moran and O'Connor 1994). Archaeologists assume that those individuals recovered in the archaeological record follow the norms described in these studies. However, variability in growth patterns depends on multiple factors such as genetics, diet, and the environment (O'Connor 2000: 84; Zeder 2006: 94). In order to address these issues, tooth development stages were considered as indications of the individual's skeletal development rather than an absolute age.

Before ageing dentition based on the state of eruption, it is necessary to clearly define what is meant by "erupted". This is easily defined in living mammals whereby an erupted tooth is one that has clearly emerged through the gum line and is visible to the naked eye. Identifying an erupted tooth in osteological remains, with no soft tissue present, is a more difficult task. Therefore, two different stages of eruption can be considered; the moment the tooth has erupted out of the alveolar bone (visible in skeletal remains), and the moment the tooth has erupted through the gum line (not evident in skeletal remains) (O'Connor 2000: 83). In order to record tooth eruption consistently, this project follows Grant's (1982: 95) use of Ewbank *et al*. (1964) recording system for teeth that are not yet in wear:

C – to indicate that only a perforation in the crypt is visible;
V – to indicate the tooth beneath the crypt is visible but has not surpassed mandibular bone;
E – to indicate the tooth has erupted through bone but its occlusal surface has yet to reach the same height as fully erupted, neighbouring teeth;
U – to indicate the tooth has nearly reached its full height but is unworn.

The sources used for ageing tooth eruption patterns are summarized in Amorosi (1989). Domestic cattle eruption patterns are described by Schmid (1972), Silver (1969) and Miller & Robertson (1947). Eruption patterns of sheep (*Ovis aries,* Linnaeus, 1758) are described in Schmid (1972), Silver (1969) and Moran and O'Connor (1994). Some of these sources in addition to Reiland (1978) and Sisson and Grossman (1966) discuss the eruption patterns for domestic pig.

5.2.3 Dental attrition analysis

Estimating age at death based on the eruption pattern of deciduous and permanent teeth provides relatively precise age categories up until the age at which all permanent teeth are erupted. However, individuals can live for quite a long time afterwards, and so identifying a precise age at death for older animals becomes a challenging task. Measuring the level and development of dental attrition is a common practice used to determine the age at death of older individuals (e.g., Klein 1981, 1982; Spinage 1973).

There are two popular systems used to record attrition patterns and identify relative stages of tooth wear; one developed by Grant (1982) and one developed by Payne (1973) that was later refined (Deniz and Payne 1982; Payne 1987; Zeder 1991). The system proposed by Payne assigns an age category to the different stages of tooth wear for sheep and goat whereas Grant's system simply describes the state of mandibular tooth wear for cattle, caprines and pigs. Both approaches are similar in that mandibular tooth wear categories are determined based on published diagrams recording the level of dentine exposed as the tooth enamel gets worn away. However, Payne's system records the level of attrition for individual teeth within mandibles or mandible fragments. The combination of tooth wear levels represented by each tooth within a mandible are added together, assigning that mandible to a particular wear stage which is in turn associated with a suggested age grouping (Payne 1973). The Grant (1982) system requires analysts to fit their mandible specimens with published diagrams that represent the different stages of attrition for the entire mandible from the fourth pre-molar to the third molar instead of looking at individual teeth.

There are supporters and critics of both systems. Zeder (2006: 95) believes Payne's system is "robust and reliable" whereas O'Connor (2000: 88) believes Grant's system is the most straightforward and better defined, with results that can be easily and reliably replicated. However, he critiques subsequent analytical steps whereby each permanent molar is assigned a tooth wear stage (TWS). The TWS assigned to each tooth are added together to give a mandibular wear stage (MWS) which is used to place the different mandibles in a relative order suggesting that those with higher MWS values are the oldest. Grant (1982) suggests that mandibles with a few missing teeth can be assigned likely TWS values based on the TWS values of the present teeth. As O'Connor (2000: 88) points out: "this introduces an element of approximation to a procedure which is otherwise systematic and apparently objective". Of course the entire purpose of dental attrition analysis is to obtain a relative age for the mandibles; perhaps in this respect the Payne system is more successful. However, other factors do come into play.

Dental attrition is caused by a variety of factors and the type of food being consumed is often considered the primary reason for enamel wear (Reitz and Wing 2008). Other studies indicate that tooth wear tends to occur primarily as a result of ingesting soil and not the type of plant being consumed (Zeder 2006: 94; Moran & O'Connor 1994: 270). These studies suggest dental wear is more likely to occur in the winter and spring unless a softer winter feed is provided which will reduce the level of attrition (Healy and Ludwig 1965; O'Connor 2000). No matter which of these two reasons is the most consequential factor, an important assumption is made: that past populations had the same feeding/grazing patterns and were subject to the same husbandry practice as the modern populations on which these studies are based. Attrition analyses are better suited for high crowned ruminants like caprines and cattle, which eat large amounts of feed and graze at a somewhat constant rate. Therefore the teeth are worn down at a regular speed throughout the lifecycle and the tooth height allows them to last longer before being reduced to the roots. Animals such as pigs do not exhibit this regularity in feeding and do not have high crowns (O'Connor 2000: 87). It should be noted that some cattle in 19th-century rural Upper Canada were allowed to roam freely and graze in the forests whereas others were kept in enclosed pastures thus creating different feeding patterns between groups (Cameron *et al*. 2000).

This project applies the systematic and easily reproducible system set out by Grant (1982). The primary reason for deciding on this system is consistency. The data obtained using Grant's recording system was compared to Hambleton (1999) to translate into approximate age categories associated with the different stages of wear. Tooth attrition analysis only looks at complete or almost complete mandibles which can drastically reduce sample sizes. In order to judge if many mandibles did not survive post-depositional processes, the proportion of loose mandibular teeth within the assemblage is calculated (Maltby 1982).

Further detail into the age of cattle mandibular specimens can be obtained through the identification of the cement-enamel junction's (CEJ) position relative to alveolar bone (Jones and Sadler 2012). As grazing animals age and the tooth crowns wear down, the mandibular teeth continue to move upwards to a point where the CEJ, initially below the alveolar bone, rises above it. By noting the location of the CEJ for mandibular molars and combining this with the Grant Tooth Wear stages, Jones and Sadler (2012) believe there is an opportunity to further refine the age at death for older individuals. Observations of the CEJ are made on both the buccal and lingual sides of the teeth but not on the mesial or distal edges of the tooth, where it steeply rises. Table 5.5 lists the codes and definitions describing the location of the CEJ. This method was not applied to mandibles exhibiting evidence for periodontal disease or any other pathology as this may affect the interpretation of the position of the CEJ.

Table 5.5: Codes and definitions assigned to cattle mandibular molars regarding CEJ position. After Jones and Sadler (2012)

q	CEJ below alveolar border (buccally and lingually)
x	CEJ level or within 1mm at any point of the alveolar bone
y	CEJ is above alveolar border, buccally or lingually; root arch is still below
z	Root arch is visible above the alveolar border
n	No data available

5.3 QUANTIFICATION

Zooarchaeological research has long made use of quantification techniques and many different methods have been developed to answer specific research questions. An equally copious body of literature was published over the same period criticizing these techniques, suggesting improvements, and emphasizing the proper application of statistical procedures. Some of these techniques have been applied to this project. The purpose they serve towards answering the research questions set out in the introduction and the methodologies put forth to realize their application are discussed briefly here.

5.3.1 Number of specimens (NSP) & number of identified specimens (NISP)

Calculating the number of specimens (NSP) and the number of identified specimens (NISP) are some of the simplest and most common quantification methods employed in zooarchaeology (Ringrose 1993:125). Quite simply, NSP represents the total number of faunal specimens in an assemblage and NISP represents a count of the number of specimens identified to taxon within an assemblage. Unfortunately, many zooarchaeologists fail to distinguish between the both and often employ the term NISP when they are really referring to NSP. This was indeed the case in many of the reports referenced in this study (presented in Chapter 7). The calculation of NSP and NISP is one of the most extensively reviewed and has its fair share of both supporters and detractors (Reitz and Wing 2008: 167). Despite the fact that these are simple tallies of identifications, there remain many decisions involved in calculating these number which can significantly affect the data (Ringrose 1993).

NSP and NISP can be interpreted as a tally of the data generated by the zooarchaeologist after analysing an assemblage. As such, they are sensitive to the recording strategy itself and to errors generated during the data collection process. Not only will incorrect identifications alter their values, but other factors may have equally harmful effects on the dataset and on subsequent interpretations derived from it. Common criticisms relate to their vulnerability to fragmentation and identifiability. NSP and NISP basically treat each identified fragment as a separate specimen and therefore the more fragmented an assemblage, the greater the chance that the same bone from the same animal is counted more than once. This could lead to over-representation of a species in the faunal record (Marshall and Pilgram 1991; O'Connor 2000: 56; Ringrose 1993: 126). The more bones become fragmented, the less identifiable they may be; however, some species have such unique morphology that they are easily recognizable which may lead to more of these being identified by the archaeologist (O'Connor 2000: 56; Ringrose 1993: 125). Another argument relating to the identification process revolves around the idea that NISP values will be greater for those animals that either died on site or were brought whole onto the site. That being the case, NISP is not taking into account events like offsite butchering which can have significant meaning for archaeological interpretations (Ringrose 1993: 125).

At the very least, NISP can serve as a basic ranking of taxa identified on a site and provide an excellent starting point for further quantification (O'Connor 2000; Reitz and Wing 2008). Such relative frequencies can be used towards different research questions such as the identification of different activity areas and the importance of different species within subsistence strategies (Reitz and Wing 2008: 202). NISP values are easy to calculate and therefore commonly found in many zooarchaeological reports. The calculation of NSP and NISP is also additive meaning later studies carried out on the same site can simply add new values to previously calculated ones without affecting the integrity of the data (Ringrose 1993). Being a relative frequency count, NISP can be compared between different sites that share depositional characteristics (i.e. deposited by the same group or culture), where the fragmentation and recovery rates are similar (Reitz and Wing 2008: 203).

5.3.2 Minimum number of individuals (MNI)

The minimum number of individuals (MNI) is a quantitative measure that was first applied in palaeontology, with much success, and later adapted to zooarchaeology, receiving much criticism (Lyman 2008; Reitz and Wing 2008). Shotwell's (1955) definition for MNI is one of the most commonly cited in zooarchaeological papers (Reitz and Wing 2008). He defines it simply as the smallest number of individuals necessary to account for all of the deposited specimens recovered on the site. In other words, it represents an attempt by archaeologists to provide the minimum number of dead animals necessary to account for the collection being studied. Unfortunately, the methods involved in the determination of MNI are not always simple and the many archaeologists who have employed it since have redefined the method of calculation leading to confusion between researchers and hampering inter-assemblage comparisons (Lyman 2008).

Most methods for the determination of MNI are based on the fact that vertebrates are composed of identifiable, symmetrical elements. These elements are either midline or paired. After the identification process is complete, the most common element identified for a taxonomic group is examined in order to determine the MNI. The three most popular ways of counting MNI are: 1) based on the abundance of the most common paired elements; 2) the abundance of the most common paired elements considering age and sex of the specimens; or, 3) the matching of elements. The first method pairs together left and right elements in order to determine the MNI (e.g., three right tibiae + four left tibiae = MNI of four). The second method is conducted the same way except it takes into account the age and sex assigned to each element. Therefore if one of the right tibiae in the previous example represents a juvenile specimen and all of the others represent adult specimens, then the MNI would be five individuals. The third method, matching, is the most time consuming but also the most accurate according to Ringrose (1993) whereby all of the fragments of a particular element are visually examined together and matched using age, sex, size and other criteria to determine the most correct pairing of elements possible.

Most proponents of MNI argue that, unlike NISP, MNI is not affected by fragmentation because MNI is not able to count the same bone twice (Ringrose 1993: 127). Lyman (2008: 43) argues this is not the case. He believes moderate levels of fragmentation will increase NISP without affecting MNI but, as fragmentation intensifies and fragments contain less identifiable features, NISP and MNI values will both increase accordingly. Like NISP, MNI is closely related to the size of the sample (Grayson 1981). However, one of the main issues with its application is that MNI is not an additive procedure (Ringrose 1993: 128). One cannot calculate the MNI of an assemblage one year, add new materials to the assemblage the following year, find the MNI values for this new assemblage and then add these to the old values. The only proper way would be to go back and pull out all of the old specimens and recalculate the MNI incorporating the new assemblage. One must also be careful not to combine materials from different cultural or temporal stratigraphic levels between sites in order to calculate MNI (Reitz and Wing, 2008). Due to its inability to deal with aggregation, if an individual's remains were scattered between assemblages, MNI would count the individual twice (Lyman 2008: 45).

Issues other than aggregation, addition and the lack of a clear definition, include the fact that MNI tends to overestimate the importance of rare taxa, it cannot lead to the calculation of ratios, is subject to sample size and does not relate any information back to the original living assemblage or death assemblage (Lyman 2008; Reitz and Wing 2008). Another major issue with the application of MNI is that it assumes the presence of the entire animal on the site and does not account for issues such as transportation of selected animal parts or the redistribution of food (Reitz and Wing 2008), which is typical of a market economy like that of 19^{th}-century Toronto's.

According to Lyman (2008), all of these problems with MNI fatally undermine its interpretive value; yet MNI routinely appears in zooarchaeological studies. In the context of this study, NISP values were used to rank the importance of different taxa found at the site. MNI was used to identify the minimum number of individuals within a deposit in order to elucidate the importance of different species at each site, highlight the presence of associated bone groups such as individual burials and calculate body portion representation. Its values were not solely used to suggest importance of taxa between assemblages. In this project, MNI is calculated using the matching of elements technique taking into account the most numerous elements, age and size to determine how many individuals are present.

5.3.3 Body portion representation and butchery

With NISP failing to account for fragmentation and MNI failing to address the research questions, calculating the minimum number of elements (MNE) offers an alternative. Unlike MNI, MNE treats each element separately and calculates the fewest number of elements possible within the assemblage for a single taxonomic group based on overlapping morphological features (Reitz and Wing 2008). Unlike NISP which investigates the relative importance of different species within an assemblage, MNE is a measure of body part representation for a single species. Therefore, MNE provides an advantage by accounting for fragmentation in the faunal record and minimizing the chance of counting the same bone twice (Ringrose 1993: 130). MNE is susceptible to many of the same aggregation issues as MNI (Grayson 1984; Lyman 1994b). Age, sex, size and taphonomy may or may not be taken into account rendering MNE a more subjective analytical unit and highlighting the need to clearly define one's methods. In this project, MNE is calculated for each element based on duplication of zones, with age and sex taken into consideration where determinable. Use of the zonation method also allows MNI data from different assemblages to be quickly recalculated, providing the same zones were identified using the same methods.

The calculation of the minimum number of animal units (MAU) helps to identify which elements are over or under represented in an assemblage and is best for inter-site comparisons since it normalises everything to the same scale and addresses variability in sample sizes (Lyman, 2008: 233-234). MAU values are calculated using the MNE numbers for each element. The MNE is divided by the number of times the element occurs in the body (expected number) to generate the MAU value. All MAU values for a specific species within an assemblage are then divided by the MNI for that assemblage to determine the %MAU for each element.

MNE and MAU provide an advantage over MNI because they account for transportation issues such as butchery and distribution of body parts (Ringrose 1993: 135). In 19th-century Upper Canada, like elsewhere in North America and in Britain, animals were generally butchered following a standard and cuts of meat were redistributed between households in various ways (James 1997). People could purchase their meat in wholesale form or buy individual cuts from a vendor and further reduce these into smaller consumption units at home. People also had the capacity to raise their own animals and complete every step of the butchery process on or off site and sell or redistribute some of their product to local markets or neighbours. Identifying whether specific elements are over or under represented in an assemblage provides clues as to preferentially consumed body portions in local foodways.

Unfortunately, the quality of barrelled pork products consumed at individual sites cannot be determined based on body portion representation in the same manner that Betts (2000) attempted in an assemblage from a 19th-century British fort in southern Ontario. Different grades of barrels were composed of both similar and different joints of meat, the numbers of which differed between barrels of the same grade. The fact this occurred, along with our knowledge that residents also had access to livestock and/or fresh meat from the butchers, makes it difficult to identify the quality of salted meat products people were purchasing from the archaeological remains alone.

5.3.4 Issues in taxonomic representation

The values arising from the previously discussed quantification methods help us understand which animal species or body parts were more commonly deposited at each site.

However, these values may sometimes confuse the reality of how much meat was actually being consumed and common sense must be applied to interpretation of the data. In a case where ten individual chickens are identified at the site but only one whole cattle, it is important to remember that beef would have contributed most to the diet. Archaeologists have attempted to combat this issue of over-quantification of larger species by weighing the bone fragments since the relationship between the weight of the skeleton and that of the live animal remains constant between species (Kubasiewicz 1956). Some have used MNI values to calculate a proxy for the amount of meat contributed by species (e.g., Uerpmann 1973; Zeder 1991: 90). Such an approach makes the assumption that whole animals contributed to the diet and forgets that some meat may have been divided between households or purchased as individual meat cuts from a market, which was definitely the case in 19th-century Toronto. While some have attempted to link meat weights with standard cuts of meat (for summary, see Lyman 1979), this requires the assumption of high levels of standardization in butchery and disarticulation, which Section 4.3.2 demonstrated was not the case in 19th-century North America.

The relationship between the weight of the skeleton and that of the live animal is also subject to variability. Barrett (1993) notes how bigger animals require proportionally bigger bones and therefore body weight differences between young animals and bigger, older ones, require adjustments to regression equations. The relationship between skeletal weight and live body mass is non-linear, allometric and subject to individual variability, sexual dimorphism and nutrition amongst other things (Reitz and Wing 2008:240-242; Purdue 1987). Additionally, the formulae used to equate bone weight with living weight are based on data derived from modern animal populations. Thomas *et al.* (2013) demonstrates how livestock sizes change through time and modern population characteristics are not necessarily reflective of those of the past. Further complicating matters in the estimation of meat yields from skeletal weight of archaeological remains is the nature of the raw data itself. Archaeological deposits of animal bone are subject to a number of taphonomic processes that effect its weight (Chaplin 1971: 68). Differential decomposition, mineralization and leaching rates can affect the final weight of bones and this varies between sites. Furthermore, sediments can often get trapped in various cavities and become difficult to remove before weighing the materials. Given all of these reasons and the fact that some of the assemblages looked at in this analysis were not thoroughly cleaned prior to analysis, bone weights were not taken.

Statistical tests for nominal data will not be employed to determine whether or not species diversity between assemblages are statistically significant or not. Statistical procedures such as Chi-squared tests whether or not categories are truly independent from one another or if membership in one is related to membership in another (Shennan 1997: 109-10). While such a test can inform us of whether significant differences are present between populations, they do not identify the ways in which variables are related. Since a wide variety of taphonomic factors acted on each assemblage independently, whether or not a difference is statistically significant does not indicate if that difference is a result of the behaviours of past Upper Canadians, or rather the taphonomic and archaeological processes that acted on the specimens (Lyman 1994a: 50). As was previously discussed, determining whether beef or pork most contributed to the diet based on the animal remains can be difficult to quantify and in this research, I prefer to carefully evaluate data derived from different quantification techniques in order to provide the best answer.

5.4 SUMMARY

Application of these criteria to the materials described in Chapter 3 led to the creation of a robust dataset that is summarized in the following chapter and Appendix B. The data will be interpreted alongside the historical evidence from Chapter 4, through the theoretical perspectives described in Chapter 2. It remains important to keep in mind the strengths and weaknesses inherent in these methods as we reconstruct the foodways of previous generations because such issues can “profoundly affect the validity of social interpretations of food remains” (Twiss 2012: 375).

CHAPTER 6 –

ZOOARCHAEOLOGY OF TORONTO

This chapter presents the results of faunal analyses for the assemblages described in Sections 3.2.1 and 3.2.2. A discussion of sample size is followed by an evaluation of taphonomy in order to judge the extent to which recovered assemblages are representative of the materials that were initially deposited in the 19th century. This is followed by a discussion of individual taxa identified within each assemblage and includes inter-site comparisons, age at death analyses, body portion representation and a summary of tool marks.

6.1 ASSEMBLAGE DESCRIPTIONS

6.1.1 URBAN SITES

Of the four urban sites, two are located within the original town centre (Queen Street West and Bishop's Block) and two are located to the west on lands originally held as a military reserve until after the War of 1812 (Bell and Dollery). The privy features at Queen Street West represent the earliest deposits. The Bell site assemblage tightly dates to the mid-19th century and the Dollery site is slightly later in the mid-century. Although houses 3 to 5 of Bishop's Block were constructed ca. 1832 and house 6 in 1858, the faunal assemblages relate to the abandonment and fill of cisterns and privies associated with these houses. These fills mostly relate to the 1890s although some deposits from townhouses 4 and 5 may have materials introduced in the early 20th century. The largest assemblages are from the four Bishop's Block houses. Moderately sized samples were obtained from the Dollery site and one of the Queen Street privies while the Bell site and two Queen Street privies offer smaller samples (Table 6.1).

TABLE 6.1: OCCUPATION PERIOD, ASSEMBLAGE SIZE AND IDENTIFIABILITY OF URBAN TORONTO FAUNAL ASSEMBLAGES

Site	Feature	Date range	Number of faunal remains	% identified family or lower
327-333 Queen St. West	Feature 36 (Privy)	1830s-1850s	327	73.1
	Feature 38 (Privy)	1830s-1850s	454	26.3
	Feature 46 (Privy)	1830s-1860s	189	46.1
Bell	Full assemblage	ca. 1840-1870	376	27.2
Bishop's Block	House 3	Late 19th C.	5,834	23.9
	House 4	Late 19th- early 20th C.	3,006	34.0
	House 5	Late 19th- early 20th C.	1,239	23.6
	House 6	Late 19th- early 20th C.	892	50.3
Dollery	House 1	ca. 1855-1878	708	45.3
	House 2	ca. 1855-1878	578	40.0

6.1.2 RURAL SITES

Of the five rural sites included in the analysis, the Ashbridge estate is located nearest the city of Toronto and its assemblages are divided into three overlapping time periods. Ashbridge I/II has deposits that span the 19th century while the Ashbridge IV/V deposits range from 1904 to 1970. It is suspected that most of these deposits relate to the early 20th century (Latta 2000). The site also includes materials from the late 20th century, a period when the house was occupied by Dorothy Ashbridge-Bullen and managed by the Ontario Heritage Trust. The last two deposits will hopefully provide an insight as to trends in foodways beyond the 19th century. Although stretching to the 1830s, most of the Graham site materials derive from the late 19th century along with materials from the Hall site. The Lewis site has two distinct components: the earliest relates to onsite kiln activities while the later 19th-century component relates to a household. Most of the rural assemblages presented large faunal samples of over a thousand specimens. The earliest and latest phases of the Ashbridge Estate and the John Beaton II assemblage provided moderately sized samples (Table 6.2).

TABLE 6.2: OCCUPATION PERIOD, ASSEMBLAGE SIZE AND IDENTIFIABILITY OF RURAL TORONTO FAUNAL ASSEMBLAGES

Site	Component	Date range	Number of faunal remains	% identified family or lower
Ashbridge Estate	Ashbridge I/II	ca. 1796-1913	646	29.7
	Ashbridge IV/V	ca. 1904-1970	7,801	19.5
	Bullen/OHT	ca. 1975-2000	759	13.4
Graham	Full assemblage	1830s to late 19th century (mostly late)	1,588	12.6
Hall	Full assemblage	1850s to 1910s	1,597	22.7
John Beaton II	Full assemblage	1840s-1870s	403	38.0
Lewis	Earlier component	ca. 1825-1850	1,751	21.7
	Later component	ca. 1870-1880	1,433	22.4

6.2 SAMPLE SIZE AND TAPHONOMY

This section examines the extent to which each sample is representative of the original deposit. This is explored through an examination of the effects of post-depositional taphonomic factors and recovery techniques. Different bones preserve differently and various taphonomic agents can have multiple effects on assemblages. I begin with a comparison of the number of species identified to taxonomic family or lower versus the number of specimens recovered at the site (Tables 6.1 and 6.2). High identification rates are taken to indicate low levels of fragmentation and/or damaging post-depositional processes.

With some exceptions, bones from rural assemblages appear to be less identifiable than urban materials which may relate to the continued agricultural use of the fields in which these sites are located. At most sites, between 20 and 30% of faunal materials were identified to the level of taxonomic family or lower. A few assemblages have identification levels above 40% (F36 and F46 at Queen Street, House 6 at Bishop's Block and the Dollery site). Those with below average identifications to family level or lower include the Bullen/OHT period at the Ashbridge Estate, the Bell site and the Graham site. These numbers fall within the range of faunal analyses from similar assemblages across the province but below the average levels of 46% (see Table 7.1). This may suggest unfavourable preservation conditions for sites in the Toronto region relative to other areas of southern and eastern Ontario.

6.2.1 RICHNESS

Examination of taxonomic richness relative to sample size can be used to assess if an assemblage's diversity is unusual for its size. As a general rule, a greater number of taxa are identified as sample size increases. This holds true up to the point of threshold when new taxa are no longer identified no matter how much larger the sample becomes, a phenomenon known as sampling to redundancy (Lyman 2008: 146). The following section investigates at what point sample size no longer becomes an issue for historic sites in southern Ontario using data from the Toronto area assemblages.

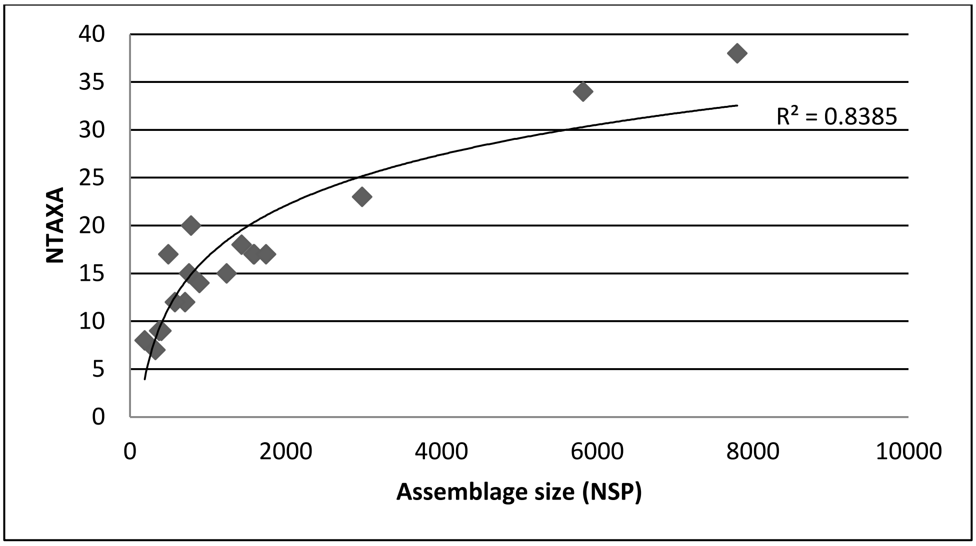

FIGURE 6.1: NUMBER OF IDENTIFIED TAXA (NTAXA) RELATIVE TO NUMBER OF FAUNAL SPECIMENS (NSP) FOR EACH SITE.

Figure 6.1 plots the total number of individual taxa against sample size for each site. The results conform to the expected pattern with the number of taxa increasing with sample size, forming an asymptotic logarithmic curve highlighting the point at which sample size no longer has a strong influence on the richness of taxa identified at the site. This is the point where the curve is judged by the eye to lose its steepness and become more horizontal (at around 1,500 in this case). Results suggests that some of the sites used in this study are too small to be representative of the original deposit (Queen Street F36, F46 and John Beaton II). A couple of assemblages (Ashbridge I/II and Feature 38 of the Queen Street site) show higher than expected numbers of identified taxa. However, given the sampling strategies employed by most excavators in order to obtain these materials (dry screening through 6mm mesh), differential rates of recovery are expected for smaller and larger animals (Lyman 2008).

Figures 6.2 and 6.3 respectively investigate the richness of fish and bird taxa while Figure 6.4 looks at mammals only. The asymptotic curves produced in these figures suggest sampling to redundancy occurs at about 1,400 specimens for fish and 1,800 specimens for birds. However, the curve begins to flatten at a smaller sample size (~ 1,000 specimens) for mammals.

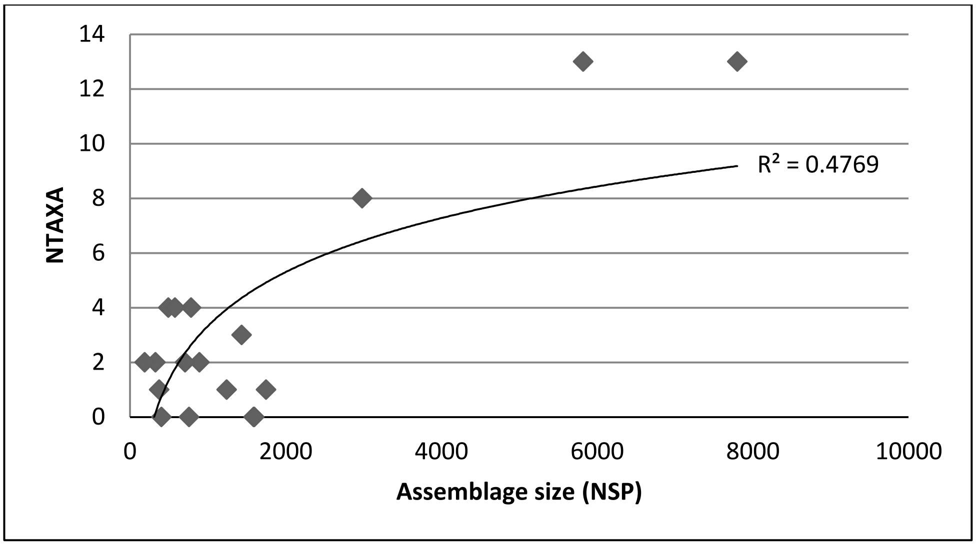

FIGURE 6.2: NUMBER OF IDENTIFIED FISH TAXA (NTAXA) RELATIVE TO TOTAL FAUNAL SPECIMENS (NSP) AT EACH SITE.

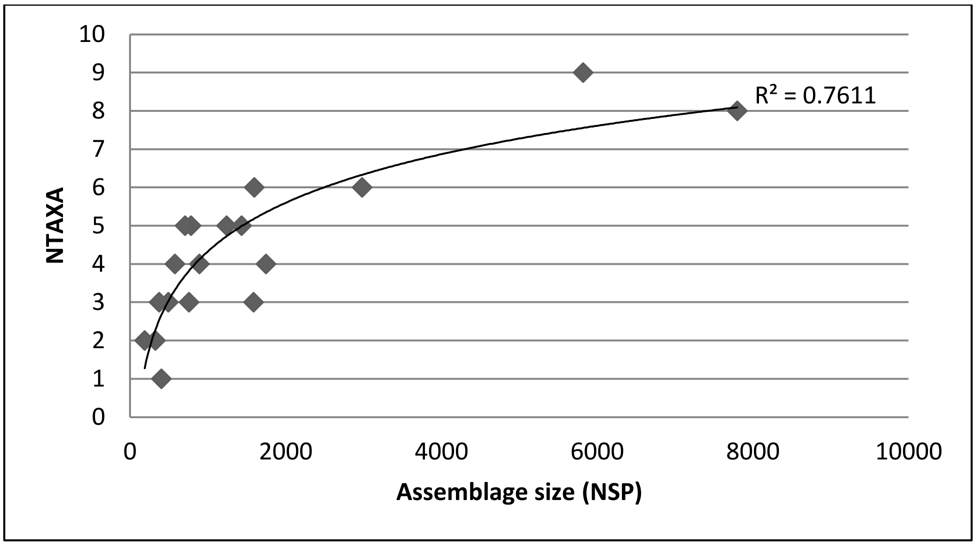

FIGURE 6.3: NUMBER OF IDENTIFIED BIRD TAXA (NTAXA) RELATIVE TO TOTAL FAUNAL SPECIMENS (NSP) AT EACH SITE.

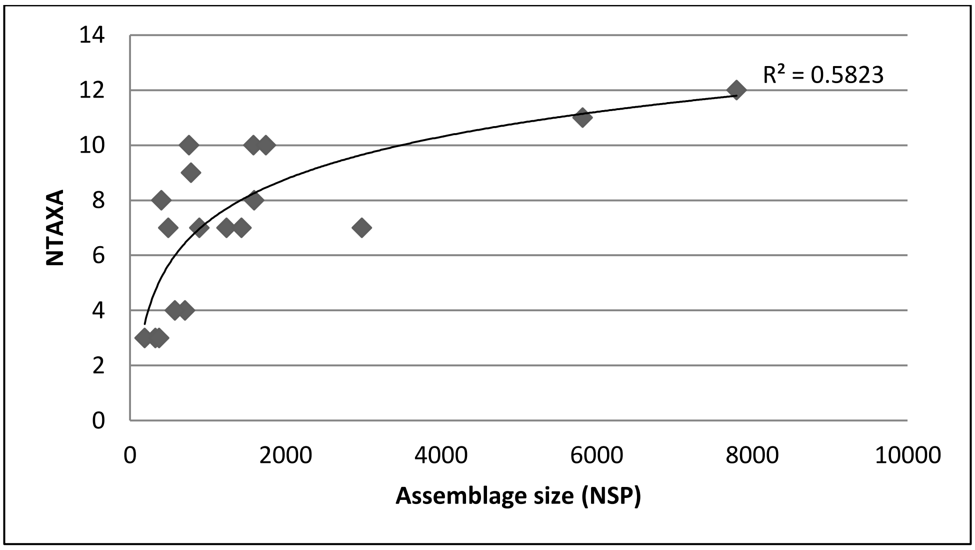

FIGURE 6.4: NUMBER OF IDENTIFIED MAMMAL TAXA (NTAXA) RELATIVE TO TOTAL FAUNAL SPECIMENS (NSP) AT EACH SITE.

The patterns observed here regarding taxonomic richness are unsurprising and fit with preconceived expectations. A lower sample size threshold for mammal relative to fish and bird taxa often relates to one or a combination of three possible factors: 1) a greater variety of birds and fish are available for consumption relative to mammals, something which holds true in southern Ontario; 2) mammalian individuals are more likely to contribute to the overall specimen count, thus elevating the NISP without elevating the number of taxa; and, 3) fragmentation of smaller bird elements reduces their ability to be identified more readily than the fragmentation of mammalian remains (Bartosiewicz and Gál, 2007; Hesse 1982; Lyman 2015). In this case, the extension of this reasoning can also be applied to explain the differences observed between fish and mammalian richness.

Overall, the number of bird and fish taxa identified in these assemblages appears to be an expression of sample size and conforms to previously published data on richness. The richness of mammalian species is less dependent on sample size given the small range of exploited mammalian species. Sample size is therefore an important factor to take into consideration when discussing the exploitation of fish and birds as many of the samples used in this study are lower than the suggested threshold. However, only a few of the assemblages (F36 and F46 of Queen Street and the Dollery site) are affected by sample size when it comes to richness of mammalian remains. In fact, Figure 6.4 indicates a number of sites with samples of less than 800 showing a greater than expected variety of taxa (F38 of Queen Street site, John Beaton II site, Ashbridge I/II and Bullen/OHT assemblages). Since much of the discussion will focus on the consumption of mammalian meat, the smaller sample sizes had little effect on the final interpretations presented in Chapters 8 and 9.

6.2.2 GNAWING

Gnawing, by carnivores or rodents, can have a detrimental effect on preservation. The presence of gnaw marks was recorded for every specimen and the results are presented in Figure 6.. Overall, detrimental effects due to gnawing were quite low (maximum 3.5% of assemblage affected). One assemblage (Feature 36 of Queen Street) did not exhibit any gnaw marks while data were unavailable for the Bishop's Block and Dollery assemblages. The Bell and the John Beaton II sites are most affected with 3.5% and 3.4% respectively. There does not appear to be a difference between rural and urban assemblage from these samples. Results suggest that post-depositional carnivore and rodent activities did not have great effects on the assemblages and may be indicative of a rapid disposal system such as civic refuse collection limiting the number of bones available for these animals to gnaw on. Sewage and organised refuse collection systems first appeared in Toronto in 1832 in response to a cholera outbreak (Careless 1984: 51). Brick trunk sewers began appearing under the principle city streets in 1835. Therefore, all urban deposits investigated here were created at a time when refuse collection services may have been available.

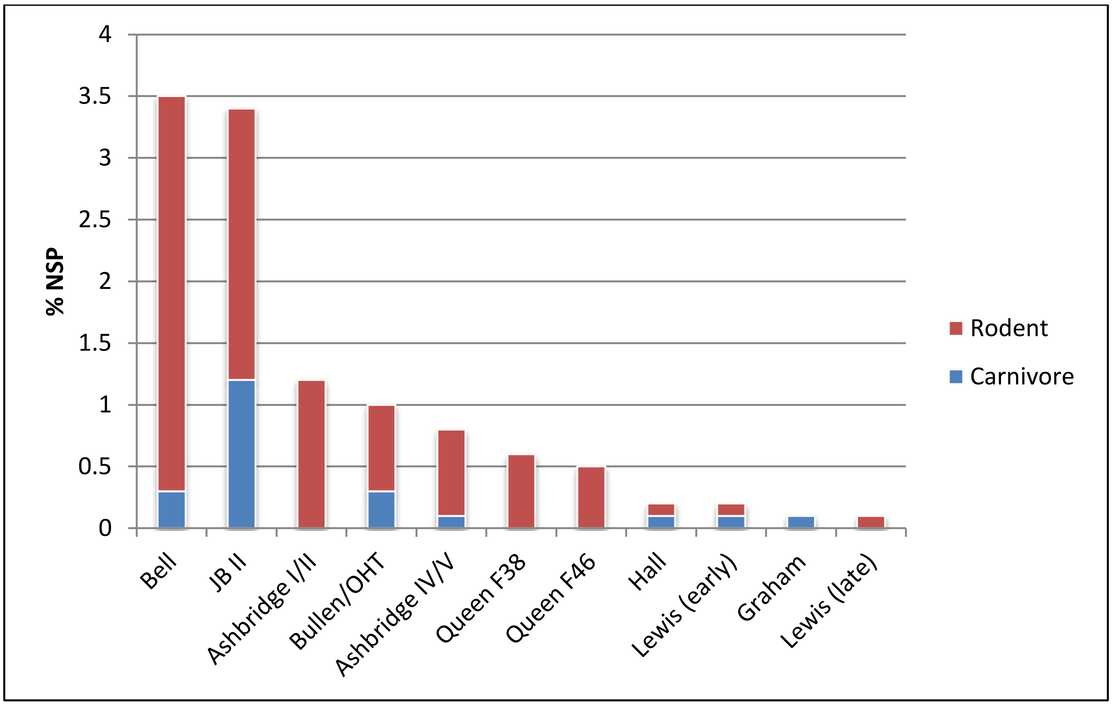

FIGURE 6.5: PERCENTAGE NSP OF SPECIMENS DISPLAYING EVIDENCE OF GNAWING.

6.2.3 COMPLETENESS OF SPECIMENS

Another way to investigate preservation conditions and levels of fragmentation considers the completeness of each specimen. The recording system for avian and mammalian post-cranial elements followed a previously described zoning system (Section 5.1.5). Counting the average number of zones present per bone provides a proxy for fragmentation levels. Calculations took into consideration the fact that small animal bones (e.g., small rodents) fragment less than those of larger ones (Lyman 2008: 34). For this reason and the fact that bones of small mammals were recovered at different rates between sites, their remains were excluded from this calculation as they would skew the data. Birds are presented separately as they tend not to survive as well as mammalian remains (Cruz 2008; Serjeantson 2009: 109). Bones that were present only as fragments (i.e., for which no zones could be recorded), are included.

A total of eight zones were recorded per bone and therefore sites with average values nearing 8.0 have the most complete specimens (Table 6.3, Figure 6.6). Overall, these assemblages are rather similar and average totals do not differ much between rural and urban sites. Bird bones tend to be more complete than mammals. Assemblages with the most complete specimens are the F36 privy at the Queen Street site and the John Beaton II site. The most fragmented assemblages are F46 at the Queen Street site, the Bell site and the Graham site. Mammalian remains at the Hall site feature the smallest number of average zones per bone. The bones from Bishop's Block and Dollery were not identified according to zone and therefore are not included in this analysis.

TABLE 6.3: AVERAGE NUMBER OF ZONES PER SPECIMEN

	Birds	Mammals
Urban		
Queen (F36)	6.6	4.9
Queen (F38)	6.4	3.1
Queen (F46)	2.9	3.1
Bell	3.8	2.8
Avg. urban	**4.9**	**3.5**
Rural		
Ashbridge I/II	4.7	3.3
Ashbridge IV/V	3.6	3.1
Bullen/OHT	3.5	3.4
Graham	2.8	3.4
Hall	4.4	2.4
JB II	4.9	4.2
Lewis (early)	4.0	3.6
Lewis (late)	4.0	3.6
Avg. rural	**4.0**	**3.4**

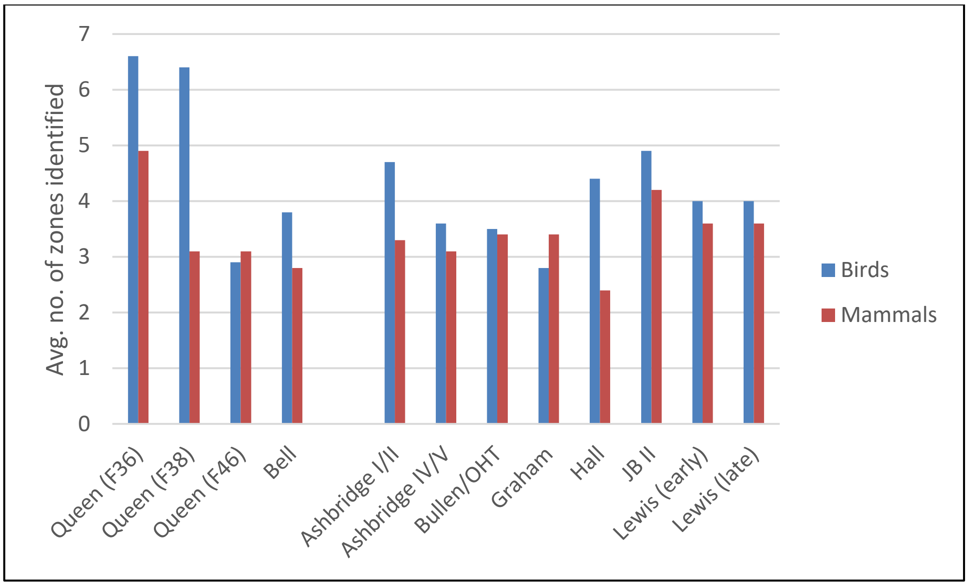

FIGURE 6.6: AVERAGE NUMBER OF ZONES IDENTIFIED ON FAUNAL SPECIMENS FOR URBAN AND RURAL ASSEMBLAGES.

6.2.4 PRESENCE OF LOOSE TEETH

Calculating the proportion of loose teeth in relation to the number of mandibular teeth in an assemblage is suggestive of fragmentation levels and bone preservation conditions. Teeth are made of a harder and denser material than bone and are therefore more resistant to taphonomic processes (Reitz and Wing 2008: 203). If an assemblage has a high proportion of loose teeth, it suggests high fragmentation and/or poor preservation (Thomas 2005b). Figure 6.7 highlights the number loose teeth present in each assemblage relative to the number individual teeth present in mandibles, maxillae and pre-maxillae. These data exclude small mammals whose loose teeth are lost through screens. The number of teeth present in bone was not consistently recorded for Bishop's Block and Dollery and these sites are not included in the following analysis.

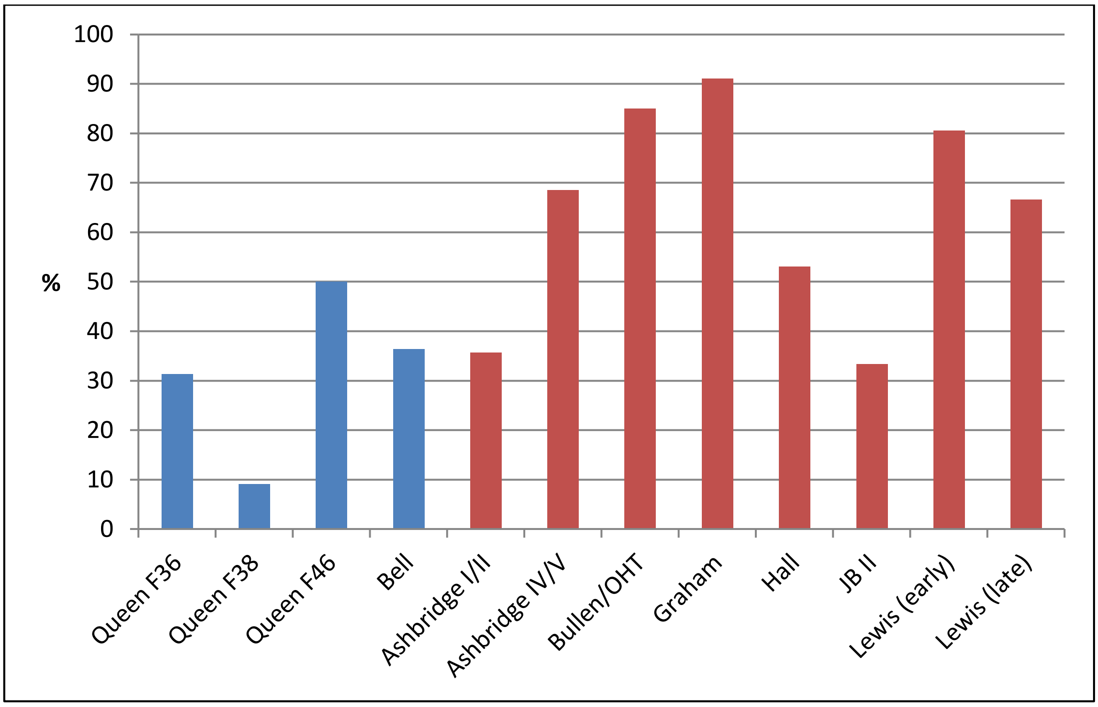

FIGURE 6.7: PROPORTION OF LOOSE TEETH RELATIVE TO TEETH IN BONE IDENTIFIED PER ASSEMBLAGE (BLUE = URBAN, RED = RURAL).

According to Figure 6.6, mandibular and maxillary bone preservation is highly variable between sites with no apparent difference between rural and urban assemblages. Those with the highest percentage of loose teeth, suggesting unfavourable bone preservation or high fragmentation rates, are the 20th-century Ashbridge assemblages and the Graham and Lewis sites with over 60% loose teeth. These assemblages also had the lowest proportion of specimens identified to taxonomic family but figured averagely in specimen completeness.

6.2.5 YORK SYSTEM PROTOCOL

Information obtained from classifying specimens according to their state of preservation following the York system protocol (Harland *et al*. 2003) suggests that no assemblage was immune to post-depositional destructive agents (Table 6.4). Most assemblages consisted of specimens that were in fair to good conditions (less than 50% abrasion on surface of specimens). Only a handful of specimens from amongst all sites did not exhibit any sign of abrasion. No assemblage was predominantly composed of poorly preserved remains (more than 50% abrasion). The York System was not used in recording faunal materials from Bishop's Block and Dollery.

TABLE 6.4: PROPORTION OF MATERIALS FALLING UNDER VARIOUS PRESERVATION CATEGORIES ACCORDING TO THE YORK SYSTEM PROTOCOL (HARLAND ET AL. 2003).

	Excellent	Good	Fair	Poor
Urban				
F36 - Queen St. West	0.0	0.3	95.4	4.3
F38 - Queen St. West	0.0	39.3	45.3	15.4
F46 - Queen St. West	0.0	13.1	84.4	2.5
Bell	0.0	7.9	62.4	29.7
Rural				
Ashbridge I/II	0.0	65.8	29.7	4.4
Ashbridge IV/V	0.0	40.1	52.1	7.8
Bullen/OHT (Ashbridge)	0.0	39.6	50.6	9.7
Graham	0.0	27.0	60.4	12.6
Hall	0.0	48.4	42.7	8.9
John Beaton II	0.0	34.8	58.2	7.0
Lewis (early)	0.0	67.2	29.4	3.4
Lewis (late)	1.7	68.2	27.8	2.3

6.2.6 INTERPRETATION OF TAPHONOMIC EVIDENCE

Considered together, the various analyses of taphonomy paint a picture of the preservation conditions observed across assemblages. Some appear to be better preserved then others but none appear to be affected by particularly poor preservation conditions. Taphonomic agents unrelated to recovery techniques did not have significant deleterious effects on bone preservation and these assemblages. They are unlikely to impact the interpretation of these materials. The majority of these tests considered mammalian remains and it would appear that variety in fish and bird remains are dependent upon sample size and strongly subject to recovery techniques.

6.3 CLASS DISTRIBUTIONS

This section looks at the overall proportion of fish, bird and mammal specimens recovered from each assemblage while the following sections present relative frequencies for individual taxa. A small number of other taxonomic classes (bivalves, amphibians and reptiles) were recovered from some of these assemblages but in very small numbers. These classes are excluded in this discussion but will be discussed later in this chapter.

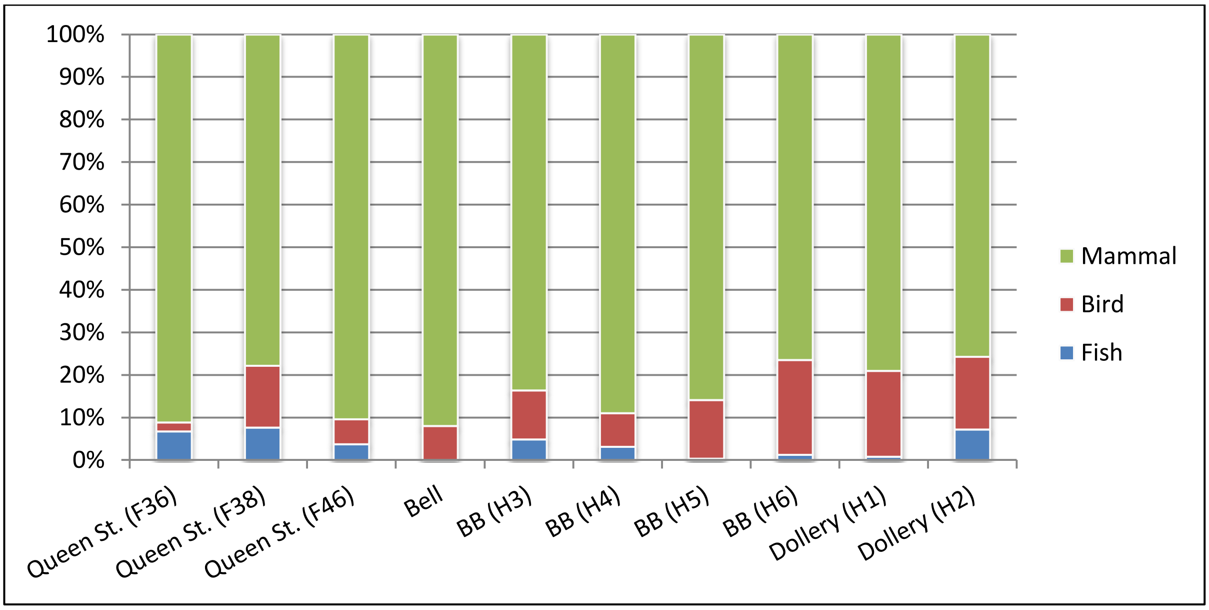

FIGURE 6.8: RELATIVE FISH, BIRD AND MAMMAL DISTRIBUTION AT URBAN SITES.

Mammals are clearly the dominant class followed by bird and fish. At urban sites (Figure 6.8), mammals consistently range between 75 and 91% of assemblages while birds range between 2 and 22% and fish between 0.1 and 8%. The rural assemblages display a similar range of mammalian remains between 75 and 93% (Figure 6.9). There are however, fewer birds and little to no fish in some of these assemblages. There is a notable trend in the near absence of fish from rural sites. It will be important to compare these sites to similar assemblages in the area were materials were recovered differently in order to understand if excavation strategies played a role in the total number of fish and bird remains identified here.

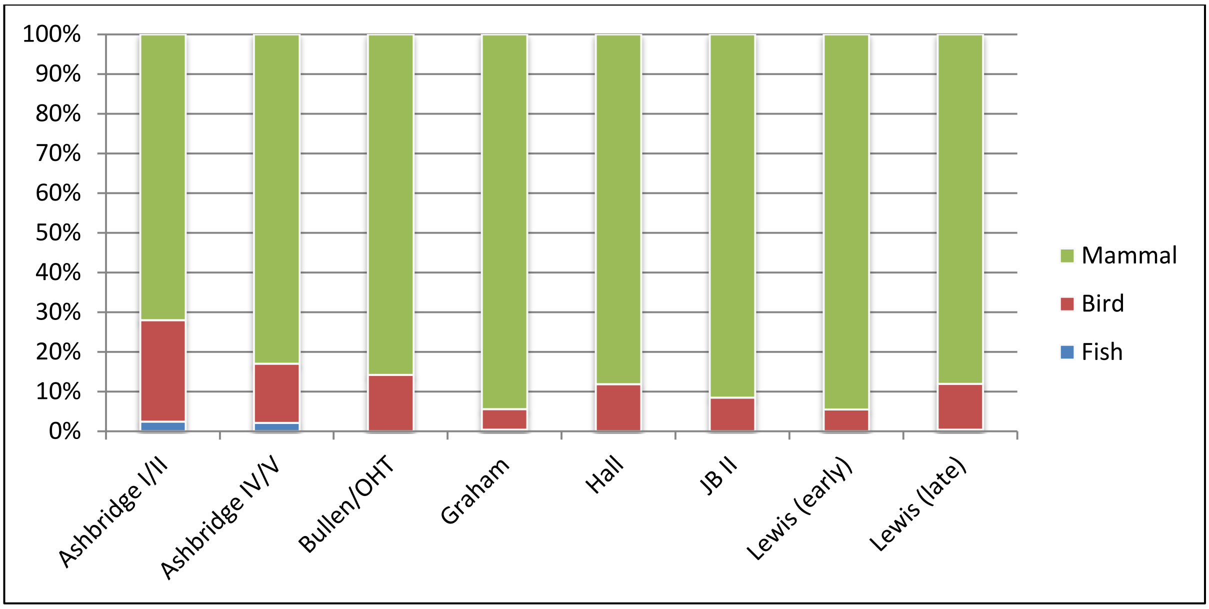

FIGURE 6.9: RELATIVE FISH, BIRD AND MAMMAL DISTRIBUTION AT RURAL SITES.

6.4 SPECIES REPRESENTATION

6.4.1 MOLLUSCS

GASTROPODS

One gastropod fragment was identified in each the Graham and Lewis sites. These are small species that are naturally found in the local environment. The reason so few shells were identified is likely the result of excavation strategies where large screen sizes fail to catch small shells. Regardless, it is unlikely gastropods played any dietary contribution for site occupants and these are not discussed further.

BIVALVES

Bivalve shells were identified at most sites. The lack of a good reference collection combined with the fragmentary nature of the remains made it difficult to identify many to species. However, some were identifiable and it appears that both local and imported species were consumed (Tables 6.5 and 6.6). Oyster (Ostreidae sp.) and clam (Veneroida sp.) fragments are easier to recognize whereas mussel fragments, which are difficult to distinguish between species, were often identified simply as bivalve due to the variety of locally available freshwater species in addition to imported marine varieties. Fragments were tallied if greater than one centimetre in diameter.

TABLE 6.5: FRAGMENT COUNT OF BIVALVES AT URBAN ASSEMBLAGES (MARINE SPECIES HIGHLIGHTED IN GREY). SEE APPENDIX A FOR LIST OF COMMON NAMES.

	Queen (F38)	Queen (F46)	Bell	BB (H3)	BB (H4)	BB (H5)	BB (H6)	Dollery (H1)
Bivalvia	-	1	3	3	-	1	-	5
Ostreidae	-	-	3	-	-	-	-	-
Crassostrea virginica	1	-	-	17	3	19	3	-
Mercenaria mercenaria	1	-	-	-	-	-	-	-
Elliptio complanata	-	-	-	-	-	-	-	2
Total Bivalves (%NSP)	**0.4**	**0.5**	**1.6**	**0.4**	**0.1**	**1.6**	**0.3**	**1.0**

TABLE 6.6: FRAGMENT COUNT OF BIVALVES AT RURAL ASSEMBLAGES (MARINE SPECIES HIGHLIGHTED IN GREY). SEE APPENDIX A FOR LIST OF COMMON NAMES.

	Ash. I/II	Ash. IV/V	Bullen/ OHT	Graham	Hall	Lewis (early)	Lewis (late)
Bivalvia	8	71	25	56	181	6	2
Ostreidae	-	4	-	-	-	-	-
Unionidae	-	1	-	1	14	-	-
Lasmigona costata	-	-	-	-	1	-	-
***Anodonta* sp.**	-	-	-	-	2	-	-
Strophitus ondulatus	-	-	-	-	1	-	-
Total Bivalves (%NSP)	**1.2**	**1.1**	**3.3**	**3.6**	**12.6**	**0.3**	**0.1**

Marine taxa were identified at multiple urban sites and from 20th-century deposits at the Ashbridge Estate. With the exception of one assemblage, local freshwater species were only confidently identified at rural assemblages but many of the bivalve fragments from urban sites appear as though they may originate from local species. Overall, bivalves, when present, composed around 1% of the assemblage. These numbers are likely elevated as a single shell can fragment into a number of pieces which would elevate their counts.

6.4.2 FISH

Far more indigenous fish taxa were identified in this study relative to imported marine species (Tables 6.7 and 6.8). The Bishop's Block site has the greatest variety of fish identified, perhaps unsurprising as it is the site with the largest sample. The high frequency of fish remains (mostly unidentifiable beyond class) for two of the Queen Street privies and one of the Dollery houses is interesting despite the low numbers of different taxa identified at each site. Rural sites did not include much fish in their assemblages with the exception of the large sample related to the early 20th-century occupation of the Ashbridge Estate. The Graham and John Beaton II sites did not have any fish while the Hall site and the early 19th-century occupation of the Lewis site each contained a single specimen. Consideration of species present in larger samples reveals a wide variety of locally available fish suggesting people opted to take advantage of local resources. Only three encountered fish species represent

TABLE 6.7: DISTRIBUTION OF FISH SPECIES (%NSP) FROM URBAN ASSEMBLAGES. GREY INDICATES MARINE SPECIES. CASES INDICATING 0.0% ARE A RESULT OF ROUNDING AND INDICATE THE SPECIES WAS IDENTIFIED IN LOW NUMBERS (I.E., ONLY ONE OR TWO SPECIMENS). SEE APPENDIX A FOR LIST OF COMMON NAMES.

	Queen (F36)	Queen (F38)	Queen (F46)	Bell	BB (H3)	BB (H4)	BB (H5)	BB (H6)	Dollery (H1)	Dollery (H2)
Actinopterygii	4.0	5.9	2.6	0.3	2.0	1.4	0.2	0.8	0.6	3.1
Salmoniformes	-	-	-	-	0.0	-	-	-	-	-
Salmonidae	0.3	-	-	-	0.1	-	-	-	-	-
Salmo salar/ Salvelinus namaycush	-	-	-	-	0.1	0.0	-	-	-	-
Salmo salar	-	-	-	-	0.2	0.0	-	-	-	-
Salvelinus namaycush	-	-	-	-	0.3	0.0	-	-	0.1	1.6
***Coregonus* sp.**	2.4	-	-	-	0.5	0.1	-	-	-	-
Coregonus artedi	-	-	-	-	0.1	-	-	-	-	-
Coregonus clupeaformis	-	-	-	-	0.2	-	-	-	-	-
***Esox* sp.**	-	0.2	-	-	0.0	0.0	-	-	-	-
Esox lucius	-	-	-	-	-	0.4	-	-	-	-
Cypriniformes	-	-	-	-	0.0	-	-	-	-	-
Catostomidae	-	-	-	-	0.0	-	-	-	-	-
***Catostomus* sp.**	-	0.9	-	-	-	-	-	-	-	-
Catostomus catostomus	-	0.2	-	-	0.0	-	-	-	-	0.2
***Ameiurus* sp.**	-	-	-	-	-	0.0	-	-	-	-
Gadidae	-	-	0.5	-	0.1	0.2	-	-	-	-
Gadus morhua	-	-	-	-	0.4	-	-	0.1	-	0.7
Melanogrammus aeglefinus	-	-	-	-	0.2	0.9	0.1	0.3	-	-
Centrarchidae	-	-	-	-	0.0	-	-	-	0.1	1.4
Centrarchidae/percidae	-	0.7	-	-	-	-	-	-	-	-
***Lepomis* sp.**	-	-	-	-	0.1	-	-	-	-	0.2
Micropterus sp.	-	0.2	-	-	0.0	-	-	-	-	-
Percidae	-	-	-	-	-	0.0	-	-	-	-
Perca flavescens	-	-	-	-	0.1	0.0	-	-	-	-
***Sander* sp.**	-	-	-	-	0.1	0.0	-	-	-	-
Scomber scombrus	-	-	0.5	-	-	-	-	-	-	-
Total fish (%NSP)	**6.7**	**8.1**	**3.6**	**0.3**	**4.8**	**3.1**	**0.3**	**1.2**	**0.8**	**7.1**

TABLE 6.8: DISTRIBUTION OF FISH SPECIES (%NSP) FROM RURAL ASSEMBLAGES. GREY INDICATES MARINE SPECIES. CASES INDICATING 0.0% ARE A RESULT OF ROUNDING AND INDICATE THE SPECIES WAS IDENTIFIED IN LOW NUMBERS (I.E., ONLY ONE OR TWO SPECIMENS). SEE APPENDIX A FOR LIST OF COMMON NAMES.

	Ash. I/II	Ash. IV/V	Bullen/ OHT	Hall	Lewis (early)	Lewis (late)
Actinopterygii	1.7	1.2	0.1	0.1	-	0.1
Amia calva	-	0.0	-	-	-	-
Salmonidae	0.2	0.0	-	-	-	0.1
Salmo salar	0.2	0.0	-	-	-	-
Salvelinus namaycush	-	0.0	-	-	-	-
***Coregonus* sp.**	-	0.1	-	-	-	-
Coregonus artedii	-	0.0	-	-	-	-
***Esox* sp.**	0.3	0.1	-	-	-	-
Esox lucius	-	0.0	-	-	-	-
***Catostomus* sp.**	-	0.0	-	-	-	-
Ictaluridae	-	0.0	-	-	-	-
***Ictalurus* sp.**	-	0.1	-	-	-	-
Ameiurus nebulosus	-	0.0	-	-	-	-
Gadidae	0.2	0.0	-	-	-	-
Gadus morhua	-	0.0	-	-	-	-
Melanogrammus aeglefinus	-	0.0	-	-	-	0.1
Perciformes	-	0.0	-	-	-	-
Centrarchidae	0.2	0.1	-	-	0.1	-
Lepomis gibbosus	-	0.0	-	-	-	-
Perca flavescens	-	0.0	-	-	-	-
***Sander* sp.**	-	0.0	-	-	-	-
Scomber scombrus	-	0.1	-	-	-	-
Total fish (%NSP)	**2.6**	**1.8**	**0.1**	**0.1**	**0.1**	**0.4**

definite imported products (Atlantic cod (*Gadus morhua*), haddock (*Melanogrammus aeglefinus*) and Atlantic mackerel (*Scomber scombrus*)). These were identified mostly from urban assemblages. The Atlantic salmon (*Salmo salar*) represents a species that could have been obtained locally or imported from elsewhere.

6.4.3 AMPHIBIANS

Few amphibian remains were recovered; all specimens identified beyond taxonomic class formed part of the Anura order of frogs, the majority of which are the size of leopard frogs (*Lithobates pipiens*). This species and others like it are commonly found across a wide range of habitats in southern Ontario. The recovered specimens are not thought to be anthropogenic accumulations.

6.4.4 REPTILES

Only four reptilian specimens were identified in this project. Bishop's Block, House 4 had one painted turtle (*Chrysemys picta*) fragment. Bishop's Block, House 5 has one specimen identified simply as turtle (testudinae sp.). Two specimens (a humerus and a phalanx) of snapping turtle (*Chelydra serpentina*) were recovered from the Graham site. All are naturally occurring in the area and there is no evidence these specimens were deposited by people.

6.4.5 BIRDS

Tables 6.9 and 6.10 list the overall %NSP for each species identified in the assemblage. The domestic chicken (*Gallus gallus*) is dominant in most assemblages. The domestic goose (*Anser anser*) and the turkey (*Meleagris gallopavo*) strongly feature in some assemblages.

Figures 6.10 and 6.11 offer visual representation of the five most commonly exploited birds. There does not appear to be any obvious differences between rural and urban sites in terms of the species consumed. Perhaps surprisingly, there are fewer ducks in the rural sites: ducks were only recovered from the Ashbridge Estate. The John Beaton II bird assemblage is composed entirely of chicken.

TABLE 6.9: BIRD SPECIES PRESENT (%NSP) AT URBAN SITES. CASES INDICATING 0.0% ARE A RESULT OF ROUNDING AND INDICATE THE SPECIES WAS IDENTIFIED IN LOW NUMBERS (I.E., ONLY ONE OR TWO SPECIMENS). SEE APPENDIX A FOR LIST OF COMMON NAMES.

	Queen (F36)	Queen (F38)	Queen (F46)	Bell	BB (H3)	BB (H4)	BB (H5)	BB (H6)	Dollery (H1)	Dollery (H2)
Bird	-	1.3	1.1	3.5	0.1	-	-	-	0.4	0.2
Large	-	0.2		0.5	1.0	0.6	1.8	1.5	1.0	0.2
Med. to large	-	0.4	1.6	2.4	4.2	2.1	3.2	4.0	2.3	2.4
Medium	0.3	0.7	0.5	3.2	2.1	1.0	3.9	1.6	5.9	4.2
Small to med.	-	-	-	0.3	0.0	-	-	-	-	-
Small	0.3	0.2	-	-	0.0	-	0.1	-	0.3	-
Gavia immer	-	-	-	-	0.1	-	-	-	-	-
Ardea herodias	-	-	-	-	0.0	-	-	-	-	-
Anatidae	-	-	-	-	0.0	0.1	0.1	-	-	-
Anserinae	1.5	0.4	1.6	0.5	0.6	0.4	0.9	3.5	1.8	-
Branta canadensis	-	-	-	-	-	-	-	-	0.3	-
Anser anser	-	0.4	-	0.3	0.1	0.3	0.2	0.4	1.1	0.7
Anatinae	-	-	-	1.6	0.2	0.0	0.6	0.1	1.3	0.2
***Anas* sp.**	-	-	-	-	0.0	-	-	0.1	-	-
Anas platyrhynchos	-	-	-	-	-	-	0.1	0.2	0.1	-
***Aythya* sp.**	-	-	-	-	0.1	-	-	-	-	-
Aythya marila	-	-	-	-	0.0	-	-	-	-	-
***Mergus* sp.**	-	-	-	-	-	0.0	-	-	-	-
Phasianidae	-	-	-	0.5	0.0	0.0	0.1	0.9	0.1	4.5
Meleagris gallopavo	-	-	-	-	0.8	0.5	0.6	3.4	1.7	2.8
Gallus gallus	0.3	2.9	1.1	2.1	1.6	2.5	1.9	6.4	3.4	1.9
Columbidae	-	0.2	-	-	0.0	0.1		-	-	-
Ectopistes migratorius	-	-	-	-	0.1	-	0.1	-	-	-
Picidae	-	-	-	-	0.0	-	-	-	-	-
Total (%NSP)	**2.4**	**6.7**	**5.8**	**14.9**	**11.3**	**7.8**	**13.4**	**22.1**	**19.8**	**17.0**

TABLE 6.10: BIRD SPECIES PRESENT AT RURAL SITES (%NSP). CASES INDICATING 0.0% ARE A RESULT OF ROUNDING AND INDICATE THE SPECIES WAS IDENTIFIED IN LOW NUMBERS (I.E., ONE OR TWO SPECIMENS). SEE APPENDIX A FOR LIST OF COMMON NAMES.

	Ash. I/II	Ash. IV/V	Bullen/ OHT	Graham		JB II	Lewis (early)	Lewis (late)
Bird	7.0	9.5	6.7	3.0	6.4	0.2	3.0	6.9
Large	0.4	0.2	1.3	-	0.3	-	0.1	0.1
Medium to large	0.1	0.4	0.3	-	0.1	-	-	-
Medium	2.6	1.0	3.0	0.7	0.9	3.0	0.3	1.0
Small to medium	0.3	0.3	0.3	-	0.6	-	-	-
Small	0.1	0.2	0.4	-	-	-	-	-
Anatidae	-	0.1	-	-	0.2	-	-	-
Anserinae	0.6	0.4	0.1	0.1	0.6	-	0.1	0.2
Anser anser	-	0.1	-	-	0.1	-	-	0.1
Anatinae	0.7	0.2	-	-	-	-	-	-
Accipitrinae	-	0.0	-	-	-	-	-	-
Phasianidae	0.4	0.6	-	-	-	0.2	-	0.7
Meleagris gallopavo	0.4	0.3	0.3	0.1	0.1	-	0.1	0.7
Gallus gallus	2.9	1.1	0.8	1.3	0.6	5.0	0.9	1.6
***Sterna* sp.**	-	0.0	-	-	-	-	-	-
Columbidae	0.1	0.1	-	-	-	-	0.1	-
Columba livia	-	-	-	-	-	-	-	0.1
Ectopistes migratorius	-	-	-	-	-	-	-	0.1
Strigidae	-	-	-	-	0.1	-	-	-
Picidae	-	-	-	-	0.2	-	-	-
Passeriformes	-	0.0	0.1	-	0.1	-	-	-
Total (%NSP)	**16.9**	**14.5**	**13.3**	**4.9**	**10.1**	**8.4**	**5.3**	**11.4**

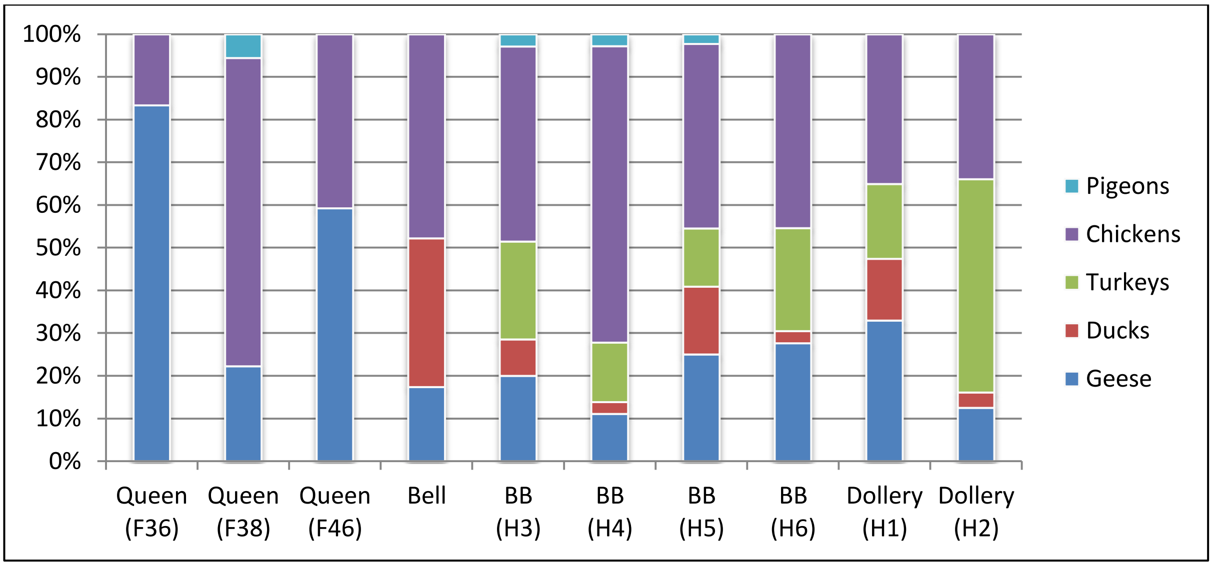

FIGURE 6.10: PROPORTION OF MOST COMMONLY IDENTIFIED BIRD TAXA FROM URBAN SITES.

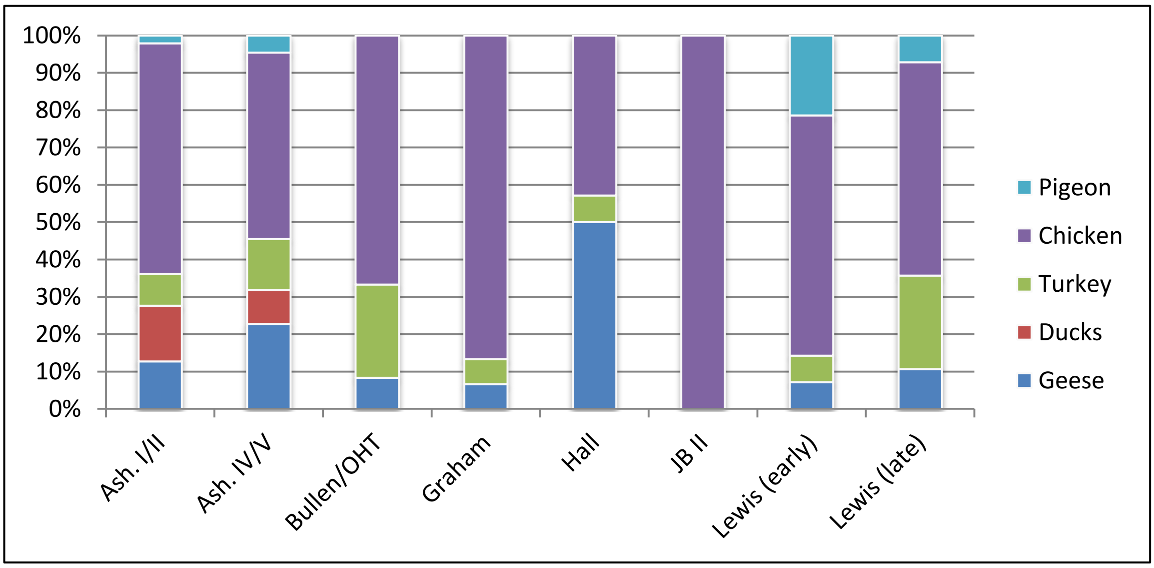

FIGURE 6.11: PROPORTION OF MOST COMMONLY IDENTIFIED BIRD TAXA FROM RURAL SITES.

Although sample sizes may be an issue, it appears a similar pattern emerges between urban and rural sites: chickens are the most dominant species, with some exceptions. Geese and turkeys alternate as the second most important bird species while ducks and pigeons are fairly common but never in great proportions and not always present.

Chickens

Analysis of body portion representation (Appendix C) indicates that all portions of the body (heads, wings, torso, and legs) were recovered from most urban and rural locations, suggesting whole chickens were prepared for consumption on these sites. Phalanges of the legs are difficult to identify to species and so their absence from these tables is likely due to an inability to confidently identify them. Contrarily, some elements (humeri, coracoids, femora, scapulae, tarsometatarsii) appear to be over-represented in assemblages. This is likely a result of their morphological distinctiveness or their superior ability to withstand taphonomic agents (Ericson 1987). While juvenile specimens were present in both rural and urban assemblages, larger proportions were encountered in the latter type of site (Table 6.11). This may be reflective of a greater number of chicken carcasses originating from the markets and therefore the product of a meat industry. Conversely, the lack of younger chickens in rural areas may be reflective of the chicken's primary function as an egg producer prior to being killed for its meat. Juvenile bird bones are not easily identified to species and these numbers might be underrepresented (Spencer *et al*. 2003). A larger sample would clarify if we are indeed observing a trend in the data. Unfortunately, most zooarchaeological reports and datasets from the province do not specify the percentage of juvenile bones. Only six out of 39 tarsometatarsii (15.4%) were identified as male based on the presence of a spur or spur scar and these were present in both urban and rural assemblages. Of the few elements with evidence for butchery found at rural and urban locations, most had cut marks resulting from the use of a knife to either separate the wings from the trunk or simply removing meat from the bone. Two specimens were possibly chopped. The coracoid was most likely to display evidence of cut marks, followed by the tibiotarsus (Table 6.12). Elements of the distal extremities were slightly less affected.

TABLE 6.11: TOTAL NUMBER OF CHICKEN SPECIMENS IDENTIFIED AT EACH SITE AND THE PERCENTAGE FROM IMMATURE INDIVIDUALS.

	NISP (total)	% juvenile
Urban sites		
Queen (F36)	1	100.0
Queen (F38)	13	15.3
Queen (F46)	2	0.0
Bell	8	0.0
BB (H3)	96	14.6
BB (H4)	76	11.8
BB (H5)	23	8.7
BB (H6)	57	24.6
Dollery (H1)	24	Not recorded?
Dollery (H2)	11	Not recorded?
Rural sites		
Ash. I/II	19	5.3
Ash. IV/V	84	1.2
Bullen/OHT	6	0.0
Graham	21	0.0
Hall	9	0.0
John Beaton II	20	5.0
Lewis (early)	16	0.0
Lewis (late)	23	0.0

TABLE 6.12: NUMBER OF CHICKEN SPECIMENS OBSERVED WITH TOOL MARKS FROM ALL SITES ANALYSED BY MYSELF.

Element	No. butchered specimens	No. total chicken specimens.	% butchered
Coracoid	5	45	11.1
Tibiotarsus	3	28	10.7
Scapula	2	32	6.3
Humerus	2	30	6.7
Carpometacarpus	1	17	5.9
Femur	1	18	5.6
Tarsometatarsus	1	39	2.7

GEESE

With the exception of one Canada goose (*Branta canadensis*) specimen, the domestic goose (*Anser anser*) was the only goose species identified. Therefore, the majority of specimens identified as goose (Anserinae sp.) likely represent this species. All body portions are present for sites with larger geese assemblages. Only the John Beaton II site did not have any geese. Only four juvenile specimens were identified across all assemblages and five specimens had evidence of tool marks.

TURKEYS

Unfortunately, wild and domestic turkey (*Meleagris gallopavo*) skeletons cannot be distinguished from one another through gross morphology or linear measurements. Wild turkeys were and continue to be present in southern Ontario and therefore, specimens may have been procured from the wild or purchased in local markets. One way to investigate this question archaeologically is to consider the fact that, like the chicken, the domestic turkey reaches its optimal weight prior to skeletal maturity; therefore, sites with a higher proportion of juvenile specimens probably reflect the purchase of a market product (Fothergill 2012). Table 6.13 lists the %NISP of turkey elements from juveniles and reveals that a greater number of juvenile bones were recovered from urban assemblages and very few were identified in rural ones. This could just be a matter of sample size; however, the largest assemblage (Ashbridge IV/V) does not have a single juvenile turkey bone. These values suggest this is likely the result of different production or consumption practices.

TABLE 6.13: TOTAL NUMBER OF TURKEY SPECIMENS IDENTIFIED AT EACH SITE AND THE PERCENTAGE FROM IMMATURE INDIVIDUALS.

	NISP (total)	**% juvenile**
Urban sites		
BB (H3)	45	29
BB (H4)	16	25
BB (H5)	7	42
BB (H6)	30	43
Dollery (H1)	12	33
Dollery (H2)	16	25
Rural sites		
Ash. I/II	3	0
Ash. IV/V	23	0
Bullen/OHT	2	0
Graham	2	0
Hall	2	50
Lewis (early)	1	0
Lewis (late)	10	10

DUCKS

Domestic duck (*Anas platyrhychos domesticus*) and the Mallard (*Anas platyrhynchos platyrhynchos*), share an indistinguishable skeletal morphology. Furthermore, issues of hybridization between domestic and wild species can also confuse the identification process (Stahl 2005). In fact, many duck specimens were difficult to identify beyond taxonomic family.

The mallard and other members of the *Anas* genus were the most commonly identified; however, diving ducks and mergansers were identified from Bishop's Block indicating wild species were also procured by local residents.

Pigeons

Separating the rock pigeon (*Columba livia)* from the wild passenger pigeon (*Ectopistes migratorius*) using gross skeletal morphology was often difficult despite the availability of a good reference collection. As described in Chapter 5, metrical data were used to suggest the presence of passenger pigeon amongst Columbidae specimens. Unfortunately, most of these were fragmentary and measurements often fell within a range that did not allow for discrimination between the two species. Of the four pigeon specimens identified in the Ashbridge IV/V assemblage, two are identified as rock pigeon and one is identified as passenger pigeon. A rock pigeon specimen was identified at the early Lewis assemblage and one of each species was identified in the late assemblage from that site.

Other birds

No other bird species form a large proportion of the assemblage within any one site or are consistently found at multiple sites. A couple of common loon (*Gavia immer*) specimens and one blue heron (*Ardea herodias*) bone were identified from the House 3 assemblage at the Bishop's Block site. These local species are naturally found in wetlands and lakeshore environments, making their presence in an urban assemblage of particular interest (hunting? trapping?). However, Toronto is located on a lakeshore and these species may very well have been in their natural environment here during the 19th century. The remains of a hawk (Accipitrinae sp.) and a tern (*Sterna* sp.) were uncovered in the Ashbridge IV/V assemblage. These are locally available in the environment and likely unrelated to human consumption. Small perching birds (Passeriformes sp.) and the remains of a small woodpecker (Piciformes sp.) were also found in the Ashbridge IV/V and Bishop's Block assemblages and are likely natural accumulations.

6.4.6 MAMMALS

Lagomorphs

Only three lagomorph specimens were identified in the Bishop's Block assemblages. One was identified as a European rabbit (*Oryctolagus cuniculus*) suggesting bred stock rather than a wild individual. Twenty one specimens were identified at rural sites: six (0.4% NSP) from the Graham site, three (0.2% NSP) from the early Lewis assemblage and five (0.2% NSP) from the late Lewis assemblage. Seven specimens were identified from the 20th-century assemblages at the Ashbridge Estate but only one of these could be identified to species (a European rabbit).

RODENTS

Various rodent species were present in most assemblages with more variety and possibly greater numbers found in rural assemblages (Tables 6.14 and 6.15). The lack of butchery tool marks combined with the fact that most are known commensal species suggests these did not form a part of local foodways. Identified species include rats, mice, woodchucks, muskrats, squirrels and voles.

TABLE 6.14: RODENT SPECIES PRESENT (%NSP) AT URBAN SITES. NOTE: ONE ANALYST ONLY RECORDED THESE SPECIES AS PRESENT/ABSENT. SEE APPENDIX A FOR LIST OF COMMON NAMES.

	Queen (F38)	BB (H3)	BB (H4)	BB (H5)	BB (H6)	Dollery (H1)
Rodent	-	Present	-	-	-	-
Sciuridae	0.2	-	-	-	-	-
Marmota monax	0.2	-	-	-	-	-
Tamiasciurus hudsonicus	-	Present	-	-	-	-
***Microtus* sp.**	-	Present	Present	Present	Present	-
***Rattus* sp.**	0.7	Present	Present	Present	Present	Present
Total rodent (%NSP)	1.1	-	-	-	-	-

Urban sites (appear to) have fewer rodent species and these are mostly composed of rats, voles and to a lesser degree, squirrels. Interestingly, the Bell site, which had the most evidence for rodent gnawing, did not produce any rodent specimens.

TABLE 6.15: RODENT SPECIES IDENTIFIED (%NSP) AT RURAL SITES. CASES INDICATING 0.0% ARE A RESULT OF ROUNDING AND INDICATE THE SPECIES WAS IDENTIFIED IN LOW NUMBERS (I.E., ONE OR TWO SPECIMENS). SEE APPENDIX A FOR LIST OF COMMON NAMES.

	Ash. I/II	Ash. IV/V	Bullen/ OHT	Graham	Hall	JBII	Lewis (early)	Lewis (late)
Rodent	-	-	0.1	-	0.1	-	-	-
Sciuridae	-	0.0	-	-	-	-	-	-
Marmota monax	-	-	-	0.1	0.2	0.2	0.1	-
Sciurus carolinensis	-	0.0	0.1	-	-	-	-	-
Tamiasciurus hudsonicus	0.2	-	-	-	-	-	-	-
Muridae	-	0.3	-	-	-	-	0.1	-
Cricetidae	-	0.0	0.1	-	-	-	-	-
Ondatra zibithecus	0.8	0.2	0.1	0.1	0.1	-	0.3	2.3
***Microtus* sp.**	-	-	-	-	-	0.7	-	-
***Rattus* sp.**	3.0	2.3	1.2	0.2	0.2	0.2	0.3	-
Mus musculus	-	0.0	-	-	-	-	-	-
Total rodent (%NSP)	4.0	2.9	1.8	1.1	0.6	1.1	0.8	2.3

Rats are omnipresent throughout the region but the largest assemblages are from the 19th- and early 20th-century Ashbridge deposits. Only two specimens of European house mouse (*Mus musculus*) were identified in a 20th-century assemblage. Muskrat (*Ondatra* *zibithecus*) was recovered from sites that are close to water and not in the city. Quite a few muskrats were identified at the Lewis site farmstead (NISP=33, MNI=3), 12 of which are from the same individual and likely accumulated naturally.

CARNIVORES

Urban assemblages only produced evidence of cats and dogs whereas rural sites had a greater variety of species (including racoon, skunk and possibly another mustelid) (Tables 6.16 and 6.17). These other species are likely a result of commensal behaviour (O'Connor 2013). Cats and dogs mostly comprised of juvenile associated bone groups (ABGs) mixed in with rubbish. Two skunk ABGs were identified at one rural site and are likely natural accumulations.

Dogs identified in the urban sites were represented by isolated/disarticulated bones and not proper burials. These may represent redistribution from a disturbed deposit. There is no evidence of butchery on any of these. A complete pet burial was found at Bell site and is reported elsewhere (Tourigny *et al*. 2016). Cats were present in almost every site, often as young ABGs that were not given proper burials (one cat recovered from F36 at the Queen Street site and two very young cats found at the Hall site). No evidence for skinning or other tool marks were identified on the cats. The role of cats and dogs as pets or dogs as working animals and cats as commensal animals would make for an interesting topic using local historical and archaeological data. However, it is beyond the scope of this thesis since the evidence suggests neither species played a direct role in local foodways.

TABLE 6.16: CARNIVORE SPECIES PRESENT (%NSP) AT URBAN SITES. NOTE: ONE ANALYST ONLY RECORDED THESE SPECIES AS PRESENT/ABSENT. SEE APPENDIX A FOR LIST OF COMMON NAMES.

	Queen (F36)	**Queen (F38)**	**Bell**	**BB (H3)**	**BB (H4)**	**BB (H5)**	**BB (H6)**	**Dollery (H2)**
***Canis* sp.**	-	-	-	-	-	Present	-	-
Canis familiaris	-	-	0.3	Present	-	Present	-	-
Felis catus	26.9 (MNI: 1)	0.2	-	Present	Present	Present	Present	0.7
Total Carnivore (%NSP)	**20.9**	**0.2**	**0.3**	**-**	**-**	**-**	**-**	**0.7**

TABLE 6.17: CARNIVORE SPECIES PRESENT (%NSP) AT RURAL SITES. CASES INDICATING 0.0% ARE A RESULT OF ROUNDING AND INDICATE THE SPECIES WAS IDENTIFIED IN LOW NUMBERS (I.E., ONE OR TWO SPECIMENS).

	Ash. I/II	**Ash. IV/V**	**Bullen/ OHT**	**Graham**	**Hall**	**JB II**	**Lewis (early)**	**Lewis (late)**
Carnivora	0.3	0.3	0.3	0.1	-	-	0.1	-
Canidae sp.	-	0.2	0.3	-	-	-	-	-
Procyon lotor	0.8	0.0	-	0.3	-	-	0.1	0.1
Mustelidae	-	-	-	-	0.1	-	0.1	-
Mephitis mephitis	-	-	-	-	-	-	1.5 (MNI:2)	-
Felidae	-	-	-	-	-	0.2	-	-
Felis catus	0.3	0.4	0.5	0.1	3.3 (MNI:2)	0.2	1.5 (MNI:1)	-
Total Carnivore (%NSP)	**1.4**	**0.9**	**1.1**	**0.5**	**3.4**	**0.4**	**3.3**	**0.1**

ARTIODACTYLS

Artiodactyls were the most common identifications in all assemblages, especially pigs, cattle and sheep (Tables 6.18 and 6.19; Figures 6.12 and 6.13). Very few deer were found and no moose were identified. The lack of moose is unsurprising as they are not common in the Carolinian forests that surround the city; nevertheless, the lack of deer is noteworthy and will be discussed later.

Among urban assemblages, results are variable in terms of the importance each species plays. Feature 36 at the Queen Street site is a bit of an anomaly as it was filled with cattle cranial elements and included many nearly complete cattle mandibles. This deposit may relate to some kind of cattle by-product industry occurring on site. An explanation for the butchery and lining of the privy with mandibles is out of the ordinary and difficult to explain. The majority of the sites had pig as the most common species although relative proportions ranged between sites. Cattle is generally the second most abundant species except for two of the Queen Street features, the Bell site and House 5 at the Bishop's Block site where caprines were dominant. Caprines are generally the third most frequent artiodactyl.

Not including the John Beaton II site, where fewer, smaller taxa were identified, artiodactyls represent 11 to 21% of total rural assemblages. Again, pigs are generally the most dominant species, with cattle second and caprines in third. The Hall site differed with cattle being the most abundant. At John Beaton II, caprines are almost as numerous as pigs. Deer is only present in small numbers at two rural assemblages. There are no striking differences between rural and urban assemblages based on the proportion of artiodactyls.

Figure 6.14 organizes the various sites in chronological order from the earliest to the latest deposits. These are only roughly organized as some deposits were dated to broader time spans than others. Once again, trends in exploitation patterns are not obvious beyond the fact that pigs and cattle provided most meat for consumption while sheep (maybe goat) played a secondary role in most households. Deer did not figure heavily in any assemblage at all. The following sections further discuss the archaeological data for the three most consumed species.

Table 6.18: Artiodactyl species distribution at urban sites (%NSP). Cases indicating 0.0% are a result of rounding and indicate the species was identified in low numbers (i.e., one or two specimens). See appendix A for list of common names.

	Queen (F36)	Queen (F38)	Queen (F46)	Bell	BB (H3)	BB (H4)	BB (H5)	BB (H6)	Dollery (H1)	Dollery (H2)
Artiodactyla	0.3	1.3	2.6	1.1	-	-	-	-	-	-
Large	-	0.4	1.1	-	0.0	-	-	-	-	-
Medium to large	0.3	0.7	3.7	-	-	-	-	-	-	-
Medium	0.3	2.0	7.4	4.5	0.1	0.1	0.1	0.2	4.2	3.6
Cervidae	-	-	-	-	-	-	-	-	-	-
Odocoileus virginianus	-	-	-	-	0.1	-	-	-	-	-
Bos taurus	40.7	10.6	16.4	10.1	4.3	3.5	3.9	10.5	10.7	3.6
Caprinae	-	6.4	8.5	6.6	4.7	3.4	8.0	8.8	9.0	6.1
Sus scrofa	0.9	1.8	17.5	4.3	7.9	20.4	4.6	14.2	15.1	15.6
Total artiodactyl (%NSP)	**42.5**	**23.2**	**57.2**	**26.6**	**17.1**	**27.4**	**16.6**	**33.7**	**39**	**28.9**

Table 6.19: Artiodactyl species distribution at rural sites (%NSP). Cases indicating 0.0% are a result of rounding and indicate the species was identified in low numbers (i.e., one or two specimens). See appendix A for list of common names.

	Ash. I/II	Ash. IV/V	Bullen/ OHT	Graham	Hall	JB II	Lewis (early)	Lewis (late)
Artiodactyla	0.8	0.8	0.5	0.5	0.4	1.5	0.7	0.8
Large	0.2	0.1	0.1	0.1	0.4	0.5	0.1	0.1
Medium to large	0.2	0.4	0.5	0.4	0.3	-	0.3	-
Medium	1.8	1.3	1.1	0.9	0.3	11.1	0.8	0.8
Cervidae sp.	-	0.0	-	-	-	-	-	-
Odocoileus virginianus	0.3	0.1	-	0.8	-	-	-	-
Bos taurus	3.3	3.6	2.4	1.1	8.0	5.0	1.8	5.1
Caprinae	1.2	0.8	0.7	0.6	2.4	12.1	0.9	1.7
Sus scrofa	10.7	7.6	6.6	6.8	5.1	13.9	13.4	8.9
Total artiodactyls (%NSP)	**18.7**	**14.9**	**11.9**	**11.2**	**16.9**	**44.1**	**18.0**	**17.4**

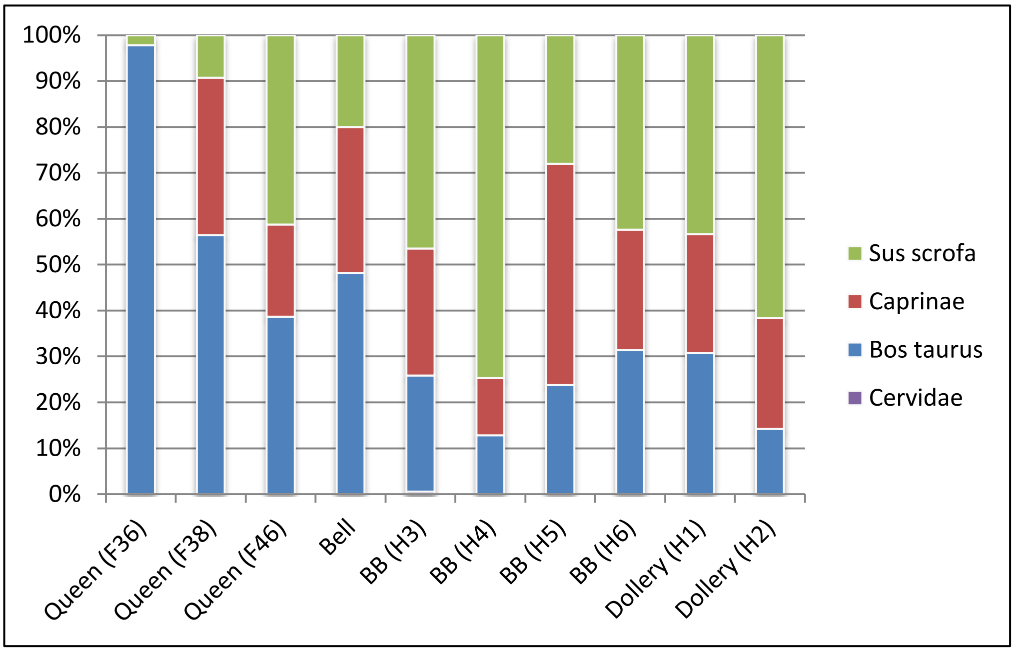

FIGURE 6.12: RELATIVE PROPORTION OF CERVIDS, CATTLE, CAPRINES AND PIGS AT URBAN SITES.

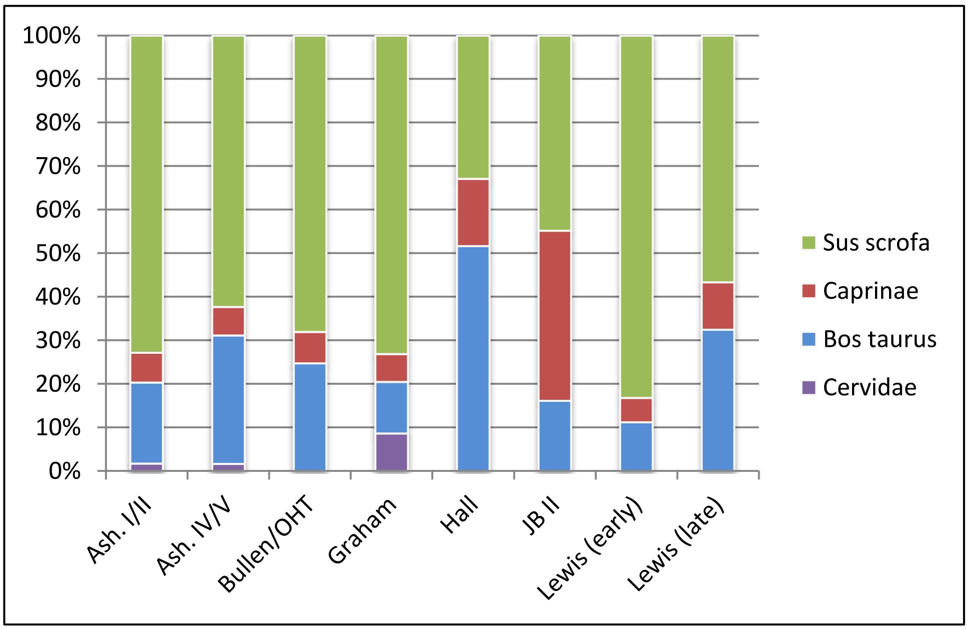

FIGURE 6.13: RELATIVE PROPORTION OF CERVIDS, CATTLE, CAPRINES AND PIG AT RURAL SITES.

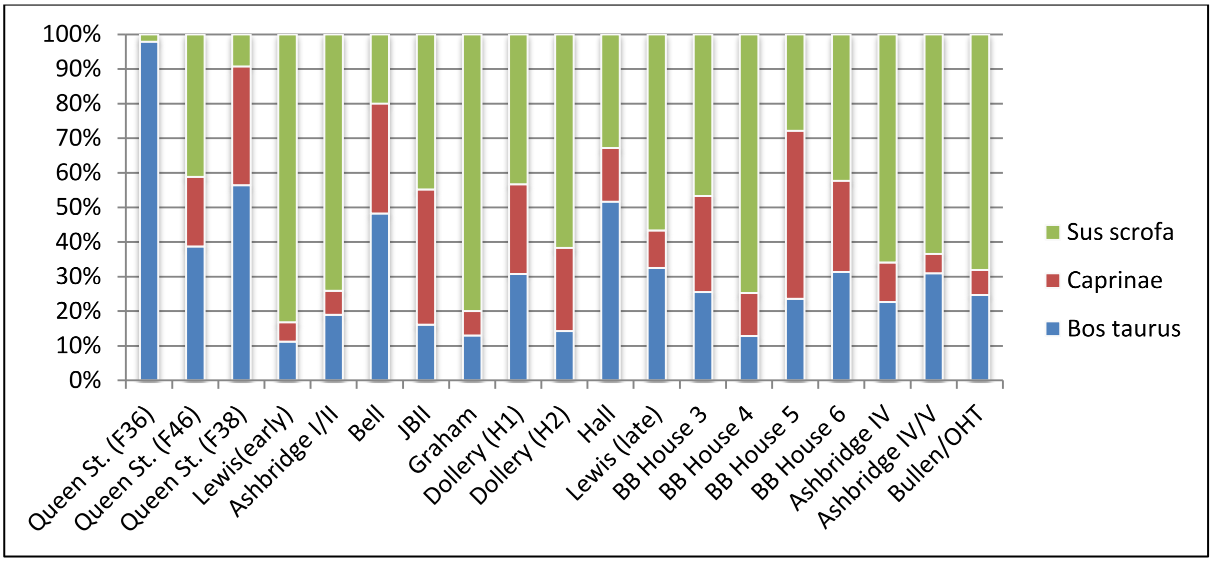

FIGURE 6.14: RELATIVE PROPORTION OF CATTLE, CAPRINES AND PIGS WITH DEPOSITS ORDERED CHRONOLOGICALLY.

CATTLE

This section further explores cattle exploitation amongst the different sites included in this study with a focus on age at death and body portion representation. In each section, the analyses are divided according to urban or rural locations.

AGE AT DEATH

The following figures summarize the age at death for cattle remains from urban and rural assemblages.

URBAN ASSEMBLAGES

QUEEN STREET, FEATURE 36

The majority of cattle specimens recovered from this privy were cranial elements. Only two post-cranial elements presented information on the state of epiphyseal fusion. These include one fused innominate (which fuses in the first year of life) and one unfused distal radius (fuses at 24-36 months). The recovery of these two specimens does not shed light on the typical age at death for cattle remains found in this assemblage. Fortunately, 23 mandible specimens were recovered from the privy. These were all found lining the walls of the structure. Although disarticulated from one another, most of the recovered specimens could be paired with an opposing mandible. All mandibles were fully erupted and in wear (except for Mandible 3, whose P4 was erupting and dp4 was still present). Table 6.20 lists the ages of all right sided mandibles according to two methods of ageing, Grant's (1982) wear stages and Jones and Sadler's (2012) Cement-Enamel Junction (CEJ) position.

TABLE 6.20: AGE AT DEATH OF CATTLE MANDIBLES (RIGHTS ONLY) IN F36 ACCORDING TO TOOTH WEAR AND CEJ POSITION

	Age according to Grant (1982) wear stages (Hambleton, 1999)	Age according to CEJ Position (Jones and Sadler, 2012)
Mandible 1	Adult	N/A
Mandible 2	Old adult	Elderly
Mandible 3	30-36 mo.	Subadult 1,2
Mandible 4	Senile	Elderly
Mandible 5	Old adult	Elderly
Mandible 6	Old adult	Elderly
Mandible 7	Senile	Elderly
Mandible 8	Senile	Elderly
Mandible 9	Senile	Elderly
Mandible 10	Old adult	Elderly
Mandible 11	Old adult	Elderly

Results indicate that all but one of the cattle were elderly individuals and featured significant wear on their teeth. The youngest individual was aged 30-36 months and also featured well-worn teeth and well-worn deciduous fourth premolars. The age profiles observed here differ starkly from other deposits in this study.

QUEEN STREET, FEATURE 38

A minimum number of 10 elements could be assessed for age at death (Figure 6.15). Similar to the privy assemblage represented by Feature 36, this privy is made up of mostly adult/elderly individuals. Exceptions include a lumbar vertebra, and a metatarsal which are from juvenile individuals.

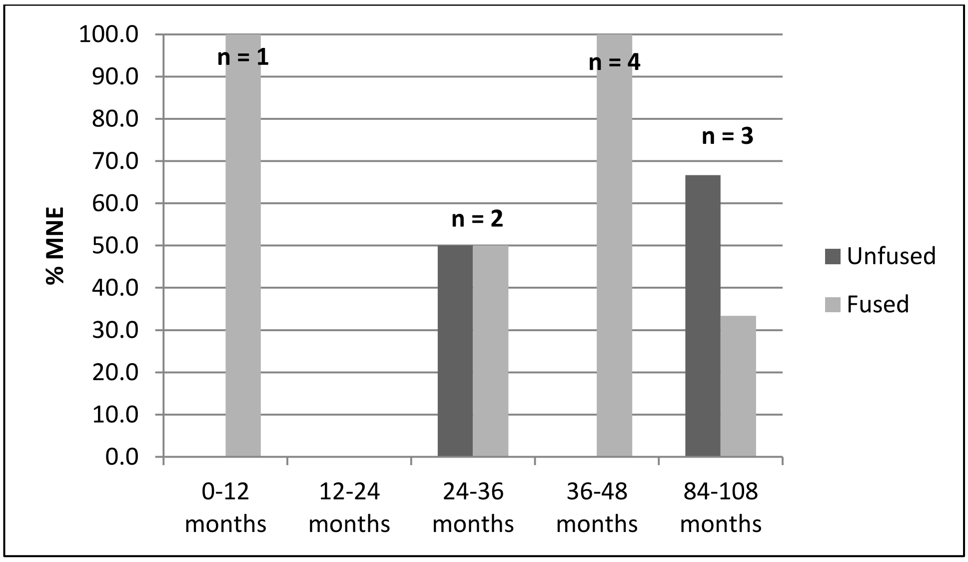

FIGURE 6.15: AGE AT DEATH OF POST-CRANIAL CATTLE SKELETON ACCORDING TO EPIPHYSEAL FUSION FOR FEATURE 38, QUEEN STREET SITE

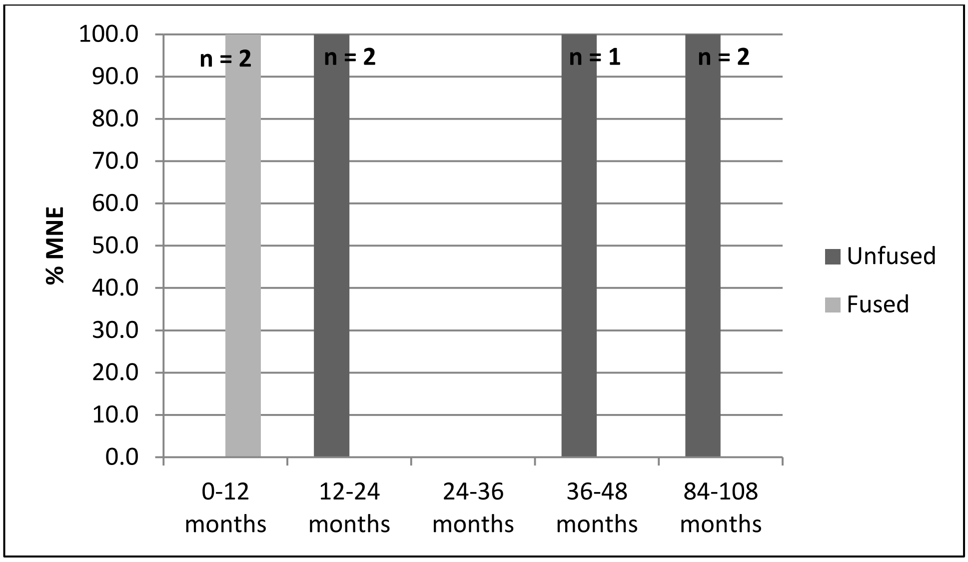

FIGURE 6.16: AGE AT DEATH OF POST-CRANIAL CATTLE SKELETON ACCORDING TO EPIPHYSEAL FUSION FOR FEATURE 46, QUEEN STREET SITE

QUEEN STREET, FEATURE 46

A minimum of seven elements were used to identify sites of epiphyseal fusion (Figure 6.16). Unlike the other privies, most specimens were younger than one to two years of age.

BELL

A minimum of 20 cattle elements featured sites of epiphyseal fusion. Although low in sample size for elements fusing prior to 24 months of age, Figure 6.17 shows most cattle were slaughtered earlier in life (before three years of age) but some were retained beyond 84-108 months. One loose third lower molar was identified with a wear pattern indicating an individual aged between 30-36 months (Hambleton 1999).

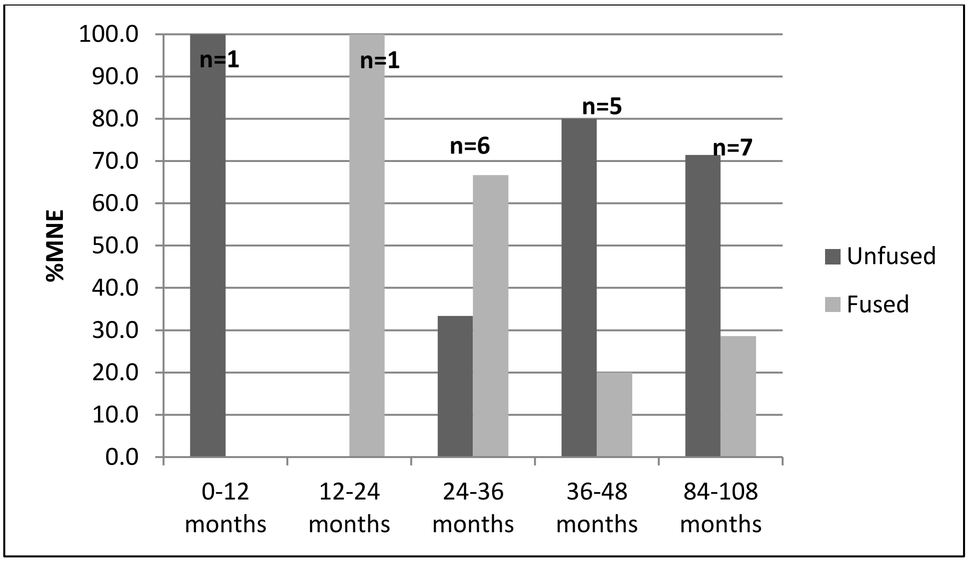

FIGURE 6.17: AGE AT DEATH OF POST-CRANIAL CATTLE SKELETON ACCORDING TO EPIPHYSEAL FUSION FOR BELL SITE ASSEMBLAGE.

BISHOP'S BLOCK

Despite the larger samples included in the Bishop's Block assemblages, Houses 5 and 6 did not contain any specimens featuring epiphyseal fusion sites from 0-12 months of age, thus explaining the trend lines seen in Figure 6.18. The data indicate the presence of both young and older cattle in the assemblages, perhaps in similar proportions. Thirty one specimens from House 3 that do not comprise a site of epiphyseal fusion were from juvenile and neo/natal individuals, as were 10 specimens from House 4, six specimens from House 5 and eight specimens from House 6. This confirms the presence of younger individuals for these assemblages.

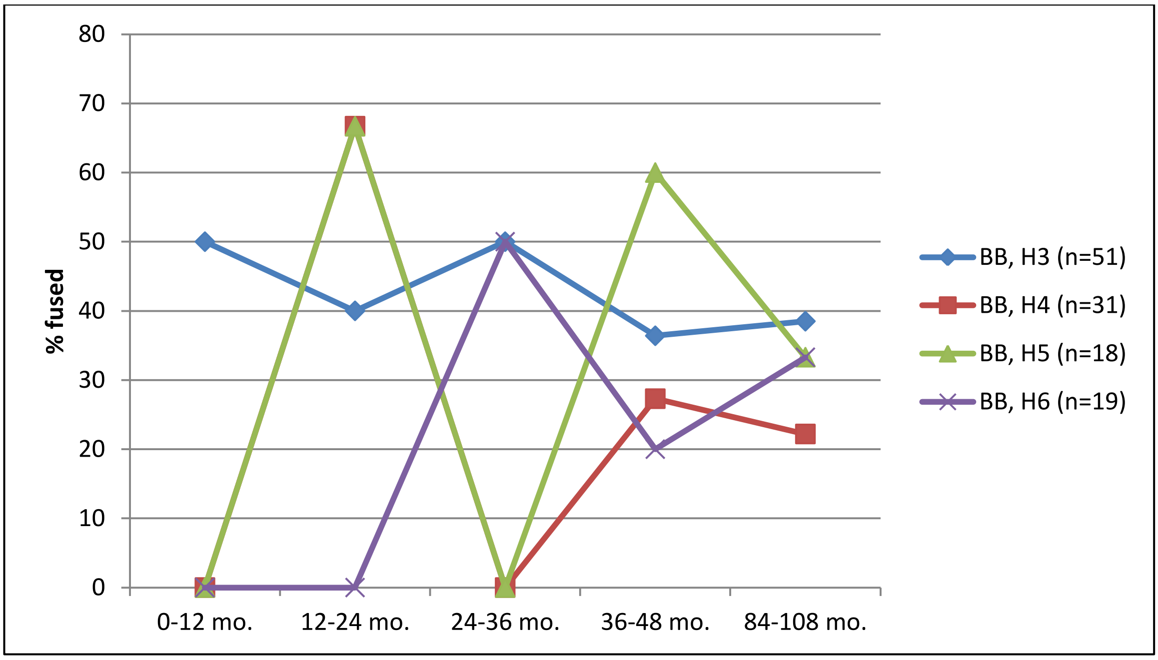

FIGURE 6.18: AGE AT DEATH OF POST-CRANIAL CATTLE SKELETON ACCORDING TO EPIPHYSEAL FUSION FOR BISHOPS' BLOCK ASSEMBLAGES.

DOLLERY, HOUSE 1

A minimum of 17 specimens from the Dollery's House 1 provided age at death information. Figure 6.19 identifies young and old individuals; however, most seem to have been slaughtered prior to 36-48 months of age. No specimens with juvenile cortex were identified in this assemblage.

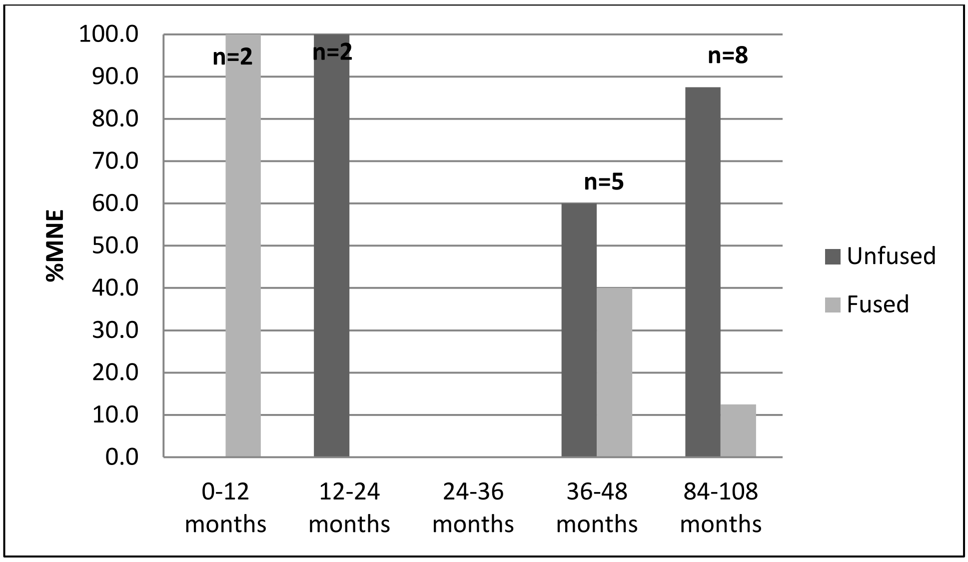

FIGURE 6.19: AGE AT DEATH OF POST-CRANIAL CATTLE SKELETON ACCORDING TO EPIPHYSEAL FUSION FOR DOLLERY HOUSE 1.

DOLLERY, HOUSE 2

A minimum of 11 specimens from House 2 represent sites of epiphyseal fusion (Figure 6.19). Both young and old individuals are present.

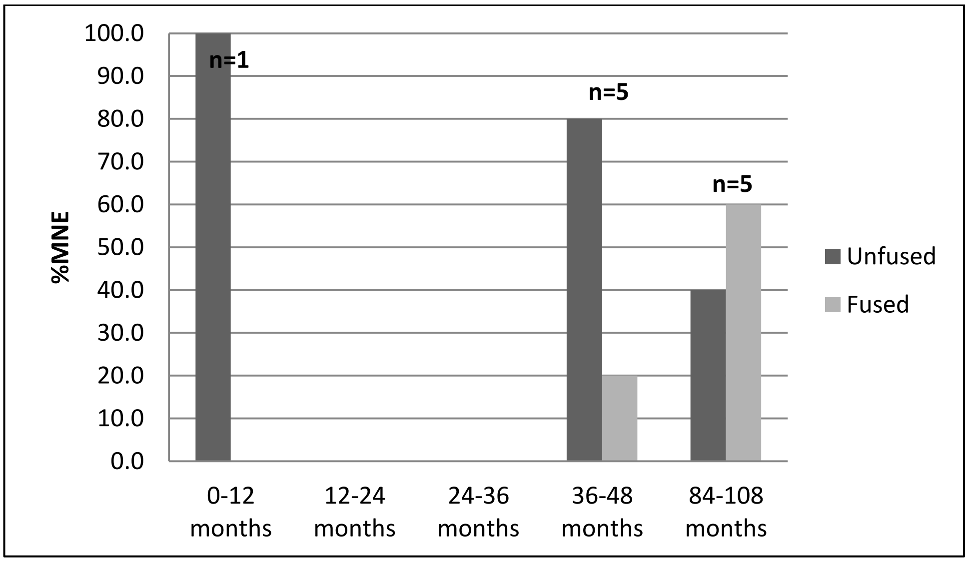

FIGURE 6.20: AGE AT DEATH OF POST-CRANIAL CATTLE SKELETON ACCORDING TO EPIPHYSEAL FUSION FROM HOUSE 2, DOLLERY SITE

RURAL ASSEMBLAGES

ASHBRIDGE I/II

Only two usable specimens were identified in the earliest assemblage of the Ashbridge Estate. One of these is from a juvenile below one year of age the other was a mandible aged 18-30 months.

ASHBRIDGE IV/V

A larger sample was present in the Ashbridge IV/V assemblage (Figure 6.21). Results indicate that the majority of cattle were killed after 36 months of age with a few being kept alive beyond 84-108 months. Three specimens, a right temporal bone fragment and two phalanges exhibited juvenile cortex, indicating the presence of very young individual(s).

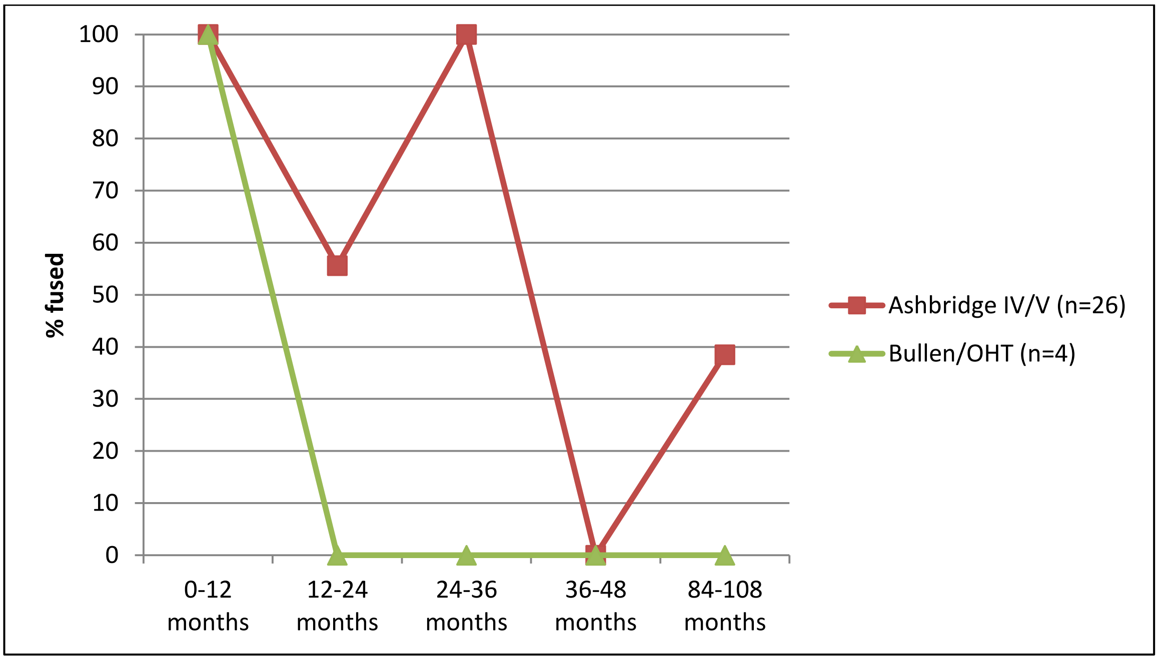

Figure 6.21: Age at death of post-cranial cattle skeleton according to epiphyseal fusion Ashbridge Estate assemblages.

BULLEN/OHT

A minimum of only four specimens from the Bullen/OHT occupation of the Ashbridge Estate could be aged. These were mostly young individuals with one at least over a year of age. A fragment of mandibular condyle came from a juvenile/neo-natal individual.

GRAHAM

Only three specimens from the Graham site represent centres of epiphyseal fusion. Two of these were unfused vertebrae indicating the presence of an individual below 84-108 months of age. The other specimen is a fused scapula indicating the presence of an individual older than 12 months.

HALL

A minimum of 26 specimens representing regions of epiphyseal fusion were identified in the Hall assemblage (Figure 6.22). Few of these represent centres that ossify before 36 months of age. Results suggest most individuals died before reaching 36 months of age with a few kept beyond 84-108 months. One mandible fragment was identified of an individual with a newly erupted P4 not yet in wear suggesting it was around 30-36 months of age.

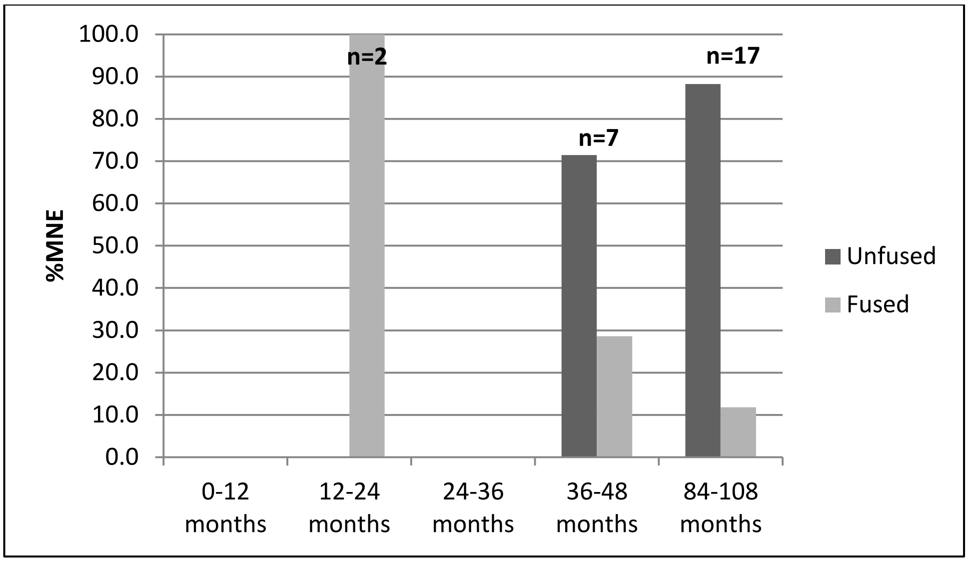

FIGURE 6.22: AGE AT DEATH OF POST-CRANIAL CATTLE SKELETON ACCORDING TO EPIPHYSEAL FUSION FROM THE HALL SITE

JOHN BEATON II

Only six cattle specimens recovered from the JBII site provided information on age at death (Figure 6.23). This suggests the presence of individuals younger than 12 months and others older than 36-48 months of age.

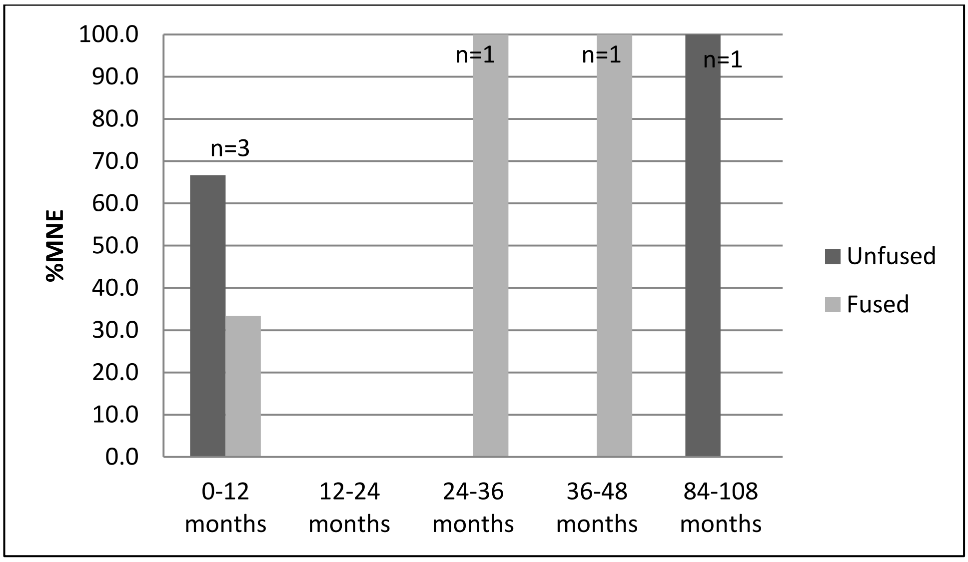

FIGURE 6.23: AGE AT DEATH OF POST-CRANIAL CATTLE SKELETON ACCORDING TO EPIPHYSEAL FUSION FROM THE JOHN BEATON II SITE.

LEWIS

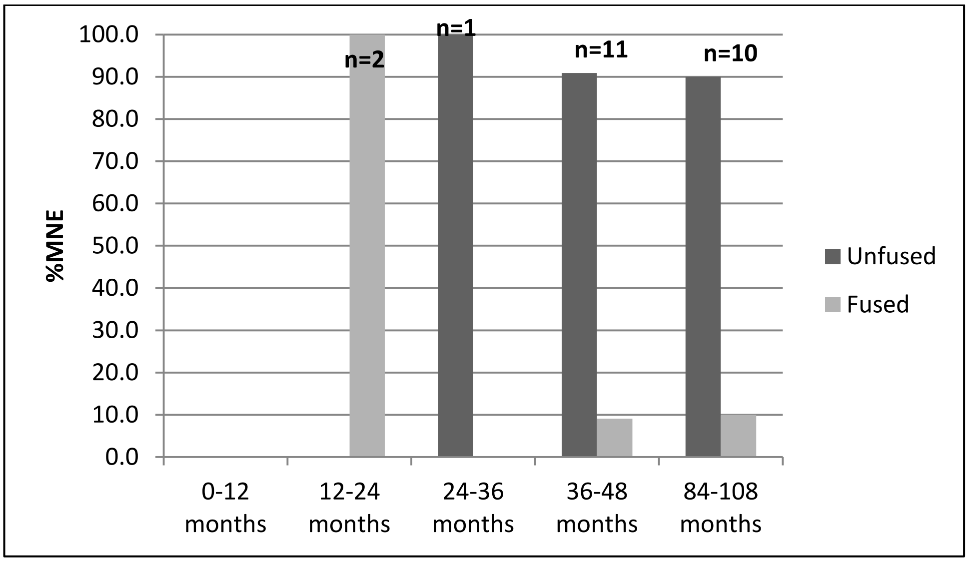

FIGURE 6.24: AGE AT DEATH OF POST-CRANIAL CATTLE SKELETON ACCORDING TO EPIPHYSEAL FUSION FROM THE LATE 19TH-CENTURY COMPONENT OF THE LEWIS SITE

Only two unfused cattle vertebrae were recovered from the early component. Multiple loose teeth fragments were identified but were not useful in determining age at death. One third molar was barely in wear suggesting an individual older than 24-30 months. A minimum of 24 elements in the late 19th-century assemblage of the Lewis site represent centres of epiphyseal fusion (Figure 6.24). The majority of these are individuals younger than 36 months of age with few having lived beyond 84-108 months.

SUMMARY OF CATTLE AGE AT DEATH

Figures 6.25 and 6.26 compare the urban and rural assemblages with the largest samples. The overall pattern suggests the majority were killed between 24 and 36 months. Between 10 and 40% of cattle remains are from elderly individuals who survived beyond 84-108 months and few sites contained evidence of veal. The figures make it appear as though the Hall and Lewis assemblages contained only unfused specimens in the “0-12 mo.” category, this is not the case (see Figures 6.23 and 6.24). Small numbers of veal were identified among urban sites (Bell, Houses 3 & 4 at Bishop’s Block, and House 2 at Dollery) and two rural assemblages (Ashbridge I/II, JBII).

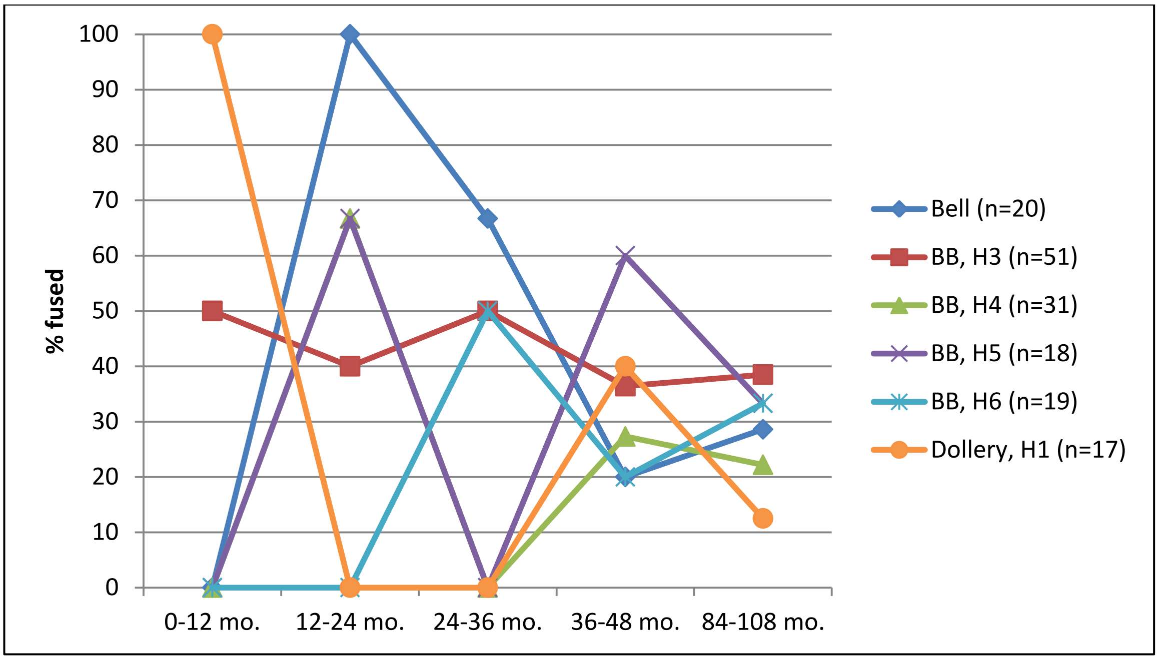

FIGURE 6.25: AGE AT DEATH OF POST-CRANIAL CATTLE SKELETON ACCORDING TO EPIPHYSEAL FUSION FOR URBAN SITES WITH LARGEST SAMPLE SIZES.

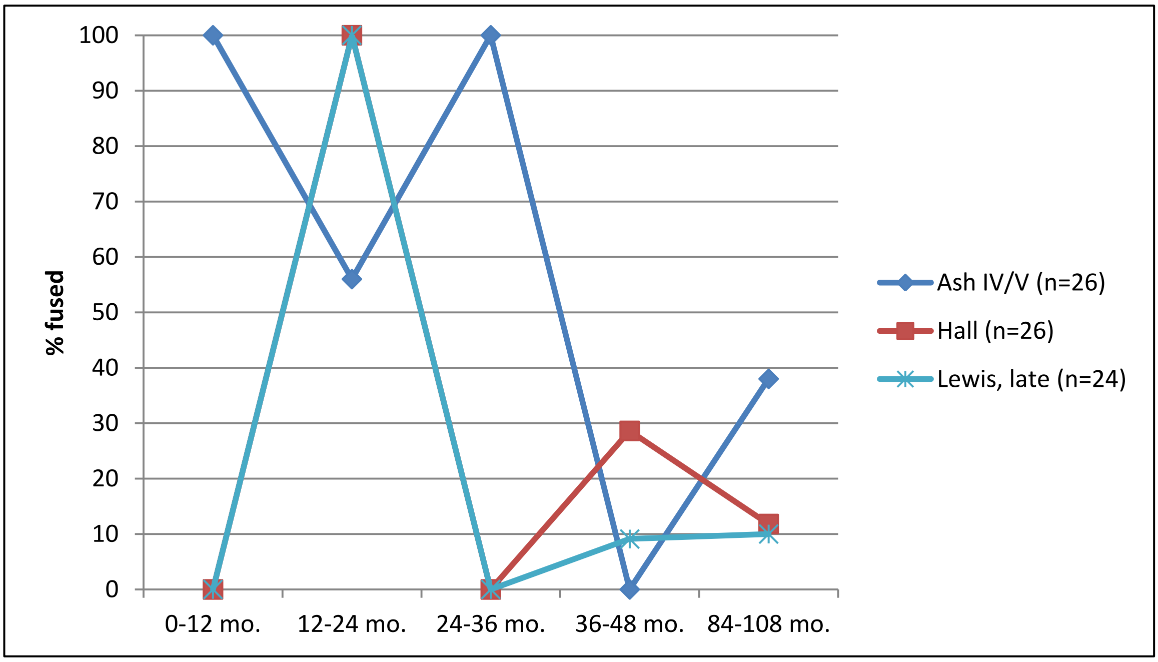

FIGURE 6.26: AGE AT DEATH OF POST-CRANIAL CATTLE SKELETON ACCORDING TO EPIPHYSEAL FUSION FOR RURAL SITES WITH LARGEST SAMPLE SIZES.

BODY PORTION REPRESENTATION

The analysis of body portion representation was achieved through the calculation of the percentage Minimum Animal Units (%MAU) for each element identified in an assemblage. The resulting charts are quite large and, for this reason, they are presented in Appendix C and are only summarized in this section.

QUEEN STREET ASSEMBLAGES

There was a strong over-representation of cranial elements and mandibles in the Feature 36 privy and few other body parts were represented. The fill contained numerous skull fragments, many of which were only identified as belonging to a large mammal, likely cattle. Mandibles, frontal and nasal bones were the most over-represented according to %MAU but this may be due to the distinctive morphology of these elements and their ease of identification.

This privy context is almost entirely composed of cattle specimens, nearly all of which are head fragments or complete mandibles from very old cattle. The mandibles appeared to line the privy walls and were all butchered in a similar pattern (see butchery section later in chapter). The faunal component of this privy is drastically different from every other context analysed in this study. The nature of the context suggests it does not directly represent a domestic foodways deposit. Although I do not presume to suggest what the cattle remains were used for, I suspect they are the result of some other activity that may or may not have occurred at the site. This context will not be considered when developing a discussion of foodways during this period.

Mandibles are also overrepresented in the Feature 38 assemblage; however, there is an even distribution of most other body portions, including forelimb, hind limb and distal extremities. Elements of the thorax (ribs and vertebrae) were slightly underrepresented here, and in most other deposits. However, this likely relates to the difficulties identifying these elements to species and determining MNE values from the many small fragments. Feature 46 is different from the other privies: a smaller sample of cattle remains was recovered and no elements from the head were identified. Only a few specimens from the forelimb, hind limb and some from extremities were identified.

BELL

The cattle assemblage from the Bell site consists of a fairly even representation of elements from the forelimb, hind limb, head and thorax. Of interest is a slight over-representation of elements associated with distal extremities, especially metapodials.

BISHOPS' BLOCK

House 3 and 4 cattle assemblages were fairly similar in body portion representation. Elements from all parts of the body were identified but elements of the head/neck, shoulder and elbow joints appear to be the most represented, followed by elements associated with the distal extremities. The House 5 assemblage is quite different, with elements of the elbow joint being over-represented and an even distribution of elements from the hind leg. All body parts were represented in this assemblage. The House 6 assemblage is also different, once again all body portions are represented but elements of the anterior and posterior loin are equally dominant alongside elements of the elbow and stifle joints.

DOLLERY

The sacrum was the most abundant element at both houses of the Dollery site, associated with the posterior loin wholesale cut. Elements of the fore and hind limbs were more evenly distributed whereas neck vertebrae and a couple elements from the distal extremities were also identified.

THE ASHBRIDGE ESTATE

Unfortunately, the 19th-century cattle assemblage from this site was fairly small and the most abundant elements appear to be from the head. A few elements from the hind limb and the thorax were recovered as were some elements from the distal extremities. The site's biggest sample of cattle specimens derives from the Ashbridge IV/V assemblage which shows a fairly even distribution across all body portions. No particular body part seems to be under-represented or missing. The later 20th-century assemblage is also quite small.

GRAHAM

The Graham site cattle assemblage represents a small sample where the sacrum and distal scapula are the most abundant elements followed by the maxilla, distal femur and a carpal.

HALL

The Hall site represents one of the largest rural cattle assemblages in this study and suggests an overrepresentation of vertebrae C1 and C2. Elements from the forelimb and hind limb are fairly evenly distributed and elements from the distal extremities are also present.

JOHN BEATON II

This is a smaller assemblage but one that shows an abundance of elements from the head and neck alongside elements from the loin and hind limbs. Only a few ribs and no elements from the forelimbs or distal extremities were recovered.

LEWIS

The early assemblage at the Lewis site is very different from the later assemblage. It is mostly composed of elements of the head and distal extremities. Whereas the later assemblage displays a more even representation of all body parts.

SUMMARY – CATTLE BODY PORTION REPRESENTATION

No discernible patterns in cattle body portion representation emerged between rural and urban assemblages. Elements of the head were present in nearly every assemblage (exceptions: F46 at Queen Street, House 6 at Bishop's Block and the Dollery site) and in many cases were the most abundant body part (F36 and F38 at Queen Street, Houses 3 and 4 at Bishop's block, Ashbridge I/II, the Hall, JBII and early Lewis sites). All sites featured an absence or under-representation of elements from the hooves (phalanges and metapodials). The Bell site is an exception with an over-representation of metacarpals. However, elements from the carpal or tarsal joints are regularly identified and in some cases represent some of the most abundant specimens within an assemblage (House 3 at Bishop's Block, Ashbridge IV/V, and early occupation at the Lewis site). Elements of the thorax (ribs and vertebrae) were generally under-represented in all assemblages; likely a result of the difficulty in assigning these bone fragments to species. A large portion of artiodactyl and mammal identifications are composed of rib and vertebra specimens. A few exceptions include House 6 at Bishop's Block and House 1 at Dollery which both had an abundance of lumbar vertebrae and the Ashbridge IV/V assemblage which was abundant in rib fragments and thoracic vertebrae. Elements associated with the upper limbs (elements proximal to the carpal/tarsal joints) were present in nearly every assemblage and often evenly distributed without being particularly over or under-abundant. No particular element from either the fore or hind limb was constantly prevalent amongst all assemblages.

CAPRINES

AGE AT DEATH

The following figures summarize the age at death for caprine remains from urban and rural assemblages.

URBAN ASSEMBLAGES

QUEEN STREET

Only two of the Queen Street assemblages contained caprine specimens. Sixteen from Feature 38 were useful in providing age at death information (Figure 6.27) and suggest most specimens were killed between 12 and 48 months of age.

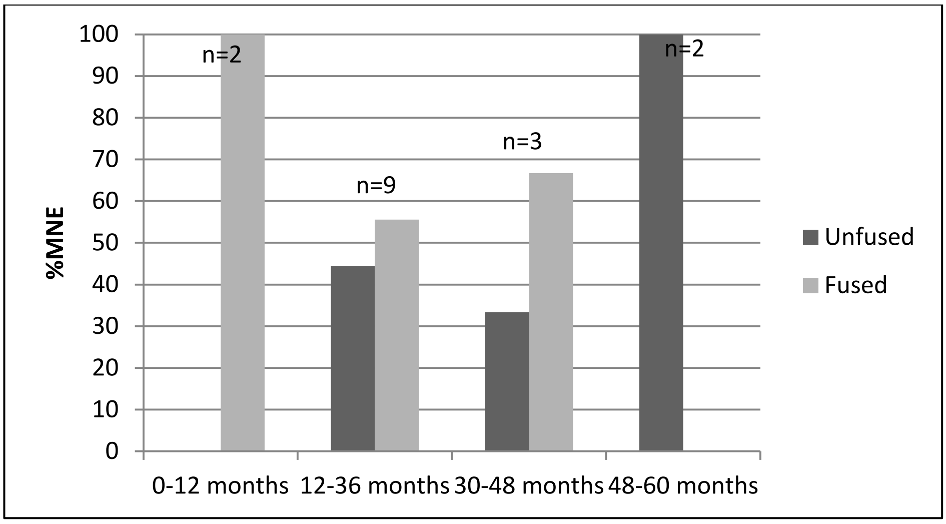

FIGURE 6.27: SUMMARY OF EPIPHYSEAL FUSION FOR CAPRINE SPECIMENS RECOVERED FROM FEATURE 38 OF THE QUEEN STREET SITE

Twelve specimens from Feature 46 consisted of sites of epiphyseal fusion. Figure 6.28 suggests the presence of both lamb and mutton at the site.

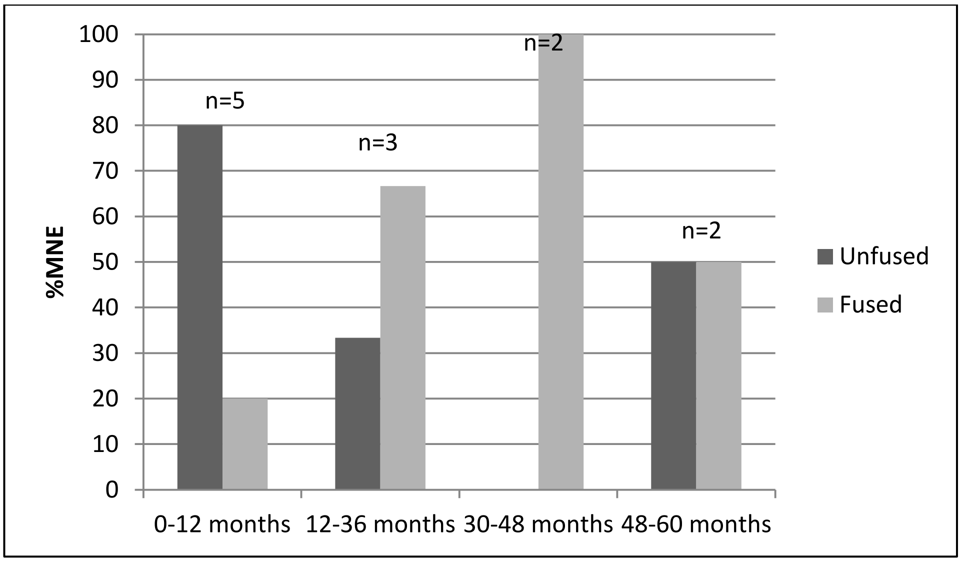

FIGURE 6.28: CAPRINE AGE AT DEATH ESTIMATIONS FROM FEATURE 46 AT THE QUEEN STREET SITE

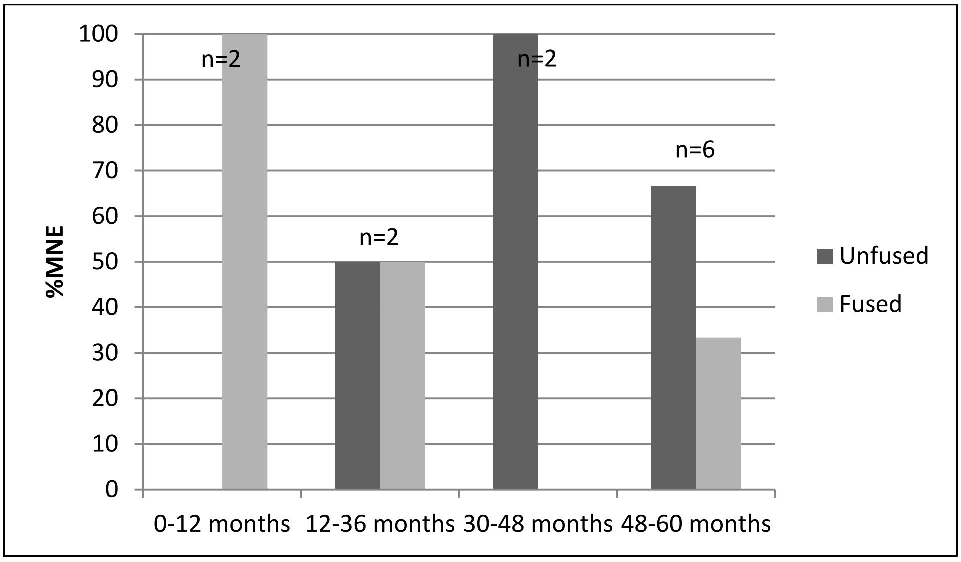

FIGURE 6.29: SUMMARY OF AGE AT DEATH ACCORDING TO EPIPHYSEAL FUSION FOR THE BELL SITE CAPRINE ASSEMBLAGE.

BELL

A total of 12 specimens including sites of epiphyseal fusion were identified in the caprine assemblage of the Bell site (Figure 6.29). The majority of animals died between 12 and 48 months of age but a few made it into later adulthood, surviving beyond 48-60 months. One mandible was recovered where Grant's MWS suggests 3-4 years at time of death.

BISHOP'S BLOCK

The kill-off patterns for caprines at three of the four Bishop's Block assemblages are similar (Figure 6.30). Most individuals survive the first twelve months of life and are slaughtered between 12 and 48 months of age. A few survive to later adulthood (beyond 48 to 60 months). House 6 data suggest otherwise but this may be a result of sample size as only one fused specimen was recovered from the 48-60 month fusion period. Two mandibles were recovered from House 3, one is from a 5 month old and the other is older than 3 months and retains deciduous, but worn, premolars.

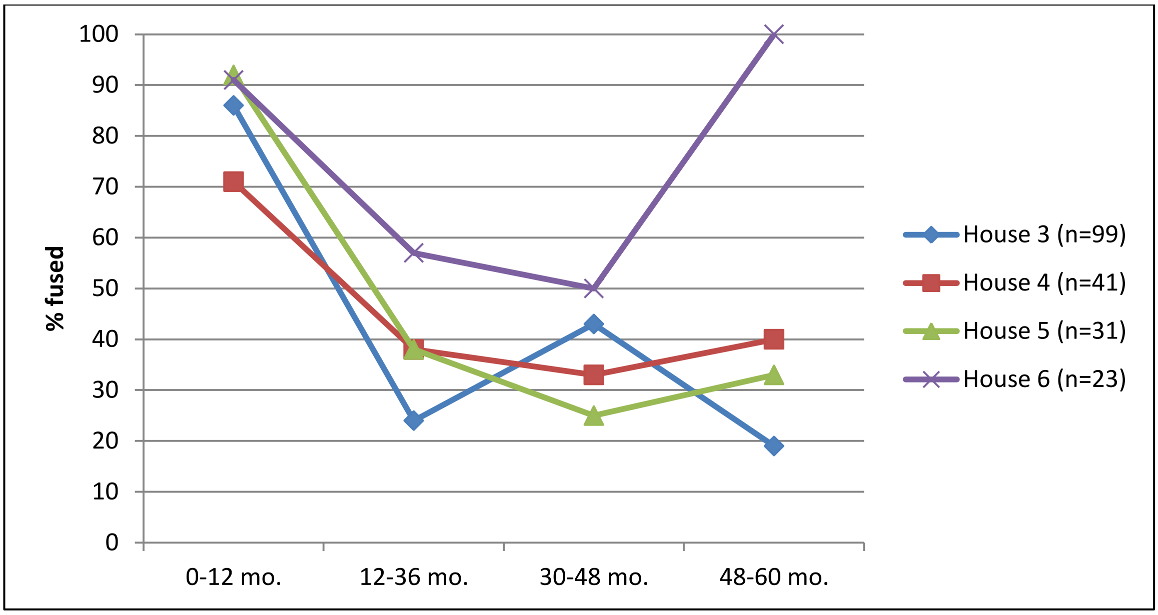

FIGURE 6.30: SUMMARY OF AGE AT DEATH ACCORDING TO EPIPHYSEAL FUSION FOR CAPRINES AT THE FOUR BISHOP'S BLOCK SITES

DOLLERY

A total of 26 specimens from Dollery House 1 featured centres of epiphyseal fusion. The trends observed are of two separate kill-off times: one shortly after the first year of life and the other between 48 and 60 months. Few survive into late adulthood beyond 48 to 60 months of age. Unfortunately, only 5 specimens from House 2 featured centres of epiphyseal fusion, the pattern seen here is of sheep slaughtered after 12 months (Figure 6.31). Two mandibles from one individual were identified in House 2. Eruption and wear patterns suggest 6-12 months of age at time of death.

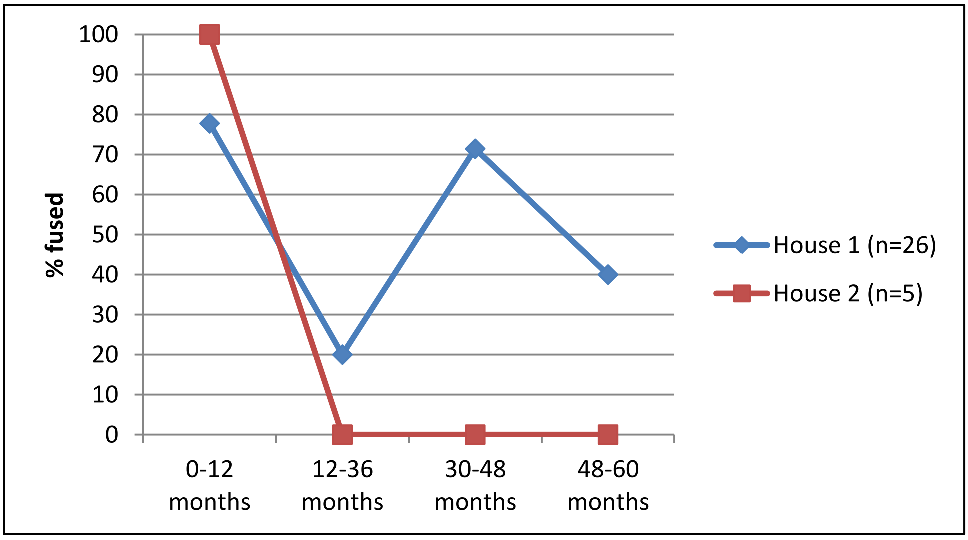

FIGURE 6.31: SUMMARY OF AGE AT DEATH ACCORDING TO EPIPHYSEAL FUSION FOR CAPRINES AT THE DOLLERY SITE.

Rural assemblages

ASHBRIDGE

Only four specimens with evidence of age at death were recovered from the 19th-century assemblage at the Ashbridge Estate. These include two vertebrae that were fully fused suggesting an adult of over 48-60 months old. The majority of specimens from the early 20th-century assemblage were slaughtered early in life with only a few surviving beyond 48-60 months. However, there appears to be a pattern where some individuals are killed shortly after reaching their first year of life (Figure 6.32). One mandible with three premolars (dP2, dP3 and dP4) was identified suggesting an individual younger than 1.5 to 2 years. Only one loose, lower third molar was recovered from the Bullen/OHT assemblage. It had a wear stage suggesting a 2-3 year old individual.

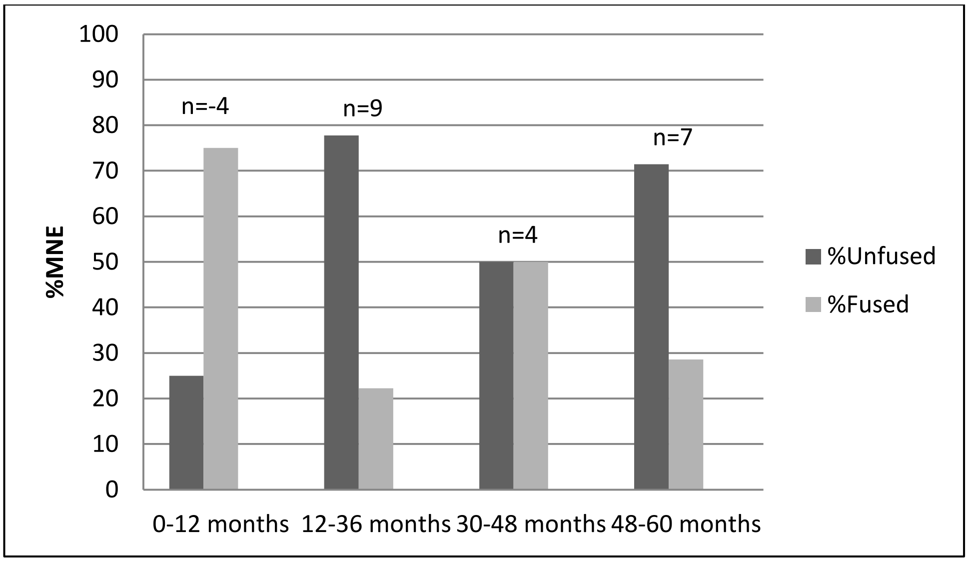

FIGURE 6.32: SUMMARY OF AGE AT DEATH ACCORDING TO EPIPHYSEAL FUSION FOR CAPRINES AT THE ASHBRIDGE IV/V ASSEMBLAGE.

GRAHAM

Only three bones recovered from the Graham site had centres of epiphyseal fusion, all of which were from individuals older than 12-36 months.

HALL

A total of 12 bones provided information on age at death at the Hall site. The majority seem to have been culled prior to 48 months of age while a few survived into later adulthood (Figure 6.33).

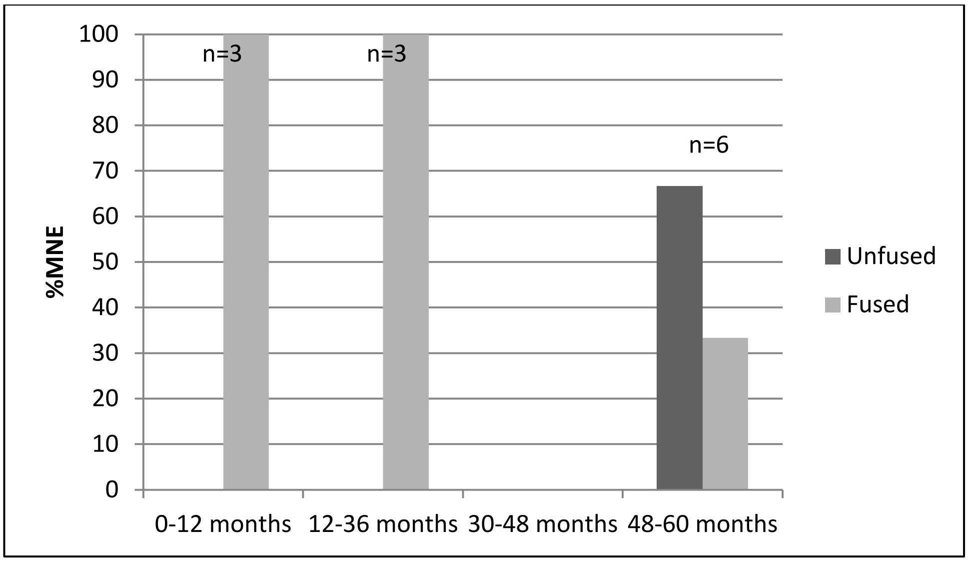

FIGURE 6.33: SUMMARY OF AGE AT DEATH ACCORDING TO EPIPHYSEAL FUSION FOR CAPRINES AT THE HALL SITE

JOHN BEATON II

A total of 24 centres of epiphyseal fusion were identified in the JBII assemblage (Figure 6.34). Results suggest caprines were not culled until they passed 12 months of life and a few were kept beyond 48 to 60 months of age (although sample size for late fusing sites is small). As was noted earlier in the chapter, this site featured the most carnivore gnawing, a taphonomic process that is preferentially destructive to younger bones and may explain the lack of young bones seen here (Lyman 1994a: 21-22). Two mandibles, possibly from the same individual, gave an age of 4-6 years based on wear patterns.

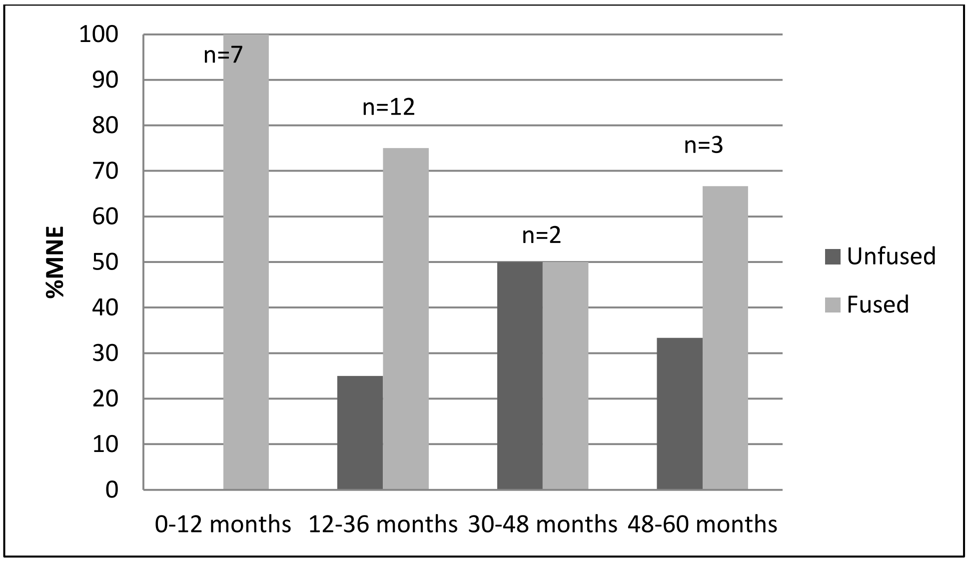

FIGURE 6.34: SUMMARY OF AGE AT DEATH ACCORDING TO EPIPHYSEAL FUSION FOR CAPRINES AT THE JOHN BEATON II SITE

LEWIS

Only eight centres of epiphyseal fusion were identified in the early Lewis site assemblage: four early fusing sites were fused and the remainder were unfused. Twelve sites of epiphyseal fusion were found at the later Lewis site assemblage (Figure 6.35) with most surviving into later adulthood (beyond 48-60 months) and only a few killed prior to reaching 30-48 months. A mandible recovered from this assemblage is aged at 1-2 years according to wear patterns.

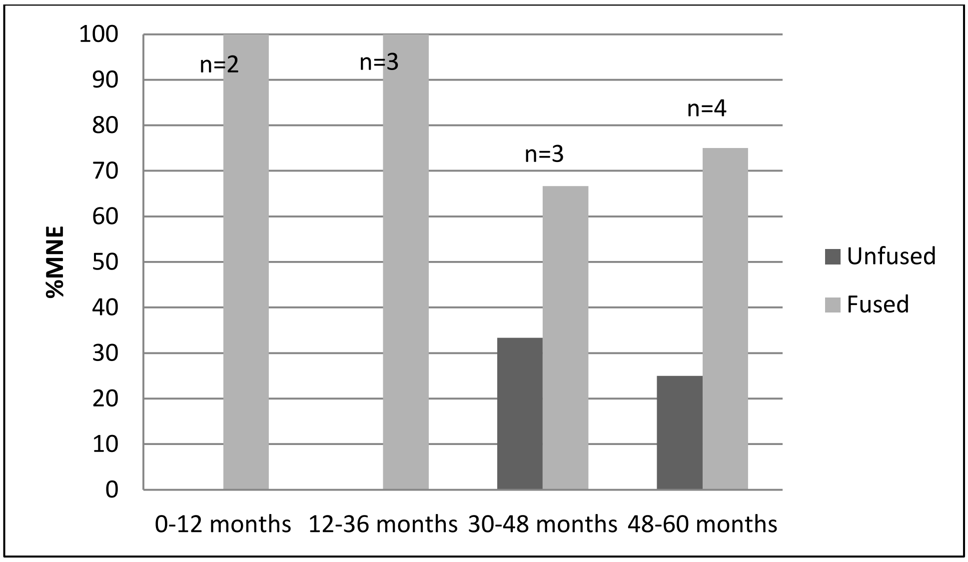

FIGURE 6.35: SUMMARY OF AGE AT DEATH ACCORDING TO EPIPHYSEAL FUSION FOR CAPRINES AT THE LEWIS SITE, LATE OCCUPATION

SUMMARY OF CAPRINE AGE AT DEATH

Figures 6.36 and 6.37 plot caprine age at death data from urban and rural assemblages onto the same charts, allowing for an easier comparison between sites. Despite certain exceptions likely related to small sample sizes, a few trends are noteworthy. The majority of caprines were killed sometime between their first and third year of life and very few were killed as young lambs less than a year of age. A fair number of caprines were kept alive and killed sometime in later adulthood beyond four years of age. There are no obvious differences in kill-off patterns between rural and urban assemblages. The rural assemblages had a slightly older population at the time of death and three of four rural assemblages with large enough samples had no individuals younger than a year old.

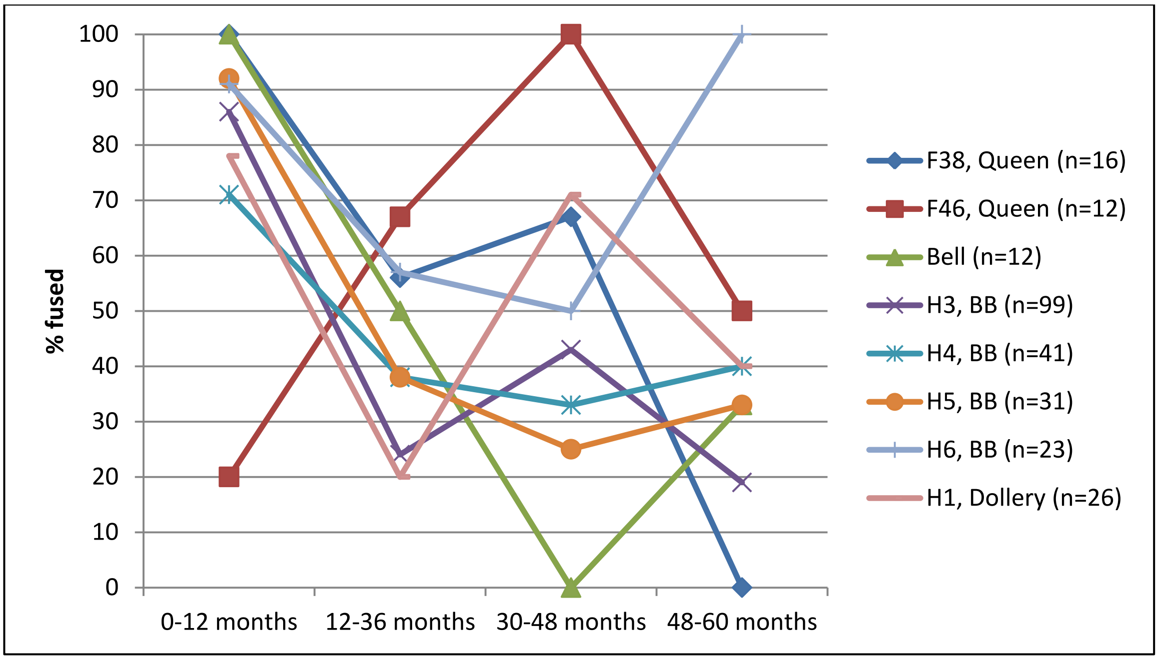

FIGURE 6.36: AGE AT DEATH OF POST-CRANIAL CAPRINE SKELETON ACCORDING TO EPIPHYSEAL FUSION FOR URBAN SITES WITH LARGEST SAMPLE SIZES.

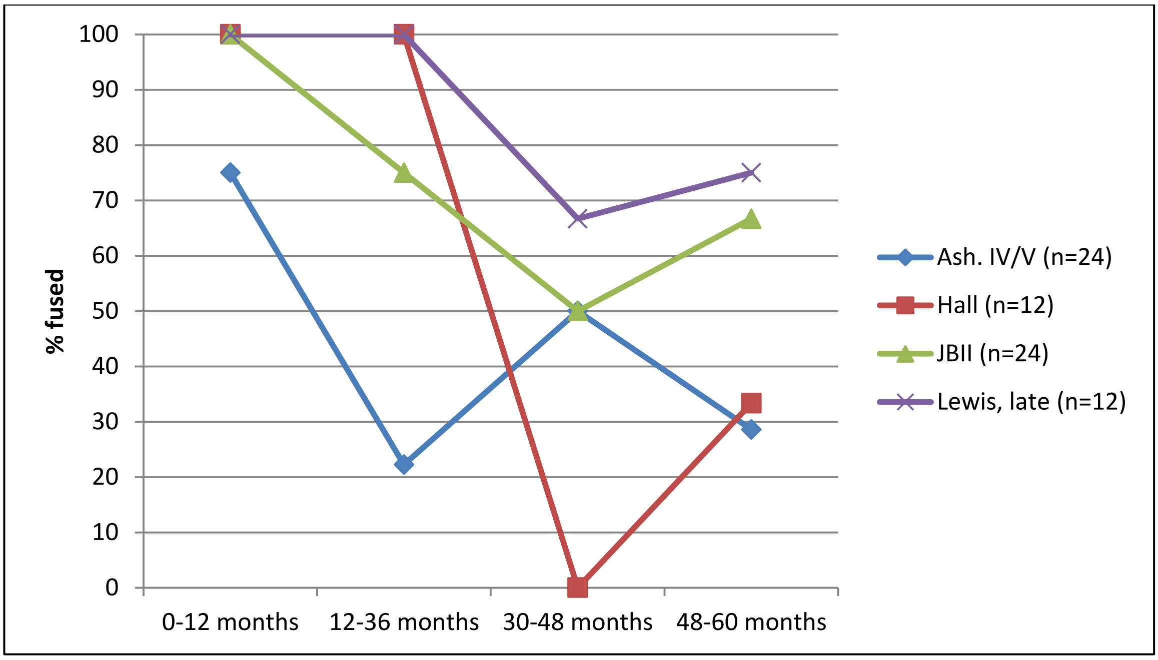

FIGURE 6.37: AGE AT DEATH OF POST-CRANIAL CAPRINE SKELETON ACCORDING TO EPIPHYSEAL FUSION FOR RURAL SITES WITH LARGEST SAMPLE SIZES.

BODY PORTION REPRESENTATION

Figures detailing %MAU values for caprine bone elements recovered from each site are presented in Appendix C. The information presented in them is summarized in the following section.

QUEEN STREET

Two of three privies contained sheep/goat remains. Feature 38 mostly consists of elements related to the "leg" wholesale cut (pelvis and hind leg) but was also fairly abundant in elements of the distal extremities and head/neck. Feature 46 mostly consisted of elements of the leg but also contained a fair number of elements from the "shoulder" and "breast" cuts (forelimbs). Few elements from other body parts were identified and no elements from the head are present.

BELL

All body portions are present with the axis and innominate showing a slight over-representation. However, elements of the "breast" cut are the most commonly identified in the assemblage.

BISHOP'S BLOCK

Houses 3, 4, and 5 of the Bishop's Block assemblage are quite similar in their composition. This is unsurprising since it is believed the fill deposits found at the three houses were deposited at the same time while House 6 was constructed later and did not form part of the original Bishop's Block housing. All body parts are represented in the House 3, 4 and 5 assemblages with elements of the "breast" cut being the most identified and slightly over-represented. Most other portions were fairly evenly represented except for elements of thorax. However, as was the case with cattle elements, this may be an artefact of the difficulties in confidently identifying these elements to species. No heads were identified in the House 6 assemblage and elements associated with the "breast" cut were not as abundant where elements of the shoulder and leg were most the represented.

DOLLERY

Although deposits at the Dollery site represent similar time periods, both sites have very different caprine element distributions. House 1 has the largest sample and all body parts are represented with a slight bias towards elements of the "breast" cut and the upper leg. House 2 is mostly composed of head elements despite a sample size more than half that of House 1 and an MNI of three individuals (compared to 4 for house 1). The sacrum and innominate bones were also well represented while distal extremities were completely missing and only one scapula was recovered to represent elements of the forelimb.

ASHBRIDGE ESTATE

Only eight caprine specimens were recovered from the 19th-century component which is too small a sample from which to draw trends on body portion distribution. The early 20th-century assemblage shows all body parts are present with a slight over-representation of elements from the "breast" and "leg" wholesale cuts. The later 20th-century assemblage was also too small to consider.

GRAHAM

Although only a small sample of caprine bones were recovered from this site, it is notable that all specimens are associated with the head/neck or distal extremities.

HALL

All body portions were represented in the Hall site assemblage with a slight over-representation of elements from the "breast" and "leg" cuts along with some distal extremities.

JOHN BEATON II

All body parts are represented with elements of the "leg" being slightly over-represented. Elements of the head, "breast" and distal extremities are also well represented in the assemblage.

LEWIS

The early caprine assemblage at the Lewis site is quite small. Elements of the head and forelimb were most common and there was a lack of distal extremities. At the later occupation, all body parts were represented with elements of the head being most identified as well as elements from the leg and some radii.

SUMMARY – CAPRINE BODY PORTION REPRESENTATION

Once again, no obvious differences in body portion representation were notable between urban and rural assemblages. Seemingly less desirable body portions such as heads and distal extremities were commonly found in all types of assemblages. Elements associated with the "breast" and "leg" wholesale cuts were often the most abundant or over-represented amongst these assemblages and the radius especially seems to be the most commonly identified.

PIG

AGE AT DEATH

The following figures summarize the age at death for pig remains from urban and rural assemblages.

URBAN ASSEMBLAGES

QUEEN STREET

Few pig specimens were recovered from Features 36 and 38. Two scapulae from the former suggest individuals who were older than 12 months when they died. A fused distal radius from the latter suggests one individual older than three and a half years.

Nineteen pig specimens from the Feature 46 assemblage featured sites of epiphyseal fusion (Figure 6.38). Results suggest the majority of pigs were killed between 12 and 24 months of age.

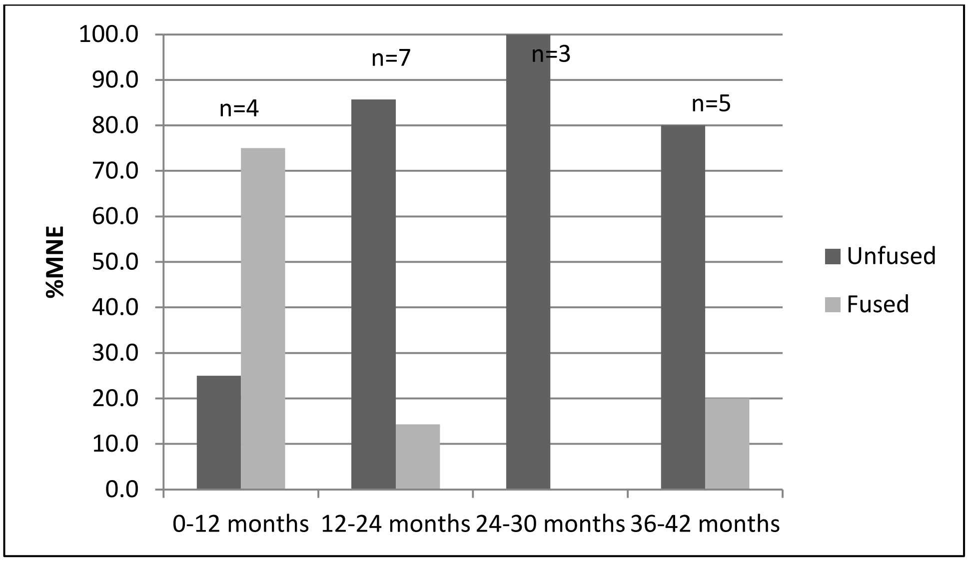

FIGURE 6.38: SUMMARY OF STATUS OF EPIPHYSEAL FUSION FOR PIGS RECOVERED FROM FEATURE 46 AT THE QUEEN STREET SITE

BELL

Only five specimens from the Bell site gave information on age at death. One was older than 36-42 months while the remainder were younger.

BISHOP'S BLOCK

The Bishop's Block assemblages provided large samples of pig bones for determining age at death from the state of epiphyseal fusion (Figure 6.39). Here a consistent trend emerges where the majority of pigs died within their first year of life, and most of the survivors were killed prior to reaching their second year of life. Only a few individuals were kept alive beyond 36-42 months.

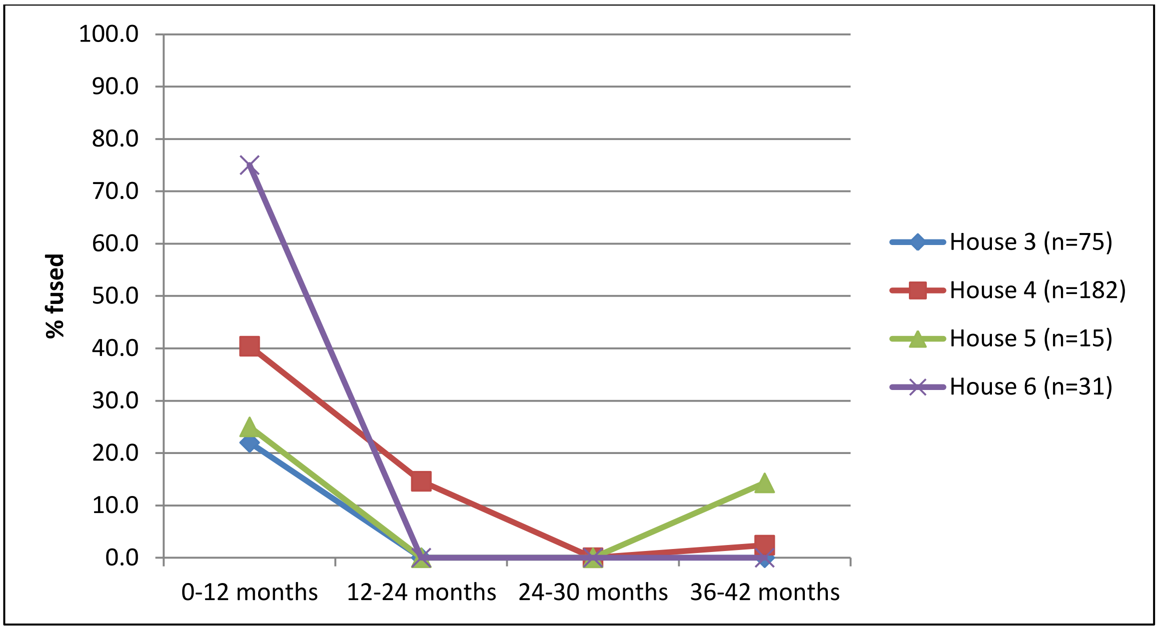

FIGURE 6.39: SUMMARY OF EPIPHYSEAL FUSION DATA FOR PIG ELEMENTS RECOVERED FROM THE BISHOP'S BLOCK SITE

DOLLERY

Figure 6.40 summarizes the number of fused pig elements recovered from the Dollery site. House 2 shows the same pattern seen at most other sites with pigs being killed in the first two years of life. However, House 1 appears to show a different pattern whereby many survive beyond 24 to 30 months of age.

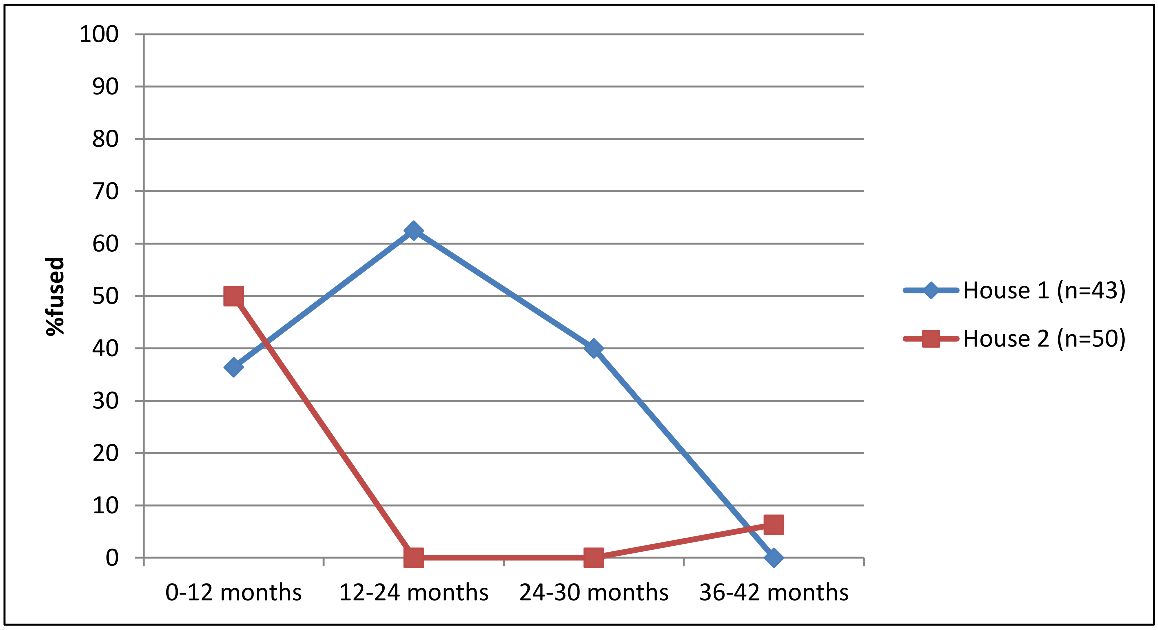

FIGURE 6.40: SUMMARY OF EPIPHYSEAL FUSION DATA FOR PIG ELEMENTS RECOVERED FROM THE DOLLERY SITE

RURAL ASSEMBLAGES

ASHBRIDGE ESTATE

The earliest and latest assemblages at the Ashbridge Estate offer modestly sized samples while the early 20th-century deposit has a large one (Figure 6.41). Nonetheless, all assemblages indicate a similar pattern consistent with what has already been observed in most urban assemblages.

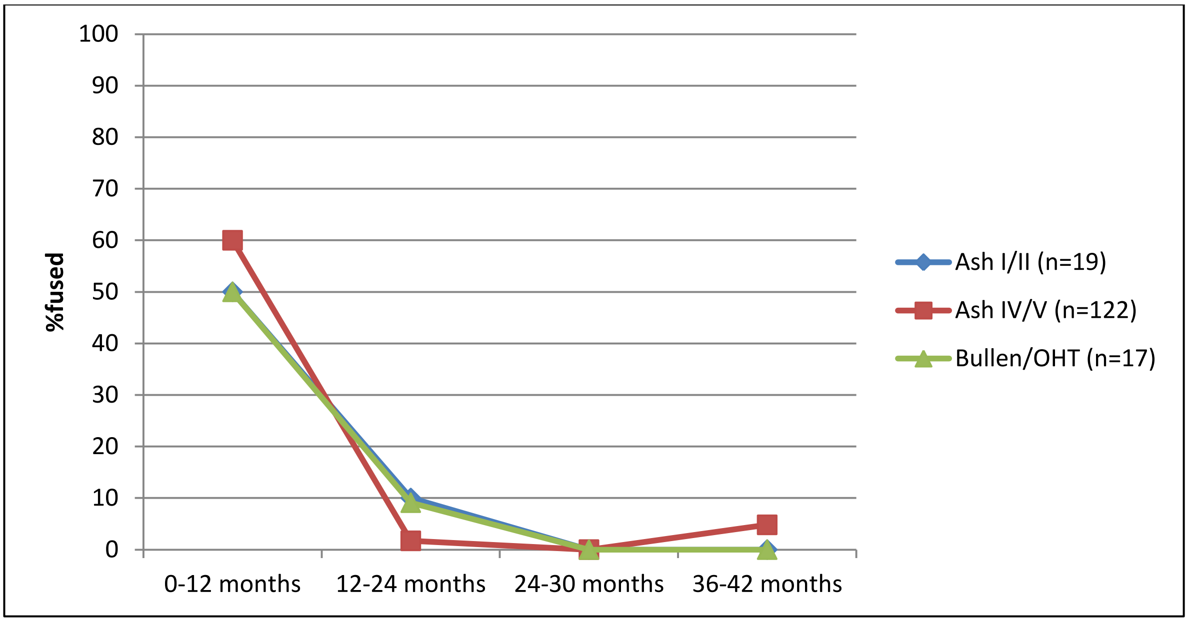

Figure 6.41: Summary of status of epiphyseal fusion for pigs recovered in the Ashbridge I/II assemblage

Six mandibles recovered from the Ashbridge IV/V assemblage provided information on age at death and all of these were from individuals in their first two years of life (Table 6.21).

Table 6.21: List of pig mandibles and their assigned age from Ashbridge IV/V

Mandible 1	8-12 months
Mandible 2	0-8 months
Mandible 3	8-12 months
Mandible 4	8-12 months
Mandible 5	8-12 months
Mandible 6	7-14 months

GRAHAM

Pigs at the Graham site show a similar pattern to that observed elsewhere. Most pigs were killed prior to reaching their first and second years of life (Figure 6.42).

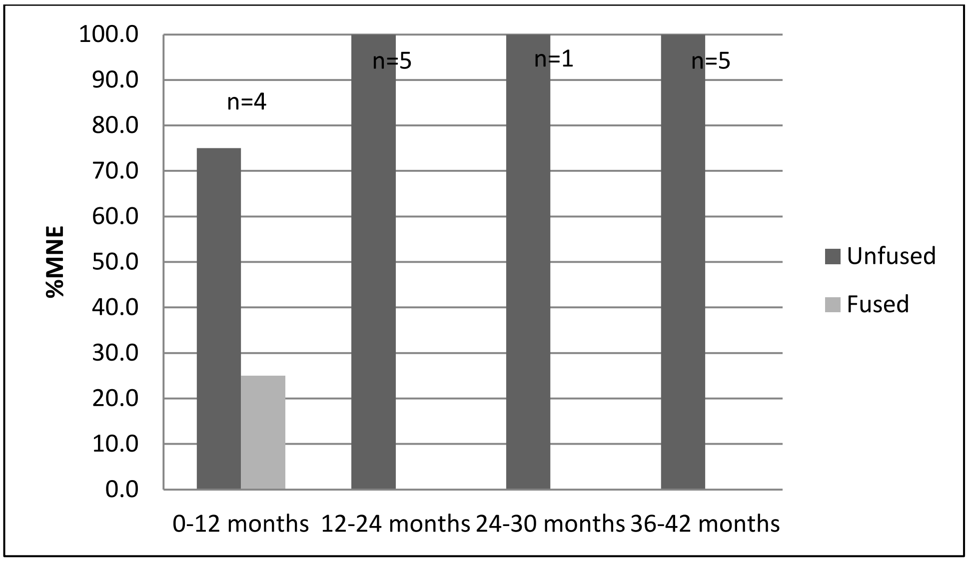

FIGURE 6.42: SUMMARY OF AGE AT DEATH ACCORDING TO STATUS OF EPIPHYSEAL FUSION FOR PIG ASSEMBLAGE AT THE GRAHAM SITE.

HALL

Unlike most assemblages in this study, the pig assemblage from the Hall site suggests a higher proportion of pigs survived into adulthood but most were killed before reaching skeletal maturity (Figure 6.43).

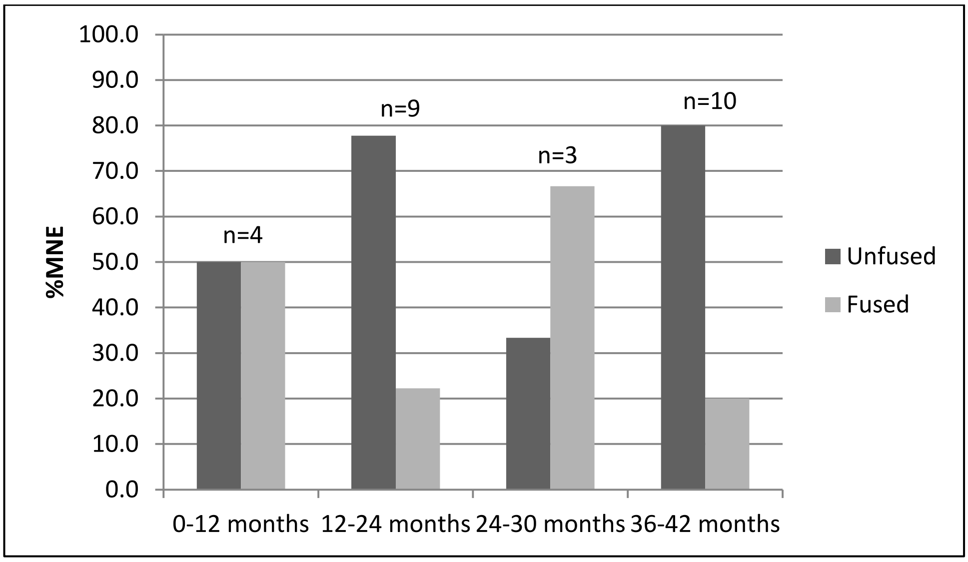

FIGURE 6.43: SUMMARY OF STATUS OF FUSION FOR PIG LONG BONE ASSEMBLAGE AT HALL SITE.

JOHN BEATON II

Information from the John Beaton II site suggests some pigs lived to be slightly older than those observed in most other assemblages and were killed sometime before reaching 30 months of age (Figure 6.44).

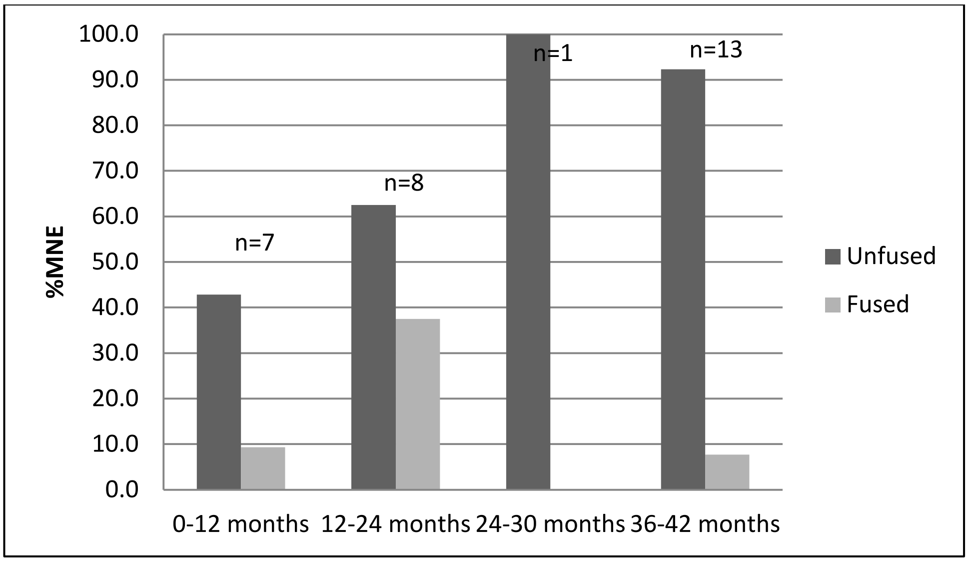

Figure 6.44: Summary of status of fusion for pig long bone assemblage at the John Beaton II site.

LEWIS

The age at death pattern for pigs recovered from both early and late Lewis site assemblages are similar to that seen at most other sites (Figure 6.45). Pigs seem to have been slaughtered slightly later in the earlier period. Five mandibles were complete enough to provide an age and all were aged 14-21 months, fitting with the epiphyseal fusion data.

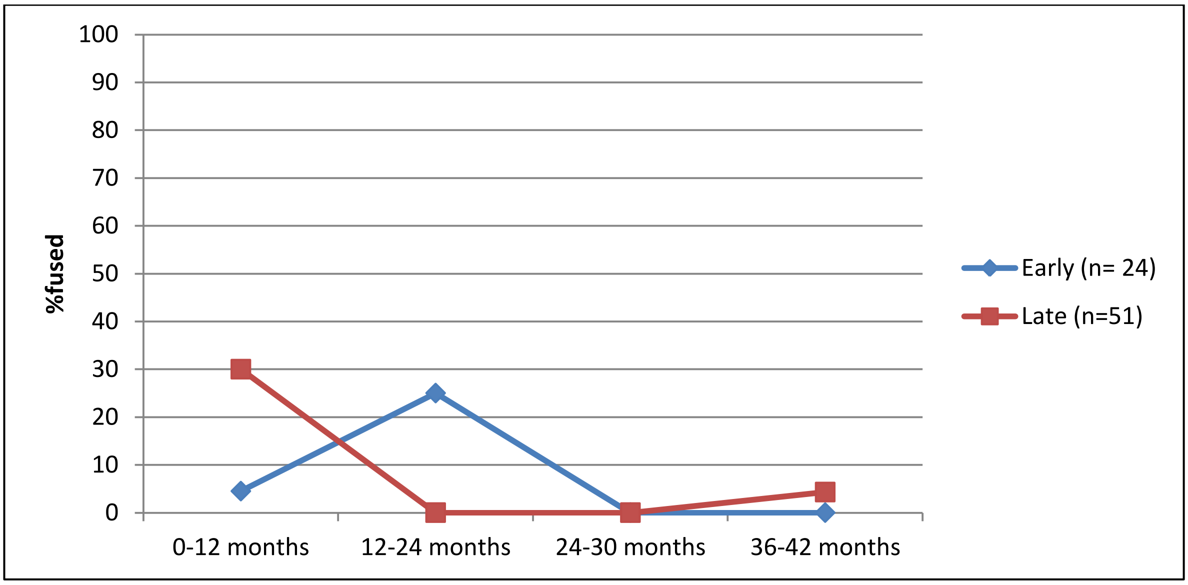

Figure 6.45: Summary of age at death according to status of epiphyseal fusion for pigs at the Lewis site

SUMMARY – PIG AGE AT DEATH

Kill off patterns for pigs were very consistent between various assemblages with the majority of pigs being killed within their first two years of life (Figures 6.46 and 6.47). A few exceptions include House 1 at the Dollery site, the early phase of the Lewis site, the Hall and John Beaton II sites where most pigs were killed after their second year of life. Very few individuals (between 0 and 20%) survived beyond 36-42 months.

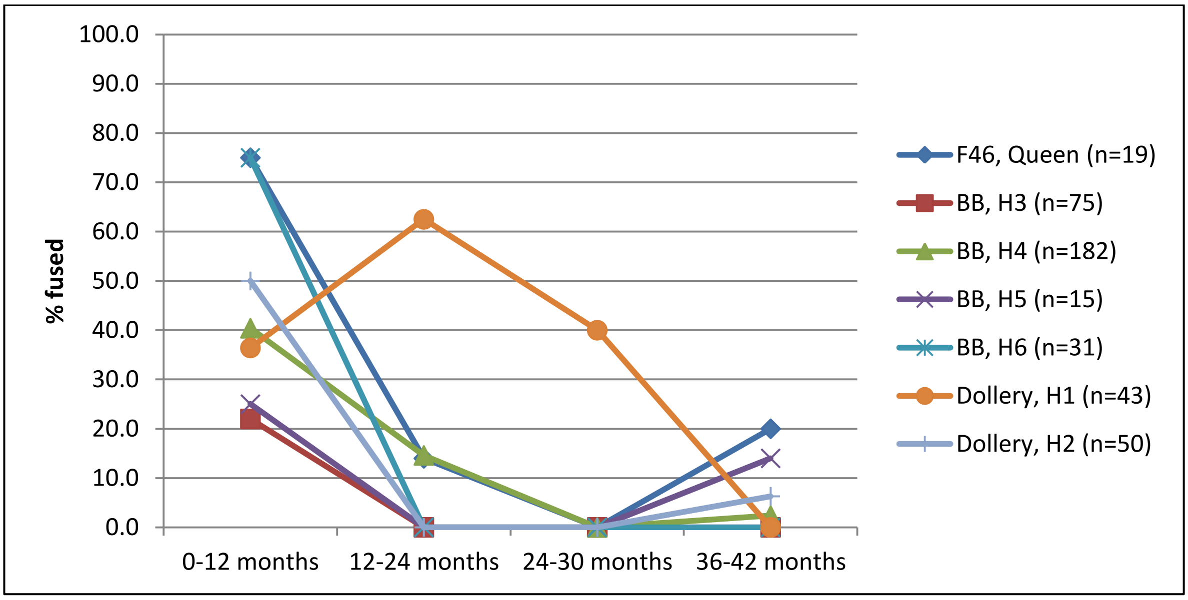

FIGURE 6.46: AGE AT DEATH OF POST-CRANIAL PIG SKELETON ACCORDING TO EPIPHYSEAL FUSION FOR URBAN SITES WITH LARGEST SAMPLE SIZES.

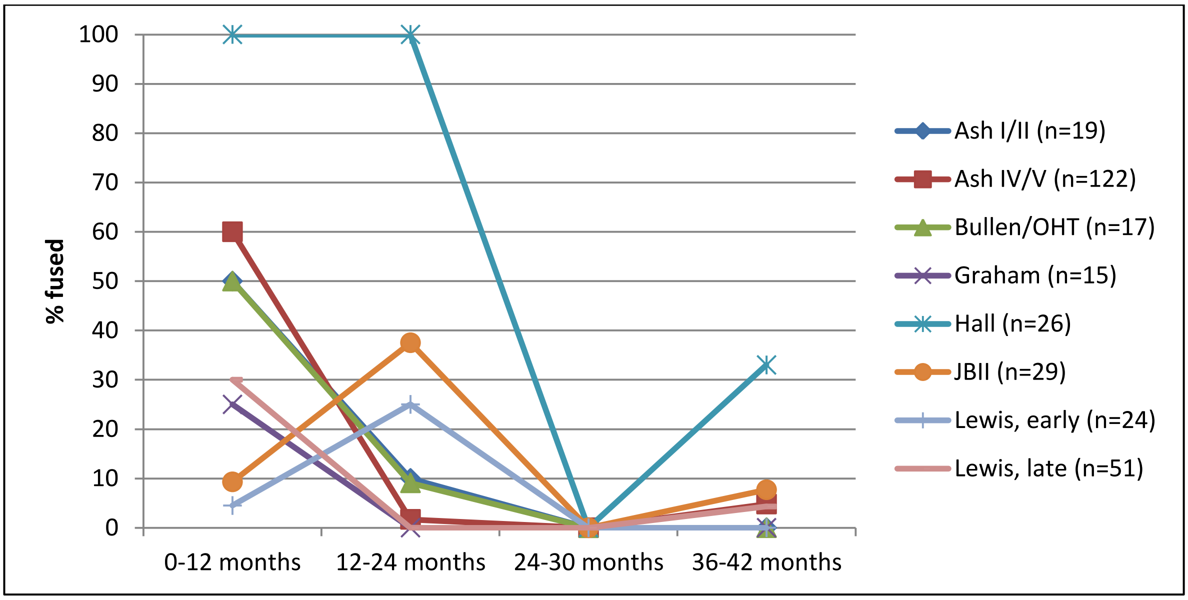

FIGURE 6.47: AGE AT DEATH OF POST-CRANIAL PIG SKELETON ACCORDING TO EPIPHYSEAL FUSION FOR RURAL SITES.

BODY PORTION REPRESENTATION

Figures detailing %MAU values for bone elements recovered from each site are presented in Appendix C and are summarized here.

URBAN ASSEMBLAGES

QUEEN STREET

Only two pig elements were recovered from the Feature 36 assemblage while seven elements were recovered from Feature 38 (mostly head and feet elements). Feature 46 shows a distribution particularly weighted towards the hind limbs and distal extremities

BELL

Few specimens were recovered from this deposit. All body portions were represented with most of the specimens originating from the fore and hind limbs.

BISHOP'S BLOCK

Some of the largest pig assemblages derive from the Bishop's Block site. All body portions are represented at all houses. Heads (especially the atlas and axis) are abundant as are the radius and ulna. From the lower leg, it is usually the tibia that is best represented.

DOLLERY

All body portions are present in both Dollery assemblages. Elements of the elbow seem to be particularly well represented, as are elements of the head, and parts of the femur and tibia.

RURAL ASSEMBLAGES

ASHBRIDGE ESTATE

All body portions are represented in all assemblages; however, elements of the feet and the head are slightly over-represented compared to other elements of the axial skeleton.

GRAHAM

All body portions are represented but the majority of elements are from the head and feet.

HALL

All body portions are represented, with a slight overrepresentation of the head and a fairly even distribution of other portions.

JOHN BEATON II

All parts of the body are represented in this assemblage although few elements from the leg are included.

LEWIS

The two assemblages that make up the Lewis site were strikingly different from one another, despite both having all body portions represented. The first was heavily dominated by elements of the head while the second had an even representation between all body parts.

SUMMARY – PIG BODY PORTION REPRESENTATION

Once again, there were no notable differences in body portion representation between urban and rural assemblages. What is most apparent is that all parts of the pig skeleton are commonly found at all sites. Sites like Graham and the early Lewis assemblage had proportionally more heads and/or distal extremities but this was not a trait shared by all rural assemblages as heads and feet were often over-represented at urban sites.

6.5 BUTCHERY

The number of butchered elements ranges between around 1% and 41% of the assemblages with an average of 9.0% (Table 6.22). Most sites plot near the average value except for one of the Queen Street assemblages which has a slightly higher value and House 1 of the Dollery assemblage which has a very high proportion of butchered specimens (41%). If we remove these outliers, the overall percentage of butchered materials averages 6.4%.

Figure 6.48 compares the proportions of cattle, caprine and pig specimens that feature butchery tool marks. Other species also showed evidence of butchery and these include more than a few specimens of chicken, geese, and turkey. There was at least one deer, swan, rat, trout and sunfish (Centrarchidae sp.) with recorded butchery tool marks. A larger number of unidentifiable artiodactyl and mammal specimens featured evidence of tool marks and these likely represent the remains of cattle, caprines and pigs.

TABLE 6.22: NUMBER OF BUTCHERED ELEMENTS IDENTIFIED AT EACH SITE AND THE PERCENTAGE OF ASSEMBLAGE SHOWING EVIDENCE OF BUTCHERY TOOL MARKS

Site	Butchered (NSP)	Butchered (%NSP)
Queen F36	26	8.0
Queen F38	56	11.4
Queen F46	35	18.5
Bell	36	9.6
BB (H3)	441	7.6
BB (H4)	245	8.2
BB (H5)	69	5.6
BB (H6)	90	10.1
Dollery (H1)	287	40.5
Dollery (H2)	6	1.0
Ashbridge I/II	21	2.7
Ashbridge IV/V	423	5.4
Bullen/OHT	38	5.0
Graham	15	0.9
Hall	127	8.0
JBII	33	8.2
Lewis (early)	25	1.4
Lewis (late)	132	9.2

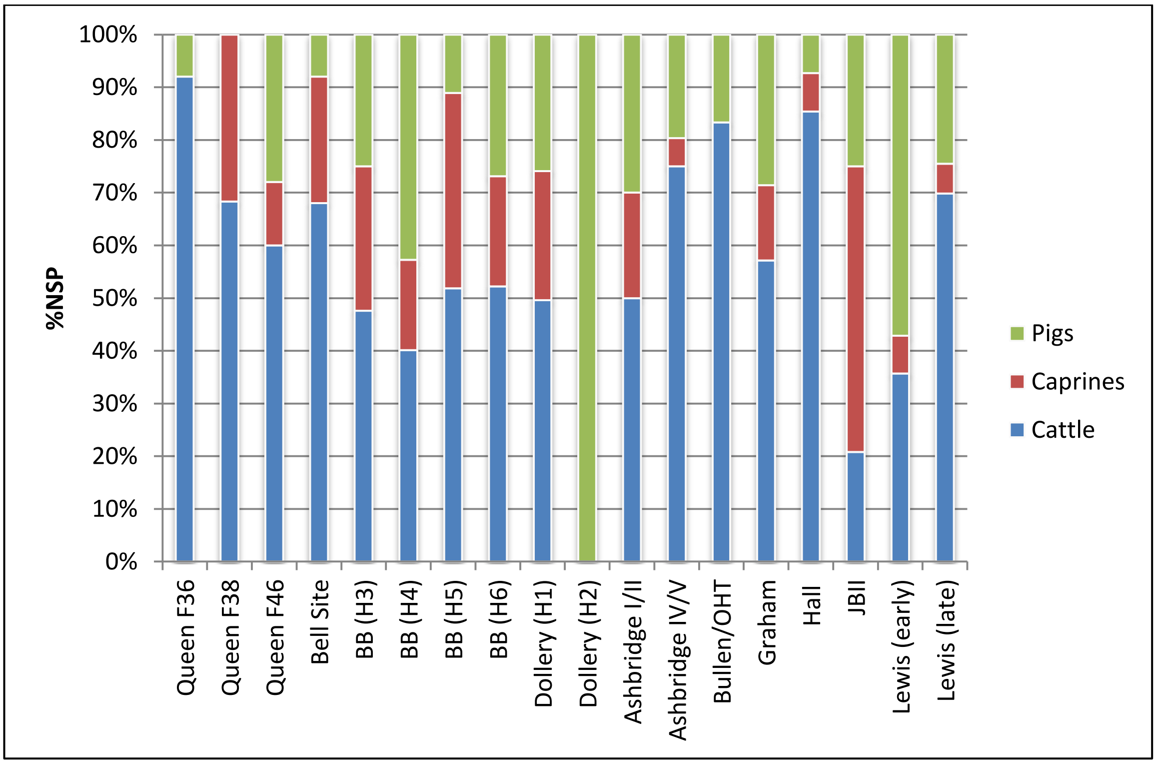

FIGURE 6.48: PROPORTION OF CATTLE, CAPRINE AND PIG SPECIMENS WITH TOOL MARKS WITHIN ASSEMBLAGES.

Cattle seem to comprise the majority of butchered elements. This is unsurprising as these are larger creatures that require more butchery in order to break down the carcass into manageable pieces. Expectedly, this was not the case at the John Beaton II site, where caprines formed a larger portion of the assemblage and therefore, a larger portion of the butchered assemblage. The early Lewis occupation had a greater proportion of butchered pig specimens. House 2 of the Dollery assemblage once again proves to be quite interesting. Here, over 40% of the entire faunal assemblage showed evidence of tool marks and 50% of those butchered are pig remains while not a single cattle or sheep/goat specimen was identified with tool marks.

Butchery data were further broken down according to the tool marks observed on the specimen (Figure 6.49). A number of specimens were observed with more than one type of tool mark and are therefore counted twice. The majority of butchery was conducted by sawing. Two exceptions include the butchery of cattle mandibles in the Feature 36 assemblage of the Queen Street site and the caprine butchery at the John Beaton II site. Both featured more chop marks then saw marks. Finer cut marks indicative of tasks like skinning or the removal of meat at the table were not as commonly encountered with the exception of the John Beaton II site.

The cleaver was the instrument most likely used to produce chop marks. It was the primary instrument of butchery on 17th and 18th century European settlements in North America and continued to be used in the 19th century. However, its popularity waned as the bone saw became increasingly adopted, allowing for more precise and cleaner cuts (Landon 1996: 94). Butchery patterns seen in these assemblages are in line with this trend. The majority are dominated by saw marks yet the cleaver was still in use to perform certain tasks.

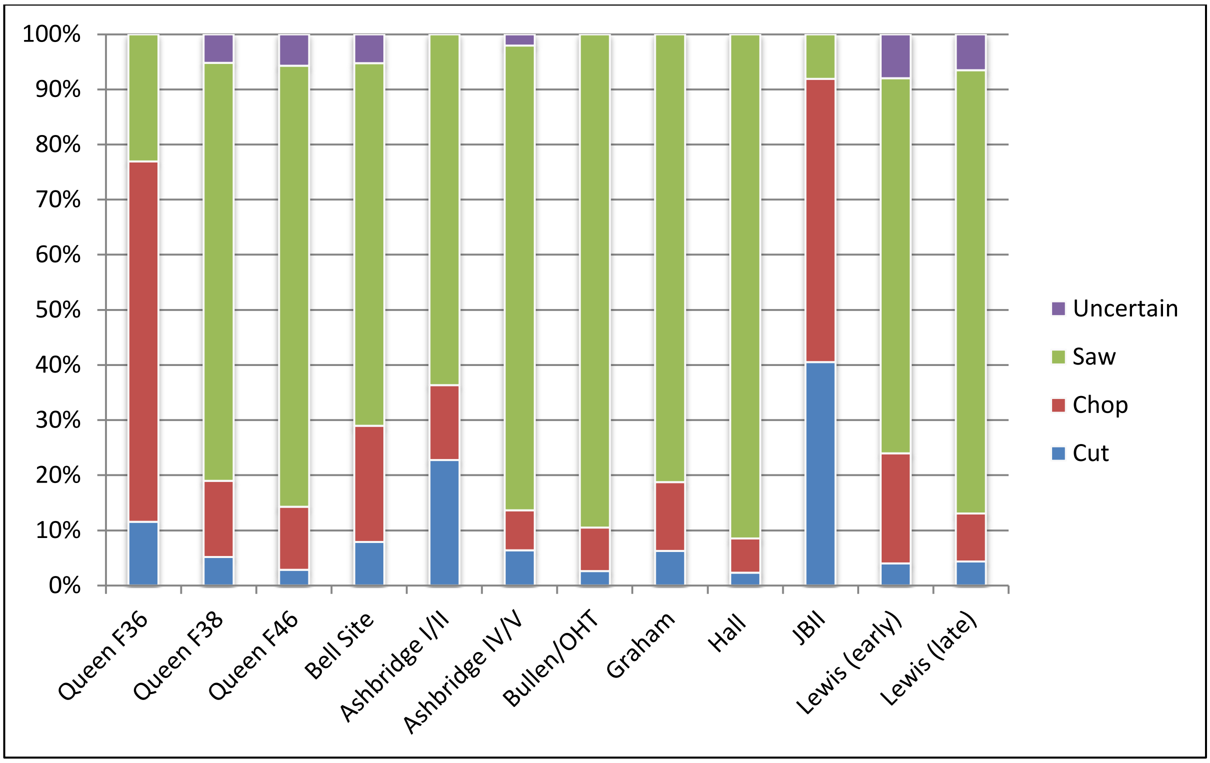

FIGURE 6.49: BREAKDOWN OF BUTCHERED SPECIMENS ACCORDING TO TYPE OF BUTCHERY.

6.5.1 CATTLE BUTCHERY

This section discusses butchery of the cattle skeleton and is organized according to skeletal anatomy. It begins with a discussion of head and neck elements with evidence for butchery across all sites and follows suite for elements of the thorax, upper forelimbs, upper hind limbs and distal extremities. The Bishop's Block and Dollery assemblages were recorded by another analyst using a different recording system and are therefore excluded from this discussion.

HEAD AND NECK

Evidence for butchery of the cranium was few and far between. Most of it comes from Feature 36 at the Queen Street site which contained many skull specimens. One pre-maxilla displayed evidence of disarticulation with the maxilla. Three nasal bones were each identified with chop marks indicating their separation from the frontal bone. Similarly, a cut and a saw mark were identified on two mandibles, as if to separate the rostrum from the skull, thus corresponding with the cuts seen on the pre-maxillae. Mandibles, nasals and frontal bones were the most common elements identified in this assemblage thanks to their distinctive morphology. Multiple smaller cranial fragments had evidence of butchery but were unidentifiable to element. Unfortunately, few other cranial elements with evidence of butchery tool marks were recovered from other sites. The one exception is a saw mark observed on a zygomaticus at the John Beaton II site, breaking it apart along the coronal plane, as if cutting through the centre of the orbit. An aborted saw mark was also located on this specimen along where it fuses with the temporal.

Over 19 specimens of mandible with evidence of butchery tool marks were identified in Feature 36 (Figure 6.50). Ten were chopped posterior to the third molar, separating the body from the ascending ramus. These mostly originated from the base of the mandible up towards the gum line. Six other mandibles were disarticulated differently. They were chopped across the ascending ramus, just below the articular condyle. These chops originated on the lateral surfaces of the bones. Only one mandible was chopped anterior to the second premolar. The consistency observed in mandible butchery suggests a standardized way of disarticulating the jaw from the skull. All but two mandibles were chopped while one was sawed and the other only exhibited cut marks. Unfortunately, no other sites provided butchered mandibles and it is difficult to conclude if the patterns observed here are unique to Feature 36.

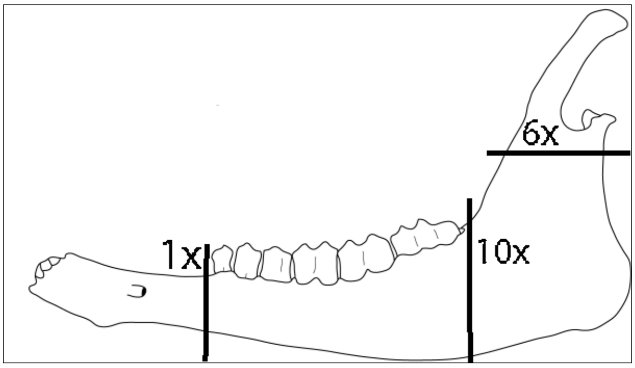

FIGURE 6.50: COMPOSITE VIEW OF TOOL MARKS OBSERVED ON CATTLE MANDIBLES RECOVERED FROM FEATURE 36 OF THE QUEEN STREET SITE (IMAGE OF A BOVID MANDIBLE FROM POPKIN (2005)).

Evidence of butchery among cervical vertebrae was more commonly observed and there appears to be some consistency whereby most exhibit tool marks along the sagittal plane through the vertebral body, separating the vertebrae into left and right halves. Most of these cuts start from the caudal end of the vertebrae and work their way towards the cranial end. This pattern is observed in thoracic and lumbar vertebrae suggesting the carcass was hung upside down and split in half through the midline, starting from the caudal end. Multiple cervical vertebrae specimens from the Bishop's Block and Dollery sites were noted by their analyst as representative of left and right halves, suggesting a similar pattern being observed at these sites.

Some transverse cuts are also observed, likely related to the separation of the head and/or neck from the body. These are not always located on the atlas or axis but sometimes appear lower in the neck. The atlas and axis were also occasionally sawn in half in a caudal to cranial direction along the sagittal plane, suggesting the head was disarticulated from the neck at the occipital. Transverse cuts through the neck are not always through the centre of the vertebral body or in between the different vertebrae. Likewise, cuts along the sagittal plane are not always through the centre of the vertebral body. Figure 6.51 summarizes the locations of tool marks observed on cervical vertebrae in the Ashbridge IV/V assemblage. Similar patterns were observed in other assemblages. There is no notable difference in butchery patterns observed between rural and domestic sites.

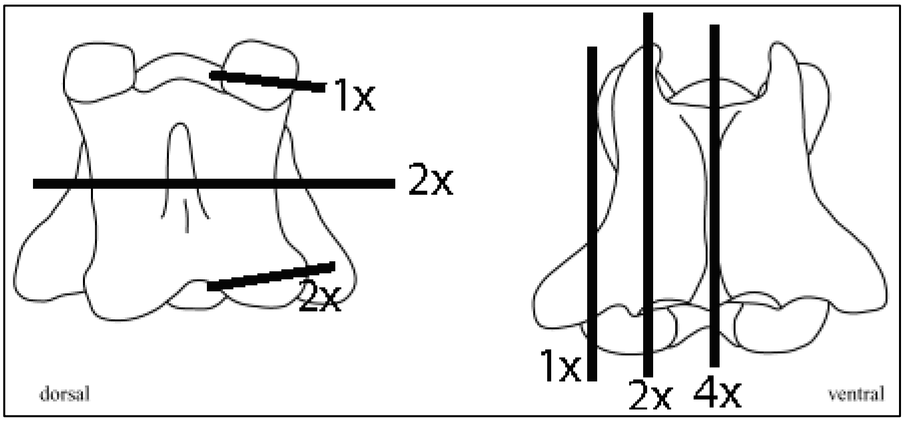

FIGURE 6.51: COMPOSITE VIEW OF TOOL MARKS OBSERVED ON CATTLE CERVICAL VERTEBRAE RECOVERED FROM THE ASHBRIDGE IV/V ASSEMBLAGE (IMAGE OF A BOVID CERVICAL VERTEBRA FROM POPKIN (2005)).

THORAX

Elements of the thorax include the sternum and ribs along with the thoracic and lumbar vertebrae. Many ribs are difficult to identify to species and so were simply labelled as large, medium or small mammal rib. Many ribs exhibited evidence of butchery, most featured transverse saw marks or the occasional chop mark across the shaft of the rib. Given the fragmentary nature of the remains, it is difficult to judge if certain sections of the ribs were targeted for butchery or if it varied from cut to cut. There are many occasions where the identified specimen represents a segment of rib shaft of a certain length that was sawed at both ends. These ranged in size from pieces less than 2cm in length to pieces nearing 14cm between cut marks. Table 6.23 provides an example of rib segment sizes recovered from the Ashbridge IV/V assemblage. A few ribs were observed with cut marks along the surface of the shaft, likely representing table cuts. A few other rib specimens were sawn or chopped through the head, as if to separate these from the thoracic vertebrae.

TABLE 6.23: LIST OF LENGTHS OF RIBS FROM ASHBRIDGE IV/V THAT WERE SAWN AT TWO ENDS

	Length (cm)
Cattle specimens	
Specimen 1	1.42
Specimen 2	12.21
Specimen 3	5.14
Specimen 4	9.75
Specimen 5	13.30
Specimen 6	9.77
Specimen 7	13.09
Specimen 8	11.96
Specimen 9	11.59
Specimen 10	5.32
Large mammal specimens	
Specimen 11	1.87
Specimen 12	1.35
Specimen 13	3.01

Butchery evidence from thoracic and lumbar vertebrae show patterns similar to that seen on cervical vertebrae whereby the majority of specimens were sawn or chopped along the sagittal plane through the vertebral body, typically in a caudal to cranial direction to create left and right halves. These cuts most often happen through the centre of the vertebral body but occasionally occur slightly lateral to the centre. Tool marks also occur on the transverse plane, only not as often as it does on the sagittal plane. Tool marks observed on thoracic vertebrae from the Hall site and lumbar vertebrae from the Ashbridge IV/V assemblage are summarized in Figures 6.52 and 6.53.

A few thoracic and lumbar vertebrae exhibit transverse cuts. Occasionally, transverse saw marks occur on the same vertebra specimens as if to create what we commonly refer to today as T-bone steaks (Table 6.24). They mostly consist of lumbar vertebrae and range widely in size. There are no notable differences between rural and urban assemblages in the butchery of the thorax.

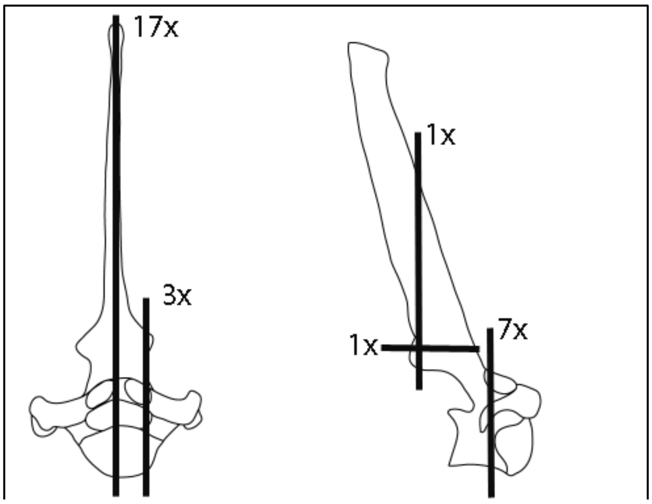

FIGURE 6.52: SUMMARY OF TOOL MARKS OBSERVED ON THORACIC VERTEBRAE FROM THE HALL SITE (IMAGE OF A BOVID THORACIC VERTEBRA FROM POPKIN (2005)).

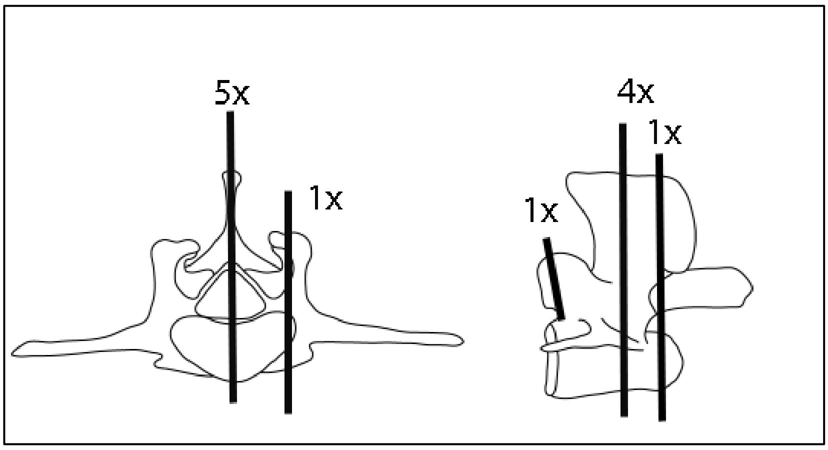

FIGURE 6.53: SUMMARY OF TOOL ON LUMBAR VERTEBRAE FROM ASHBRIDGE IV/V (IMAGE OF A BOVID LUMBAR VERTEBRA FROM POPKIN (2005)).

TABLE 6.24: T-BONE LIKE CUTS IDENTIFIED IN ASSEMBLAGES AND THEIR WIDTH.

Assemblage	**Vertebra**	**Width of cut**
Queen Street, F46	Thoracic	3.50cm
Bell	Thoracic	5.00cm
Ashbridge IV/V	Lumbar	1.72cm
Ashbridge IV/V	Lumbar	1.79cm
Ashbridge IV/V	Lumbar	1.89cm
Bullen/OHT	Lumbar	1.64cm
Hall	Lumbar	1.57cm
Hall	Lumbar	1.42cm
Hall	Lumbar	2.45cm

In his examination of tool marks from barrelled beef originating from Montreal, English (1990) observed that the spine was sawn in half down the sagittal plane and then transversely at a number of points in order to create square cut sections of articulated ribs and vertebrae and that ribs were often sawn through at the distal end to separate the brisket. The contemporaneous butchered cattle assemblages observed in Toronto share the same patterns.

Forelimb

This section summarizes the butchery patterns seen on elements of the forelimb for cattle. These include scapulae, humeri, radii and ulnae.

Evidence for butchery was prevalent for cattle scapulae. All six scapulae found amongst the three privies at the Queen Street site featured evidence of tool marks (Figure 6.54). Features 36 and 38 both included a scapula sawn mid-blade along an axis perpendicular to that of the element. Feature 38 had a section of the lower blade sawn off on both sides creating an acute angle and a piece that is 3cm wide on one side and 11cm on the other. A segment of the scapula's distal blade sawn diagonally through the long axis of the bone was found in Features 38 and 46; one measuring 7.65cm wide and the other 5.73cm. The same diagonally cut specimens were observed at the Lewis site, one each in the early and the late assemblages.

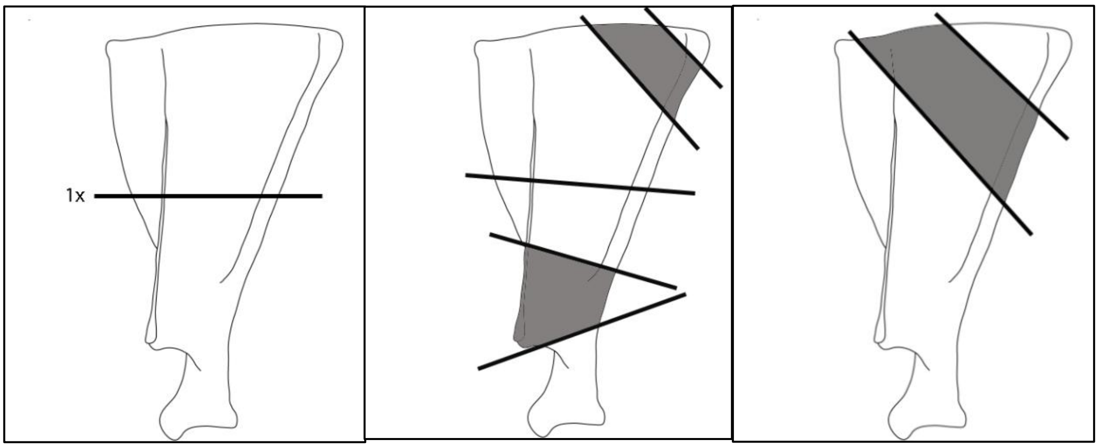

Figure 6.54: Summary of tool marks found on cattle scapulae of (from left to right) Feature 36, Feature 38 and Feature 46 assemblages at the Queen Street site. Each line represents one saw mark, grey areas represent the section of bone recovered between two saw marks (image of a bovid scapula from Popkin (2005)).

At the Ashbridge IV/V assemblage, four of the scapulae specimens had evidence of butchery as did three in the Bullen/OHT assemblage and one at the Graham site (Figure 6.55). Each assemblage exhibited a cut mark related to the separation of the glenoid fossa from the scapula at the scapular neck. The two Ashbridge Estate assemblages also had two examples of a section of mid-blade. These measured 7.37cm and 8.34 cm in width in the Ashbridge IV/V assemblage and 6.45 and 7.25 cm in the Bullen/OHT assemblage. Unfortunately samples are not large enough to determine if there are differences between urban and rural assemblages.

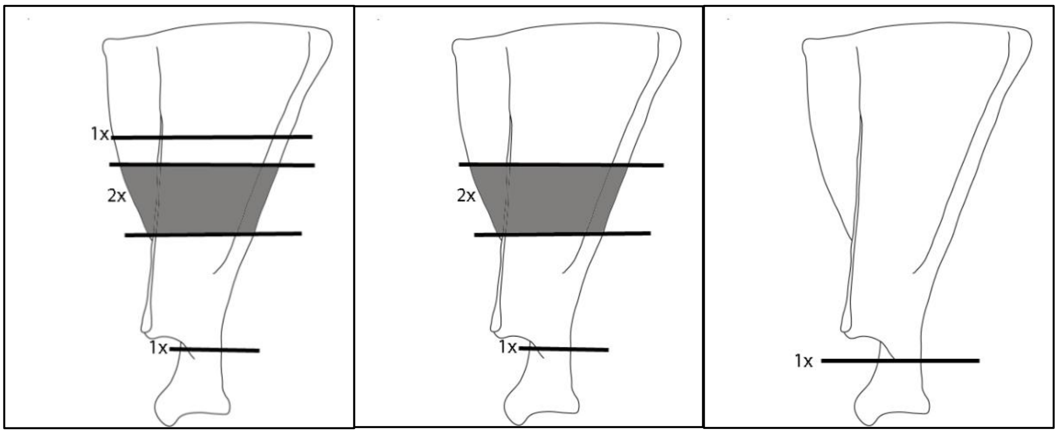

FIGURE 6.55: SUMMARY OF TOOL MARKS OBSERVED ON CATTLE SPECIMEN FROM THE ASHBRIDGE IV/V ASSEMBLAGE (LEFT), BULLEN/OHT ASSEMBLAGE (CENTRE) AND THE GRAHAM SITE (RIGHT). EACH LINE REPRESENTS A SAW MARK, GREY AREAS REPRESENT THE SECTION OF BONE RECOVERED BETWEEN TWO SAW MARKS (IMAGE OF A BOVID SCAPULA FROM POPKIN (2005)).

One humerus specimen from each of the Queen Street assemblages exhibited butchery, all saw marks (Figure 6.56). The humerus fragment in Feature 38 consists of a diaphyseal section sawn at both ends creating a 5.73cm long piece. The Bell site specimen was sawn through at the mid diaphysis in an anterior to posterior direction. The same specimen featured an aborted chop mark on the diaphysis, proximal to the distal metaphysis.

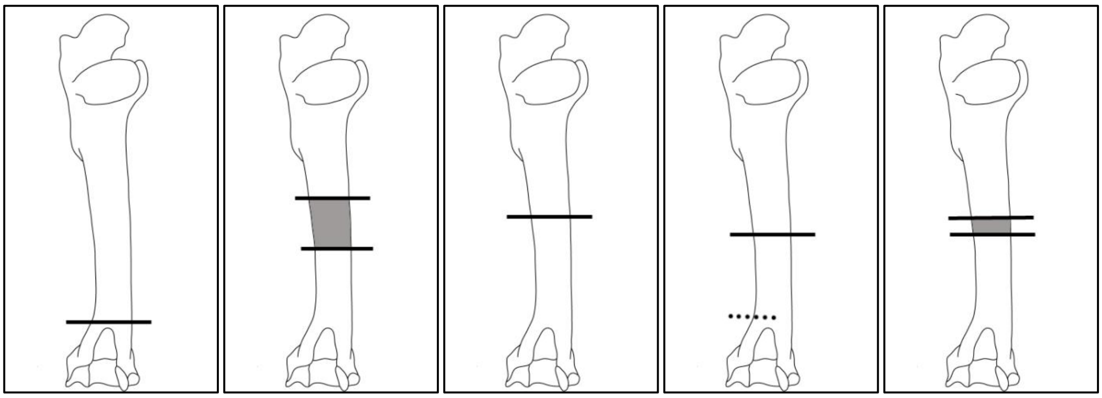

FIGURE 6.56: SUMMARY OF TOOL MARKS OBSERVED ON CATTLE HUMERUS SPECIMENS FROM (LEFT TO RIGHT) FEATURE 36, FEATURE 38, AND FEATURE 46 AT THE QUEEN STREET SITE, ONE SPECIMEN FROM THE BELL SITE, AND ONE FROM THE ASHBRIDGE IV/V ASSEMBLAGE. EACH SOLID LINE REPRESENTS A SAW MARK, THE DOTTED LINE REPRESENTS AN ABORTED CHOP MARK AND GREY AREAS REPRESENT THE SECTION OF BONE RECOVERED BETWEEN TWO SAW MARKS (IMAGE OF A BOVID HUMERUS FROM POPKIN (2005)).

Similar patterns were observed at rural assemblages. From the Ashbridge IV/V assemblage, one humerus specimen (a mid-section of the diaphysis) is bounded at the proximal and distal end by a saw mark perpendicular to the long axis of the bone, forming a 2.16 cm slice. At the Hall site, seven specimens represented the same meat cut with diaphyseal sections ranging in size from 1.45 to 11.73cm in width. Three similar specimens were observed at the later Lewis assemblage, ranging between 6.94 and 7.85 cm in width.

Two other cut marks observed from that assemblage match that observed in Feature 36 of the Queen Street site.

The patterns observed in the upper forelimb are not very different from those described by English (1990) on materials recovered from 19th-century salted beef barrels. He noted the proximal humerus was disarticulated from the remainder of the leg by sawing transversely through the shaft just above the deltoid tuberosity. The proximal humerus was left articulated with the scapula which was itself sawn through at an angle immediately below the acromion, thus separating the shoulder and arm joints. English (1990) noted these cuts were different than those observed on terrestrial sites, suggesting people further butchered these joints.

Butchery patterns for radioulnae were similar across sites. All examples consisted of saw cuts through the diaphysis along an axis perpendicular to that of the bone (Figure 6.57). At the later Lewis site assemblage, six radius specimens and two ulna specimens exhibited similar evidence of butchery. However, four of these represented large sections of diaphysis sawn at both ends, one of which was recorded with a length of 8.39cm.

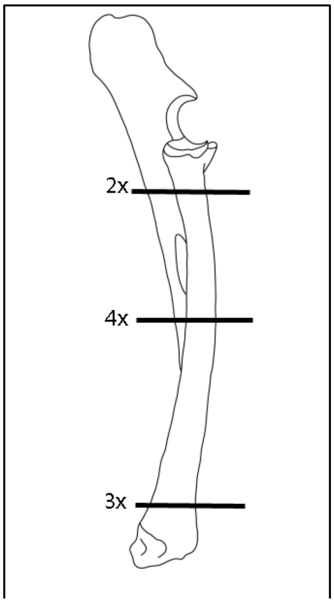

FIGURE 6.57: SUMMARY OF TOOL MARKS OBSERVED ON THE RADIOULNA AT THE QUEEN STREET, BELL AND ASHBRIDGE IV/V ASSEMBLAGES. THE SOLID LINES REPRESENT SAW CUTS AND THE NUMBERS INDICATE THE NUMBER OF TIMES OBSERVED (IMAGE OF A BOVID RADIOULNA FROM POPKIN (2005)).

This analysis reveals a mix of evidence for butchery related to the disarticulation of the carcass and the creation of wholesale or final meat joints. Evidence for joints that were reduced in size are seen in the scapula, humerus and radioulnae that were sawn at both ends. These pieces usually relate to the meatier portion of these joints. Other cuts located towards the articulations, such as at the scapular neck, the distal humerus or the proximal and distal radius likely relate to disarticulation and the initial creation of larger meat joints.

HIND LIMB

The elements considered here include the innominate, the femur, the patella, the tibia and fibula. Figure 6.58 summarizes the tool marks observed on cattle innominate specimens recovered from all three Queen Street privies. The majority of cut marks are saw marks through the shaft of the ilium. There are two cases where a specimen was sectioned at two ends, one of these is a slice through the shaft of the ilium creating a piece that is 2.32cm wide while the other is a slice through the ischium, creating a piece 1.77cm wide.

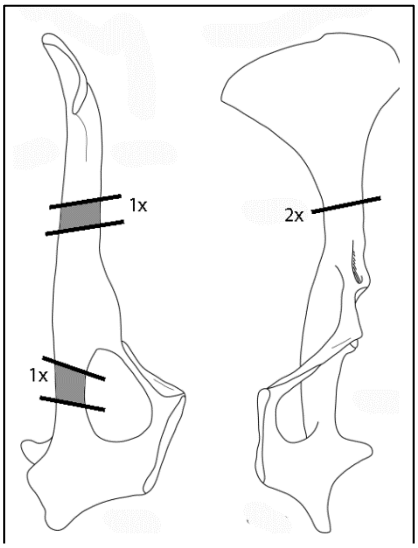

FIGURE 6.58: SUMMARY OF TOOL MARKS OBSERVED ON CATTLE INNOMINATES FROM THE QUEEN STREET PRIVIES. THE SOLID LINES REPRESENT SAW CUTS, THE NUMBERS INDICATE THE NUMBER OF TIMES OBSERVED AND GREY AREAS REPRESENT THE SECTION OF BONE RECOVERED BETWEEN TWO SAW MARKS (IMAGE OF A BOVID INNOMINATE FROM POPKIN (2005)).

Butchered ischium segments were not often encountered; however, cuts through the shaft of the ilium were common throughout most assemblages. Of the 11 innominate specimens identified in the Ashbridge IV/V assemblage, nine of them were sawn segments of the shaft of the ilium (Table 6.25). One specimen from this site is a piece of the ischium sawn perpendicular to its axis, thus possibly representing the same cut observed at one of the Queen Street privies. At the Bullen/OHT assemblage, two slices of ilium shaft were identified, one measured 1.95cm in width and the other 11.75cm.

TABLE 6.25: WIDTH MEASUREMENTS OF BUTCHERED ILIUM SHAFTS FROM THE ASHBRIDGE IV/V ASSEMBLAGE

Specimen number	Width (cm)
Specimen 1	2.61
Specimen 2	2.10
Specimen 3	2.35
Specimen 4	2.34
Specimen 5	1.83
Specimen 6	2.44
Specimen 7	8.50
Specimen 8	2.16
Specimen 9	Unmeasured

Three butchered innominate fragments (MNE=1) were identified at the Hall site. One consists of most of the ilium blade where the tuber sacrale is sawn off and another saw cut is located at the shaft of the ilium. One is through the pubis/acetabulum in a direction parallel to the long axis of the pubis. The other is a slice of the ilium shaft measuring 1.54 cm in thickness (Figure 6.59).

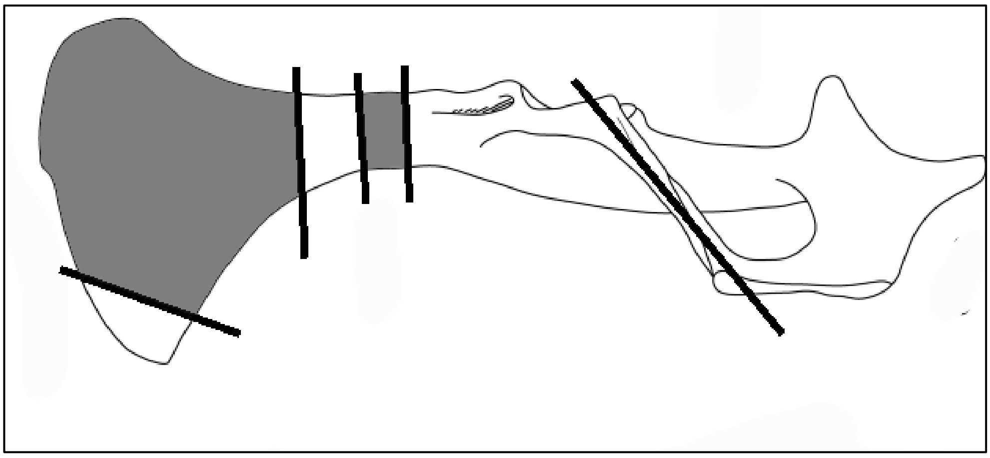

FIGURE 6.59: SUMMARY OF TOOL MARKS ON INNOMINATE BONE SPECIMENS RECOVERED FROM THE HALL SITE. EACH SOLID LINE REPRESENTS A SAW MARK AND GREY AREAS REPRESENT THE SECTION OF BONE RECOVERED BETWEEN TWO SAW MARKS (IMAGE OF A BOVID INNOMINATE FROM POPKIN (2005)).

The John Beaton II site represents the only assemblage where chopping was identified on cattle innominates. Of the two specimens with tool marks, one is chopped through the shaft of the ilium and the other is chopped through the pubis.

Butchery of femora also appeared to be consistent between sites. The majority of femora identifications were segments of the diaphysis varying in size and defined at both ends by a saw cut. These segments occur anywhere along the length of the diaphysis, occasionally include the metaphyses, and range in size between 1cm and 3.5cm in width (with a couple larger exceptions). The lack of morphological features on some segments makes it difficult to determine the MNE of femora and likely resulted in under-representation of the element in assemblages.

At the Queen Street site, six diaphysis segments were identified measuring 6.0cm, 1.15cm, 2.38cm, 2.35cm and 3.13 cm (one was not measured). Twenty were identified in the Ashbridge IV/V assemblage and did not vary much in width (Table 6.26). The only butchered femur specimen not identified as one of these diaphyseal segments was a cut through the distal metaphysis, perpendicular to the long axis of the bone. However, this may be because the other saw mark was through the unfused epiphysis which was not recovered.

TABLE 6.26: WIDTH OF SAWN OFF PIECES OF CATTLE FEMORAL DIAPHYSES FROM THE ASHBRIDGE IV/V ASSEMBLAGE.

Specimen number	Width (cm)
Specimen 1	1.61
Specimen 2	1.55
Specimen 3	1.71
Specimen 4	1.68
Specimen 5	2.81
Specimen 6	2.17
Specimen 7	1.92
Specimen 8	1.76
Specimen 9	2.05
Specimen 10	1.40
Specimen 11	1.88
Specimen 12	1.63
Specimen 13	2.29
Specimen 14	2.79
Specimen 15	1.94
Specimen 16	2.78
Specimen 17	2.23
Specimen 18	2.07
Specimen 19	1.44
Specimen 20	1.01

Similar specimens were recorded in the Ashbridge I/II assemblage (N=2), Bullen/OHT assemblage (N=1), Bell site (N=2), Graham site (N=1) Hall site (N=13; Figure 6.60) and late Lewis assemblage (N=6). All measurements are within the range of those observed in the Ashbridge IV/V materials with the exception of two from the Hall site with widths of 3.26 and 3.46cm. Despite using different recording techniques, the faunal analyst for the Dollery site noted many of these types of cuts in the House 1 assemblage and also recorded widths between 1 and 3.5cm in size.

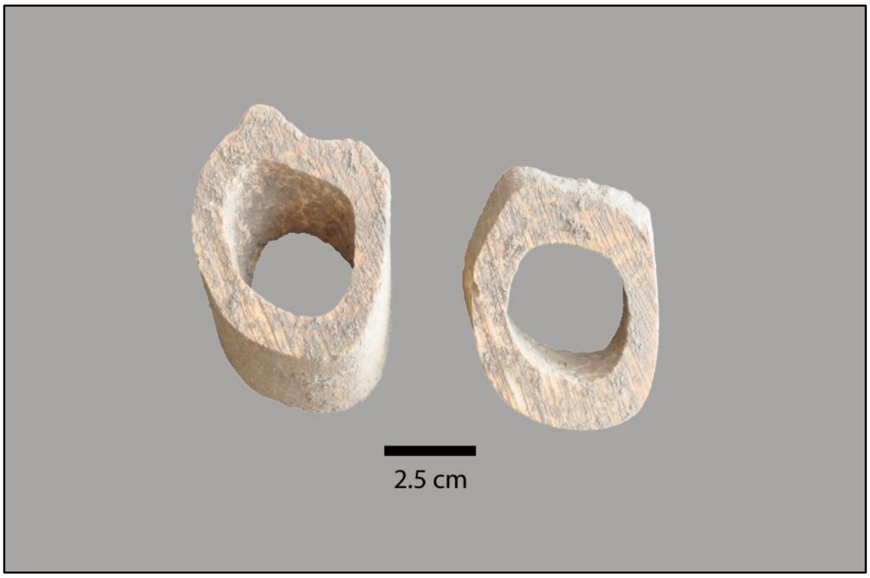

FIGURE 6.60: EXAMPLE OF FEMORAL DIAPHYSIS SEGMENTS FROM THE HALL SITE.

Butchery patterns observed among cattle tibia are a bit more varied and the sample sizes are smaller, making it difficult to identify any patterns. A few sites produced tibia shafts that were sawn at both ends creating 3.28cm to 12cm long pieces of diaphysis (Queen Street, N=2; Ashbridge IV/V, N=1; Hall, N=1; early Lewis occupation, N=1). Saw marks were most common along a perpendicular axis to the long bone. Two chop marks were noted on the proximal articular surface of one specimen from Feature 46 at the Queen Street site. The John Beaton II site again features chop marks instead of saw marks where the butcher chopped through the proximal and mid-diaphysis.

FEET

Elements considered here are the carpals, tarsals, metapodials and phalanges. Relatively few of these were identified in the assemblages and fewer had evidence of tool marks. Two of the astragali from the later occupation at the Lewis site had tool marks. One was chopped along the mid-dorsal side and also had the medial-distal part chopped off. The other had a saw mark on the distal half of the plantar side. One metacarpal bone from the Bell site featured seven cut marks (skinning?) on the mid-diaphysis. One proximal phalanx from the Ashbridge IV/V assemblage was identified with cut marks on the proximal half of its dorsal side (skinning?).

6.5.2 CAPRINE BUTCHERY

HEAD AND NECK

Few caprine elements from the head and neck were recorded with evidence of butchery. One atlas from Queen Street was chopped on the caudal part of the *processus transversus* while two cervical vertebrae were chopped in half through the vertebral body along the sagittal plane and these halves were then chopped in half along the transverse plane, creating quarters. At the John Beaton II site, one cervical vertebra was chopped through the vertebral body along the sagittal plane. Another showed chop marks that did not succeed in splitting the bone. A temporal bone had possible knife cut marks identified on its ventral surface near where it articulates with the zygomatic bone. A maxilla specimen had five possible knife cuts (table cuts? skinning?) on its lateral surface.

THORAX

As was the case with cattle vertebrae, many of the caprine thoracic and lumbar vertebrae are chopped or sawn in half along the sagittal plane, through the vertebral body, in a caudal to cranial direction (Queen Street, N=1; Ashbridge IV/V, N=2; Bell, N=2; late Lewis, N=2). Some of the lumbar vertebrae have additional chop or saw marks on the transverse plane through the vertebral body (N=4). One rib at the John Beaton II site was chopped through its shaft.

FORELIMB

Butchery evidence on caprine scapulae comes from two specimens from the Queen Street site (Figure 6.61) and one from the John Beaton II site and are similar to those observed with the cattle scapulae. The specimen from the John Beaton II site has five cut marks (table cuts?) along the edge of the *margo cervicalis*.

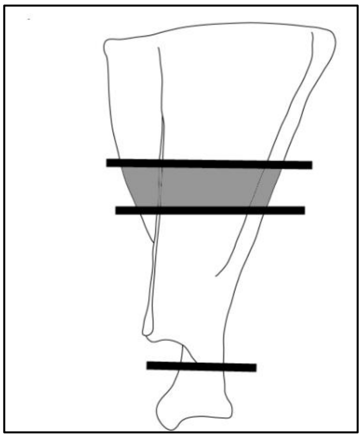

FIGURE 6.61: SUMMARY OF TOOL MARKS OBSERVED ON CAPRINE SCAPULAE FROM THE QUEEN STREET SITE. THE SOLID LINES REPRESENT SAW CUTS, GREY AREA REPRESENTS THE RECOVERED SECTION OF BONE BETWEEN TWO SAW MARKS (IMAGE FROM POPKIN (2005)).

Figure 6.62 summarizes butchery observed for caprine humeri at urban and rural sites. These are all saw marks related to either the disarticulation of the humerus at the shoulder or elbow articulations or the division of the humerus into proximal and distal halves.

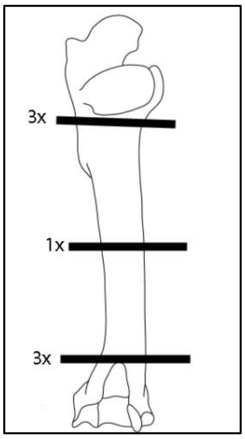

FIGURE 6.62: SUMMARY OF TOOL MARKS OBSERVED ON SHEEP HUMERI ACROSS SITES ANALYSED BY THE AUTHOR. THE SOLID LINES REPRESENT SAW CUTS AND THE NUMBERS INDICATE THE NUMBER OF TIMES OBSERVED (IMAGE FROM POPKIN (2005).

Five radii were identified with evidence of tool marks, one from the Bell site and four from the Hall site, all have either a saw or chop mark through the central diaphysis along a plane perpendicular to the long axis of the bone.

HIND LIMB

Butchery of the ilium for caprine specimens mirrored the pattern seen for cattle with a focus on cutting through the shaft of the ilium to separate it from the rest of the innominate (Queen Street, N=3; Bell, N=2; late Lewis occupation, N=1). No ilium shaft segments (like what was observed with cattle) were observed on caprine specimens. One specimen had a similarly oriented saw mark but further up through the blade of the ilium while another specimen had part of the *tuber sacrale* sawed off and another, a part of the *tuber coxae*.

Only two femora were identified with tool marks. One is a diaphysis from the Hall site, sawn through at both ends creating a 7.81cm long piece. The other is a diaphysis from the Ashbridge IV/V assemblage that featured six knife cuts (table cuts?) spread evenly across the surface perpendicularly to the long bone axis.

There are more examples of caprine tibiae with evidence of butchery than any other element of the hind limb. These are from the Queen Street (n=3), Graham (N=1) and John Beaton II (N=3) sites. The majority of cut marks are either saw or chop marks at the mid-diaphysis or near the proximal or distal metaphysis with the intent of either breaking the bone in half or disarticulating it from the stifle or ankle joints. One specimen had over 15 possible table cuts around the mid-diaphysis, perpendicular to the long axis of the bone.

Feet

No caprine metapodials, carpals, tarsals or phalanges had evidence of butchery.

6.5.3 PIG BUTCHERY

Head and Neck

Few cases of butchery of the pig head or neck were identified in any of these assemblages. Cranial elements exhibiting evidence of tool marks includes a temporal bone from the Ashbridge IV/V assemblage with the auditory bulla sawn off (pig's ears?).The *Louisiana Daily Public Advocate* noted in 1839 that half heads were included in 'Prime Pork' barrels but without the ears, snouts, and brains (Brophy and Crisman 2013: 72). Unlike the skulls found in the *Heroine*'s barrels, none in the Toronto assemblages were butchered longitudinally in half. One cranium fragment from the early assemblage at the Lewis site had chop marks on the inter-occipital bone, as if to get inside the cranium. One mandible from the Ashbridge IV/V assemblage had the ascending ramus sawn off along the frontal plane, behind the molars. Another mandible at the Graham site had a chop mark on the medial surface of the corpus, below the premolars and molars while another from the early occupation at the Lewis site had three chop marks on the lateral side of the basal half of the ascending ramus.

As for the neck vertebrae, one atlas from the Ashbridge IV/V assemblage was sawn along the frontal plane, as if to remove the head from the neck. Another was sawn in half through the centre along the sagittal plane, suggesting the head was decapitated at the occipital. One axis from the Ashbridge I/II assemblage was also cut in half in this way. One cervical vertebra from the Ashbridge IV/V assemblage was sawn in half through the vertebral body along the sagittal plane while another was sawn in half along the transverse plane.

THORAX

Butchery of the pig thorax resembled that seen in cattle and sheep with evidence of the spinal column being split in half along the sagittal plane through the centre of the vertebrae (Queen Street, N=1; Bell, N=2; Ashbridge IV/V assemblage, N=2; later Lewis occupation, N=1). A few vertebrae showed evidenced of being sawn through the transverse plane, as if to separate the spinal column into smaller segments (Queen Street, N=1; Ashbridge IV/V assemblage, N=1; Graham, N=1). Ribs occasionally showed evidence of chop mark either across the neck or shaft (Queen Street, N=1; Ashbridge IV/V assemblage, N=2). One rib at the John Beaton II site had knife marks related to de-fleshing on the medial surface of the rib shaft, just distal to the head.

FORELIMB

Four scapulae from the Ashbridge IV/V assemblage were either sawn or chopped in a direction that was perpendicular to the long axis of the scapula and most had the intention of separating the bone through the neck as if to disarticulate the forelimb from the shoulder (Figure 6.63). One scapula from the late assemblage at the Lewis site was also sawn through its neck while another at the Queen Street site had six knife marks on the medial surface of its neck, consistent with de-fleshing with a knife. The neck and glenoid fossa are associated with the picnic roast which was separated from the scapular blade (associated with the Boston butt roast) at the neck (Savell 2000). While complete scapulae and humeri were recovered from the *Heroine*'s barrels, they did not have any tool marks (Brophy and Crisman 2013: 81).

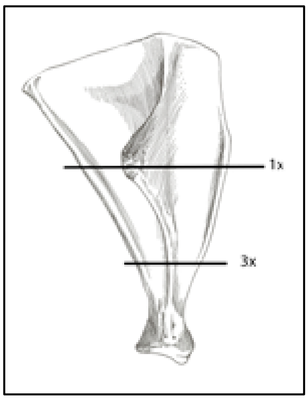

FIGURE 6.63: SUMMARY OF TOOL MARKS OBSERVED ON PIG SCAPULAE FROM THE ASHBRIDGE IV/V ASSEMBLAGE. SOLID LINES REPRESENT EITHER A SAW OR CHOP MARK. IMAGE MODIFIED FROM PALES AND GARCIA (1981).

Two humeri from the Ashbridge IV/V assemblage were either sawn or chopped through their central diaphysis. One of these was further chopped in a direction parallel to the long axis of the bone, as if the intent was to remove the medially protruding portion of the humeral head (Figure 6.64). One humerus from the Bullen/OHT assemblage had a chop mark on the lower lateral diaphysis. One from each the Hall site, and both Lewis assemblages were chopped through the proximal third or central diaphysis.

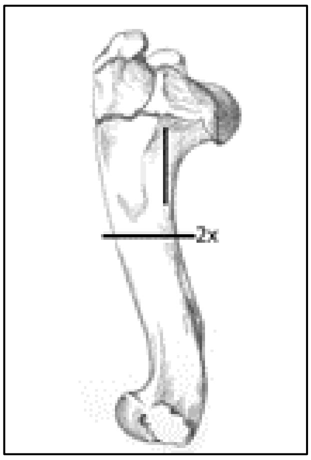

FIGURE 6.64: SUMMARY OF TOOL MARKS OBSERVED ON PIG HUMERI FROM ASHBRIDGE IV/V ASSEMBLAGE. SOLID LINES REPRESENT CHOP MARKS. IMAGE MODIFIED FROM PALES AND GARCIA (1981).

Five ulnae had evidence of tool marks across five rural assemblages (Ash I/II, Ash IV/V, JBII, both Lewis assemblages). Three were chopped or sawn through at or near the articular surface of the semi-lunar notch, where it articulates with the humerus at the elbow joint. One was sawn through its central diaphysis while another had cut marks related to de-fleshing on the mid diaphysis. These are in the same location as those identified in a barrelled pork assemblage (Brophy and Crisman 2013: 81). Only one radius from the Graham site had butchery with knife marks on the dorsal surface of the mid-diaphysis.

HIND LIMB

Four innominate specimens were observed with tool marks (Queen Street, N=1; Ashbridge IV/V, N=2; Hall, N=1) (Figure 6.65). Two were sawn through the shaft of the ilium, separating the blade from the acetabulum. Another was sawn through both the distal ischium and pubis. The last one was sawn transversely through the ischium.

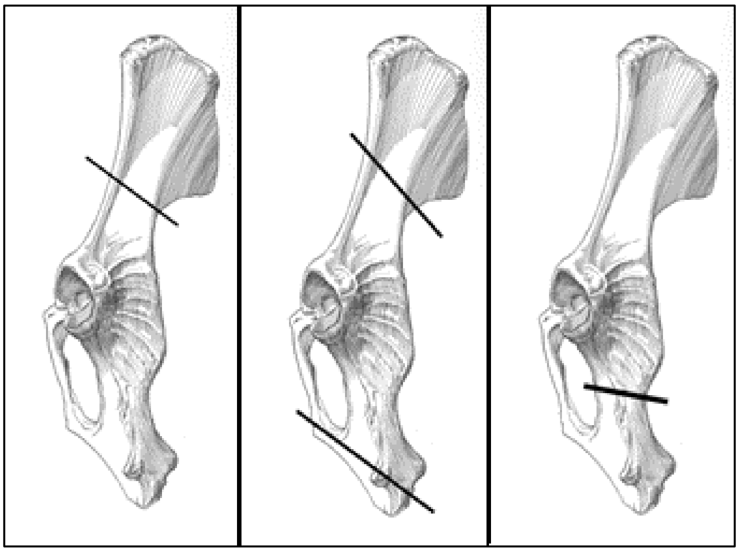

FIGURE 6.65: SUMMARY OF TOOL MARKS OBSERVED ON PIG INNOMINATES AT QUEEN STREET (LEFT), ASHBRIDGE IV/V (CENTRE) AND THE HALL SITE (RIGHT) ASSEMBLAGES. SOLID LINES INDICATE SAW CUTS. IMAGE OF INNOMINATE FROM PALES AND GARCIA (1981).

One femur specimen (Ashbridge IV/V) was sawn through its mid-diaphysis and another was chopped on the lateral surface of the proximal diaphysis. Another had multiple knife marks related to de-fleshing along the mid-diaphysis. One femur from the late occupation at the Lewis site was chopped on the medial surface of the distal diaphysis.

Every one of the tibiae and fibulae identified with tool marks (Queen Street, N=2; Ashbridge IV/V, N=1; Hall, N=1; early Lewis, N=1; late Lewis, N=1) consisted of a saw or chop mark cutting through the diaphysis along a plane perpendicular to the bone's long axis. This was usually done through the mid-diaphysis. In the *Heroine*'s barrelled pork assemblage, this cut was done distal to the stifle joint (Brophy and Crisman 2013: 81).

FEET

Some elements of the distal extremities had tool marks although it is difficult to draw any noticeable pattern between rural and urban sites. The Ashbridge IV/V assemblage offers the most elements with butchery. Five astragali and two calcanei had saw marks (Figure 6.66). One carpal (Carpal 3) was chopped in half. One metapodial was sawn across the proximal diaphysis, near the proximal epiphysis while another was sawn in half at mid-diaphysis. One distal phalanx had a knife mark (table cut) near its proximal epiphysis. One calcaneum from Queen Street was chopped through the middle while another was sawn in this location. One from the John Beaton II site had three chop marks on it. An astragalus from the Bullen/OHT assemblage was also sawn in half through its centre. All of these marks on the bones of the ankle suggest this was one of the joints commonly targeted for disarticulating the feet from the lower limbs. At the later Lewis occupation, two metapodials have chop marks through their diaphysis as does one proximal phalanx that was chopped in half. At the Hall site, a distal articular surface of a medial phalanx was sawn off.

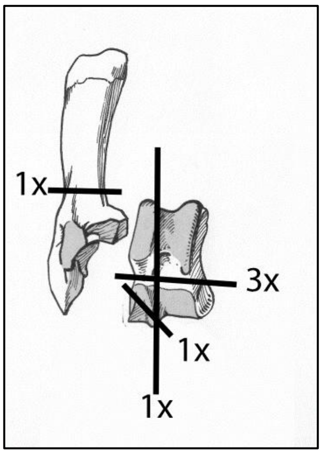

FIGURE 6.66: SUMMARY OF TOOL MARKS OBSERVED ON PIG CALCANEI AND ASTRAGALI AT THE ASHBRIDGE IV/V ASSEMBLAGE. SOLID LINES INDICATE CHOP OR SAW MARKS. IMAGE FROM PALES AND GARCIA (1981).

6.5.4 BUTCHERY SUMMARY

Like other assemblages from Upper Canada (James 1997), medium-sized mammals like sheep and pigs did not often have their carcasses processed down to tertiary butchery units, suggesting these were typically prepared and consumed as larger units, such as roasts. Although many of the butchered pig and cattle elements matched those found in barrelled pork and beef assemblages, this does not suggest the presence of barrelled products. Meat packing plants appear to have followed standard butchery techniques (Brophy and Criseman 2013) and the cuts found in the barrels can be further butchered by the home cook in a variety of ways.

6.6 CHAPTER SUMMARY

Through a discussion of sample size and taphonomy, this chapter elucidated the extent to which materials used in this project are reflective of what was originally deposited. A wide variety of fish and birds were exploited in the region but many assemblages feature samples that are too small to properly consider the role these animals played in foodways. Destructive post-depositional processes appear to have had a minimal effect on overall bone preservation when it comes to species identification; however, recovery methods, especially large screen sizes, likely resulted in the under-representation of smaller taxa. The evidence suggests faunal remains recovered from Feature 36 at Queen Street were not related to domestic food waste.

Results show consistency in the range of species identified in 19th-century Toronto area domestic deposits and are suggestive of the proportion of taxa one can expect to find at similar sites. They indicate mammals were the primary sources of meat, followed by birds and to a lesser extent fish. Pigs and cattle were important sources of meat and caprines occasionally proved to be a significant contributor. Among the birds, chickens were the primary source of meat and eggs, while domestic goose and turkey occasionally provided to the table. It appears that locally available fish and molluscs were preferred over imported marine species. Tool mark patterns suggest standardization in carcass disarticulation and evidence can be seen for both secondary and tertiary levels of butchery. Similarities exist between the materials observed here and the available information on standard butchery practices for mass produced barrelled beef and pork products at the time (Brophy and Crisman 2013; English 1990).

Differences or similarities between urban and rural assemblages were small and no apparent chronological trends were observed. Pig assemblages were the most consistent throughout the deposits in terms of age at death profiles, body portion representation and butchery practices. Cattle were also butchered fairly consistently and their age at death and body portion representation was only slightly more variable than that of the pig. Caprines were exploited at all sites but in varying amounts, occasionally only forming a very small part of an assemblage and sometimes playing a very prominent role in household foodways. Caprine age at death and body portion representation was also fairly consistent. Where this chapter served to present the evidence for foodways in and around the city of Toronto, the following chapter will bring forth evidence from other faunal analyses in the city and throughout Upper Canada in order to compare both sets of data and arrive at stronger conclusions about the use of archaeological data to reconstruct past foodways of the area.

CHAPTER 7 –

UPPER CANADA ZOOARCHAEOLOGY

Results presented in the previous chapter identify the meat items consumed in 19th-century Toronto and offered a comparison of materials between the city and its hinterland. This chapter presents zooarchaeological data collated from a number of sites throughout 19th-century Upper Canada. These include other sites from the Toronto region and compares these to the data obtained in the previous chapter to see if there is continuity in observations. Comparisons will then be made to other sites in Upper Canada in order to identify if the trends and patterns observed in Toronto are similar or different to those observed in other rural and urban areas throughout the province.

7.1 GENERAL COMPOSITION AND CLASS DISTRIBUTION

Before going into specifics and comparing species abundances between sites, it is necessary to look at the broader composition of the various comparative assemblages. Unfortunately, few reports offer information on the physical integrity of specimens and their exposure to post-depositional taphonomic processes. This makes it difficult to evaluate the extent to which assemblages are representative of the original deposits. Furthermore, few faunal reports mention whether or not flotation samples were taken. It is therefore assumed that, unless otherwise noted, assemblages are the result of hand collection and the screening of soils through a 6mm screen, the standard practice in Ontario commercial archaeology (Ontario Ministry of Tourism and Culture 2011).

Sample size is an important evaluator of the strength of data for each assemblage and it can be assumed that larger samples are more likely to be representative of the original deposit (Lyman 2008). Table 7.1 presents sample sizes for comparative sites as well as the proportion of those bones identified to taxonomic family or lower. These figures give us a sense of how fragmented or well preserved assemblages are. The Toronto assemblages presented in the previous chapter had sample sizes that ranged from 189 to 7,801 specimens and identifications to family or lower ranged from 12 to 73% with an average of 31.7%. The identification rates of the comparative Toronto area assemblages were very similar (urban: 34.2%; rural: 29.5%). Likewise for urban assemblages elsewhere in Upper Canada (35.5%) but far more elevated in rural areas in the province (53.0%). However, that number is slightly

TABLE 7.1: COMPARATIVE ASSEMBLAGES AND THEIR GENERAL COMPOSITION (* INDICATES ASSEMBLAGES WHERE FLOTATION SAMPLES WERE TAKEN; ~ INDICATES SITES WHERE NSP NUMBERS WERE NOT REPORTED RESULTING IN EXAGGERATED "%IDENTIFIED" VALUES).

	Sample size (n)	Identified (%)	Fish (%)	Birds (%)	Mammals (%)
Urban Toronto assemblages					
Front Street *	399	23.2	77.2	3.0	19.0
King-Caroline *	2,614	50.1	25.9	13.8	56.9
Lowry-Hannon	1,340	29.3	0.3	7.5	90.2
Toronto General Hospital	4,731	34.5	0.7	5.9	84.5
Average		34.2	26.0	7.6	62.7
Urban Ontario assemblages					
Cartwright (late 18thC.)	1,658	23.1	11.6	9.8	77.4
Cartwright (early 19thC.)	4,579	26.7	2.6	2.4	92.9
Cartwright (early to mid-19thC.)	380	31.3	0.8	4.2	92.1
Fralick's Tavern	768	66.9	2.2	12.2	81.9
Inge-va	4,310	47.6	5.4	20.8	68.9
Marsden	575	21.6	5.7	7.1	80.7
Smith's Knoll	1,037	37.0	0.1	3.8	95.1
Ste. Famille Separate School	5,935	29.6	5.8	5.7	86.9
Average		35.5	4.3	8.3	84.5
Rural Toronto assemblages					
Block 55 H3	843	46.1	0.0	8.7	91.3
Deacon	704	24.9	0.0	4.8	90.1
Dunsmore	491	29.3	0.0	2.0	96.9
Edgar	1,433	17.4	0.1	3.4	96.0
Fletcher	668	29.8	0.1	7.6	90.1
Average		29.5	0.0	5.3	92.9
Rural Ontario assemblages					
Barnum House	1,713	28.3	0.6	11.9	84.9
Benares~	508	79.9	0.0	9.1	75.6
Bethune-Thompson House	2,445	30.4	20.1	10.1	63.9
Botanical View Estates	2,326	81.9	7.3	41.5	50.8
Butler	14,616	8.2	1.7	4.1	92.6
Crinan Creek	704	48.2	2.0	7.1	87.6
Delong 1	887	52.5	0.0	2.1	97.7
Duff-Bâby~	590	97.6	13.9	28.0	44.1
Macdonell~	519	99.4	13.3	7.9	75.1
Moodie*~	2,796	83.9	8.2	6.2	80.2
Rasputine	921	73.9	0.0	6.6	86.9
Speers	1,084	29.1	0.2	3.1	91.9
Wilson Tenant	1,540	54.4	0.0	14.7	81.0
Yeager	574	75.3	0.0	1.7	97.7
Yeigh	356	11.8	0.6	7.0	86.0
Average		53.0	4.5	10.7	79.7

exaggerated as four of the rural sites with the highest proportion of identified specimens were analysed by a Master's student who seemed to only report on the number of specimens identified beyond taxonomic order (NISP) rather than totals for all specimens (NSP). If we exclude these assemblages, the average number of specimens identified to taxonomic family or lower in rural Upper Canadian assemblages is 44.9%.

Similar to Toronto, most assemblages are dominated by mammalian specimens; however, the proportion of fish and bird in a collection varies greatly. Much of this appears to relate to excavation procedures and sampling techniques. Ontario standards and guidelines do not require soil samples, thus greatly reducing the chances of small faunal remains being collected (Ontario Ministry of Tourism and Culture 2011). The Front Street assemblage, which consists of a single flotation sample, highlights the number of fish remains left unrecovered using standard recovery procedures at a historical site in Toronto. The King-Caroline assemblage, which included some soil samples in addition to larger fractions, gives the best indication of what urban Toronto assemblages may look like if different recovery techniques were employed. Locally available freshwater fish species were exploited for meat, likely on a regular basis and this is most evident when finer excavation strategies are employed. More bird bones would also be recovered with modified excavation strategies but their increased numbers would not be as dramatic as for fish.

In the previous chapter, fewer fish and birds were noted in rural assemblages relative to urban ones. The trend continues among rural and urban Toronto assemblages but does not extend to other rural assemblages outside the Toronto region. This may be the result of differential consumption strategies, preservation rates and/or reflective of excavation procedures.

7.2 MOLLUSCS

Not all comparative assemblages contained molluscs and this may be because these are not always included in zooarchaeological analyses. When present, they usually formed less than 2% of the overall assemblage, with only a few exceptions (Table 7.2). In the previous chapter, analyses suggested marine species like the oyster were mostly present in urban assemblages while the amount and diversity of freshwater species was greater in rural sites. A similar pattern was identified in comparative materials with some exceptions. In general, oysters are most prevalent in urban sites in Ontario. The Duff-Bâby site, which was just across the river from Detroit, seems to be the exception among rural assemblages. Likewise the diversity of freshwater species is greatest in rural assemblages where a wide diversity of species was identified (*Elliptio dilatata*, *Elliptio complanata*, *Lampsilis radiata*, *Lampsilis ventricosa*, *Lampsilis nasuta*, *Lasmigona compressa*, *Alasmidonta* sp., and *Amblema costata*).

TABLE 7.2: SUMMARY OF MOLLUSC SPECIMENS (NISP) IDENTIFIED AT COMPARATIVE SITES. (*INDICATES ASSEMBLAGES WHERE FLOTATION SAMPLES WERE TAKEN.)

	Gastropods	Bivalves	Oysters	Mussels (freshwater)	Total Mollusca (%NISP)
Urban Toronto assemblages					
King-Caroline *	2	5	20	2	1.1
Lowry-Hannon	-	4	7	-	0.8
Toronto General Hospital	-	20	359	-	8.1
Urban Ontario assemblages					
Cartwright (late 18thC.)	-	1	-	3	0.2
Cartwright (early 19thC.)	4	4	31	7	1.0
Fralick's Tavern	1	-	1	1	0.4
Inge-va	-	2	296	-	6.9
Marsden	-	-	-	6	1.0
Ste. Famille Separate School	1	14	4	1	0.3
Rural Toronto assemblages					
Deacon	-	16	-	-	2.3
Dunsmore	3	2	-	-	1.0
Fletcher	-	5	-	-	0.7
Rural Ontario assemblages					
Barnum House	11	-	-	-	0.6
Bethune-Thompson House	15	-	-	29	1.8
Botanical View Estates	-	-	-	1	0.0
Butler	18	38	-	-	0.4
Duff-Bâby	-	-	77	-	13.1
Macdonell	-	-	8	4	2.3
Moodie*	-	-	1	146	0.1
Rasputine	1	-	-	-	0.1
Speers	-	2	-	-	0.2
Wilson Tenant	-	59	-	8	4.4
Yeager	-	1	-	-	0.2
Yeigh	2	-	-	5	2.0

7.3 FISH

As was the case with sites analysed in the previous chapter, there was a greater number and variety of locally available taxa in Upper Canadian assemblages as opposed to imported marine species such as Atlantic cod (*Gadus morhua*) and haddock (*Melanogrammus aeglefinnus*) (Table 7.3). Sites where flotation samples were collected produced larger numbers and varieties of local fish species. In the previous chapter, rural Toronto sites did not have much fish in their assemblages. A similar pattern was seen in the comparative sample for rural sites around the city of Toronto where three assemblages did not have any fish remains (Block 55H3, Deacon and Dunsmore). However, the pattern did not extend to other rural sites throughout the province where assemblages such as Bethune Thompson-House, Duff-Bâby, Macdonell held a large number and variety of fish remains. The largest fish samples and the greatest diversity in fish assemblages came from those where more stringent recovery procedures were applied (Front Street, King-Caroline and Moodie). This evidence suggests fish remains are likely under-represented in most assemblages. The number and variety of fish in an assemblage may additionally relate to the site's proximity to a fishable body of water. Interestingly, despite the flotation samples taken at the rural Moodie site, only two types of locally available fish were consumed at that site, possibly a result of the types of fish most encountered in local lakes and rivers or preferred by that site's inhabitants.

The most prominent groups of fish identified in comparative assemblages are perch-like fishes (Perciformes sp.), catfishes (Ictaluridae sp.) and suckers (Catostomidae sp.). The majority of the perch-like fishes were from the sunfish family (Centrarchidae sp.), especially small- or large-mouth bass (*Micropterus* sp.). Smaller species like the pumpkinseed and the bluegill are present in many assemblages. Large proportions of walleye (*Sander vitreum*) were present at certain sites (Bethune-Thompson House, Duff-Bâby and Moodie). Two species of catfish are more commonly identified: the channel catfish (*Ictalurus punctatus*) and the brown bullhead (*Ameiurus nebulosus*). The majority of sucker specimens could not be identified to species but three species were identified amongst all assemblages: longnose sucker (*Catostomus catostomus*), white sucker (*Catostomus commersoni*) and golden redhorse (*Moxostoma erythrurum*). Salmoniformes do not appear in very high numbers in these assemblages and the majority of those identifications relate to whitefishes and ciscoes, especially lake herring (*Coregonus artedii*) and lake whitefish (*Coregonus clupeaformis*). Few Atlantic salmon (*Salmo salar)* were identified and the majority of recovered Salmonidae specimens are lake trout (*Salvelinus namaycush*). The Atlantic salmon was once abundant in Lake Ontario and its tributaries; however, the local population was in noticeable decline by the 1870s and was extirpated from the area by 1900 mostly as a result of habitat degradation (Crawford 2001). Only two imported marine species were identified in the assemblages and only in urban assemblages: Atlantic cod and haddock.

Table 7.3: Summary of fish (NISP) identified in comparative sites from Southern Ontario. Grey column indicates imported marine species. (*indicates sites from which flotation samples were collected)

	Acipenseridae	Amiidae	Clupeidae	Salmonidae	Salmoninae	Coregoninae	Esocidae	Cyprinidae	Catostomidae	Ictaluridae	Anguillidae	Gadidae	Gadidae (freshwater)	Gadidae (marine)	Perciformes	Centrarchidae	Percidae	Sciaenidae	Total fish (%NSP)
Urban Toronto assemblages																			
Front Street *	-	-	2	12	-	2	1	-	-	5	-	-	-	-	68	36	5	-	**77.2**
King-Caroline *	3	-	2	1	2	39	2	-	6	157	2	1	-	5	38	31	5	-	**25.9**
Lowry-Hannon	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	**0.3**
Toronto General Hospital	-	-	-	-	-	3	1	-	1	4	-	-	-	-	-	-	3	-	**0.7**
Urban Ontario assemblages																			
Cartwright (late 18th C.)	1	-	-	-	1	-	-	-	-	15	-	-	-	-	3	9	21	-	**11.6**
Cartwright (early 19th C.)	-	-	-	-	3	-	3	4	1	15	-	-	-	-	7	4	2	-	**2.6**
Cartwright (early to mid-19th C.)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	**0.8**
Fralick's Tavern	-	-	-	-	-	1	-	-	2	-	-	-	-	-	-	7	4	-	**2.2**
Inge-va	-	-	-	-	-	-	8	-	-	2	-	4	-	2	-	70	19	-	**5.4**
Marsden	-	-	-	-	1	-	-	-	-	27	-	-	-	-	-	-	3	-	**5.7**
Smith's Knoll	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.1**
Ste. Famille Separate School	-	-	-	-	-	-	8	6	21	-	-	14	-	17	4	7	8	-	**5.9**
Rural Toronto assemblages																			
Edgar	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.1**
Fletcher	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	**0.1**
Rural Ontario assemblages																			
Barnum House	-	-	-	-	5	1	-	-	2	-	-	-	-	-	-	-	-	-	**0.6**
Bethune-Thompson House	1	-	-	-	-	-	-	-	32	30	-	-	-	-	-	69	156	-	**20.1**
Botanical View Estates	-	1	-	-	-	-	65	4	89	2	-	-	-	-	-	1	-	-	**7.3**
Butler	50	-	-	-	-	5	-	1	4	11	-	4	1	-	5	10	4	8	**1.7**
Crinan Creek	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	2	-	**2.0**
Duff-Bâby	3	-	-	-	-	-	5	-	-	4	-	-	-	-	-	14	56	-	**13.9**
Macdonell	11	-	-	-	-	-	1	-	15	19	-	-	-	-	-	2	21	-	**13.2**
Moodie*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	192	38	-	**8.2**
Speers	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	**0.2**
Yeigh	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.6**

7.4 AMPHIBIANS

As was the case with Toronto area sites discussed in the previous chapter, a very small proportion of amphibian remains were identified throughout southern Ontario. The majority of these identifications relate to frogs and toads (Anura sp.) and are not believed to be anthropogenic accumulations.

7.5 REPTILES

The only reptiles identified in the comparative assemblages are the remains of turtles and few were identified from within or around the city of Toronto (exception of two turtle specimens from the King-Caroline site). The Speers site contained the most turtle specimens (NISP=41; 3.8% of total assemblage) with two species identified: the painted turtle (*Chrysemys picta*) and the map turtle (*Graptemys geographica*). Seven turtle specimens were identified at the Butler site, two of which were snapping turtle (*Chelhydra serpentina*). Two more snapping turtle specimens were identified at the Bethune-Thompson House. No evidence of butchery tool marks was reported on any of these specimens although the large number identified at the Speers site is unusual.

7.6 BIRDS

As was the case for sites discussed in Chapter 6, the domestic chicken (*Gallus gallus*) is the most commonly identified bird species in almost every assemblage (Table 7.4). Turkeys, ducks, geese and pigeons are also regularly present in historical period assemblages in southern Ontario. Geese are mostly represented by the greylag goose (*Anser anser*) but, unlike the Toronto sites considered in Chapter 6, some Canada geese (*Branta canadensis*) specimens were identified in greater numbers than domestic geese at certain assemblages (Fralick's Tavern (N=21); Bethune-Thompson House (N=8); Inge-va (N=5); late 18th-C Cartwright (N=4)). A variety of ducks are present; these include dabbling ducks (*Anas platyrhynchos*, *Anas discors*), diving ducks (*Aythya* sp.), sea ducks (*Bucephala clangula*), and mergansers (*Clangula hyemalis, Mergus merganser*). The majority of doves (Columbidae sp.) are represented by the passenger pigeon (*Ectopistes migratorius*). Wild pheasants (Tetraonidae sp.) are occasionally present in urban and rural assemblages, although none have been identified in urban Toronto assemblages. Far less common and only present in a few comparative assemblages are bitterns (Podicipedidae sp.), rails (Rallidae sp.), sandpipers (Scolopacidae sp.), gulls and terns

Table 7.4: Summary of bird specimens (NISP) identified in comparative sites from Southern Ontario (*indicates sites with flotation samples)

	Podicipedidae	Anatidae	Anserinae	Anatinae	Phasianidae	Tetraonidae	*M. gallopavo*	*G.gallus*	Rallidae	Scolopacidae	Charadriformes	Columbidae	*C. livia*	*E. migratorius*	Strigiformes	Piciformes	Passeriformes	Total Bird (%NSP)
Urban Toronto assemblages																		
Front Street *	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	**3.0**
King-Caroline *	-	-	56	38	9	-	30	63	-	-	3	2	-	2	-	-	-	**13.8**
Lowry-Hannon	1	-	-	-	1	-	-	24	-	-	-	-	-	3	-	-	-	**0.3**
Toronto General Hospital	9	-	17	48	3	-	7	43	-	-	-	-	-	21	-	-	-	**5.9**
Urban Ontario assemblages																		
Cartwright (late 18thC.)	-	-	6	3	-	5	2	28	-	-	1	-	-	1	-	-	-	**11.6**
Cartwright (early 19thC.)	-	15	13	4	-	3	3	19	-	-	-	-	-	2	-	-	-	**2.4**
Cartwright (early to mid-19thC.)	-	2	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	**0.8**
Fralick's Tavern	2	-	21	3	-	-	17	34	-	-	-	-	-	1	-	-	-	**12.2**
Inge-va		4	5	42	-	52	175	339	-	-	-	2	-	-	-	3	-	**20.8**
Marsden	-	-	-	-	4	1	-	15	-	-	-	6	-	-	1	-	-	**7.1**
Smith's Knoll	-	3	-	-	-	-	2	28	-	-	-	-	-	-	-	-	-	**3.7**
Ste. Famille Separate School	-	-	23	3	-	2	22	94	-	-	-	-	-	-	-	-	-	**5.7**
Rural Toronto assemblages																		
Block 55 H3	-	-	15	5	-	-	-	28	-	-	-	-	-	-	-	-	-	**8.7**
Deacon	-	-	1	-	2	-	3	16	-	-	-	-	-	-	-	-	-	**4.8**
Dunsmore	-	-	3	-	-	-	-	2	-	-	-	-	-	-	-	-	-	**2.0**
Edgar	-	-	6	-	-	-	-	3	-	-	-	-	-	-	-	1	-	**3.4**
Fletcher	-	-	11	-	-	-	1	26	-	-	-	-	-	-	-	-	1	**7.6**
Rural Ontario assemblages																		
Barnum House	-	-	1	-	-	3	-	157	-	-	-	-	-	25	-	-	-	**11.9**
Benares	-	-	5	3	-	-	5	29	-	-	-	-	-	4	-	-	-	**9.1**
Bethune-Thompson House	-	1	8	2	-	-	26	97	-	-	-	-	-	-	-	-	14	**10.1**
Botanical View Estates	-	-	273	25	-	-	5	616	1	-	-	-	-	11	-	-	-	**41.5**
Butler	4	65	-	11	-	-	13	54	-	-	-	8	1	12	-	-	-	**4.1**
Crinan Creek	-	-	-	-	-	-	-	42	-	-	-	-	-	7	-	-	-	**7.1**
Delong 1	-	-	6	-	-	-	1	9	-	-	-	-	-	-	-	-	-	**2.1**
Duff-Bâby	-	-	23	27	-	3	29	82	-	-	-	-	-	3	-	-	-	**28.0**

	Podicipedidae	**Anatidae**	**Anserinae**	**Anatinae**	**Phasianidae**	**Tetraonidae**	***M. gallopavo***	***G.gallus***	**Rallidae**	**Scolopacidae**	**Charadriformes**	**Columbidae**	***C. livia***	***E. migratorius***	**Strigiformes**	**Piciformes**	**Passeriformes**	**Total Bird (%NSP)**
Macdonell	-	-	8	5	-	-	10	15	-	-	-	-	-	3	-	-	-	**7.9**
Moodie*	-	-	-	-	-	5	9	119	-	-	-	-	-	2	-	-	-	**6.2**
Rasputine	-	-	11	-	-	-	1	36	-	-	1	-	-	-	-	-	1	**6.6**
Speers	-	-	2	-	-	3	2	9	-	-	-	-	-	-	-	-	-	**3.1**
Wilson Tenant	-	-	16	-	-	-	32	130	-	-	-	-	-	-	-	-	-	**14.7**
Yeager	-	-	2	-	-	-	-	3	-	-	-	-	-	-	-	-	-	**1.7**
Yeigh	-	-	-	-	-	-	1	5	-	-	-	-	1	2	-	-	-	**7.0**

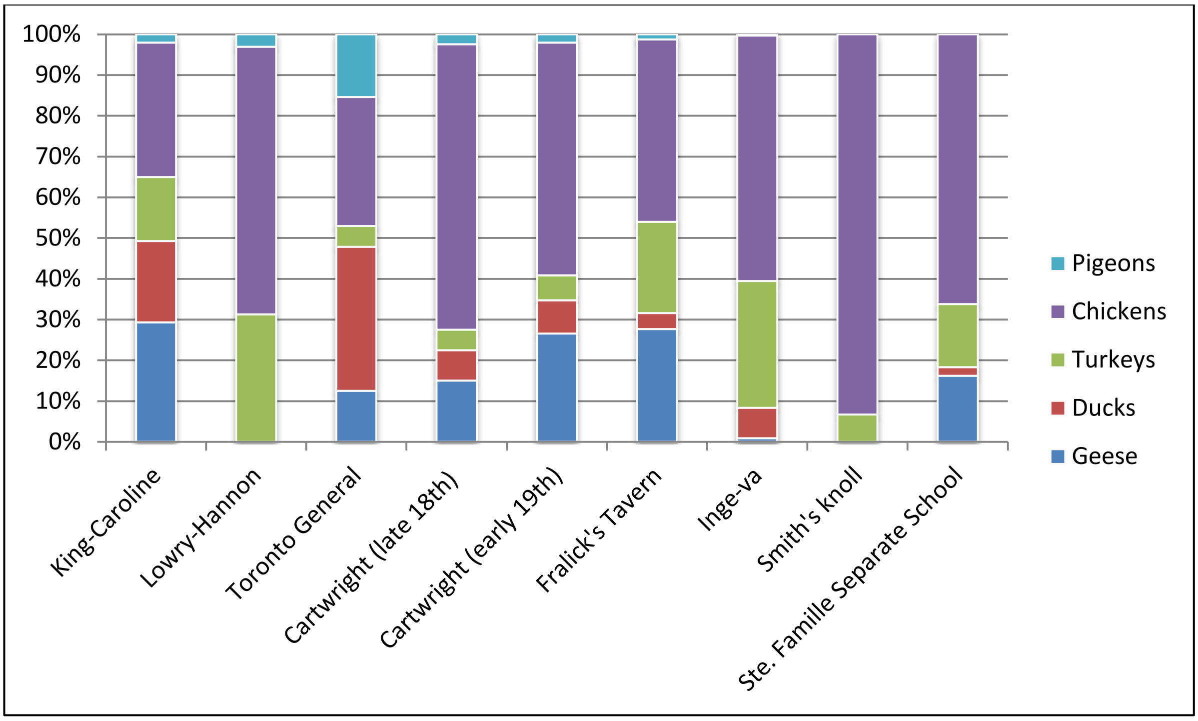

FIGURE 7.1: PROPORTION OF BIRD TYPES FROM SELECT URBAN ASSEMBLAGES

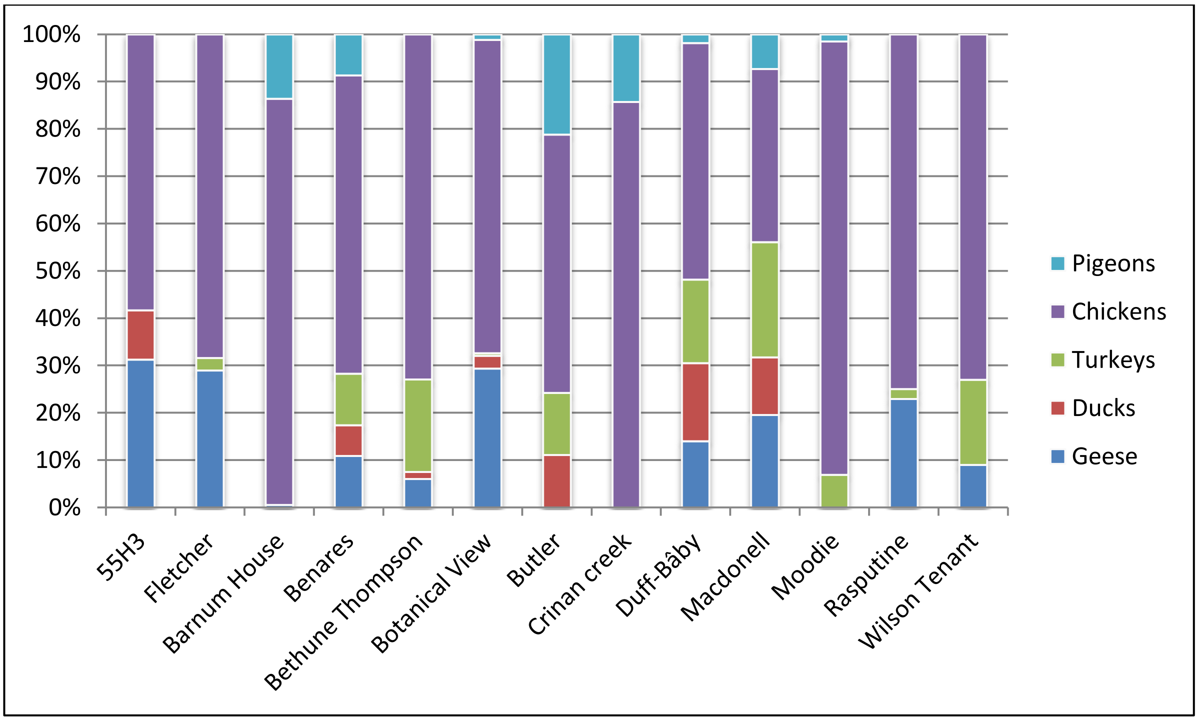

FIGURE 7.2: PROPORTION OF BIRD TYPES FROM SELECT RURAL ASSEMBLAGES

(Charadriforemes sp.), owls (Strigiformes sp.), woodpeckers (Piciformes sp.) and various types of perching birds (Passeriformes sp.).

Figures 7.1 and 7.2 compare the proportions of the five principle types of birds found in the comparative assemblages. Chickens are the only species present in every assemblage and in substantial proportions. Geese and turkeys, the largest of the food birds, are often present while the presence of ducks and pigeons is more variable.

7.7 RABBITS, HARES AND RODENTS

A number of Leporidae remains are present in both urban and rural sites (Table 7.5). These are often difficult to identify to species. In the previous chapter, only one species, the European rabbit (*Oryctolagus cuniculus*), was identified. In the comparative assemblages, only three specimens from this species were identified at two sites. Wild hares indigenous to the area (*Sylvilagus floridanus* and *Lepus americanus*) are present in five assemblages while the European hare (*Lepus europeaus*) was identified at one site. The latter was apparently not introduced into the area until a few escaped from a cage in Brantford, Ontario in 1912 (Urquhart 1957). This would suggest its presence at the Botanical Views Estate may be intrusive. The variety of identified Leporidae species suggests no particular taxa was targeted by site occupants; however, more identifications to species are necessary to draw stronger conclusions. In terms of overall dietary contributions, the numbers of recovered faunal remains do not suggest a reliance on these creatures. Rabbits and hares may have been used for their pelts if not for their meat. Evidence for this would theoretically be found in the types and locations of tool marks on their skeletons (Binford 1981: 47). Unfortunately, none of the specimens analysed in the previous chapter had evidence of butchery tool marks nor are there mentions of it the reports from comparative assemblages.

Like the sites discussed in Chapter 6, there is a greater variety of small rodent species at rural sites (Table 7.5). Species like the groundhog (*Marmota monax*) are especially common at multiple rural sites in the comparative assemblages. None of the reports identify tool marks on any of these specimens and all suggest these naturally burrowing creatures are intrusions into the archaeological record. Although the elevated number of groundhog specimens at the Moodie site suggest an anthropogenic accumulation, James (1997: 108) notes that the site was heavily disturbed by groundhogs who likely introduced and/or moved a significant number of other faunal remains at the site. In the previous chapter, I noted that the muskrat (*Ondatra zibethicus*) was only present at rural sites close to water. Elsewhere, the species is identified at only one urban site (Ste. Famille Separate School (N=1)) and at five rural sites. The muskrat represents another animal that might be intrusive to the archaeological record; however, they were known to be trapped for fur and food in other parts of North America.

TABLE 7.5: SUMMARY OF SMALL MAMMAL SPECIMENS (NISP) IDENTIFIED IN COMPARATIVE SITES FROM SOUTHERN ONTARIO. (* INDICATES SITES WHERE FLOTATION SAMPLES WERE TAKEN)

	Lagomorpha (hares, pikas, rabbits)	**Leporidae** (Rabbits and hares)	***S. floridanus*** (Eastern cottontail)	***L. americanus*** (Snowshoe hare)	***L. europeaus*** (European hare)	***O. cuniculus*** (European rabbit)	**Rodentia sp.** (Rodents)	**Sciuridae** (Squirrels, chipmunks and marmots)	***T. striatus*** (Chipmunk)	***M. monax*** (Woodchuck)	***S. carolinensis*** (Grey squirrel)	***T. hudsonicus*** (Red squirrel)	***C. canadensis*** (Beaver)	**Peromyscus sp.** (Deer mice)	***O. zibethicus*** (Muskrat)	**Microtus sp.** (Voles)	***Rattus* sp.** (Rats)	***M. musculus*** (House mouse)
Urban Toronto assemblages																		
Front Street *	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-
King-Caroline *	1	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	32	-
Lowry-Hannon	1	-	-	-	-	-	1	-	-	-	2	-	-	-	-	-	-	-
Toronto General Hospital	5	-	-	4	-	-	-	-	-	1	-	-	-	-	-	-	3	-
Urban Ontario assemblages																		
Cartwright (late 18th C.)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-
Cartwright (early 19th C.)	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cartwright (early to mid-19th C.)	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fralick's Tavern	-	6	-	-	-	-	-	-	-	-	1	-	-	-	-	-	9	-
Inge-va	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Marsden	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-
Ste. Famille Separate School	3	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	20	-
Rural Toronto assemblages																		
Block 55 H3	-	1	-	-	-	-	-	-	-	38 MNI:1	-	-	-	-	-	-	13	-
Deacon	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-	2	5	-
Dunsmore	-	-	4	-	-	-	-	-	-	18	-	-	-	-	-	-	-	-
Edgar	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	14	-
Fletcher	-	1	-	-	-	-	-	-	-	-	2	-	-	-	-	-	1	-

	Lagomorpha (hares, pikas, rabbits)	Leporidae (Rabbits and hares)	*S. floridanus* (Eastern cottontail)	*L. americanus* (Snowshoe hare)	*L. europeaus* (European hare)	*O. cuniculus* (European rabbit)	Rodentia sp. (Rodents)	Sciuridae (Squirrels, chipmunks and marmots)	*T. striatus* (Chipmunk)	*M. monax* (Woodchuck)	*S. carolinensis* (Grey squirrel)	*T. hudsonicus* (Red squirrel)	*C. canadensis* (Beaver)	Peromyscus sp. (Deer mice)	*O. zibethicus* (Muskrat)	Microtus sp. (Voles)	*Rattus* sp. (Rats)	*M. musculus* (House mouse)
Rural Ontario assemblages																		
Barnum House	-	-	-	-	-	-	-	-	-	2	1	-	-	1	-	-	-	-
Benares	-	84	-	-	-	-	-	-	-	3	-	-	-	-	-	-	1	-
Bethune-Thompson House	-	-	-	-	-	-	-	-	-	3	1	-	-	-	2	-	13	-
Botanical View Estates	-	5	-	-	11	-	-	-	-	12	1	-	-	-	141	-	2	-
Butler	-	-	-	-	-	1	-	-	1	-	53	-	2	-	12	3	2	-
Crinan Creek	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Delong 1	-	1	-	-	-	-	-	-	-	12	4	-	-	-	-	-	-	-
Duff-Bâby	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49	-
Macdonell	-	-	-	1	-	-	-	-	-	-	-	-	-	3	-	-	181	-
Moodie*	-	71	-	-	-	-	3	-	1	245	-	8	7	1	94	2	12	-
Rasputine	-	40	-	-	-	-	1	-	-	99	1	-	-	1	6	78	2	-
RR25	3	-	-	-	-	2	-	-	-	7	-	-	-	-	-	-	-	-
Wilson Tenant	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Yeager	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-
Yeigh	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-

Muskrats can be intrusive in archaeological assemblages, but Prevec (1992: 3) believes the large numbers observed at the Botanical Views Estate were "definitely hunted". She attributes the presence of heads and lack of feet and tail bones as suggestive that the latter were left in the skins while the bodies were discarded. Such a hypothesis fails to take into account that screening methods would simply not have picked up small bones of the feet and tail. Muskrats were trapped for food and skins well into the 20th century (Bedard 1981; Traill 1857: 155); however, little evidence appears on their remains to discriminate between natural and human accumulations. Squirrels and chipmunks were mentioned as occasional food sources in 19th-century Upper Canadian households (e.g., Cameron *et al*. 2000; Traill 1857: 155), yet they seldom appear in the archaeological record and there is no definitive evidence of butchery, making it difficult to judge whether they are intrusive or anthropogenic accumulations.

7.8 CARNIVORES

Medium-sized carnivores on urban sites mostly consist of dogs (*Canis familiaris*) and cats (*Felis catus*) (Table 7.6). Elevated dog counts signify individual burials or ABGs. Fralick's Tavern had a minimum of six different cats, one adult and five juveniles that were recovered as ABGs but not within individual or group burials.

Bears (*Ursus americanus*) are present on two sites. At the Butler site a cervical vertebra showing evidence of butchery is thought to possibly represent the mounting of a trophy head (ASI 2011: 46). Racoons and weasels were identified at a number of rural sites; however, these are not thought to have contributed to diet and none were found with evidence of butchery. Skunks (*Mephitis mephitis*) were identified in a number of rural sites, as was the case in the previous chapter. They mostly consisted of associated bone groups and likely represent individuals who died in their burrows. The large numbers recovered at the Moodie and Rasputine site did not have any evidence of butchery and were not further discussed by report authors.

TABLE 7.6: SUMMARY OF CARNIVORE SPECIMENS (NISP) IDENTIFIED IN COMPARATIVE SITES FROM SOUTHERN ONTARIO. (P= ONLY RECORDED AS PRESENT).

	Carnivores sp.	**Canidae sp.**	***C. familiaris*** **(Dog)**	**Fox sp.**	***V. vulpes*** **(red fox)**	***U. americanus*** **(Black bear)**	***P. lotor*** **(raccoon)**	***M. Americana*** **(Marten)**	***M. frenata*** **(Long-tailed weasel)**	***M. mephitis*** **(skunk)**	***L. canadensis*** **(River otter)**	***F. catus*** **(cat)**
Urban Toronto assemblages												
King-Caroline	-	-	-	2	3	-	-	-	-	-	-	49
Lowry-Hannon	-	-	1	-	-	-	-	-	-	-	-	54
Toronto General Hospital	-	-	226	-	-	-	-	-	-	-	-	6
Urban Ontario assemblages												
Cartwright (early 19th C.)	-	-	-	-	-	-	-	-	-	-	-	6
Cartwright (early to mid-19th C.)	-	-	-	-	-	-	-	-	-	-	-	1
Fralick's Tavern	-	-	2	-	-	-	-	-	-	-	-	166
Inge-va	-	-	-	-	-	-	-	-	-	-	-	244+
Marsden	-	-	-	1	-	-	-	-	-	-	-	-
Ste. Famille Separate School	-	-	6	-	-	-	-	-	-	-	-	13
Rural Toronto assemblages												
Block 55 H3	-	-	1	-	-	-	-	-	-	-	-	1
Deacon	-	-	P	-	-	-	-	-	-	-	-	1
Dunsmore	-	-	-	-	-	-	-	-	-	2	-	4
Edgar	-	-	475	-	-	-	-	-	-	1	-	-
Fletcher	-	-	-	-	-	-	-	-	-	-	-	2
Rural Ontario assemblages												
Barnum House	-	-	-	-	1	-	-	-	-	-	-	1
Bethune-Thompson House	-	-	1	-	-	-	-	-	-	-	-	3
Botanical View Estates	-	-	-	-	-	-	4	-	2	6	-	15
Butler	1	2	-	-	-	2	11	-	-	2	-	3
Delong 1	-	-	-	-	-	-	-	-	-	-	-	2
Duff-Bâby	-	-	16	-	-	-	-	-	-	-	-	16
Macdonell	-	-	-	-	-	-	1	-	-	-	-	-
Moodie	-	11	-	-	-	5	1	12	-	141	2	15
Rasputine	-	-	-	-	-	-	55	-	-	66	-	29
Speers	-	-	1	-	-	-	-	-	-	-	-	-
Wilson Tenant	-	-	14	-	-	-	-	-	-	-	-	1
Yeager	-	-	299	-	-	-	-	-	-	-	-	5
Yeigh	-	3	-	-	-	-	-	-	-	-	-	1

7.9 EQUIDS

Although no equid remains were identified in the sites used for this project, a small number were found at a few comparative sites. One specimen was identified at the Toronto General Hospital and three at the Edgar site in rural Toronto. No donkeys were identified in any assemblage, but horse (*Equus caballus*) was positively identified at four of the comparative sites (Butler, Inge-va, Macdonell and Moodie). There is no evidence to suggest these contributed to human diet.

7.10 ARTIODACTYLS

Unsurprisingly, artiodactyls represented the majority of faunal specimens in all comparative assemblages (Table 7.7). Unlike the sites presented in the previous chapter, moose (*Alces alces*) and elk (*Cervus canadensis*) were identified in a very small number of assemblages. Deer (*Odocoileus virginianus*) are present but in very small proportions relative to cattle, caprines and pigs. There are some small exceptions from early to mid-19th-century sites where deer formed between 2 and 8% of artiodactyl assemblages (Cartwright, Butler, Delong1 and Yeigh). Another early to late-19th century assemblage (Moodie) had 14% of its artiodactyl assemblage composed of deer, the most of any other site in this study.

Figures 7.3 and 7.4 highlight the relative proportion of artiodactyl specimens identified at each site. In combination with the evidence previously presented on Toronto assemblages, it becomes obvious that cervids (deer, moose and elk) played a very minor role in the regular consumption activities of some residents and a non-existent role in the foodways of most. Beyond this, patterns become a little more difficult to identify. Generally speaking, cattle and pig represent the primarily identified mammalian remains at most sites but no consistent patterns emerge to suggest residents relied on one type of meat more than another or that more rural sites had differential access to these meat products. The presence of caprines is also quite varied. In most assemblages, caprines appear as the third most consumed species but at certain sites, they are the most dominant species (e.g., Fralick's Tavern, Benares).

TABLE 7.7: SUMMARY OF ARTIODACTYL SPECIMENS (NISP) IDENTIFIED IN COMPARATIVE SITES FROM SOUTHERN ONTARIO. (*INDICATES SITES WHERE FLOTATION SAMPLES WERE TAKEN)

	Artiodactyla sp.	**Cervidae sp.**	***A. alces*** **(Moose)**	***C. canadensis*** **(Elk)**	***O. virginianus*** **(White- tailed deer)**	**Bovidae sp.**	***B. taurus*** **(cattle)**	**Caprinae (sheep/goat)**	***O. aries*** **(Sheep)**	***C. hircus*** **(goat)**	***S. scrofa*** **(Pig)**
Urban Toronto assemblages											
King-Caroline	24	-	-	-	3	-	278	194	13	-	210
Lowry-Hannon	54	-	-	-	-	7	128	79	13	-	126
Toronto General Hospital	31	-	-	-	1	4	447	281	13	1	119
Urban Ontario assemblages											
Cartwright (late 18thC.)	44	-	-	-	1	-	138	69	14	-	37
Cartwright (early 19thC.)	121	-	-	-	22	-	724	225	32	-	71
Cartwright (early to mid-19thC.)	15	-	-	-	-	-	73	34	2	-	2
Fralick’s Tavern	-	-	-	-	-	-	76	102	-	-	57
Inge-va	-	1	-	-	10	1	371	-	194	-	83
Marsden	-	-	-	-	-	-	2	-	10	-	45
Smith’s Knoll	-	-	-	-	-	-	105	5	-	-	241
Ste. Famille Separate School	375	-	-	-	-	1	546	295	42	-	597
Rural Toronto assemblages											
Block 55 H3	6	-	-	-	-	-	101	60	-	-	122
Deacon	18	-	-	-	1	8	17	30	2	-	75
Dunsmore	2	-	-	-	-	-	22	46	-	-	43
Edgar	19	-	-	-	-	-	20	-	10	-	106
Fletcher	-	-	-	-	1	-	50	-	31	-	72
Rural Ontario assemblages											
Barnum House	3	-	-	-	2	-	35	6	11	-	231
Benares	-	-	-	-	-	-	19	226	-	-	27
Bethune-Thompson House	15	-	-	-	1	-	84	-	59	-	108
Botanical View Estates	-	-	-	-	1	-	336	-	22	-	245
Butler	62	3	-	-	52	-	261	56	8	-	414
Crinan Creek	-	-	-	-	-	-	33	83	-	-	169
Delong 1	7	1	-	-	32	-	151	83	-	-	163
Duff-Bâby	-	-	-	-	-	-	76	-	47	-	40
Macdonell	-	-	-	-	-	-	55		60	1	84
Moodie*	38	-	4	-	156	38	286	-	166	-	530
Rasputine	-	-	-	-	1	-	116	-	32	-	104
Speers	45	-	-	1	1	7	56	62	14	-	103
Wilson Tenant	27	-	-	-	-	-	59	240	-	-	351
Yeager	2	-	-	-	-	-	18	23	1	-	77
Yeigh	1	-	-	-	3	-	13	5	-	-	21

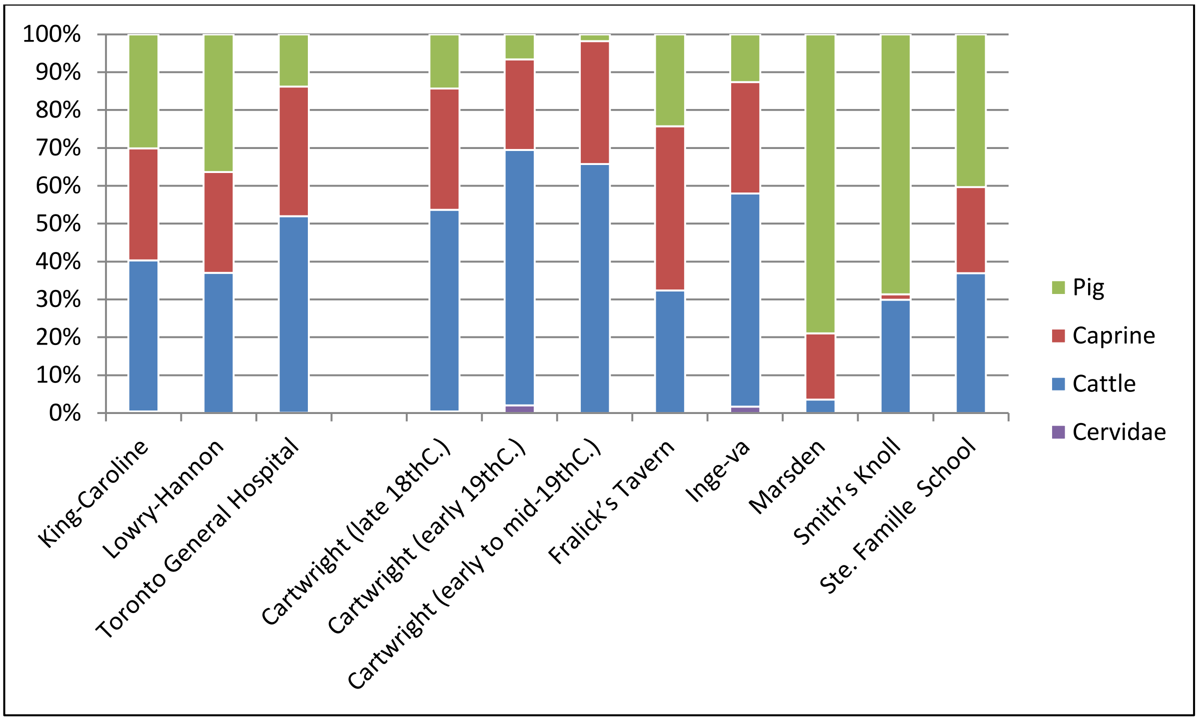

FIGURE 7.3: PROPORTION OF ARTIODACTYL SPECIES FROM COMPARATIVE URBAN SITES

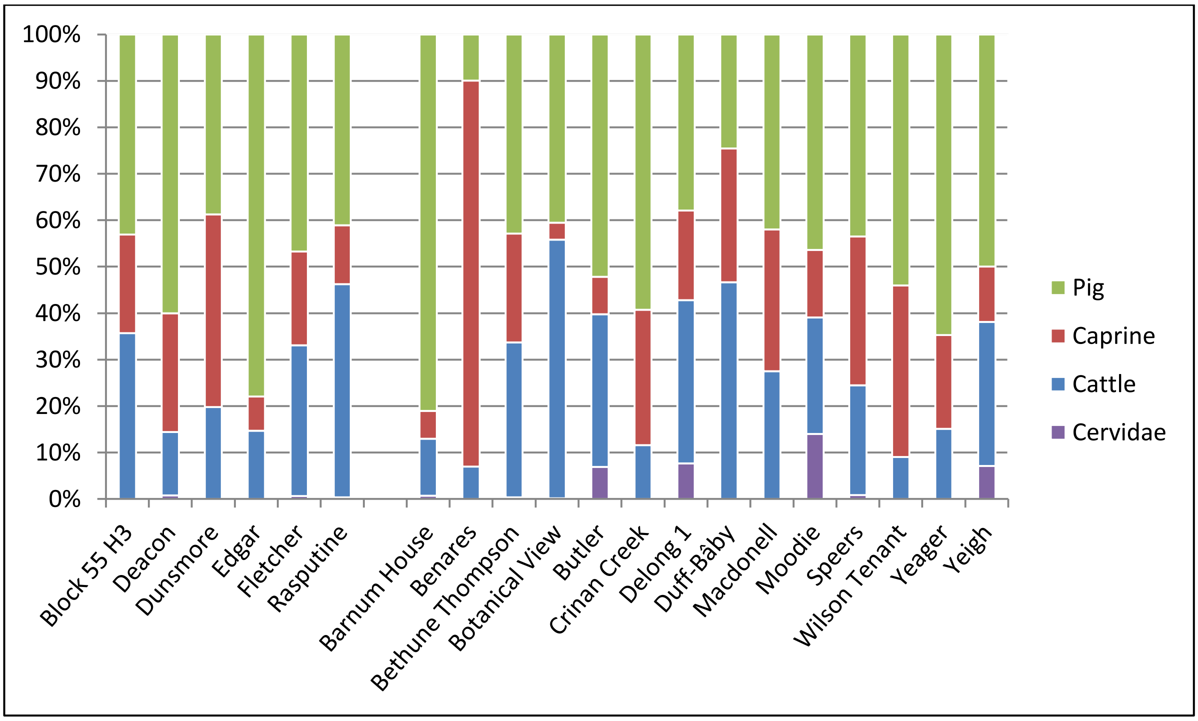

FIGURE 7.4: PROPORTION OF ARTIODACTYL SPECIES FROM COMPARATIVE RURAL SITES

7.11 AGE AT DEATH, BODY PORTION REPRESENTATION AND BUTCHERY

Unfortunately, provincial guidelines do not offer any standards when it comes to providing information on age at death, body portion representation and butchery in faunal reports produced for commercial archaeological projects. As a result, the data are collected in an inconsistent manner: different sources are referenced for timing of fusion information, over or under-representation of body parts is calculated in different ways and butchery, is usually only recorded in a descriptive manner thus rendering the data difficult to quantify. This type of information is generally summed up in one or two sentences without giving a sense as to the quality of the data or the number of specimens referenced. This section summarizes the few instances where this type of information was made available in the reports describing comparative assemblages.

With regards to age at death, 14 of the reports examined here present data for cattle, caprines and swine, although their information is often based on a small number of specimens and raw data are not always provided. The age at death for swine appears to be the most consistent between sites and with the data presented in the previous chapter. Faunal reports generally comment on the young age of pigs in the assemblages noting the majority are killed in the first year or two of life. Some reports note the presence of a low number of older individuals, possibly stock being kept alive longer for breeding purposes. Others (e.g., Edgar and Butler) mention the presence of feotal/neo-natal individuals, a strong suggestion that pigs were bred on or close to the site. Age at death data are more variable for cattle and caprines as both show a wide range of ages. For example, the 55 H3 site has evidence of both a calf and an elderly individual. The majority of caprines were older than a year when slaughtered, thus suggesting mutton consumption. There are some exceptions where lamb is observed (Barnum House, Bethune-Thompson, Delong1, Macdonell, Moodie, Speers). Black (1984: 11) noted a consistent pattern throughout the occupation history of the Bethune-Thompson House that also follows the general trends observed across the province whereby cattle and caprines generally lived to reach adulthood while swine were butchered soon after reaching maturity.

Reporting of body portion representation was inconsistent, even between reports sharing the same author. This makes it seemingly impossible and impractical to objectively compare body portion representation between different sites. One observation worth noting is the apparent general agreement between faunal analysts in the area that the presence of heads and teeth within an assemblage is indicative of livestock having been slaughtered on site. As a result many reports highlight the presence of these specimens prior to discussing possible activities that occurred at those sites. Of course, the information presented in Chapter 4 clearly shows that heads, including toothed elements like mandibles and maxillae, and feet were present in barrelled meat products and therefore their presence in an assemblage does not necessarily indicate livestock were butchered on site. Cattle, caprine and pig heads are pretty much ubiquitous in the archaeological record of Upper Canadian sites and are noted in nearly every report. Cattle feet on the other hand, do not appear to be as prominent, although the manner in which the information is presented makes this observation difficult to verify.

Black (1984: 12) noted what he calls clear changes in butchering practices at the Bethune-Thompson House during the 19th century. Chop marks were the most recorded form of tool use in the first half of the century while saw marks became more popular in assemblages dating to the mid and later century and few chop marks were observed. Although tool marks are not consistently recorded in the comparative materials, this trend does not appear to hold as many deposits representing the earlier century have more saw marks then they do chop marks (e.g., Lowry-Hannon, Fletcher sites) while some deposits that include mid- to late-century materials have more chop marks then they do saw (e.g., Speers and Delong1). No such trend was observed among the Toronto materials presented in the previous chapter and it appears the bone saw was widely used in the province throughout the 19th century. However, it is possible that chopping as a form of disarticulation became less popular later in the century as will be discussed in the following chapter.

7.12 CHAPTER SUMMARY

By bringing together data collected by other researchers from similar archaeological deposits throughout Upper Canada, this chapter helps support some of the trends observed in my own analysis presented in Chapter 6 by bringing forward new observations and highlighting some of the issues with the way zooarchaeology is currently undertaken in the province. Comparative assemblages indicate that the range of taxa identified among the Toronto assemblages are consistent with those found at other sites throughout the province. This information confirms that wild game such as deer and pheasants never played an important role in the foodways of Upper Canadians in general, not just those who lived in Toronto. There are a few early to mid-19th century rural assemblages that featured a greater proportion (7-14% of artiodactyl specimens) of deer, but this pattern does not extend to the majority of sites dating to this period. Data presented in the previous chapter suggested that rural sites contained a greater variety of wild mammal taxa (mostly small to medium sized rodents and carnivores) and the same pattern was observed in the comparative assemblages. However, these animals are not the result of direct anthropogenic deposition. They are generally intrusive into the archaeological record and seem to be a reflection of the sites' locations in space more than anything else. Upper Canadians consumed a greater proportion of fish than most recorded assemblages would suggest and these were mostly sourced fish from local lakes and rivers. Imported species such as Atlantic cod and Haddock were more likely to be consumed in urban areas. A similar trend also extends to the exploitation of molluscs where marine species (i.e., oysters) were mostly found in urban assemblages and a variety of locally sourced mussels were consumed at rural sites.

The standard recovery techniques and screen sizes employed by archaeologists working in the province has resulted in low recovery rates for small animals. Comparisons to assemblages where soil samples were taken and subjected to smaller screen sizes highlight the variety of local fish species likely present on Upper Canadian sites. A lack of consistency in the recording and reporting of zooarchaeological data in the province results in the majority of faunal reports simply providing lists and numbers of identified taxa while important sources of information like age at death, body portion representation and butchery patterns are either completely ignored or insufficiently reported on.

CHAPTER 8 –

FOODWAYS AND IDENTITIES

The previous chapters served to highlight the theoretical paradigms used to frame the research question posed at the beginning of this thesis and presented the archaeological and historical data that serve as evidence. This chapter brings together all of this information to discuss foodways and identities in the region, thus addressing the research question. This discussion is framed in three parts: the first summarizes the evidence for the role of meat in the foodways of Toronto and Upper Canada throughout the 19th century. The second section reconstructs the foodways of each individual assemblage discussed in Chapters 3 and 6. The final section addresses whether or not those foodways are expressive of identities shared amongst British and Loyalists residents of Upper Canada.

8.1 MEAT IN THE FOODWAYS OF TORONTO AND UPPER CANADA

8.1.1 BIVALVES

Bivalve specimens typically form a small proportion of Upper Canadian faunal assemblages (often less than 2%) and this number is likely exaggerated due to high fragmentation rates. However, they are consistently present at a majority of archaeological sites in both urban and rural areas of Upper Canada. Archaeological data indicate both marine (imported) and local freshwater species were consumed in the province. Marine species are from the Atlantic Ocean and mostly consist of oysters (Ostreidae sp.) but clams (Veneroida sp.) are also present.

Few historical sources discuss the preference for, or the consumption of molluscs in Upper Canadian cuisine and the majority of shellfish references are to the oyster. They are occasionally mentioned as ingredients in later 19th-century cookbooks but not in a way suggestive of a major food staple (Abrahamson 1981; Bates 1978). In Victorian England, oysters were a plentiful and inexpensive food item, easily affordable by the poor urban labouring class (Broomfield 2007: 84, 86-87). Charles Dickens even noted this in his *Pickwick Papers:*

> "It's a very remarkable circumstance […] that poverty and oysters always seem to go together. […] the poorer a place is, the greater call there seems to be for oysters. *Look*

> *here, sir; here's a oyster stall to every half dozen houses. The streets lined vith 'em. Blessed if I don't think that ven a man's wery poor, he rushes out of his lodgings and eats oysters in reg'lar desperation."* (Dickens, 1836)

Such was the case up until the 1860s when overharvesting, disease and bad weather resulted in a serious decline in local oyster stocks and prices skyrocketed in England (Broomfield, 2007: 84). Afterwards, oysters became a food fit only for the wealthiest residents. Across the ocean, the Toronto markets were supplied by oyster fisheries on the Atlantic coast of North America. Intensive industrial exploitation of the North Atlantic American oyster beds did not start until about the 1860s when technological improvements related to packing and infrastructure were available; however, oystering had been a regular occupation on the coast since the 18th century. New York and other north-eastern oyster beds became depleted by the 1860s but other fisheries, like Chesapeake Bay, were only beginning to intensify harvesting levels (Botwick and McClane 2005: 94). Oyster production peaked around the mid-1880s (Sharrer 1988: 5) but once again, overharvesting, pollution and disease all contributed to a severe decline in Atlantic oyster stocks which were mostly decimated by the 1890s (Botwick and McClane 2005: 94). Therefore, it took an additional 30 years after the decline of English stocks for North Americans to experience similar supply issues.

The question remains whether or not oysters in 19th-century Upper Canada were seen as an expensive or a cheap food source. The fact that North American stocks did not suffer heavy losses until the 1890s does not necessarily indicate that oysters were a plentiful and cheap product in Upper Canadian markets beforehand. Historical evidence suggests oysters were seasonally available to Toronto residents at prices higher than other types of meat. Fresh oysters were sold by the dozen, by the hundred or by the barrel and tinned oysters were also an option. Evidence for their availability in Toronto markets come from newspaper advertisements placed in *The Globe* throughout the second half of the 19th century. Unfortunately, these mostly focused on advertising the availability of oysters and few bothered listing prices. One merchant, Thos. McConkey, sold them at 1s. to 1s.3d. per dozen or 7s. 6d. per hundred (Figure 8.1). When compared to meat prices presented in Chapter 4, these were more expensive than a pound of fresh beef, pork, mutton or venison. Such prices suggest that while oysters in Upper Canada were affordable by many, they were never associated with the working poor classes like they were back in England. Abrahamson (1967: 184) still refers to 19th-century prices as 'cheap', suggesting prices later soared. Not-so-fresh tinned oysters were once advertised in *The Globe* at 35 cents a can in 1864 and 40 cents a can in 1866.

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FIGURE 8.1: NEWSPAPER ADVERTISEMENT FROM *THE GLOBE*, OCTOBER 23RD, 1849.

Oysters were best transported inland from the coast when the weather became cold enough to keep them from spoiling. Consequently, they were only available in Toronto in the winter months and newspaper advertisements only appear between late September and April. Upon purchase, oysters were kept in shell, in water and occasionally fed with some type of meal (e.g., oatmeal). At home, they were often stored in the cold rooms or summer kitchens (Abrahamson 1967: 184). Oysters imported into Toronto made their way from a number of different sources. Newspaper advertisements mostly tell of shipments from New York in the 1840s and 1850s while later adverts increasingly feature shipments arriving from Maryland and Delaware. This correlates with a decline in production for the New York beds and increased production in the Chesapeake beds at this time (Botwick and McClane 2005). Occasional advertisements feature oysters from Massachusetts and New Brunswick.

Bates (1978: 70) notes oysters were the most popular shellfish consumed by 19th-century Upper Canadians and the archaeological data presented in this study supports that statement. Oysters were the most identified mollusc species and some sites featured hundreds of specimens. However, they tend to be recovered from urban deposits or port towns and few were identified in rural deposits. Certainly the lack of refrigeration and the inability to keep marine products fresh for long periods of time was the biggest challenge in transporting oysters. It very much appears as though access to fresh oysters was limited to those who lived near places that were importing them. Figure 8.1 also notes how that particular merchant was willing to ship fresh oysters to any part of the city of Toronto, but not beyond.

However, Upper Canadians residing in rural areas continued to enjoy fresh shellfish in their diets as a wide variety of freshwater mussels from local lakes and rivers were found almost exclusively in rural archaeological deposits. These could have been collected from local waterways by individual households or made available to local communities by a few individuals working to collect and sell mussels. While differential access to oysters and mussels was obviously a factor in Upper Canada, both types of shellfish seemed to play similar roles in the foodways of many Upper Canadians. It is important to recognize that, although mussels and oysters were not considered particularly expensive foods in the 19th century, they were likely considered special due to their general unavailability, especially in inland markets (Davidson 1982: 389).

Regrettably, the inclusion of bivalves in the foodways of Upper Canadians often goes unmentioned by archaeologists and historians. It is unfortunate that most reference collections do not include the full range of available bivalves among their specimens and that the majority of zooarchaeologists operating in the area, myself included, are not properly trained in mollusc identifications. Better identification procedures would likely result in some interesting data on bivalve consumption and the health of local mussel populations. However, the results collated here do provide some interesting clues on the use of this resource.

8.1.2 Fish

The role fish played in the diet and foodways of 19th-century Upper Canada residents is often undervalued and/or barely discussed in the archaeological literature despite the fact that historical documents make it clear people were fishing from local waterways that abounded with fish (Bonnycastle 1833; Brown 1849; Langton 1926; Traill 1857). This is probably a consequence of the fragile nature of fish remains coupled with suboptimal archaeological recovery strategies resulting in zooarchaeological assemblages lacking in fish. The flotation samples from the Front Street and King-Caroline sites (Chapter 7) testify to the number of fish bones that could be recovered from historical sites in the area. Further evidence is found in the fact that sites with larger faunal samples exhibit greater varieties of local fish being identified since the odds of recovering fish become greater as more material is processed (see Figure 6.2). These data indicate locally sourced fish did play a regular role in the diet of Upper Canadians throughout the province. One might assume the standard recovery technique in

Ontario would lead to a bias in the size of fish being identified; however, smaller species like perch and pumpkinseed are being recovered.

Both imported marine species and varieties of fish native to local lakes and rivers were identified in the assemblages. However, numbers indicate an emphasis on locally sourced species such as whitefish (*Coregonus* sp.), perch-like fishes (Perciformes sp.) and suckers (Catostomidae sp.) over imported marine species. Additionally, the amount and variety of fish consumed at a site may relate to its proximity to a fishable body of water and the species that inhabit it. Only three imported marine taxa were identified (Atlantic cod (*Gadus morhua*), haddock (*Melanogrammus aeglefinus*) and Atlantic mackerel (*Scomber scombrus*). These never formed more than 2% of the larger fish assemblages or more than 20% in the smaller assemblages (i.e., the Queen Street site where one out of six recovered fish remains was from a marine taxon). Marine taxa were only identified in urban assemblages with the exception of the Ashbridge Estate, a rural site located just outside the city of Toronto. A similar pattern in the distribution of marine fish was observed between 17th and 18th century rural and urban sites from Boston, Massachusetts (Landon 1997: 54).

The evidence suggests two factors may have affected the role of fish in 19th-century Upper Canadian foodways: 1) Keeping it fresh during transportation; 2) availability of local fish. As was the case with marine bivalves, the difficulties involved in preventing fresh fish from spoiling while being transported over long distances to more remote villages may not have made them worth the effort. While *The Globe* newspaper occasionally recorded stock prices for cod, haddock and herring, it rarely suggested they were available for purchase in the city of Toronto. Some advertisers do occasionally mention their procurement of fresh cod or haddock supplies, but these do not appear in the newspaper anywhere near as often as advertisements for fresh oysters. The difficulties and inefficiencies inherent in transporting fresh marine fish in combination with the ready availability of a variety of species in local lakes and rivers meant Upper Canadians preferred to incorporate the latter as a regular part of their diet. These were either caught by individual households themselves or, as revealed in Chapter 4, were the product of the significant fish industry that developed on the shores of Lake Ontario. In Toronto, these locally caught fish were making their way to the city's market from the earliest days of settlement (Figure 8.2). Locally sourced fish continued to play a role in the diet of Upper Canadians well into the late 19th and early 20th century as evidenced by their presence in sites dated to that period (e.g., Bishop's Block and Ashbridge Estate).

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FIGURE 8.2: TORONTO FISH MARKET, 1838 (BARTLETT 1842)

8.1.3 TURTLES

Turtles played an insignificant role in 19^{th}-century Upper Canadian foodways. A few specimens representing different locally available species were identified at only six of the sites discussed in this project. None of these had evidence of butchery tool marks and they were generally found in such low numbers rendering it difficult to judge whether or not they were even part of anthropogenic accumulations. The archaeological and historical evidence makes it difficult to identify if species indigenous to the local area were ever targeted for food. In Victorian England, sea turtles were expensive and associated with wealthy diners (Broomfield, 2007: 87). Given that turtle-based recipes and menu items occasionally appear in historical documents in Ontario, perhaps their use in food was also saved for special occasion. One advertisement from *The Globe* notes the special occasion of the arrival of a large turtle into the city (Figure 8.3). The large size (125lbs) excludes any of the Ontario turtle species and likely references a sea turtle. The fact a classified ad was taken out by someone who identifies himself as a 'Purveyor to the gentry of Toronto' supports the hypothesis that turtle consumption was rare and reserved for the upper classes on special occasions.

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FIGURE 8.3: CLASSIFIED ADVERTISEMENT FROM *THE GLOBE*, JUNE 2, 1847.

8.1.4 CHICKENS

Unsurprisingly, chickens (*Gallus gallus*) were an important component of local foodways and represent the most identified bird species at nearly every site in Toronto and throughout Upper Canada. This is consistent with other contemporary and earlier British European sites throughout British North America (e.g., Kuehn 2007; Sportman *et al*. 2007). They are noted as being the most common urban livestock throughout North American cities in the 19th century (Grier 2006: 253) and census records in Toronto indicate this city was no exception (see Chapter 4). They were easy to keep, provided fresh eggs and a steady supply of cockerels for meat. Evidence suggests the majority of chickens consumed in urban Toronto were the product of a meat industry whereas the majority of chickens consumed in rural areas were older, suggesting they were kept to lay eggs before being killed for meat. Body portion representation from all Toronto assemblages suggests the presence of complete carcases, including non-meat bearing portions such as the heads and feet. This correlates with the evidence presented in Chapter 4 suggesting: 1) that most households had the capacity to manage their own live chickens and; 2) in cases where chicken meat was purchased, they were sold as live birds or whole carcasses rather than by body part. Chicken assemblages in 19th-century Euro-Canadian occupations in Upper Canada are likely a result of both home reared and market bought products that cannot be distinguished archaeology, although a larger proportion of chickens in Toronto were likely purchased for meat at a market. Similar proportions of chickens were recovered from late post-medieval/19th century assemblages in Britain (80% of total bird assemblage; 4-16 % of cattle/pork/mutton/chicken assemblages) (Gordon 2015).

Cockerels were identified in both urban and rural assemblages, but in low numbers. Although illegal, cockfighting continued in Upper Canada through to the 20th century and organisations like the Toronto Humane Society took it upon themselves to stop these events when possible (Sitara 1994). Unfortunately, these were often attended by influential members of society, such as Toronto city aldermen (*The Globe* April 24, 1869: 1) and cock-fighting rings continued to operate in a more or less secretive manner. The extent to which faunal assemblages are effected by cockfighting is unknown but likely very low.

8.1.5 Other birds

Turkeys, geese, ducks and pigeons are all fairly regular contributors to the Upper Canadian diet, and with fish, routinely offered something different in a diet dominated by cattle, pork, mutton and chicken. Identifying whether or not these represent the adoption of local wild resources is difficult to determine. Turkeys (*Meleagris gallopavo*), for example, live in the forests of southern Ontario but also represent an indigenized food (Dietler 2007: 223-224); the species had already become a common part of British foodways by the late 16th and early 17th centuries, not long after having first arrived in Britain by 1541 (Fothergill, 2012: 43). Chapter 4 offers evidence of Upper Canadians hunting wild turkey and raising flocks of the domestic variety: a letter written by William Pannel in 1832 (Cameron *et al*. 2000: 65) notes turkeys being hunted in the wild and Traill (1857: 193) indicates they breed well in the country but that most farmers are hesitant in rearing them due to their penchant for being destructive to crops. Mid-19th-century Toronto Market prices regularly list turkeys for sale where customers would purchase a whole bird for a price that was about double a brace of chickens. Archaeological results indicate a greater number of turkeys recovered from urban assemblages. This does not necessarily translate to a greater proportion of turkeys in the overall assemblage and may just be suggestive of easier access to turkeys in the city. An investigation into turkey age at death indicates a high proportion of the urban turkeys were juvenile while few young turkeys were present in rural assemblages. This suggests that turkeys consumed in the city represent a farm-raised product that was targeted for slaughter soon after reaching their optimal weight. The fact that mostly old turkeys were recovered in rural deposits evokes the possibility that rural areas were raising flocks and supplying the nearby urban markets with younger birds, only to consume the older, breeding stock themselves. The age profiles observed in these assemblages do not match the random patterns expected if birds were caught from the wild. Fewer turkeys were recovered from the rural Toronto sites analysed in this project but this is not a trend that extends elsewhere in Upper Canada. It would be of interest to see if urban and rural turkeys from across the province exhibit the same age at death patterns observed in the Toronto specimens.

Wild and domestic varieties of geese were available to 19th-century Upper Canadians. However, identifying osteological differences between species can be difficult and matters are further complicated by the presence of hybrids between domestic and wild forms. Wild geese were reportedly consumed in the Canadas as Mrs. Simcoe attested to eating one in Quebec, noting it tasted better than the average goose (Robertson 1911: 200). The majority of goose specimens could be attributed to the domestic Greylag goose (*Anser anser*) and only a few specimens of Canada goose (*Branta canadensis*) were identified in Toronto and throughout Upper Canada. Only in a few cases did Canada goose remains outnumber the domestic counterpart (although this may be the result of analyst inexperience in two of the cases). Despite our knowledge that geese were hunted (Traill 1857: 156), the preponderance of domestic geese over wild varieties is not surprising given the information available to us in the historical documents. Traill (1857: 191) notes some farmers with access to ponds or waterways were raising geese and personal correspondence of early settlers mention the presence of geese in their livestock (see Chapter 4). Toronto Market price listings from 1845 mention the availability of geese carcasses being sold at the same price or at a slightly higher price than a brace of fowl. Geese were not included in subsequent market listings, possibly suggesting they were no longer seen as a principal component of most citizens' foodways. Evidence suggests farmed raised geese were preferred to a wild alternative. Perhaps this is a result of taste as Traill (1857: 156) notes how the flesh of Canada goose was somewhat unpleasant with a fishy taste and an oily texture.

A wide variety of ducks were present throughout Upper Canada, including the Toronto area which itself had a number of wetlands surrounding the city. Ducks were only recorded at a few sites and are not consistently identified throughout the province. The presence of ducks in site assemblages may have more to do with proximity to duck habitats then it does to markets, suggesting the production and sale of domestic ducks was not an important feature of 19th-century Upper Canada. The identification of wild specimens confirms references in the historical record discussing the hunting of ducks. Mrs. Simcoe believed it was their feeding on wild rice that made them so much tastier than those she used to eat in England (Robertson 1911: 200).

Pigeons and doves (Columbidae sp.) commonly featured in the diet of many Upper Canadians, but never in any substantial way. Both species were identified amongst the various Toronto assemblages but more specimens of passenger pigeon were identified in the comparative materials presented in Chapter 7. No evidence for common pigeon was identified in the Toronto assemblages and only one specimen was identified amongst all of the comparative materials suggesting that the majority of 'Columbidae sp.' identifications represent passenger pigeon. Despite all the accounts regarding the abundance of passenger pigeon and the ease with which they were caught and their sale in Toronto markets (see Chapter 4), the birds do not seem to have played an important role in the foodways of Toronto residents. Their occasional incorporation into a meal was likely based on personal tastes and is maybe reflective of need over actual desire. Greenberg (2014: 71) notes that people did not much like the taste of the bird and would avoid eating it if better sources of meat were available. Archaeological findings seem to support his statement. Despite the large numbers reportedly being killed in Ontario throughout the 19th century, few were incorporated into archaeological assemblages.

8.1.6 Small mammals

The majority of rodents recovered from archaeological sites are commensal species without evidence for butchery and likely intrusive into the archaeological deposits. The rat is the most common small rodent species and is generally found in both urban and rural deposits across Upper Canada. The majority of rats recovered from Toronto deposits are only identified to genus (*Rattus* sp.) but are thought to mostly represent the black rat (*Rattus rattus*). Unfortunately, the reference collection was not complete enough to identify differences between rat species. As Landon (2009) notes, the replacement of black rats by the brown rat (*Rattus norvegicus*) is poorly understood in North America as few zooarchaeological studies make the distinction between the two species. Diertelen (1975: 357) believes the brown rat was introduced to North America in 1755, while Armitage (2004) suggests an introduction date in the 1770s. If the majority of Toronto specimens are black rat, this information could provide a timeline on the spread of its brown counterpart across North America.

In Chapters 6 and 7, I noted that a greater variety of small rodents, especially native taxa, were present in the rural assemblages, whilst urban small rodent assemblages mostly consisted of rats. This may be a reflection of larger populations of wild taxa present in rural areas and/or the extirpation of native species from urban centres. The most commonly identified wild rodents include the muskrat (*Odontra zibithecus*), the groundhog (*Marmota* *monax*) and the grey squirrel (*Sciurus carolinensis*). No single deposit can be confidently linked to the exploitation of small rodents for their fur and most archaeological sites suggest natural rather than anthropogenic accumulations. Mrs. Simcoe mentioned eating squirrels in the late 18th century but not bothering to skin them despite their beautiful furs (Robertson 1911: 250, 328). Archaeological evidence suggests wild rodents like muskrats, squirrels and woodchucks were widely present in the landscape but never really incorporated into the diet and foodways of British and Loyalist settlers. Other rodents like the beaver and porcupine are rarely recovered from these sites. Although not included as a food source, it is important to recognize that wild commensal species played a role in the everyday lives of Upper Canadians, even if they were considered pests (Reitz and Zierden 2014). It is worth noting that small wild mammals were similarly lacking from 17th and 18th century urban assemblages in Boston (Landon 1997: 55) and this was attributed to their extirpation from the urban landscapes and continued presence in rural ones.

Rabbits and hares, including Old and New World taxa, were only occasionally incorporated into local diets according to both archaeological and historical evidence. They are present at only a few sites, form a very small portion of their assemblages, and show little evidence for butchery. Hares and rabbits are not often mentioned in the historical documents with the exception of a few passing comments on their availability as game for the aspiring hunter or as ingredients in a few recipes instructing how to prepare these creatures (Bates 1978).

8.1.7 Carnivores

The majority of carnivore remains identified at 19th-century sites in Toronto and elsewhere in Upper Canada are domestic cats (*Felis catus*) and dogs (*Canis familiaris*). These are mostly recorded as complete burials or other types of associated bone groups (ABGs) but sometimes consist of isolated finds composed of one or two bones. No element from any of these species was recorded with evidence of butchery and there is no historical or archaeological evidence indicating they were considered sources of food.

Racoons (*Procyon lotor*) and mustelids, such as the skunk (*Mephetis mephitis*) were only recovered from rural assemblages across Upper Canada. As was the case with native rodents, the fact that greater numbers were recovered from rural assemblages, may suggest larger wild animal populations were present in rural areas and/or the displacement of wild taxa away from growing urban centres. Although there were a few records of raccoons being hunted and consumed in the late 18th century (e.g., Robertson 1911: 210), most specimens were recovered as ABGs without evidence for butchery and are likely intrusive into assemblages. The majority of skunks identified in these assemblages are believed to have died naturally in their burrows.

The black bear (*Ursus americanus*), although naturally found in the local area, is not identified in any Toronto assemblages and only a very small number of bones were identified the comparative assemblages from Upper Canada. A few had some evidence of butchery which may relate to the display of hunting trophies or skins as suggested by Harrington (1915: 46). Although historical evidence testifies that bears and other land carnivores were hunted, the archaeological data clearly shows these did not play a role in the diet and foodways of Upper Canadians in the 19th century.

8.1.8 Deer

Passages highlighted in Chapter 4 suggest deer was a plentiful, inexpensive source of meat and highly regarded by early Euro-Canadian settlers. Letters, published papers and newspapers discussed how easy it was to obtain venison, either by hunting, bartering with indigenous people or purchasing at the market. Despite references to this abundant and inexpensive food source, the majority of 19th-century Euro-Canadian archaeological sites contain few deer remains. Within Toronto area assemblages, cervid remains are generally absent. A total of seven deer specimens were identified in urban sites (3 out of 10,937 remains at Bishop's Block, 3 out of 2,615 at the King Caroline Site and 1 out of 4,731 from the General Hospital site). Slightly more deer were identified in rural Toronto assemblages (9 out of 9,345 at the Ashbridge Estate, 13 of 1,588 at the Graham Site and 1 of 688 at the Fletcher Site). In all, cervid remains only comprise between 0.1 and 0.8% of the total number of faunal specimens and there is no notable difference in deer consumption between rural and urban assemblages. Therefore, there does not appear to be differential access between urban dwellers and those inhabiting areas more likely to encounter wild deer.

Many of the historical documents praising deer as a valuable resource are from recent arrivals to Upper Canada in the first half of the 19th century; people who were not yet fully capable of raising their own food stocks and may have depended on wild food sources to supplement their diet. If that was the case, are deer specimens more likely to be encountered from assemblages dating to the earlier half of the century? The four sites with the most deer specimens do represent earlier 19th-century deposits (the early 19th-century assemblage of the Cartwright site, the Butler site (1784-1813), the Delong 1 site (1830-1870) and the Moodie site (1833/34 to early 1860s)). However, these form less than 14% of overall artiodactyl assemblages. Suzanna Moodie, who wrote two books on life in early 19th century Upper Canada where she promoted the advantages of venison, appears not to have been lying as her household did indeed consume a fair amount of it, the most of any assemblage in this study. However, the majority of assemblages with a distinct late 18th/early 19th-century component did not contain deer bones. Generally speaking, most individuals did not seem intent on consuming much venison and the consumption of deer at 19th-century Euro-Canadian sites is not best explained by the need to adapt to a new environment. Later in this chapter, I discuss how attitudes towards venison were possibly shaped by people's backgrounds and identities and how this may have influenced the role of deer in Upper Canadian foodways.

8.1.9 Cattle

Beef was one of the primarily consumed meat products in 19th-century Toronto and, with few exceptions, cattle generally represent between twenty five and sixty percent of the total number of identified artiodactyl specimens across these sites. Butchery patterns, age at death information and body portion representation indicates that the majority of cattle recovered from archaeological sites in the area are representative of food waste. While on the surface it may appear as though cattle remains are proportionately more abundant in the urban assemblages, this is not always the case. Comparisons with contemporary sites in the province show that cattle, along with pigs and caprines are either the most, second or third-most abundant species. Age-at-death information suggests the consumption of cattle aged between one and three years is most typical for the region and the presence of a small number of older cattle is likely indicative of individuals kept for household dairying purposes and/or livestock maintenance. In the United States, cattle lived in towns and cities as well as the hinterlands and it was not unusual for city dwellers to keep a cow in their backyard until the early 1900s for dairying (Grier 2006: 257). A total of 1,102 dairying cattle were identified in the 1861 census of Toronto. This is a number that declines to 500 in the 1891 census and 29 in the 1911 census[1] (Kheraj 2013: 126). This suggests reduced self-reliance on dairy products by the end of the 19th century. A comparison of age profiles between early and late 19th-century urban sites would be interesting to confirm this pattern. Unfortunately, the temporal resolution between sites is insufficient to determine whether the decline in the keeping of personal dairying cows can be observed archaeologically.

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[1] Bureau of Agriculture and Statistics, Census of the Canadas, 1860-61: Agricultural Produce, Mills, Manufactories, Houses, Schools, Public Buildings, Places of Worship, &c (Quebec: 1864) 90-95; Dominion Bureau of Statistics, Census of Canada, 1890-91, Vol. 4 (Ottawa: 1897), 174- 175; Dominion Bureau of Statistics, Census of Canada, 1911: Agriculture, Vol. 4 (Ottawa: 1914), 342-43. (In Kheraj 2013).

The majority of butchery marks identified in this project were observed on cattle elements. This is unsurprising as cattle are quite large and require much more butchery then pigs or sheep. The regularity of tool marks observed at nearly all sites is suggestive of professionalization or standardization of the practice. Although the butchery data were not available or recorded in a similar way for the comparative Upper Canadian sites described in Chapter 7, there is nothing to indicate that similar butchery patterns were not produced throughout the province and there seems to be much variance in the butchery styles between towns and villages. Evidence from historical documents and the presence of butchery patterns similar to those described by English (1990) for barrelled beef shipped from Montreal in the 19th century, suggests that the presence of barrelled beef products in both urban and rural assemblages in Toronto is highly likely. In his analysis of late 18th-century beef remains from Fort George in Niagara, Betts (2000) identified evidence for butchery by the quarter-carcass, which is how historical documents indicate the fort was supplied. Similar patterns were observed in the Toronto assemblages; however, these do not necessarily indicate the presence of fresh or frozen beef since the barrelled products were butchered in a similar fashion: following a standardized practice that also began by first quartering the animal. In his analysis of beef butchery, English (1990) found that butchery patterns from Canadian barrelled beef were, for the most part, indistinguishable from methods of cutting fresh beef over the past century by local retail butchers.

The presence of smaller, standardized cuts, such as the femora shaft slices (round steaks), innominate shaft slices and scapula slices indicate the presence of tertiary meat cuts possibly obtained from local butchers or skilled home butchers as such cuts were not observed in the Montreal barrelled products (English 1990). However, their presence does not necessarily indicate the butchery of a fresh carcass or meat joint since barrelled meat could easily be further reduced into these tertiary cuts. Given the variability of styles between individual butchers and their apprentices (Schweitzer 2010), searching for patterns in tertiary butchery practices is not possible from the archaeological record. Body part distribution indicates all body portions were present at most sites. Bone elements like phalanges, metacarpals, metatarsals, carpals and tarsals were not identified in large numbers and this may be a reflection of later 19th-century practices of shipping frozen or chilled beef carcasses (Reynolds *et al*. 2015). However, this does not necessarily indicate that livestock were slaughtered and entire carcasses were processed on site as they could have been part of leg, hindshank or foreshank wholesale cuts of beef (see Chapter 4).

Pendery (1984: 23) noted that the presence of veal on middle and upper class tables in Portsmouth, New Hampshire, may indicate livestock bred specifically for urban markets, citing a similar observation in post-medieval Exeter, England (Maltby 1979). He goes on to mention how veal was well established in the diet of New England seaport communities and sold at a more expensive price than beef. There is little evidence for the regular consumption of veal in Toronto or other Upper Canadian assemblages based on the age-at-death information gathered for this project. Veal is noted in most market price listings available from the mid-19th century suggesting it was regularly available in the city's markets. However, veal prices are mostly the same as beef and occasionally lower and few specimens were identified in the archaeological record.

8.1.10 CAPRINES

Historical documents suggest goats were not popular livestock or food in Upper Canada. From all archaeological assemblages investigated, a single goat specimen was identified at the Toronto General Hospital site and another was identified at the Macdonell site in Point Fortune. Therefore, it is highly likely that the vast majority of caprine specimens relate to sheep, supporting the assumption made earlier in Chapter 5. Sheep played a fairly regular role in the diet and foodways of early Torontonians and Upper Canadians. Of the three primarily consumed types of meat – pork, beef and mutton – the consumption levels for the latter appear to be most variable. Differential access to mutton or lamb between rural and urban areas does not appear to be a factor. Sheep were especially prominent at the John Beaton II site (rural Toronto), House 5 of the Bishop's Block site (urban Toronto) and the Benares site (rural Upper Canada). The Benares site was occupied by the family of Captain James Harris, a soldier in the British army, whose household was known to butcher their own livestock which included cattle, swine, dairy cows, sheep and poultry (Unterman McPhail 1992: 1-4, in James 1997: 68). The John Beaton II site was occupied by a Scottish family and the preponderance of sheep at this site may relate to traditional Scottish preference for sheep (McNeill 1929). However, the pattern first identified by Ferris and Kenyon (1983) for an elevated number of sheep remains among Upper Canadian sites of Scottish heritage did not hold true for the Graham Site. Ferris and Kenyon (1983) identified this pattern based on observations made at two sites and this research shows the preference for mutton does not extend to all Scottish settlers nor does it suggest people without a Scottish background would not prefer it above others as a source of meat.

Ferris and Kenyon (1983: 8) note that in the earlier days of settlement more sheep were likely kept on the wealthier farms with the most cleared land, whereas the poorer farmer focused on hardier pigs which were easier to maintain. If we assume that towards the end of the 19th century most of the farms were well established and providing protected enclosures of pasture was no longer an issue, then we would expect an increase in sheep remains in the latter half of the century. This does not appear to be the case as the majority of farmers continue to focus on raising pigs and cattle during this period. Perhaps the harsher Canadian winters rendered the task of keeping sheep more difficult than it was back in the United Kingdom and so lamb, mutton or wool industries never took off in Upper Canada.

Although it is possible to barrel and preserve lamb or mutton in brine, there is little evidence this was practiced on an industrial level to supply Toronto and Upper Canada residents in the 19th century. Market reports listed the cost for pork and beef both per pound and per hundred pounds, whereas the price for mutton was only ever offered per pound, per pound per carcass or per pound per quarter, suggesting fresh product as opposed to bulk barrelled purchases. If this is the case, cities like Toronto and other urban areas within the province were probably supplied with mutton from farmers operating in surrounding regions. Those living in rural areas likely supplied themselves with mutton unless they had access to it at a local market or traded with neighbours. Traill (1857: 172) discusses how neighbours in rural areas would take turns killing sheep in the summer and exchange meat, weight for weight, in order to avoid food spoilage.

Few elements were recovered with butchery evidence, thus making it difficult to identify standard practices or differential butchery patterns between sites. Secondary butchery related to the division of the carcass along the spine was similar to that seen in cattle and pig vertebrae. Tertiary butchery patterns observed in the scapula were similar to those observed in cattle.

In a June 3rd, 1824 interview appearing in the *Colonial Advocate*, a sheep farmer with a Scottish accent living in the East Flamborough district in Upper Canada revealed he generally kept his ewes for 9-10 years or until their teeth got so worn down or lost that they could no longer eat. Wethers, on the other hand, were kept until 4 to 5 years of age as ‘they never will be so good food after that age’ (*Colonial Advocate*, June, 3rd, 1824). Farmer (1918) similarly states that good mutton will come from sheep about three years of age. Traill (1857: 172) noted sheep were seen as a profitable stock as they were easy to keep and the wool, she claims, was sold at a good price. She goes onto say that mutton and lamb could always find a place at the market. In most cases, age at death profiles for caprines suggest that, while a few animals were slaughtered prior to reaching 12 months of age, the majority were kept to live beyond 36-48 months of age or were slaughtered at that time. Such a pattern suggests when it comes to sheep in 19th-century Ontario, the consumption of mutton, mainly 3-5 year old ewes and wethers, was the prevailing pattern and a likely by-product of small wool production initiatives for local farmers.

8.1.11 PIGS

Pig remains prominently figured in most assemblages from Toronto, its surrounding regions and all comparative assemblages from 19th-century Ontario (up to 82% of identified artiodactyl assemblages). Such results were expected based on previous research in the area highlighting the important role of pork in the lives of the province's early settlers and from historical documents discussing its benefits in the early Upper Canadian diet (Chapter 4). Mortality profiles of pigs were very consistent between urban and rural sites across the province and showed no change through time. The archaeological data indicate the majority of pigs were slaughtered in the first two years of life with only a few being kept to a slightly older age for breeding purposes. Such a pattern is consistent with animals being raised for meat purposes and the consistency is suggestive of standards in practice. A popular narrative tells of pigs being easy to manage as they do not require cleared pastures, can be fed off rubbish and/or left to forage in the woods and as a result they were popular in the earlier days of settlement (Ferris and Kenyon 1983: 5). Grier (2006: 276) notes that pigs were important in emerging American cities, acting as scavengers and clearing rubbish, dead animals and butchering offal from the streets. Kheraj (2013: 126) highlights the 1861 census recorded 1,368 pigs living within Toronto city limits but noted these numbers later declined by the end of the century. In 1812, a caution was issued by the Clerk of the Peace for the Home District in Toronto warning owners against letting their pigs run free in the city, suggesting they were something of a nuisance. A petition was presented to the city in 1835 and again in 1836 asking it to do more about free-roaming, nuisance pigs (Kheraj 2013: 128). A bylaw was introduced in 1837 to capture and impound any free-roaming domestic animal within the city (Kheraj 2013: 130). However, sites from the earlier 19th century did not consistently contain proportionally more pork relative to later 19th-century assemblages. This may be the result of pork retaining its importance in the local diet or a reflection of the constant reliance of preserved pork products throughout the 19th century. Grier (2006: 260) notes that salt pork was generally the most common meat in the United States until the modern beef industry was developed.

Kenyon and Kenyon (1992) also claim pork to be the staple food item in Upper Canadian diets. This research shows this was not always the case. As was noted previously, cattle remains are often just as prominent as pig in both early and late 19th-century assemblages indicating both pork and beef were important dietary staples and household consumption patterns were likely determined by personal preferences.

Body portion representation was equally consistent with the exception of the Ashbridge IV/V assemblage (over-representation of feet) and the early 19th-century component of the Lewis site (over-representation of heads). The general pattern is for all body parts, including heads and feet to be present at every site. This is consistent throughout the 19th century between rural and urban sites across Toronto and, likely, Upper Canada. Many zooarchaeological reports from Ontario erroneously attribute the presence of cranial and feet elements, those we might today consider to be inedible or of low-desirability, as indicative of on-site butchery of live animals. Historical documents indicate that barrelled pork products contained all body portions and therefore, the presence of remains from these body parts is not indicative of either fresh or barrelled meat. For example, pork barrels recovered from *The Heroine* shipwreck indicate a complete range of body parts identified in each barrel (Brophy and Crisman 2013). However, there is one type of bone element that Moore (1820) noted should be excluded from barrelled products: the 'canine portion of the jaw'. Brophy and Crisman (2013) noted that the pre-maxillae in their barrelled pork assemblages were chopped off but mandibles were kept whole. While Moore's recommendation may not have always been upheld by meat packing facilities, the sole evidence we have from a known barrel assemblage did follow this rule. If this rule was mostly followed, then the presence of premaxillae, upper canines and upper incisors in the pig assemblages may be indicative of livestock or fresh/frozen meat products present on the site. Table 9.1 lists the number of times these elements were identified in Toronto assemblages in an effort to understand if their presence might be over or under-represented. Two assemblages, the Ashbridge IV/V and early Lewis materials, have far more of these remains than any other site. These are the same two assemblages that showed an over-representation of head or foot elements and this correlation suggests that these sites may have focused more on raising their own pig as livestock and/or produced salted pork. Additionally, despite the large sample sizes of some urban assemblages, few premaxilla were identified, while the other rural assemblages contained only slightly more. Urban areas appear to have relied more on salted pork but some households likely took occasional advantage of small numbers of livestock, as suggested by local census records and the occasional premaxilla in the archaeological record.

TABLE 8.1: DISTRIBUTION OF PIG (*SUS SCROFA*) PREMAXILLAE AND PREMAXILLARY TEETH

Site	NISP	MNI
Urban assemblages		
Queen Street	0	0
Bell	0	0
Bishop’s Block, H3	2	1
Bishop’s Block, H4	2	1
Bishop’s Block, H5	1	1
Bishop’s Block, H6	1	1
Dollery	0	0
King-Caroline	5	1
Rural assemblages		
Ashbridge I/II	7	2
Ashbridge IV/V	27	5
Bullen/OHT	1	1
Graham	3	1
Hall	4	1
John Beaton II	1	1
Lewis (early component)	17	3
Lewis (later component)	2	1

It is unsurprising that both urban and rural residents would choose to incorporate salted pork into their diets. Recorded prices and personal correspondence from the early to mid-19th-century indicate barrelled pork was easier to obtain and cheaper than fresh pork at the time. Salted beef appears to have been cheaper but might not have been as readily available. In their analysis of 19th-century Cincinnati barrelled pork from *The Heroine* shipwreck in Oklahoma, Brophy and Crisman (2013: 80) observed butchery patterns that were not very different from the 21st-century patterns described by Savell (2000). This statement could be extended to include butchery patterns observed in the Toronto assemblages. Evidence for primary butchery patterns is seen in the removal of heads through the occipital, atlas and axis. Saw marks through astragali and a calcaneum suggest the feet were removed here while other cases suggest the feet were cut mid-metapodial. In keeping with standard practice at the time, most carcasses were divided in half along the sagittal plane through the centre of the spine or as near the centre as possible. Brophy and Crisman (2013: 80-81) note the scapulae of barrelled pork specimens in their assemblage did not have tool marks. Four scapulae specimens identified in these assemblages do show tool marks, especially at the scapular neck, suggestive of either differential secondary butchery techniques, if inflicted prior to packing, or of further secondary/tertiary butchery of a fresh/salted product to disarticulate the shoulder and leg joints. *Heroine* materials provide evidence the shoulder joint was left intact and the leg was separated from the fore shank at the mid-diaphysis of the humerus, in some cases through the semi-lunar notch of the ulna, where it articulates with the humerus. They also note the hind limb would have been disarticulated and processed in a fashion similar to the forelimb: the hip joint remained intact prior to being barrelled. The pelvis was removed from the rear loin and the distal femur was disarticulated from the tibia, thus keeping the hams intact (Brophy and Crisman 2013: 80-81). Butchery evidence in the Toronto materials are more variable which likely relates to further tertiary butchery not observed in *The Heroine*'s assemblage: the three recovered pelves with evidence of tool marks show disarticulation at the ilium, ischium and pubis while the femora had chop marks at both the proximal epiphysis and at the centre of the diaphysis. The tibiae and fibulae in Toronto were also further butchered with evidence of chopping or sawing through the mid-diaphysis rather than the stifle joint. Langton (1926: 129) noted that lead shot was often found in pig heads packed in pork barrels. No bullet wounds were identified in any cranial fragment in these assemblages.

Large pork-packing facilities established themselves within the city of Toronto in the 1870s and 1880s, including the William Davies Company, which became the second largest pork packing facility in North America (Rust-D'Eye 1984: 100). By then, the city was capable of producing its own barrelled pork and even exported much of this product to foreign markets. Over 250,000 hogs were processed annually in the city and retail stores opened to sell some of this product back to Toronto's residents.

8.2 FOODWAYS OF TORONTO'S URBAN AND RURAL SITES

The previous section summarized the ways in which different animals were generally exploited for meat in Upper Canada. That discussion was made possible by considering together all of the archaeological and historical data from assemblages located throughout the province. However, when looking at individual households and their consumption patterns, it is obvious that foodways varied from house to house, from family to family. With the exception of seafood, urban and rural areas did not exhibit pronounced differential access to different types of meat nor did different areas of the province share regional consumption patterns. Consumption patterns varied between sites within a city just as much as they did between and within sites in a rural area. It appears that individual preferences played a bigger role deciding which types of meat were consumed. The following section summarizes the foodways of each Toronto assemblage and discusses these in relation to their occupants and the individual site histories described in Chapter 3.

327-333 QUEEN STREET WEST

The privy features at the back of this address reflect deposits accumulated between the 1830s and 1850s-1860s. One of the addresses was occupied by the Robson family while the other was occupied by the Robinson family but featured cottages at the rear of the building where a constant turnover of mostly urban working class tenants lived. Therefore, the archaeological deposits cannot be linked to any particular family but can be described as urban, working class deposits.

The deposits associated with the privy known as Feature 36 are not related to foodways but rather some by-product of another industry. Faunal remains consisted almost entirely of cattle crania and mandibles. A minimum of 11 individuals were identified thanks to the presence of 23 well preserved mandibles deposited along the walls of the privy. All of the individuals were identified as elderly or old adults except for one identified as a 30-36 month old sub-adult. Generally, cattle raised solely for meat purposes are not kept alive to such old age. Those seen here may relate to dairying, traction or some other type of industry. What is more perplexing is why so many heads made their way to this urban privy deposit in the centre of the city? Are these representatives of a single slaughtering event? Were their mandibles lining the privy walls serve some kind of structural purpose? Are the tool marks on the mandibles related to disarticulation for the purposes of getting meat (the tongue)? Businesses were known to operate from these addresses in the late 1890s and it is unclear if they operated from them earlier in the century. Perhaps one of the building's occupants practiced his or her craft from this location (see Table 4.1 for a list of occupations associated with site's inhabitants). A number of shoe fragments were also recovered from this privy and Mr Robinson as well as a few of his later tenants were shoemakers but how these skull could relate to such an industry is uncertain. If these materials relate to tanning waste from shoemaking or are affiliated with the vocations of those who deposited these materials, then lining a privy with objects related to your craft may be interpreted as an expression of personal identity.

Bone assemblages from privy Features 38 and 46 were much more varied in terms of species diversity and the cattle assemblages featured cuts from every portion of the body, including butchery marks suggestive of steak and roast cuts. Both privy faunal assemblages are suggestive of foodways related deposits but differed in their overall makeup. It appears the residents living in these houses and apartments preferred slightly more beef then they did pork and ate a fair amount of fish despite the size of the sample. These residents also preferred to eat more mutton than most people living in rural areas.

BELL SITE

Although deposited at approximately the same time period as the Queen Street materials (mid-19th century), the Bell family represent a household that was a little more upper-middle class in standing. Thomas Bell was a successful land agent prior to becoming an alderman for the city of Toronto. His various landholdings throughout the city suggests he was quite affluent and the material culture excavated from this property corroborates with this observation (ASI 2012a). However, the household's foodways do not appear to have differed much, at least not in terms of the meats they consumed. The Bells enjoyed more beef then they did mutton and more mutton then they did pork. Some evidence for veal was present but so too was beef from older cattle and there is no evidence to suggest certain cuts of meat were preferred over others. Apart from the presence of veal and slightly fewer fish and bird remains, the Bell site assemblage does not differ much from the working class assemblages found towards the centre of town on Queen Street and the various domestic and commercial occupations that deposited the King-Caroline materials.

BISHOP'S BLOCK

The assemblages relating to the townhouses at Bishop's Block represent fill activities from the late 19th century and there remains a possibility that the fill from all four assemblages originates from one redeposited sediment. However, the faunal assemblages associated with the different house lots did exhibit varying composition. The trends observed at a site like Bishop's Block, where a series of different tenants made their way in and out of the buildings, are representative of the individual foodways of the many different people who lived there. The houses were at times occupied by members of the upper-middle class in the mid-19th century, and eventually housed working class members of society by the end of the century (recovered deposits date to the late century). Since each household deposit is representative of a group of similar people (i.e., British/American ancestry, socio-economic class), then it is not necessary to look at the deposits individually; however, doing so highlights how faunal deposits are the product of individual preferences and that these can differ between similar groups. Pork was an important staple for House 3 and 4 residents but mutton played a greater role in the diets of those living in House 5 and different households seemed to have preferred different joints of meat. Veal remains were only obtained from Houses 3 and 4. Residents were able to take advantage of all that the Toronto markets had to offer including oysters, cod, haddock, a variety of locally sourced fresh fish, braces of chickens and fresh turkeys. The beef consumed on site originated from both elderly individuals as well as young adults, suggesting dairying cattle may have been available on or near the site.

DOLLERY SITE

This site's mid-19th century assemblage consists of deposits associated with two different working-class house lots once located on that property. The faunal assemblages are rather similar between the deposits in terms of species representation. Those living here preferred to eat pork instead of beef or mutton. The pork assemblage at house one was unique in that individuals were kept alive for slightly longer than at most other urban sites. In fact, the age at death profile resembles that seen at rural assemblages known to have raised and kept their own pigs (Hall, early Lewis). The current assemblage suggests House 1 residents had a supply of pork that differed from that of House 2 residents. Perhaps they were keeping their own pigs and waiting a little longer before killing and eating them. Body portion distribution was similar between both houses. Residents preferred eating pork joints deriving from the 'breast' cut and occasionally took advantage of Toronto's markets to purchase imported fish like Atlantic cod.

ASHBRIDGE ESTATE

The Ashbridge family, who have occupied the site from the late 18th to the late 20th centuries, represent one of the region's wealthier families who owned large tracts of land adjacent to Lake Ontario. These Loyalist settlers from Pennsylvania were well connected with the Simcoes, operated a farm and are known to have kept chickens well into the 20th century (Latta 2000: 11). Despite living in a rural area, the Ashbridges were never far from the city of Toronto and its urban markets. The faunal assemblages reflect this as they are one of the few rural inhabitants who had access to imported seafood such as oysters and cod. Taking advantage of their location on the shores of Ashbridges Bay of Lake Ontario, the family also consumed plenty of local fish species throughout the 19th and early 20th centuries.

Food preferences appeared to vary little between the 19th- and early 20th-century occupations, suggesting the Ashbridge family maintained foodways that were traditional to them. The Ashbridges preferred to eat more pork than beef and very little mutton or lamb. Archaeological data suggests they were raising their own chickens and pigs. Few juvenile chickens were identified in the assemblage suggesting they were keeping chickens for their eggs as well as their meat. There was an over-representation of pig's feet and heads on the property, as there were at many other sites; however, these can also be from lower quality barrels of salted pork. A very large number of pig snouts were identified at this site relative to other assemblages suggesting that live pigs were present on the property, since pig snouts are recorded as being taken out of barrelled products.

GRAHAM SITE

The Graham family's diet was heavily focused on pork, as pigs formed 72% of the entire identified artiodactyl assemblage. These remains were quite young with only a few surviving beyond their first year of life and none making it to their second year. All portions of the pig were consumed. It is of little surprise to find the Grahams consumed pork. George Graham was a blacksmith and did not own arable fields or pasture. Pigs would not have required much space and would be easier to care for if the household's economic focus lay elsewhere. However, age at death does not identify any breeding stock present on site and the lack of pig snouts suggests a barrelled product. Chickens were also plentiful and the evidence suggest they were kept to produce eggs before being killed. Like many rural sites, difficulties in access to a major urban market limited the Grahams' access to fresh seafood and other products. This Scottish family did; however, supplement their diet with venison from time to time, more so then any other Toronto household investigated in this project. Perhaps the Grahams were able to spend more time hunting in rural areas relative to those busy tending to their farms. Although of Scottish background, the Grahams did not display the expected preference for mutton. Perhaps this is because they did not own land on which to raise sheep and few were available to purchase locally. Of the few sheep bones found on the site, only fragments from the head and feet were identified. This is a difficult assemblage to interpret given the Grahams did not own the land on which to send sheep to pasture and so this is unlikely to be a processing site. If the Grahams were processing someone else's sheep (perhaps from the Boyer farm), they did not consume the best joints of meat themselves. The focus on barrelled pork and lower quality mutton begs the question of flexible identities and whether or not the Graham family simply did not have the means to consume foods that are traditionally associated with Scottish households in Upper Canada. This also begs the question of whether certain dietary identities were more easily expressed by those with financial means.

HALL SITE

Although the family originated from Yorkshire, the assemblage mostly dates to the period in which James B. Hall, the son who spent most of his life in Canada, ran a farm on the property. Historical documents indicate dairy cattle, pigs and sheep were kept on the property and that barrels of beef and pork were produced for sale. It appears the family consumed more beef then they did pork. Cattle age at death do not suggest the presence of many older individuals suggesting the farm was focussed on producing beef rather than dairy products. Interestingly, age-at-death profiles for pigs at the Hall site suggest many older pigs were consumed at the property when compared to most other sites in the province. Knowing the farm sold barrelled pork, this might be a result of the Hall family choosing to eat their spent breeding stock while allowing the younger, better quality pigs to be barrelled and sold off. All body portions were present for pigs and cattle in relatively even distributions, once again suggesting that there is no obvious difference in body portion distribution between residents who mostly consumed fresh products and those who relied on preserved meat products. A large amount of bivalve shell fragments were identified from the site, more than any other rural Toronto assemblage. The Halls did not have easy access to Toronto markets and so did get to purchase oysters or other seafood; however, they made up for it by eating mussels sourced from the local waterways, possibly the Humber River.

JOHN BEATON II SITE

Faunal deposits at John Beaton II derived from a property that was successively occupied by two Scottish families in the second half of the 19th century and evidence suggests the occupants relied heavily on sheep to provide meat for their meals, more so then most other deposits. Historical documents note many sheep but only one cow present on the farm at one point when occupied by the Beaton family. The household preferred mutton over lamb and the presence of many elderly individuals suggest they were kept for their wool as much as they were for their meat. All body portions were represented suggesting entire carcasses were processed on the site. Much of the butchery was performed with a cleaver as opposed to the saw, which was more common elsewhere in the province. Perhaps this is evidence of the Beaton's personal preference in butchery styles. Pork also heavily contributed to the household diet while few joints of beef were identified. Pork and beef may have derived from livestock or barrelled purchases. The lack of pig snouts suggests barrelled pork is likely. McNeill (1929) noted that the Scottish farmers in Upper Canada tended to own more sheep and the English liked to have more pigs on their farms. Ferris and Kenyon (1983) proclaimed this can be seen on Scottish assemblages in Upper Canada. While the evidence at the John Beaton II site would support this, archaeological data suggests this does not always hold true as the Scottish residents at the Graham site hardly consumed any mutton. Ferris and Kenyon (1983) noted that those born in the Old World preferred to consume larger quantities of sheep whereas those with a New World upbringing preferred pork. Once again, this does not appear to be the case as evidenced by the English and Welsh-born residents at the Hall and Lewis sites preferring beef and pork over sheep.

LEWIS SITE

Deposits associated with different occupations periods were identified at this site. The earliest component dates between 1829 and 1850, when Welshman, Thomas Lewis, and his family first settled onto the property, and is associated with a kiln complex that produced red earthenware. Here, the vast majority of recovered faunal remains came from pigs, suggesting pork played a very important role in the diet of the site's occupants. Elements of the head were prominent in this assemblage and these pigs appear to have been slightly older than most in Upper Canada when they were killed. A large number of pig snouts were also identified in this assemblage. Records from 1851 note the Lewis family were producing barrelled pork for sale and the same patterns. The archaeological assemblage seen here matches that seen at other sites known to raise their own pork. The household appears to have retained older pigs and cheaper cuts for personal consumption, thus allowing them to sell a better product at a higher price. The cattle assemblage also mostly contained elements of the head and may relate to the production of barrelled beef.

The second deposit is associated with the household and dates to between 1870 and 1880, a period when the land was being subdivided and sold to Thomas Lewis's son Richard and Richard's friend from England, John Oxendale. Twenty years later, the family continued to mostly rely on pork as their primary source of meat but include a little bit more beef and mutton. However, differences are observed between this assemblage and the earlier one. Where the earlier cattle and pig assemblages were dominated by elements of the head, this assemblage showed a much more even distribution of body parts. Pigs from this assemblage were younger than those identified in the earlier deposits and more in line with what is seen at most other assemblages in the province. Perhaps the earlier assemblage is more strongly associated with the small scale meat packing operation occurring at the site then the later assemblage. Livestock are recorded on the property in the 1870s but there is no mention of pork or beef packing operations.

8.3 IDENTITIES IN UPPER CANADIAN FOODWAYS

The previous sections of this chapter summarized the role of various meats in the foodways of residents with British ancestry living in Upper-Canada throughout the 19th century. It also highlighted the diversity in consumption patterns practiced in different households throughout the city. With references to the theoretical frameworks described in Chapter 2, this section discusses possible manifestations of identities in local foodways by residents of Upper Canada, thus addressing the primary research question set out at the beginning of this study. As the archaeological and documentary evidence suggests, there was little evidence of differential access to foods between those living in the city of Toronto, its hinterlands and Upper Canada in general. It is also evident that common ancestry alone does not define the Upper Canadian diet and food preferences were not necessarily alike between households of shared ethnicity. There is no doubt that an Upper Canadian's sense of self was defined by many things at once (e.g., ethnicity, socio-economic status, religion, vocation) and these are also likely reflected in foodways. However, the assemblages observed here also share a lot in common, which may be related to ethnicity.

The city of Toronto was established quickly and relatively recently in the timeline of British settlement of North America. The forests, located on land purchased from the Mississauga people, rapidly transformed into a small village and then quickly into a metropolis. Hinterlands surrounding the city and the areas beyond it were quite literally on a frontier: forests were cleared, roads were built and crops were sown. When pictured this way, such a scenario forgets the over 200 years of European settlement in surrounding areas like Quebec and New York State. It forgets the knowledge gained through hundreds of years of exploration within the province and the experiences lived elsewhere in north-eastern North America. Prior to settling the city, the area had been well explored, extensively surveyed and subdivided. The best parcels of land were allocated to the most privileged and well-connected while land speculation was rampant. Throughout Upper Canada, connections between cities and small towns were quickly established and most supplies and provisions were made accessible to settlers throughout the province relatively quickly. Industrial economies were rapidly taking hold across the western world and Upper Canada was very much involved in a global market, itself shipping wheat and other products outside its borders, first by ship and later by rail.

As previously discussed, 19th-century Ontario occupies an odd space in the colonial/post-colonial world. Some scholars studying Euro-Canadian/indigenous interactions in the 19th-century rightly consider Ontario to be a colonial space (e.g. Beaudoin 2013; Ferris

2006). However, given our knowledge of British and Loyalist settlement of the area, I argue this is not always the case if a colonial space is simply defined as a milieu of interaction between the colonizer and the colonized. In that case, the spaces occupied by many Euro-Canadians were not necessarily colonial. Consider, for example, the tenants occupying Bishop's Block in downtown Toronto. Were they occupying a colonial space if they were not interacting with Indigenous people on a regular basis? As British settlements grew exponentially throughout the province, a smaller proportion of the Euro-Canadian population were regularly interacting with indigenous people and they did not necessarily view the space and materials around them as indigenous. British settlements expanded so quickly (within years or decades) that we simply cannot associate early 19th-century assemblages or rural sites with a 'colonial' context. For this research, cities like Toronto in the 19th century are perhaps better thought of as 'immigrant' destinations. While British and Loyalists were settling in locations that were new to them, they were not necessarily settling into areas they felt were outside of the 'British World'.

The archaeological and documentary sources suggest the majority of Upper Canadian residents of British or Loyalist ancestry mostly consumed differing proportions of meat from three domesticate species (pork, beef and mutton). Deer remains were recovered in small numbers at very few assemblages leading to the conclusion that venison did not play an important role in Upper Canadian foodways. If we were to search for iconic vestiges (symbols that, for whatever reason are strongly associated with one specific group of people) (e.g., Brighton 2004; Cobb 2003; Fennel 2007; Ferris 2009;Harrison 2003; Norman 2012; Silliman 2004) and extend the same colonizer/colonized dichotomy often applied towards interpretations of material culture, we could easily say that white-tailed deer, a wild and native North American animal is associated with an indigenous world while domesticates represented an imported European world. With such a way of thinking, the active avoidance of deer in local foodways could then be interpreted as a rejection of this symbol of indigeneity and/or an embrace of traditional British foodways. However, I contend that not all wild species native to North America were necessarily considered foreign to the British settler. White-tailed deer (*Odocoileus virginianus*) was not present in Britain but red deer (*Cervus elephus*), roe deer (*Capreolus capreolus*) and fallow deer (*Dama dama*) were. There is no evidence to suggest British immigrants to Canada would have viewed white-tailed deer any differently from those species with which they were already familiar. Personal correspondence from recent immigrants describing Ontario to their relatives in England make simple references to deer without any inferences or explanations of differences with the British taxa. In fact, publications geared towards British audiences suggest a familiarity with most wild animals (e.g., Traill 1857; Moodie 1853).

I argue that few of the animals, native to Upper Canada, would have been considered 'new' to British foodways since similar species existed in Britain. This familiarity with wild taxa meant the British were able to extend many of their pre-existing views on specific animals' roles in foodways upon their arrival in this part of North America. Deer never really formed a part of traditional British foodways, at least, not for most of its citizens. Since the medieval period, deer hunts were considered a noble activity and venison was a food reserved for the elite. Venison did not become available for purchase by anyone at urban markets in Britain until 1831 (Mayhew 1967: 120). Although members of the emergent middle classes did consume venison at this time, it remained expensive and never really formed a prominent part of British foodways (Gordon 2015), even to this day. At the time Upper Canada was first being settled, venison was still associated with the elite. The sudden access to venison by all residents was something worth noting, especially when writing to family and friends in Britain or in publications aimed towards British audiences.

Wild hare, abundant in the forests of Upper Canada, are quite similar to European hare and domestic rabbit. These could be caught in the same manner, likely tasted similarly to those in Britain, and recipes suggest they were incorporated into the diet in comparable ways. New duck species were available in Canada, but personal correspondence again suggests people just thought of these as ducks, hunted them as they would back in Britain, and ate them just the same. Wild turkeys from North America were introduced to Britain in the later medieval period and already were a familiar part of British foodways (Fothergill 2014). Zooarchaeological evidence suggests the majority of turkeys consumed in Upper Canada were raised for the markets by local farmers and not sourced from the wild. Wild geese looked different from the greylag and zooarchaeological evidence suggests they were not often consumed in Upper Canada where plenty of greylag remains were identified instead. Passenger pigeons looked and behaved very differently to the common rock pigeon but were, by all accounts, very easy to catch and, at one point, very abundant. However, they never featured heavily in local foodways, despite hunting and habitat loss throughout North America leading to their extinction. A less than enthusiastic incorporation of passenger pigeon into the Upper Canadian diet is of little surprise as some historical texts document their questionable flavour (Greenberg, 2014: 71). However, this didn't stop residents from killing the birds for sport. Mitchell (1935: 120) describes how the yearly arrival of the passenger pigeon in early 19th-century Toronto made the city sound like a war-zone as most people could not resist firing at such an easy target. In summary, the adoption of wild meat indigenous to Upper Canada into settler foodways does not necessarily represent a 'loss' of traditions or an adoption of new foodways. Their role in Upper Canadian foodways simply filled similar niches held by other similar taxa in the foodways of 18th- and 19th-century Britain and British North America.

Local fish represent the one wild resource significantly incorporated into Upper Canadian foodways, almost completely replacing the role of marine species normally included into the British diet. However, the number of recovered fish remains in general were only slightly lower if not equal to levels observed in Britain and America, which likely relates to archaeological recovery strategies more than anything else (Gordon 2015; Heinrich and Giordano 2015; Landon 1997; Kuehn 2007; Scott 2007). The question then becomes if the freshwater taxa caught off the shores of Lake Ontario and in the rivers and lakes of Upper Canada were viewed differently? Similar fresh water varieties such as pike, trout and eel were available in the UK and Atlantic salmon was also present overseas. Most documents suggest, fish were simply thought of as fish and not for the individual species they represented. Some residents suggest fish were not even considered a type of meat (Harrington 1915: 89). The fresh marine species more commonly consumed in Britain or on the North American coast of the Atlantic were not heavily consumed in Upper Canada because of the difficulties involved in keeping fresh fish from spoiling before it could make its way to the dinner table. Although available for hundreds of years and produced by the British, salted cod was mostly appreciated as a trade commodity and was never really enjoyed as a food source in Britain (Pope 2004). Similarly, there is no evidence to suggest salted cod was ever popular in Upper Canada. Households with access to major ports and larger urban markets (e.g., Toronto, Ottawa, and Detroit) were more likely to gain access to marine species. However, a burgeoning commercial fishing industry based in the Great Lakes and the abundance of fish in the local waterways meant that fresher varieties were readily available to households across Upper Canada.

The similarity in fauna between Upper Canada and Britain leaves very few local species unique to this area that were unfamiliar to British immigrants and not included in previously known foodways. The bear and moose are probably the two most obvious large land mammals that have no counterparts in Britain and these never formed a part of the Upper Canadian diet. It may simply be that these were never incorporated into local foodways because they never really played a role in the foodways previously established in Britain and the United States despite their edibility. Their unfamiliarity to the British palate is one likely reason for their rejection as these types of meat are today known for their 'gaminess'. Such an explanation may also explain the rejection of deer and passenger pigeons from the Upper

Canadian diet. Undesirable taste and flavour was once mentioned as a reason people avoided eating Canada geese and passenger pigeons (Traill 1857: 156; Greenberg 2014: 72) and it is entirely possible that Canadian deer, feeding off a landscape significantly different to the managed British countryside, carried a gamier flavour. Of course, another explanation may simply relate to resource depletion and the extirpation of local wildlife as forests become increasingly sparse and wild fauna marginalised (Kuehn 2007). The gaminess and dryness of the meat would have required different, possibly unfamiliar or, less desirable cooking and storage practices. It is also possible that deer was not a reliable meat source where hunting took time away from agricultural duties and markets were not regularly provisioned with the product. Commercially viable techniques for long-term storage, transportation and provision of venison for markets were not developed, leaving the majority of residents to choose from other meat options (domesticates). Moose are not common to the Carolinian forests that covered most of southern Ontario and were not expected to form a significant component of the diet of Toronto's residents.

Other researchers working in North America have noted that faunal exploitation patterns of European immigrants and their descendants change over time from an initial reliance on wild resources with decreasing emphasis as people become settled and increasingly capable of raising their own livestock and had access to markets regularly stocked with the foods they desired (Miller 1984, 1988; Walsh *et al.* 1997). It quickly became evident when sorting through materials in preparation for this research that few sites in the area have tightly dated deposits spanning less than a few decades of occupation. The majority of deposits include materials from two or more generations of occupants in a single household, thus making it difficult to identify differences between assemblages formed in the initial years of settlement and those from later years. A few of the sites included in this study date uniquely to the first half of the century while others date to the last quarter. Others still, have deposits which span the entire century. James (1997) expressed similar frustrations in finding materials that can help properly describe foodways in the province from the earliest days of settlement. It is entirely possible that descriptions of life on the early farm described in Chapter 4 are accurate and people relied heavily on wild resources in the initial years of settlement. However, it appears it did not take long for residents to be able to provide themselves with meat from domesticates, either through rearing their own livestock or accessing market products. Archaeological evidence for heavy reliance on wild resources was not identified. It may also be that newly settled farmers relied on market products as Traill (1857) and Langton (1926) suggested. Unfortunately, we are currently incapable of identifying which joints of meat came from a market. However, historical documents and the similarities observed between urban and rural zooarchaeological assemblages suggest markets played an important role in the development of all areas of the province. These markets were supplied with both locally sourced products (e.g., turkeys, fish) and imported meat products (e.g., oysters, barrelled pork).

It remains difficult to identify which zooarchaeological remains were imported from afar and which were raised locally. In his analysis of 16 assemblages dating from 1830-1900 AD in northern Illinois and southern Wisconsin, Kuehn (2007) notes that one of the primary factors affecting local foodways during this time period is the rapid transition from a frontier to a market economy. Such an observation bears striking resemblance to the development of the city of Toronto which immediately became a major port and grew exponentially in both population and land area throughout the century to become the second largest city in Canada by 1900. It is entirely possible that the 'backwoods' diet adopted in the initial days of settlement simply gave way to a market economy too quickly, allowing residents to consume the goods and products they were used to rather than develop the 'frontier' diet into something uniquely Upper Canadian. The market economy easily moved into rural Ontario with improvements in roads and transportation technology providing residents with an increased availability of meat from domesticates, imported goods and eventually, tin-canned goods. Improved market access only added to the conditions that allowed British immigrants and American Loyalists to maintain foodways they were accustomed to.

While Upper Canadian foodways had plenty in common with those described in Britain, it is important to compare the results obtained here to zooarchaeological data from Britain, the United States, Quebec and other groups living in Upper Canada in order to investigate if the patterns observed here are unique. Unfortunately, the state of post-medieval archaeology in Britain, especially as it relates to the 19th century, is lagging behind other periods (Gordon 2015; Thomas 2009; Walczesky 2014: 21). As a result of the lack of archaeological studies for this period in Britain, we must rely on information from historical sources (summarized in Section 1.4). The British diet was generally based on the consumption of domesticates (beef, pork, mutton and chicken) while venison only became available for consumption by the general populace in 1831 (Mayhew 1967: 120). In terms of general composition, the foodways observed in the Upper Canadian assemblages do not differ very much from British fare in terms of which types of animals were eaten. However, as the documents summarized in Chapter 4 and the archaeological data suggests: the occasional lack of fresh meat, the emphasis on barrelled meat products, different preparation techniques and the incorporation of indigenous flora led to what can be described as a different cuisine in Upper Canada (e.g., Moodie 1853; Traill 1846, 1857). On the latter point, palaeobotanical research has identified the use of native North American fruits and vegetables in the diets of soldiers stationed at Fort Wellington in Prescott, Ontario (Lyall 2010; Moyle 1994) but the extent to which wild flora was incorporated into the foodways of domestic households is unclear.

The Euro-Canadian zooarchaeological deposits reported in this thesis are strikingly different to the few 19th-century indigenous assemblages reported in the province. Beaudoin (2014) looked at the foodways of two Mohawk sites located in southern Ontario; the Davisville site is a multi-component site with distinct early and late 19th-century assemblages while materials from the Mohawk Village site date from the late 18th to the early 19th century. Faunal analyses of the Davisville assemblages show indigenous people did incorporate meats originating from domesticates (e.g., pork, beef, chicken) into their diets: However, there was greater reliance on wild mammal resources, particularly deer, which formed between 63 and 70% of the artiodactyl assemblages. Wild taxa formed between 75 and 79% of the overall identified mammal assemblages. Faunal exploitation patterns differed at the Mohawk Village site where pork played a greater role in the diet than wild mammals. In Massachusetts, there was an increased tendency by indigenous groups in the late 18th and early 19th century, to raise their own livestock and depend on these as their primary source of meat (pigs and cattle especially) but continuing a tradition of hunting and fishing for wild resources (Allard 2015; Cipolla *et al*. 2007; Fedore 2008; Williams 2014). Zooarchaeological data from these sites are more similar to that of the Mohawk Village site and many Euro-Canadian sites of southern Ontario then they are to the Davisville site. Few late 18th to early 19th-century indigenous faunal assemblages from Upper Canada have been analysed (Beaudoin 2014) and it would be interesting to see if similar patterns are observed between the majority of indigenous sites from this period.

Zooarchaeological studies of contemporary assemblages in the neighbouring province of Quebec and the rest of Lower Canada are equally sparse in the academic literature. Two Masters theses looked at late 18th and early 19th century French and British assemblages from Quebec (Bernard 2012; Walczesky 2014), giving us some insight on the nature of faunal assemblages from this region. Both studies compared a couple of French and British assemblages and arrived at similar conclusions. Bernard (2012) notes the French incorporated a lot of birds into their diet and preferred pork. She also notes they incorporated more wild mammals into their diet when compared to the British, who consumed more beef. Bernard noted the British diet was slightly less diverse then the French although she did compare a British military assemblage to that of a French domestic occupation. Walczesky (2014) compared a British Privy at Quebec's Palais de l'Intendant to a French domestic occupation on Geese Island and also found that the French consumed more birds. She too found more cattle remains at the British site and few wild species. Côté (2005) looked at another French domestic occupation on Geese Island and her results were similar to those later obtained by Walczesky. Regrettably, there are few published or reported data on 19th-century assemblages from Quebec, making it difficult to directly compare Ontario foodways to those of a culturally distinct neighbouring group occupying a similar environment.

Fortunately, zooarchaeology of the historical period has a deep and rich tradition in the United States. As a result, we have a better understanding of the archaeology related to the changing foodways of British and other settlers from the early 17th through to the 20th century. The romantic narrative perpetuated about life on the frontier in Ontario is not a new one and the faunal exploitation patterns of British settlement in North America do somewhat follow this narrative. In the early seventeenth century when the British were first expanding into the American continent, households relied more heavily on wild resources such as venison. As farmland and pasture was reclaimed from the forests, farmers became better established and communities developed improved infrastructure. By the late 17th and early 18th century in the Chesapeake region and in the Northeast, subsistence patterns shifted towards a greater reliance on domesticates as opposed to wild resources (Landon 2009; Miller 1984, 1988; Pendery 1984; Walsh *et al*. 1997). With the arrival of the 19th century, notable differences in meat consumption are observed between those living in the northeast and southeast coasts of the United States. The southern states incorporated slightly more wild resources and had a preference for beef while the northern states focused their consumption on domesticates such as pork and beef with a stronger emphasis on the former (Davidson 1982; Landon 2009: 88; Warner 2001). In Portsmouth, New Hampshire, this reduced emphasis on wild resources occurred by the early 18th century and residents roughly ate equal proportions of cattle, sheep and pig by the 19th century (Pendery 1984).

The null hypothesis presented earlier in Chapter 2 postulates that residents in Upper Canada maintained foodways consistent with the descriptions of those held in Britain and America at the time. Trends observed in the foodways of Upper Canadians in the 19th century suggest varied consumption patterns dependent on household preferences for various meats derived from domesticated mammals, primarily pork and beef. This pattern is similar to that observed for residents of British ancestry concurrently living in the northeast United States.

The majority of Upper Canadian households never relied on wild resources for sustenance and appear to have maintained the foodways to which they were accustomed from their previous experiences in the United States or Britain. Similarities with their southern neighbour are of little surprise as a large number of Americans settled in Ontario in the early 19th century and the border was readily crossed by people and goods. However, the water border with the United States and differences in political views could have also acted as a 'dividing screen' allowing Upper Canadians to further associate with their British roots (Careless 1984: 11). With the arrival of the railways in the 1850s, improved preservation technology (i.e., refrigeration and tinning), and expanding markets, Upper Canadian foodways became increasingly dependent on market resources and international commercial links were of greater importance. Although evidence of a 'Frontier effect' was still somewhat evident at some remote locations in the early 19th century (Scott 1985, 1991, 1996), the scarcity of archaeological deposits dating to this time period in Upper Canada and, more importantly, the rapid development of a market economy, likely obliterated most evidence for this in the province.

In summary, while all of the Euro-Canadian and American Loyalist assemblages may, at first glance, appear to be homogenous with a focus on domesticates and near avoidance of wild resources, closer inspection has shown that each one is unique. Some assemblages relied heavily on pork while others relied on beef and others still, ate more mutton then their neighbours. The majority of farmers continued to focus on raising cattle and pigs over the course of the 19th century and sheep do not increasingly play a greater role in local diets. Access to preserved meat products through local trade and markets was almost universal in Toronto and throughout Upper Canada during the 19th century, meaning most household had access to meat that they did not raise or catch themselves. While access to fresh seafood was limited by one's proximity to urban markets or port towns, general meat consumption patterns could not be related to urban/rural or temporal divides. Therefore, the diversity observed between the deposits boils down to individual preferences and/or circumstances. Upon their arrival to the area, British immigrants and American Loyalists maintained the foodways traditional to them and individual preferences were bound within a British/American tradition that focused primarily on domesticates, but incorporated a fair amount of freshwater fish species. In Britain, venison never formed a major part of low and middle class foodways and this remained true in Canada. In the northeast United States, where venison played a more important role in the 17th century, residents had already phased it out of their regular foodways by the time some of them made their way for Upper Canada. Few archaeological sites from 19th-century Upper Canada show evidence of any liking for wild meat resources (exceptions: Moodie and Butler sites) and this despite documentations of early 19th-century life in Toronto and Upper Canada claiming to enjoy or rely upon the consumption of all types of wild animals (e.g., Langton, 1926; Simcoe, 1965). If such a reliance did occur, it does not appear to have been for a period long enough to manifest itself in the archaeological record.

CHAPTER 9 –

CONCLUSIONS

This chapter revisits the aims and objectives set out in Chapter 1 and answers the primary research question in light of the data that was collected. Here, I discuss how the findings that were presented change our general understanding of how people thought about food in 19th-century Ontario, thus addressing the narrative first presented in Section 1.3 of this thesis. This chapter also discusses how we could improve the current standards and guidelines for faunal analyses in Ontario, thus addressing one of the secondary research aims of this research. This is followed by a summary of the original contributions to knowledge put forward here and recommendations for future research directions.

9.1 ADDRESSING RESEARCH GOALS AND OBJECTIVES

One of the primary goals of this research was to address the role of meat in Upper Canada foodways and the first two research aims asked which meat items people consumed in the historical period of southern Ontario (A1) and to what extent the faunal data correlate with the historical evidence (A2). In order to address these aims, I looked at data published in historical documents (Chapter 4) and zooarchaeological data collected by myself and others (Chapters 6 and 7). These data were gathered from 19th-century archaeological deposits originating from the city of Toronto and from rural and urban areas throughout Upper Canada, thus addressing the third research aim (A3), and questioning differential access to meat sources between cities and rural areas. Results suggest that urban markets had better access to freshly imported seafood but did not hold an advantage over other types of meat. Pork, beef and mutton were the primary sources of meat shared by Upper-Canadians of British ancestry in both rural and urban areas. The data suggest that pork and beef were the primarily consumed meat products throughout the 19th century and only a small number of households ate more mutton. Although many Upper Canadian farmers raised their own livestock and fresh meat was available after their slaughter, many of their exports were in the form of barrelled pork and beef. Documentary sources and the archaeological data suggest these products played a very important role in provisioning both urban and rural residents throughout the 19th century. Other than a few exceptions, wild mammals were rarely incorporated into local foodways. Chickens were the most commonly consumed bird species, while domestic goose and farm-raised turkeys also formed important contributions to the diet. Wild ducks and passenger pigeons were occasionally consumed in some households but only formed a marginal component of the diet. It is very likely that fish contributed more significantly to local foodways than the archaeological data seems to suggest: differential preservation rates and standard archaeological recovery methods somewhat mask the extent of their contribution to local diets. Locally sourced fish taxa were preferred over imported marine species and residents took advantage of abundant fish stocks from local lakes and rivers and commercial fishing industries formed in the Great Lakes to provide local markets with local fish. Residents with access to urban markets near major ports also had greater, but limited, access to freshly imported seafood such as oysters, Atlantic cod, halibut and Atlantic mackerel. Rural residents added shellfish to their diets by exploiting mussels available in local rivers and lakes.

The previous paragraph summarizes Upper Canadian foodways, but in the attempt to answer the fourth research aim (A4) asking why people chose to consume certain foods over others, it remains important to note that ethnicity alone does not predict household foodways. Consumption patterns were unique to individual households. Some residents mostly consumed pork, others preferred beef and some chose to raise their own mutton and relied heavily on these as a source of meat. While most households consumed little to no venison, a select few did choose to occasionally supplement their diet with it. Historical documents suggest the abundance of deer in the local forests and its inexpensive nature made it a regular feature of the local diet, especially upon initial settlement of an area when it was too difficult to raise livestock. If early settlers did heavily rely on venison as a source of meat when first settling in the backwoods, the period of reliance did not last long enough before access to markets were improved and/or wild resources were pushed further away due to agrarian activities. Salted pork and beef likely played a more important part of the early backwoods diet than wild resources.

I discussed how foodways have traditionally been studied in the area and how British immigrants likely perceived wild resources and incorporated these into their diets (Chapters 2 and 8). Although few wild resources were regularly incorporated into the Upper Canadian diet, those included were already familiar to the British immigrant thanks to the presence of similar animal species in Britain. Deer, rabbits, hares, and fish all have counterparts in Britain and the historical evidence suggests the North American species simply replaced these and their traditional roles in British cuisine. Archaeological and historical information suggests barrelled pork and beef products, much of which originated in the United States, played an important role in the development of Upper Canadian foodways. A large fraction of early settlers to the province consisted of former Americans who remained loyal to the British Crown. It is therefore unsurprising that Upper Canadian foodways share many similarities with those of the late 18th- and 19th-century northeast United States.

9.1.2 IDENTITIES IN UPPER CANADIAN DIETS

The central question in this research asked if **faunal remains recovered from archaeological sites in Toronto and elsewhere in southern Ontario inform us on the foodways of an emerging city and the expression of identities of its inhabitants.** Results indicate foodways in Toronto developed in concert with foodways throughout Upper Canada. The city's position as a major port and urban centre in the developing province gave its residents the opportunity to exploit more imported goods such as fresh fish and seafood, than other areas of the province; however, these did not contribute to local diets as heavily as meat from domesticated mammals. The Upper Canadian diet, whether in the city or in rural areas, was mostly an extension or development of traditions from the north-eastern United States and Britain, and evolved alongside these through the province's involvement in an ever-expanding global market. While it is likely that certain recipes, ingredients and styles of cooking came to be unique to Ontario, meat consumption in the province did not differ significantly from patterns previously observed in neighbouring areas.

This research demonstrates that people of English speaking heritage in Upper Canada, whether from Britain or the United States, shared foodways between them. However, describing Upper Canadian foodways as an extension of traditional or ancestral patterns does not fully engage with the question of why people chose to eat the foods they did and so strongly engage with those particular identities. Wheat was the primary export of Upper Canada in the early 19th century and the successful harvest of grain and cereal crops was the pursuit of most farmers. If rural residents sought to live a life surrounded by the hallmarks of a successful farm, then subsisting primarily on livestock, grains and cereals could be seen as evidence of success. The source of domestic meat (whether raised on your own farm or purchased as barrel products) did not necessarily matter if the foods at the table were seen as evidence of successful living. If the majority of farms were more concerned with crops over livestock, it is not surprising that many continued to rely on the import of barrelled meat products to supply meat at the table. Conversely, those living in urban areas likely sought to emulate the markers of successful British and American cities, all of which featured markets supplied with traditional livestock. If Toronto's citizens were to emulate other successful cities, a focus on commercially derived livestock was crucial to this. Technological and transportation improvements allowed cities to import barrelled meat products from abroad if their hinterlands could not produce enough to supply it. The fact that a majority of 19th century Upper Canadians relied on greasy, salty and occasionally rancid supplies of barrel meat may be seen as one of the earliest shared experiences that helped form an Upper Canadian identity.

The research highlights how broad trends are not always clearly reflected at the household level where individuals responsible for creating archaeological deposits did so as a result of their personal negotiations with a combination of identities unique to themselves. Personal preferences are formed by personal identities: as one individual may engage with many different identities at once (i.e., as a father, a son, a farmer, and a British immigrant), they may choose to foreground one or two identities and this manifests itself into personal preference (Chapter 2). Further complicating matters, some individuals simply hold an innate dislike of specific foods and consequently avoid eating them because they do not enjoy the taste or texture. While broad trends can be spotted in a meta-analysis of data from numerous sites, exploring the differences between households offers us an avenue to explore the nuances of early Canadian identities. Certain case studies used in this research highlighted how, contrary to most other Upper Canadians of British or Loyalist descent, some individuals did in fact incorporate relatively larger amounts of venison into their diets while other households opted to raise or purchase more mutton rather than rely on more easily obtained pork or beef. Such variations do not necessarily indicate the occupants of these sites did not identify as Upper Canadians of English speaking heritage, but that life in 19th-century Upper Canada allowed for individuals to negotiate with a variety of identities and explore different foodways.

9.2 REASSESSING OUR KNOWLEDGE OF UPPER CANADA'S FOODWAYS

A summary of our current understanding of the role of meat in Upper Canadian foodways was presented in the first chapter. Much of it was based on the archaeological research of Ferris and Kenyon (1983), Kenyon and Kenyon (1992), James (1997) and their interpretations of historical documents and a few zooarchaeological assemblages. A small number of case studies formed the basis of their conclusions and the following section addresses their findings in light of the additional data gathered in this research. The traditional narrative in Ontario and elsewhere in North America (e.g., Miller 1984) sees pigs as the most important livestock on the pioneer farms upon initial settlement alongside a greater reliance on wild animals. Pigs did not require the same level of care, attention and resources as sheep and cattle, nor did they require cleared fields for pasture and the harvesting of crops for winter fodder. They were strong and tolerant to the local environment, capable of being fed on household waste items and free to roam in the local woodland. As forests were claimed for cultivating crops and sending livestock to pasture, the increasingly wealthy farmers were able to shift their focus to more labour intensive livestock like cattle and eventually sheep. The latter were initially viewed as a hindrance but could be attended to properly on a well-managed and better equipped farm. In this narrative, household consumption on the local farm was seen as a reflection of livestock raised on site (Ferris and Kenyon 1983: 5; Need 1838).

Such a narrative needs further clarification in light of the archaeological data collected over the past couple of decades and emphasises the value of archaeology of more recent periods. First, we must address the unstated assumption that rural farmers relied exclusively on the produce and livestock from their own properties. Historical documents from multiple sources (i.e., Traill 1857: 29; Langton 1926) and archaeological findings clearly show residents from the backwoods of Canada relied on preserved products, such as salted pork and beef, in addition to wild resources to provide meat in those early years. There is nothing to suggest that rural residents did not continue to incorporate market sourced products as the century progressed and access to market towns became easier. Zooarchaeological data summarized in Section 8.1.11 support the idea some rural sites were consuming barrelled pork while the same data combined with historical sources presented in Chapter 4 indicates other sites were producing barrelled meat products for sale. Furthermore, there are documented examples of the bartering and trade of meat products between neighbours in order to avoid wasting meat (Traill, 1857: 172) which can further complicate interpretation of archaeological materials (Bowen, 1988). While it may be true that pigs are easier stock and among some of the first to appear on the early farm, this is not necessarily a reflection of the higher consumption rates of pork. Cattle did equally well on earlier farms and were left to roam the woodlands (Traill, 1857: 184). Kenyon and Kenyon (1992) claimed pork and potatoes were the mainstay of the Upper Canadian diet. The archaeological data presented in the previous chapters clearly indicate that both pig and cattle remains were equally important contributors to the Upper Canadian diet throughout the 19th century and that pork was by no means the most relied upon source of meat for all households. Comparisons between earlier and later assemblages do not suggest pork was consumed more than beef in the early days of settlement but that household preferences dictated which was more likely to be consumed. Mutton played a secondary role to pork and beef in the Upper Canadian diet but consumption patterns do not suggest higher numbers for assemblages dating to later periods.

Archaeological remains of sheep were the most variable between assemblages and may relate to other factors such as ethnicity or personal preference. Once again, wealth does not appear to be a factor as the more established and therefore wealthier farms did not necessarily have more sheep. Mid-century market prices identify fresh mutton as less expensive than fresh beef and pork. Earlier assemblages such as the Cartwright, Butler, Macdonell and Duff-Bâby sites all show higher proportions of caprines relative to some of the later 19th-century sites. Kenyon and Ferris (1983: 9) noted elevated quantities of sheep at sites occupied by European born settlers who had more mutton in their diets as opposed to sites occupied by North American born settlers who were used to eating more pork than those who immigrated to the country. This statement does not always hold true as evidenced by the large proportion of sheep remains identified at the Bell site (occupied by Canadian-born residents). Ferris and Kenyon (1983) also suggest, based on a sample of two sites and the contemporary affinity for mutton in Scotland, that residents of Scottish heritage in Ontario relied more on mutton. While this was true for the John Beaton II site and others identified in the past, the pattern was not constantly maintained (e.g., Graham site).

The traditional narrative also held that wild resources formed a more important aspect of the diet in the earlier years of settlement (Kenyon and Kenyon 1992). Again, as people became increasingly settled and access to markets improved, the logic is that wild resources decreased in importance and store bought products requiring less time and effort were increasingly relied on. The data presented here show this is not the case, not only did wild resources continue to comprise similar proportions of the diet throughout the 19th century, they never featured heavily in the diet to begin with. Few sites show evidence for the consumption of deer and only two had significant numbers (Butler and Moodie sites). No site relied exclusively or even heavily on this major resource. As James (1997) first reported, meat consumption in rural areas is complicated by farmers' access to market resources to buy and sell produce. This research indicates few differences between urban and rural faunal assemblages.

Landon (1996: 94) notes the bone saw became the increasingly popular tool of choice to disarticulate animal carcasses in the late 18th through to the 19th century. The evidence from Upper Canadian assemblages support this statement where saw marks dominated nearly every assemblage. The most notable exception was at the John Beaton II site where chop marks comprised most of the butchery evidence. This is also the assemblage formed mostly of sheep remains; however, there is no evidence in this thesis or in James (1997: 126-127) to support the idea that different species were preferentially prepared with different tools. The exception at the John Beaton II site likely relates to personal style of the inhabitants who were likely processing their own livestock, as rural sites generally did not have access to the same types of butchering facilities available in urban centres (Belanger 1994: 7; Landon 1996: 121; Stewart-Abernathy 1986: 5). The complex patterns of butchery observed here and in James (1997) makes it difficult to distinguish butchery that occurred at the home from that practiced by a professional butcher or at a packing plant, contrary to what James concluded. James (1997) is correct in noting tertiary cuts are more obvious in cattle, which needed to be cut down to smaller portions typical of a meal. However, he does not include discussions on the butchery styles and joints expected from the barrelled products that heavily contributed to these assemblages.

While Ferris and Kenyon (1983) identified different consumption patterns for English, Scottish and Irish households, this research identified more variability between sites of shared ethnicity. James (1997: 174) concluded that ethnicity and status studies have no place in “foreign situations” because immigrants simply adapted to local conditions by “adopting local subsistence strategies”. These results suggest differently. Historical and archaeological data indicate that a choice was made upon arrival and settlement of Ontario. That choice was a considered effort to maintain the diet and foodways one was most accustomed to. Differences existed in terms of whether or not pork, beef or mutton was preferred, but as a group, British (Scots, Welsh and English), American Loyalists and their decedents maintained shared foodways between them. Wild resources, although not necessarily viewed as foreign, were never adopted in any major way. There was perhaps more reliance on salted product relative to foodways in Britain at the time but the importance of beef and pork remained constant. As industrialization progressed and a market economy took further hold of the area, mass produced products became a more established element of local foodways.

9.3 WHERE TO GO FROM HERE

9.3.1 UPDATING STANDARDS AND GUIDELINES

Like many other jurisdictions in North America (Kuehn 2007: 179; Walczesky 2014: 21-22), the majority of analyses of historic period faunal assemblages in Ontario are performed by contract archaeologists under the umbrella of Cultural Resource Management (CRM). In an effort to save costs and win contract bids, many (but not all) of these companies simply strive to meet the minimum standards and guidelines set out by the province of Ontario. Despite the wealth of information retrievable from the faunal record, the Ontario government's standards and guidelines allow commercial firms to get away with rudimentary forms of analyses that fail to provide any useful information on a site's previous occupants.

Table 9.1 is taken directly from the current operating standards and guidelines commercial archaeology firms must adhere to with regards to faunal analyses in the province. In what can only be described as an antiquarian approach to zooarchaeology, these guidelines only provide two requirements for faunal reports. The first is to provide counts of the faunal remains to the lowest identifiable taxon and the second is to provide counts of heat-altered specimens. The latter, though required for assessments of all collections, is geared towards the analysis of indigenous assemblages which are often burnt or calcined. Although necessary to understand the effects of one of many taphonomic processes that can affect the preservation of faunal remains, recording it on its own does not provide much information about historical assemblages which usually show no evidence for being exposed to fire. In summary, faunal reports must only provide numbers of identified specimens and list how many bones were burnt. The government goes on to recommend five optional guidelines.

TABLE 9.1: STANDARDS AND GUIDELINES FROM THE ONTARIO GOVERNMENT REGARDING THE ANALYSIS OF FAUNAL REMAINS RECOVERED FROM ARCHAEOLOGICAL SITES IN THE PROVINCE (ONTARIO MINISTRY OF TOURISM AND CULTURE, 2011: 106-108).

Material type	Standards (required)	Guidelines (optional)
Faunal Remains	1. Provide counts, by excavation context, identified to the lowest identifiable taxon 2. Provide separate counts of all heat-altered specimens	- Element identification - Bone modifications or cut marks - Species seasonality and range - Estimates of MNI or MNE - Sampling: - Except in the case of Paleo-Indian or Early Archaic sites, sampling may be used to reduce the scale of analysis of faunal assemblages of over 500 specimens. (for the remainder of the faunal material from these sampled contexts, only identification to class is required) - Sampling may not be used to reduce the minimum to less than 500 specimens described overall - Sampling must ensure representation from all meaningful contexts across a site (e.g., cultural features, or individual spatial or functional areas, such as within a longhouse or across a block of excavation units) and ensure representation of taxa. - Sampling strategies may vary by site and assemblage and may be determined based on professional judgment. In the report, cite references and provide supporting information for the strategy adopted. - The report must indicate how diversity and frequency have been sampled across classes and element sizes.

The optional guidelines clarify that archaeologists need not worry about identifying too many specimens. The province will accept an arbitrarily obtained figure of 500 specimens as an acceptable sample size to properly inform us on past faunal exploitation strategies and human-animal relationships. Results presented in Chapter 6 clearly show that, in the case of historic assemblages from southern Ontario, sample sizes in excess of at least 1,800 to 2,000 specimens are required before we even begin to get a glimpse at the richness of species present within assemblages. This number would be much higher for sites with poorer organic preservation (e.g., those located on acidic soils of Boreal forests in northern Ontario).

Flotation samples from the Front Street and King-Caroline sites showcase the large number of fish remains present within historical assemblages from the area. Only sites with an excess of 5,800 specimens show the same levels of richness in fish taxa capable of being achieved with a few soil samples. The notion that smaller screen sizes and soil samples are necessary in faunal analyses is not new (e.g., Nagaoka 2005; Norton *et al.* 1999; Partlow 2006; Ross and Duffy 2000; Shaffer 1992; Wheeler and Jones 1989; Zohar and Bellmaker 2005). Yet the province's standards and guidelines allow archaeologists to use a screen size (6mm) too great to catch the smaller fauna present in these assemblages (Shaffer 1992). While Stage Four archaeological surveys in Ontario do require archaeologists to analyse soil samples, few of them are presented to the zooarchaeologists. Stage Four site reports like that for the Edgar site, indicate how soil samples were sent to specialists for the analysis of plant remains and no soil samples were mentioned in the faunal report (ASI 2007). The bones surely recovered during the flotation and screening of the soil sample were apparently never submitted for analysis.

Fortunately, many of the faunal analysts operating in Ontario today provide more information than the standards require. For example, most of the faunal analyses from the past 10 to 15 years in the province include along with their counts further quantification in the form of Minimum Numbers of Individuals (MNI), an assessment of tool marks, the age at death of species or seasonality of kills or estimates of body portion representation. However, these are generally presented in the form of qualitative statements: one or two sentences on each topic describing how the specialist interprets the data they have generated. Given the lack of standards and the vagueness of the guidelines, the methods employed in providing the data are not always clearly described. Rarely are the same methods employed between analysts and the data are subject to the range of compatibility issues summarized in Lyman (2008). This problem was identified on a number of occasions while conducting this research and resulted in my inability to compare body portion and age at death analyses to assemblages for which I did not have access to the complete dataset (i.e., sites presented in Tables 3.2 to 3.5).

As observed in the faunal reports collected for this research, the recording of tool marks was inconsistent between observers and resulted in an inability to compare data produced by other analysts. The majority of analysts simply recorded whether tool marks were present and many chose to include the type of mark left behind (i.e., chop mark vs. saw mark). However, there is inconsistent practice in labelling tool marks and the use of 'cut mark' was often interchangeable with 'tool mark', leading to confusion as to whether those analysts were talking about a mark produced by a knife on a bone or tool marks in general. Following a standardized nomenclature where the words "tool mark" refer to marks made by butchery tools in general and words like "cut", "saw" and "chop" marks refer to those made by specific tools, would be helpful (i.e., English Heritage 2014). While collecting data, a few analysts included further information on the nature and location of the tool marks in the form of textual descriptions. Unfortunately, these texts were inconsistent and often vaguely or inaccurately recorded the location of the tool marks on the individual specimens. Reference to a recording system like the one adopted in this research would provide more consistency in reporting these often encountered modifications to bone.

Another example of incompatible reporting systems comes with the identification of body portion representation. While blanket statements indicating that 'many heads were present' or 'all body portions were evenly represented' provide some semblance of the characteristics defining the assemblage, they do not allow for proper comparisons to be made between assemblages. What one analyst considers over- or under-representation of a body part is variable. Methods for calculating the MNE and MAU are not usually described and charts or tables are rarely presented. Including these in reports would help the audience better judge the compatibility of results and the validity of statements being made.

On the issue of body portion representation, it is important to address here some remarks that persist in many zooarchaeological reports from the province that are factually incorrect and likely stem from an unquestioned assumption made a long time ago by the zooarchaeological community in Ontario. Multiple analysts have stated that the presence of cattle or pig head and foot elements within an assemblage indicate the animal was slaughtered and butchered on site or that the whole carcass was present on site (e.g., reports from the Barnum House and the Lowry-Hannon sites). Research presented in Chapter 4, clearly indicate that all bones of the body including heads and feet were present in barrelled pork assemblages. While it is not as clear if all or some elements of the head or foot of cattle were present in barrelled products, the presence of recipes that include the use of these body parts suggest it was not uncommon for them to be used in household meals (e.g., Bates 1978: 84; Kitchiner 1822: 70).

Another consequence of commercial led archaeology producing the majority of the data is that the resulting reports rarely make their way to the research community and are often difficult to access (Kuehn 2007: 179). One of the biggest issues I encountered in conducting this research involved the identification of existing assemblages and tracking down their associated reports. Unfortunately, the province does not maintain a searchable database of archaeological reports despite collecting these documents. The assemblages used in this research were identified through discussions with members of the archaeological community and individual emails sent out to known commercial units and faunal analysts. This research is the result of the goodwill of those who were kind enough to help. The availability of a searchable, online database like that managed by the Government of British Columbia's Archaeology Branch would be a massive boon for the archaeological research community in Ontario. At the very least, it would be beneficial for the province of Ontario to work with zooarchaeologists and archaeologists to adopt a more comprehensive set of standards and guidelines for the analysis and report of faunal materials within the province. Such a model could follow the guidance of professional organizations such as the International Council for Zooarchaeology (ICAZ 2009) or the British Archaeological Jobs Resource (BAJR) (Kausmally and Western 2005). Standards and guidelines could also be modelled on the more comprehensive frameworks set out in other jurisdictions such as England (English Heritage 2014), Scotland (ScARF 2012) or the Netherlands (Lauwerier 2010). Currently, zooarchaeologists working in the province are making it their prerogative to take initial steps in rectifying the loose standards and guidelines made available to them and are in the beginning stages of consulting with government officials. Discussions on how to improve access to datasets are also in very early stages. I hope the observations made in this thesis will be of help as we come to a better plan to address the quality and availability of faunal data from this interesting time period in our shared history.

9.3.2 Original contributions and future research directions

This research has shown that homogenizing statements regarding Euro-Canadian faunal assemblages in 19th-century Upper Canada only serve to mask what really happened in individual households. A closer look at the composition of multiple domestic assemblages has shown a degree of diversity in meat consumption patterns between different households. These differences do not relate to circumstances of urban or rural locations nor are they fully associated with the increased development of Upper Canada over the course of the 19th century. The individual choices are best explained by the identities of each household's inhabitants whose foodways are an extension of those from the northeast American and British traditions previously learned from and experienced by their ancestors. These focused on meats from domesticates such as pork, beef, mutton and chicken. As was the case in Britain and the north-eastern United States in the 19th century, few wild resources other than fish were incorporated into their diets. Contrasts between the zooarchaeological and historical records found that while many early documents describe the ready availability of venison and espouse it as a cheap and abundant source of meat, the archaeological evidence clearly shows that few Euro-Canadians of British or American descent actually ate it. When compared to neighbouring French-Canadian deposits from Lower Canada or contemporary indigenous assemblages from Upper Canada, the evidence suggest that a focus on domesticates and avoidance of wild resources is a reflection of the ethnic/cultural background to which residents identify with. The diversity observed between Euro-Canadian assemblages of this period are suggestive of the other identities, personal preferences and/or circumstances that affect individual consumption choices. Further research into foodways and identities of the region should focus on 19th-century assemblages related to other ethnic groups in the area, especially French-Canadians, Scandinavian-Canadians and indigenous peoples, as only a small number of these assemblages were available for comparison to the Euro-Canadians of British or American descent. Most assemblages suggested differences between these groups; however, work on indigenous faunal deposits in Massachusetts suggests increased homogeneity between American and indigenous populations as the 19th century progressed (Allard, 2010; 2015; Cipolla *et al*., 2007). If similar decreases in the dependence on wild resources is observed in other ethnic groups, it would be interesting to explore the level of diversity between household assemblages and what this can reveal about expressions of identities in this period.

This research looked into the role of meat in Upper Canadian foodways and results suggested a strong relationship in the development of foodways here with those of the northeast United States. However, this does not necessarily suggest Ontarians did not come to develop their own unique food traditions. Although the types of meat used may be the same, there is plenty of research opportunity in the study of cookbooks, recipes and menus from the province and surrounding areas throughout the 19th and early 20th century that could further clarify how people combined ingredients, prepared, cooked and served their food. There is surely enough information from these types of sources to form the basis of another dissertation.

When read together, the evidence obtained from butchery patterns, body part analyses and historical documents indicate Upper Canadians produced and purchased barrelled pork and beef products and relied on these instead of wild resources, to get them through periods when fresh meat was not as readily available. This research challenged widely held assumptions within the Ontario zooarchaeology community that bone elements from the heads and feet of pigs and cattle were suggestive of on-site slaughter of the animal or the presence of the whole carcass when in fact, these joints were often included in barrels of brined pork or beef purchased from the markets and these joints could also be purchased individually from butchers and used in cooking. This research presented promising results for pork body portion distribution based on the findings of barrels of pork from a 19th-century shipwreck and the observation that the snout was the only body part not included in the barrel (Brophy and Crisman, 2014). An investigation into the number of premaxillae and premaxillary teeth recovered from the different assemblages suggest a higher number of these elements being recovered from rural sites where pigs were known to be raised. Further research should be conducted on the presence of these elements from sites known for producing barrelled meat products and sites known to have mostly consumed barrelled meat in order to identify if this pattern holds true. Stable isotope studies may also provide another way of identifying pigs local to the area versus those imported from the United States, where most of the barrelled pork making their way to Ontario originated from.

The data collected and presented here highlights the often neglected or underreported role of fresh fish and seafood in the diet of 19th-century Upper Canadians. Firstly, comparisons between faunal collections assembled via different recovery strategies suggest the majority of archaeological sites likely contain a far greater amount and variety of fish then their assemblages suggest. Further research should focus on collecting soil samples from both rural and urban 19th-century assemblages and process these through meshes of at least 3mm. This would elucidate the extent to which fresh fish played a role in the diets of individual households. The evidence presented here suggests locally available varieties of fish were more popular then imported marine taxa. Historical sources suggest some of this is the result of commercial fishing activities operating in the Great Lakes supplying local markets rather than foreign fisheries. Future research such as stable isotope analyses looking at sourcing the origins of these fish would be very interesting. Zooarchaeologists working in Ontario should also strive to identify the bivalve specimens present in their assemblages as these results suggest locally available species were often exploited and contributed in some way to local foodways.

Another interesting result derived from this data indicates that Upper Canadians did not have easy access to fresh seafood and marine fish due to difficulties in transporting these over long-distances without spoiling. Oyster shells, Atlantic cod and haddock were mostly recovered from sites capable of accessing urban markets or major ports while few were found among rural assemblages where the focus was almost exclusively on locally available fish and mussels sourced from the local riverbeds. Historical newspaper advertisements further illustrate how oysters were only imported into Toronto over the colder winter months. These were not as economically priced as they were back in England or as readily available as they were on the eastern coast of North America and therefore did not play as big a role in Upper Canadian foodways. Better fish recovery strategies and the reporting of bivalve specimen identifications would help further illustrate the extent to which these foods were available throughout Upper Canada and the extent of rural access to urban markets.

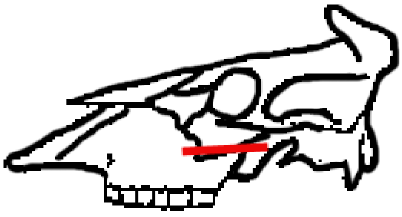
Prior to the start of this research, our knowledge of foodways in Ontario was based on conclusions drawn from reports that only looked at a handful of sites. Although individual faunal analysts who have worked in the province over the years may have had some idea on trends shared between historical period faunal assemblages, this was based on personal experiences and no reports or academic works truly summarized what was being seen in the province. This research helps remedy this situation and provides a broader look at some of trends and patterns shared between assemblages throughout the province while offering a theoretical framework to interpret the results. This framework used faunal remains as markers of social processes (expression of identities) as opposed to simply using animal bones as indicators of diet and economy, which is more prevalent in zooarchaeological discourse (Driver 2004). As research moves forward, it would be interesting to further address some of the questions that persist. For example, it remains unclear if, upon initial settlement, residents did heavily rely on wild resources or if access to markets and livestock was better than what is traditionally believed. A larger number of assemblages from distinct early 19th-century deposits, particularly those that represent the first year or two of settlement, would greatly enhance our understanding of these early days. Unfortunately, these are few and far between.

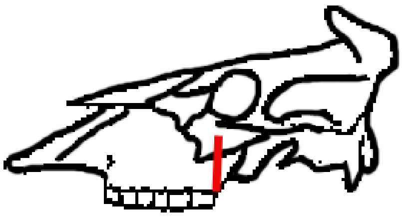
APPENDIX A –

BUTCHERY CODES

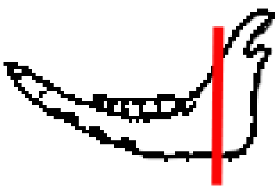
This appendix presents the butchery codes used in this thesis. These codes were used in addition to those published by Lauwerier (1988).

Additional codes for skull butchery

13  lateral, on maxilla

14  lateral, on maxilla

Additional codes for mandible butchery

34  Mandible butchered vertically through ascending ramus

Additional codes for hyoid butchery

3		butchery on superior, proximal part
4		butchery on inferior, proximal part

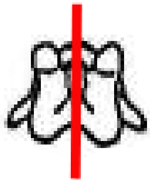
Additional codes for atlas butchery

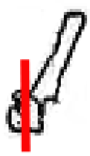
19		butchery on caudal surface
20		butchery on caudal articulation, towards anterior surface

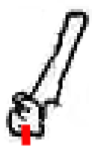
Additional codes for axis butchery

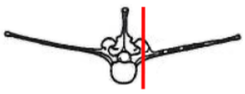
15		Butchered through centre, along sagittal plane

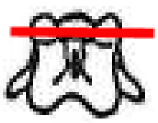
Additional codes for vertebrae butchery

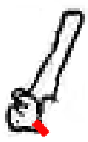
20  butchered through central body, along sagittal plane

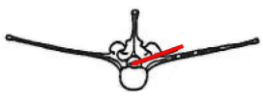
21, 24  butchered through central body, along transverse plane

22  butchery on anterior surface of vertebral body

23  butchered laterally to vertebral body, along sagittal plane

25  butchered transversely through proximal articular facets along a transverse plane

26  butchered on ventral surface of vertebral body

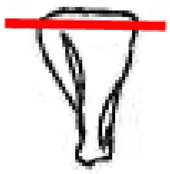
27  butchered along transverse plane through vertebral arch

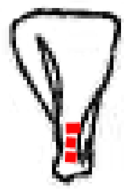
28, 29 [no images] butchery present on vertebral body, along already butchered surface that resulted from splitting of vertebra along sagittal plane

Additional codes for scapula butchery

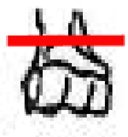
41  butchered through neck, just distal to the spine

42  butchered diagonally through blade

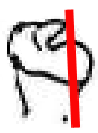
43  butchered along transverse plane, through distal blade

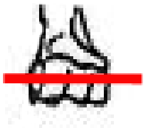
44  butchery marks on dorsal surface of neck

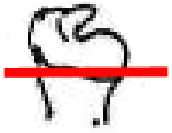
Additional codes for humerus butchery

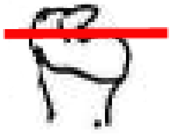
37  butchery through distal diaphysis

38  butchery through anterior side of trochlea from the distal surface

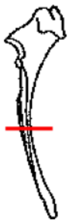
39  butchery through head, along plane parallel to long bone axis

40  butchery through trochlea, along plane
Perpendicular to long bone axis

41  butchery through proximal metaphysis

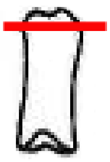
42  butchery through greater tubercle

Additional code for ulna butchery

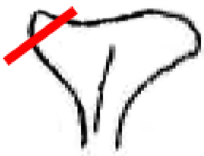


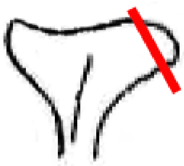
16 Butchery through diaphysis of ulna, along plane
perpendicular to long axis of the bone

Additional codes for phalanx butchery

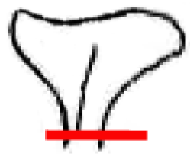
13  butchery obliquely through proximal articulation and diaphysis of phalanx

Additional codes for innominate butchery

30  butchery through lateral ilium



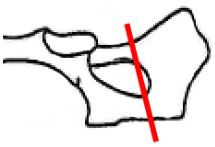
31 butchery through medial ilium



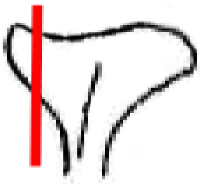
32 butchery through shaft of ilium

33 butchery through pubis, along plane that is parallel to long axis of pubis

34 butchery through ischium, along plane that is parallel to long axis of ischium



35 butchery through distal portion of ischium and pubis



36 butchery through lateral ilium in plane parallel axis of ilium

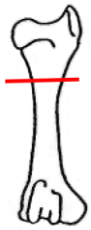
Additional codes for femur butchery

37 butchery through proximal epiphysis

38 butchery through proximal metaphysis

39 butchery separating greater trochanter

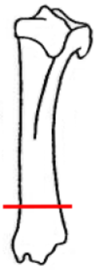
40 butchery through distal diaphysis



41 butchery through proximal diaphysis

Additional codes for tibia butchery

40 butchery through proximal diaphysis



41 butchery through distal diaphysis

42  butchery through intercondyloid eminence

43  butchery through proximal metaphysis

44  butchery on posterior side of distal articular surface

45  butchery on proximal articular surface but originating from direction of unfused metaphysis

Additional codes for astragalus butchery

14  butchery through centre of astragalus, in direction perpendicular to long axis of the bone

15  butchery along length of medial side of astragalus

APPENDIX B –

SPECIMEN IDENTIFICATIONS

Feature 36, 327-333 Queen Street West

Species (scientific name)	Species (common name)	NISP	%NISP	MNI
Actinopterygii	Ray-finned fishes	13	4.0	-
Salmonidae	Salmon	1	0.3	-
Coregonus sp.	Whitefish	8	2.4	1
Aves	Birds			
Medium		1	0.3	-
Small		1	0.3	-
Anserinae	Swans and geese	5	1.5	-
Gallus gallus	Chickens	1	0.3	1
Mammalia	Mammals			
Large		67	20.5	-
Medium to large		1	0.3	-
Medium		1	0.3	-
Small		1	0.3	-
Felis catus	Domestic cats	88	26.9	1
Artiodactyla	Even-toed ungulates	1	0.3	-
Medium to large		1	0.3	-
Caprinae/cervidae	Sheep or deer	1	0.3	-
Bos taurus	Cattle	133	40.7	7
Sus scrofa	Pigs	3	0.9	2
Total		**327**	**99.9**	

Feature 38, 327-333 Queen Street West

Species (scientific name)	Species (common name)	NISP	%NISP	MNI
Crassostrea virginica	Eastern oysters	1	0.2	1
Mercenaria mercenaria	Hard clams	1	0.2	1
Actinopterygii	Ray-finned fishes	27	5.9	-
Esox sp.	Pike or muskellunge	1	0.2	-
Catostomus sp.	Suckers	4	0.9	-
Catostomus catostomus	Longnose suckers	1	0.2	1
Centrarchidae/percidae	Sunfish or perch	3	0.7	-
Micropterus sp.	Black basses	1	0.2	1
Anura	Frogs	2	0.4	-
Aves	Birds	6	1.3	-
Large		1	0.2	-
Medium to large		2	0.4	-
Medium		3	0.7	-
Small		1	0.2	-
Anserinae	Swans and geese	2	0.4	-
Anser anser	Greylag geese	2	0.4	1
Gallus gallus	Chickens	13	2.9	4
Columbidae	Pigeons and doves	1	0.2	-
Mammalia	Mammals	222	48.9	-
Large		15	3.3	-
Medium to large		15	3.3	-
Medium		12	2.6	-
Sciuridae	Squirrels	1	0.2	1
Marmota monax	Groundhogs	1	0.2	1
Rattus sp.	Rats	3	0.7	1
Felis catus	Domestic cats	1	0.2	1
Artiodactyla	Even-toed ungulates	6	1.3	-
Large		2	0.4	-
Medium to large		3	0.7	-
Medium		9	2.0	-
Bos taurus	Cattle	48	10.6	2
Caprinae	Sheep or goats	29	6.4	2
Sus scrofa	Pigs	8	1.8	1
Indeterminate		7	1.5	-
Total		**454**	**99.7**	

Feature 46, 327-333 Queen Street West

Species (scientific name)	Species (common name)	NISP	%NISP	MNI
Bivalvia	Bivalves	1	0.5	-
Actinopterygii	Ray-finned fishes	5	2.6	-
Gadidae	Cod-like fishes	1	0.5	-
Scomber scombrus	Atlantic mackerel	1	0.5	1
Aves	Birds	2	1.1	-
Medium to large		3	1.6	-
Medium		1	0.5	-
Anserinae	Swans and geese	3	1.6	-
Gallus gallus	Chickens	2	1.1	1
Mammalia	Mammals	37	19.6	-
Large		9	4.8	-
Medium to large		3	1.6	-
Medium		13	6.9	-
Artiodactyla	Even-toed ungulates	5	2.6	-
Large		2	1.1	-
Medium to large		7	3.7	-
Medium		14	7.4	-
Bos taurus	Cattle	31	16.4	2
Caprinae	Sheep or goats	16	8.5	2
Sus scrofa	Pigs	33	17.5	2
Total		**189**	**100.1**	

Bell site

Species (scientific name)	Species (common name)	NISP	%NSP	MNI
Bivalvia	Bivalves	3	0.8	-
Ostreidae	Oysters	3	0.8	2
Actinopterygii	Ray-finned fishes	1	0.3	-
Anura	Frogs	1	0.3	-
Aves	Birds	13	3.5	-
Large		2	0.5	-
Medium to large		9	2.4	-
Medium		12	3.2	-
Small to medium		1	0.3	-
Anserinae	Swans and geese	2	0.5	-
Anser anser	Greylag geese	1	0.3	1
Anatinae	Ducks	6	1.6	2
Phasianidae	Pheasants, Turkeys and chickens	2	0.5	-
Gallus gallus	Chickens	8	2.1	2
Mammalia	Mammals	128	34.0	-
Large		37	9.8	-
Medium to large		2	0.5	-
Medium		44	11.7	-
Canis familiaris	Domestic dogs	1	0.3	1
Artiodactyla	Even-toed ungulates	4	1.1	-
Medium		4	1.1	-
Caprinae/cervidae	Sheep or deer	2	0.5	-
Caprinae/suidae	Sheep or pigs	11	2.9	-
Bos taurus	Cattle	38	10.1	3
Caprinae	Sheep or goats	25	6.6	2
Sus scrofa	Pigs	16	4.3	2
Total		**376**	**100.0**	

House 3, Bishop's Block (bivalves and fish)

Species (Scientific name)	Species (Common name)	NISP	%NISP	MNI
Bivalvia	Bivalves	3	0.1	-
Crassostrea virginica	Eastern oysters	17	0.3	2
Actinopterygii	Ray-fined fishes	117	2.0	-
Salmoniformes	Salmon (order)	1	0.0	-
Salmonidae	Salmon (family)	5	0.1	-
Salmo salar/Salvelinus namaycush	Atlantic salmon or lake trout	3	0.1	-
Salmo salar	Atlantic salmon	13	0.2	1
Salvelinus namaycush	Lake trout	20	0.3	1
Coregonus sp.	Whitefish	32	0.5	-
Coregonus artedi	Cisco, lake herring	7	0.1	2
Coregonus clupeaformis	Lake whitefish	14	0.2	3
Esox sp.	Pike or muskellunge	2	0.0	-
Cypriniformes	Minnows or carps	1	0.0	-
Catostomidae	Suckers	1	0.0	-
Catostomus catostomus	Longnose suckers	1	0.0	1
Gadidae	Cod-like fishes	3	0.1	-
Gadus morhua	Atlantic cod	26	0.4	1
Melanogrammus aeglefinus	Haddock	13	0.2	2
Centrarchidae	Sunfish	2	0.0	-
Lepomis sp.	Pumpkinseed/bluegill	4	0.1	1
Micropterus sp.	Black basses	1	0.0	1
Perca flavescens	Yellow perch	6	0.1	1
Sander sp.	Walleye or saugers	7	0.1	-

… House 3, Bishop's Block (birds)

Species (scientific name)	Species (common name)	NISP	%NISP	MNI
Aves	Birds	5	0.1	-
Large		56	1.0	-
Medium to large		245	4.2	-
Medium		125	2.1	-
Small to medium		2	0.0	-
Small		2	0.0	-
Gavia immer	Common loons	7	0.1	1
Ardea herodias	Great blue herons	1	0.0	1
Anatidae	Swans, geese and ducks	1	0.0	-
Anserini	Whistling ducks, swans and geese	36	0.6	-
Anser anser	Greylag geese	7	0.1	2
Anatinae	Ducks	14	0.2	-
Anas sp.	*Anas* genus of dabbling ducks	2	0.0	1
Aythya sp.	*Aythya* genus of diving ducks	7	0.1	-
Aythya marila	Greater scaup	2	0.0	1
Phasianidae	Pheasants	2	0.0	-
Meleagris gallopavo	Turkeys	45	0.8	3
Gallus gallus	Chickens	96	1.6	5
Columbidae	Pigeons and doves	2	0.0	-
Ectopistes migratorius	Passenger pigeons	3	0.1	1
Picidae	Woodpeckers and Wrynecks	1	0.0	1

… House 3, Bishop's Block (mammals)

Species (scientific name)	Species (common name)	NISP	%NISP	MNI
Mammalia	Mammals			
Large		774	13.3	-
Medium to large		1535	26.3	-
Medium		1441	24.7	-
Small to medium		13	0.2	-
Small		2	0.0	-
Leporidae	Rabbits and hares	1	0.0	-
Oryctolagus cuniculus	European rabbits	1	0.0	1
Rodentia	Rodents	2	0.0	-
Tamiasciurus hudsonicus	American red-squirrels	1*	0.0	1
Microtinae	Voles, lemmings and muskrats	1*	0.0	-
Rattus sp.	Rats	26*	0.4	3
Canis familiaris	Domestic dogs	1*	0.0	1
Felis catus	Domestic cats	12*	0.2	2
Artiodactyla	Even-toed ungulates			
Large		1	0.0	-
Medium		4	0.1	-
Odocoileus virginianus	White-tailed deer	3	0.1	1
Bos taurus	Cattle	251	4.3	5
Ovis aries	Sheep	24	0.4	7
Caprinae	Sheep or goats	251	4.3	9
Sus scrofa	Pigs	460	7.9	6
Indeterminate		70	1.2	-
Total (all classes)		**5834**	**99.3**	

* indicates minimum number of identifications

House 4, Bishop's Block (bivalves, fish, reptiles and birds)

Species (scientific name)	Species (common name)	NISP	%NISP	MNI
Crassostrea virginica	Eastern oysters	3	0.1	1
Actinopterygii	Ray-fined fishes	41	1.4	-
Salmo salar/Salvelinus namaycush	Atlantic salmon or Lake trout	1	0.0	-
Salmo salar	Atlantic salmon	1	0.0	1
Salvelinus namaycush	Lake trout	1	0.0	1
Coregonus sp.	Whitefish	3	0.1	1
Esox sp.	Pike or muskellunge	1	0.0	-
Esox lucius	Northern pike	11	0.4	2
Gadidae	Cod-like fishes	5	0.2	-
Melanogrammus aeglefinus	Haddock	26	0.9	3
Ameiurus sp.	Bullhead catfishes	1	0.0	1
Percidae	Perch family	1	0.0	-
Sander sp.	Walleye or saugers	1	0.0	-
Perca flavescens	Yellow perch	1	0.0	1
Chrysemys picta	Painted turtles	1	0.0	1
Aves	Birds			
Large		17	0.6	-
Medium to large		64	2.1	-
Medium		31	1.0	-
Anatidae	Swans, geese and ducks	2	0.1	-
Anserini	Whistling ducks, swans and geese	13	0.4	-
Anser anser	Greylag geese	9	0.3	2
Anatinae	Ducks	1	0.0	-
Anas platyrhynchos	Mallard ducks	1	0.0	1
Mergus sp.	Merganser ducks	1	0.0	1
Phasianidae	Pheasants	1	0.0	-
Meleagris gallopavo	Turkeys	16	0.5	2
Gallus gallus	Chickens	76	2.5	4
Columbidae	Pigeons and doves	2	0.1	-

… House 4, Bishop's Block (mammals)

Species (scientific name)	Species (common name)	NISP	%NISP	MNI
Mammalia	Mammals			
Large		366	12.2	-
Medium to large		765	25.4	-
Medium		676	22.5	-
Small to medium		3	0.1	-
Microtinae	Voles, lemmings and muskrats	Present		-
Rattus sp.	Rats	Present		-
Felis catus	Domestic cats	Present		2
Artiodactyla	Even-toed ungulates			-
Medium		4	0.1	-
Bos taurus	Domestic cattle	106	3.5	5
Caprinae	Sheep or goats	91	3.0	5
Ovis aries	Domestic sheep	11	0.4	-
Sus scrofa	Domestic pig	614	20.4	12
Indeterminate		38	1.3	-
Total (all classes)		**3006**	**99.6**	**-**

House 5, Bishop's Block

Species (scientific name)	Species (common name)	NISP	%NISP	MNI
Bivalvia	Bivalves	1	0.1	-
Crassostrea virginica	Eastern oysters	19	1.5	4
Actinopterygii	Ray-fined fishes	2	0.2	-
Melanogrammus aeglefinus	Haddock	1	0.1	1
Testudines	Turtles	1	0.1	1
Aves	Birds			
Large		22	1.8	-
Medium to large		40	3.2	-
Medium		48	3.9	-
Small		1	0.1	-
Anatidae	Swans, geese and ducks	1	0.1	-
Anserini	Whistling ducks, swans and geese	11	0.9	-
Anser anser	Greylag goose	3	0.2	1
Anatinae	Ducks	7	0.6	-
Anas platyrhynchos	Mallards	1	0.1	1
Phasianidae	Pheasants	1	0.1	-
Meleagris gallopavo	Turkeys	7	0.6	2
Gallus gallus	Chickens	23	1.9	3
Ectopistes migratorius	Passenger pigeons	1	0.1	1
Mammalia	Mammals			
Large		165	13.3	-
Medium to large		279	22.5	-
Medium		379	30.6	-
Small to medium		5	0.4	-
Leporidae	Rabbits and hares	1	0.1	1
Microtinae	Voles, lemmings and muskrats	Present		-
Rattus sp.	Rats	Present		-
Felis catus	Domestic cats	Present		-
Canis sp.	Wolves, coyotes and dogs	Present		-
Canis familiaris	Domestic dogs	Present		-
Artiodactyla	Even-toed ungulates			
Medium		1	0.1	-
Bos taurus	Cattle	48	3.9	3
Caprinae	Sheep or goats	87	7.0	4
Ovis aries	Sheep	13	1.0	*
Sus scrofa	Pigs	57	4.6	2
Indeterminate		14	1.1	-
Total		**1239**	**100**	**-**

* MNI given for all identifications of sheep and goat under Caprinae

House 6, Bishop's Block

Species (scientific name)	Species (common name)	NISP	%NISP	MNI
Crassostrea virginica	Eastern oysters	3	0.3	2
Actinopterygii	Ray-fined fishes	7	0.8	-
Melanogrammus aeglefinus	Haddock	3	0.3	1
Gadus morhua	Atlantic cod	1	0.1	1
Aves	Birds			
Large		13	1.5	-
Medium to large		36	4.0	-
Medium		14	1.6	-
Anserini	Whistling swans and geese	31	3.5	-
Anser anser	Graylag geese	4	0.4	2
Anatinae	Ducks	1	0.1	-
Anas sp.	*Anas* genus of dabbling ducks	1	0.1	-
Anas platyrhynchos	Mallards	2	0.2	1
Phasianidae	Pheasants	8	0.9	-
Meleagris gallopavo	Turkeys	30	3.4	4
Gallus gallus	Chickens	57	6.4	5
Mammalia	Mammals			
Large		130	14.6	-
Medium to large		80	9.0	-
Medium		151	16.9	-
Small to medium		2	0.2	-
Small		4	0.4	-
Lepus americanus	Snowshoe hares	8	0.9	2
Microtinae	Voles, lemmings and muskrats	Present	-	-
Rattus sp.	Rats	Present	-	-
Felis catus	Domestic cats	Present	-	-
Artiodactyla	Even-toed ungulates			
Medium		2	0.2	-
Bos taurus	Domestic cattle	94	10.5	4
Caprinae	Sheep or goats	77	8.6	6
Ovis aries	Sheep	2	0.2	*
Sus scrofa	Pigs	127	14.2	4
Indeterminate		4	0.4	-
Total		**892**	**99.7**	**-**

* MNI given for all identifications of sheep and goat under Caprinae

House 1, Dollery site

Species (Scientific name)	Species (Common name)	NISP	%NISP	MNI
Bivalvia	Bivalves	5	0.7	-
Elliptio complanata	Eastern elliptio mussels	2	0.3	1
Actinopterygii	Ray-fined fishes	4	0.6	-
Salvelinus namaycush	Lake trout	1	0.1	1
Centrarchidae	Sunfishes	1	0.1	-
Aves	Birds	3	0.4	-
Large		7	1.0	-
Medium to large		16	2.3	-
Medium		42	5.9	-
Small		2	0.3	-
Anserinae	Swans and geese	13	1.8	-
Branta canadensis	Canada geese	2	0.3	2
Anser anser	Greylag geese	8	1.1	2
Anatinae	Ducks	9	1.3	-
Anas platyrhynchos	Mallards	1	0.1	1
Phasianidae	Pheasants	1	0.1	-
Meleagris gallopavo	Turkeys	12	1.7	2
Gallus gallus	Chickens	24	3.4	2
Mammalia	Mammals			
Large		65	9.2	-
Medium to large		71	10.0	-
Medium		129	18.2	-
Small to medium		9	1.3	-
Rattus sp.	Rats	Present	-	-
Artiodactyla	Even-toed ungulates			
Medium		30	4.2	-
Bos taurus	Cattle	76	10.7	4
Ovis aries	Sheep	5	0.7	*
Caprinae	Sheep or goats	59	8.3	4
Sus scrofa	Domestic pig	107	15.1	3
Indeterminate		4	0.6	-
TOTAL		**708**	**99.8**	

* MNI given for all identifications of sheep and goat under Caprinae

House 2, Dollery site

Species (scientific name)	Species (common name)	NISP	%NISP	MNI
Actinopterygii	Ray-fined fishes	18	3.1	-
Salvelinus namaycush	Lake trout	9	1.6	1
Catostomus catostomus	Longnose suckers	1	0.2	1
Gadus morhua	Atlantic cod	4	0.7	1
Centrarchidae	Sunfishes	8	1.4	-
Lepomis sp.	Pumpkinseed or bluegills	1	0.2	1
Aves	Birds	1	0.2	-
Large		1	0.2	-
Medium to large		14	2.4	-
Medium		24	4.2	-
Anser anser	Greylag geese	4	0.7	1
Anatinae	Ducks	1	0.2	-
Phasianidae	Pheasants	26	4.5	-
Meleagris gallopavo	Turkeys	16	2.8	2
Gallus gallus	Chickens	11	1.9	2
Mammals				-
Large		43	7.4	-
Medium to large		66	11.4	-
Medium		146	25.3	-
Small to medium		7	1.2	-
Small		1	0.2	-
Felis catus	Domestic cats	4	0.7	1
Artiodactyla	Even-toed ungulates			
Medium		21	3.6	-
Bos taurus	Cattle	21	3.6	3
Caprinae	Sheep or goats	35	6.1	3
Sus scrofa	Pigs	90	15.6	4
Indeterminate		5	0.9	-
TOTAL		**578**	**100.3**	-

Ashbridge I/II, Ashbridge Estate

Species (scientific name)	Species (common name)	NISP	%NISP	MNI
Bivalvia	Bivalves	8	1.2	-
Actinopterygii	Ray-fined fishes	11	1.7	-
Salmonidae	Salmon	1	0.2	-
Salmo salar	Atlantic salmon	1	0.2	1
Esox sp.	Pike or muskellunge	2	0.3	1
Gadidae	Cod-like fishes	1	0.2	-
Centrarchidae	Sunfishes	1	0.2	-
Aves	Birds	51	7.9	-
Large		3	0.5	-
Medium to large		1	0.2	-
Medium		19	2.9	-
Small to medium		2	0.3	-
Small		1	0.2	-
Anserinae	Swans and geese	4	0.6	-
Anatinae	Ducks	5	0.8	-
Phasianidae	Pheasants	3	0.5	-
Meleagris gallopavo	Turkeys	3	0.5	1
Gallus gallus	Chickens	19	2.9	4
Mammalia	Mammals	231	35.8	-
Large		43	6.7	-
Medium to large		5	0.8	-
Small to medium		60	9.3	-
Tamiasciurus hudsonicus	Red squirrels	1	0.2	1
Ondatra zibethicus	Muskrats	5	0.8	1
Rattus sp.	Rats	20	3.1	5
Carnivora	Carnivores	2	0.3	-
Procyon lotor	Racoon	5	0.8	1
Felis catus	Domestic cats	2	0.3	1
Artiodactyla	Even-toed ungulates	5	0.8	-
Large		1	0.2	-
Medium to large		1	0.2	-
Medium		12	1.9	-
Odocoileus virginianus	White-tailed deer	2	0.3	1
Bos taurus	Cattle	22	3.4	2
Caprinae	Sheep or goat	8	1.2	1
Sus scrofa	Pigs	85	13.2	3
Total		**646**	**100.6**	

Ashbridge IV/V, Ashbridge Estate (molluscs, fish and birds)

Species (scientific name)	Species (common name)	NISP	%NISP	MNI
Mollusca	Molluscs	10	0.1	-
Gastropoda	Gastropods	1	0.0	-
Bivalvia	Bivalves	71	0.9	-
Ostreidae	Oysters	4	0.1	-
Unionidae	Fresh water mussels	1	0.0	-
Actinopterygii	Ray-finned fishes	98	1.3	-
Amia calva	Bowfins	1	0.0	1
Salmonidae	Salmon	1	0.0	-
Salmo salar	Atlantic salmon	3	0.0	1
Salvelinus namaycush	Lake trout	1	0.0	1
Coregonus sp.	Whitefishes	6	0.1	-
Coregonus artedi	Ciscoes	1	0.0	-
Esox sp.	Pike or muskellunge	11	0.1	-
Esox lucius	Northern pike	1	0.0	1
Catostomus sp.	Suckers	2	0.0	-
Ictaluridae	Freshwater catfishes	2	0.0	-
Ictalurus sp.	Freshwater catfishes (genus)	5	0.1	-
Ameiurus nebulosus	Brown bullheads	1	0.0	1
Gadidae	Cod-like fishes	3	0.0	-
Gadus morhua	Atlantic cod	1	0.0	1
Melanogrammus aeglefinus	Haddock	1	0.0	1
Perciformes	Perch-like fishes	2	0.0	-
Centrarchidae	Sunfishes	7	0.1	-
Lepomis gibbosus	Pumpkinseeds	2	0.0	-
Perca flavescens	Yellow perch	1	0.0	-
Sander sp.	Walleye or saugers	1	0.0	-
Scomber scombrus	Atlantic mackerel	4	0.1	1
Aves	Birds	742	9.5	-
Large		19	0.2	-
Medium to large		31	0.4	-
Medium		81	1.0	-
Small to medium		21	0.3	-
Small		12	0.2	-
Anatidae	Swans, geese and ducks	4	0.1	-
Anserinae	Swans and geese	32	0.4	-
Anser anser	Greylag geese	8	0.1	-
Anatinae	Ducks	16	0.2	-
Accipitrinae	Kites, hawks, eagles, harriers	1	0.0	-
Phasianidae	Pheasants	47	0.6	-
Meleagris gallopavo	Turkeys	23	0.3	-
Gallus gallus	Chickens	84	1.1	-
Sterna sp.	Terns	1	0.0	-
Columbidae	Pigeons and doves	6	0.1	-
Passeriformes	Perching birds	1	0.0	-

… Ashbridge IV/V, Ashbridge Estate (mammals)

Species (Scientific name)	Species (Common name)	NISP	%NISP	MNI
Mammalia	Mammals	3804	48.8	-
Large		349	4.5	-
Medium to large		22	0.3	-
Medium		629	8.1	-
Small to medium		4	0.1	-
Small		18	0.2	-
Leporidae	Rabbits and hares	5	0.1	-
Oryctolagus cuniculus	European rabbits	1	0.0	1
Sciuridae	Squirrels	1	0.0	-
Sciurus carolinensis	Grey squirrels	2	0.0	1
Muroidea	Rats, mice and voles	21	0.3	-
Ondatra zibethicus	Muskrats	18	0.2	2
Cricetidae	Voles and New World rats and mice	3	0.0	-
Mus musculus	House mice	2	0.0	1
Rattus sp.	Rats	183	2.3	14
Carnivora	Carnivores	21	0.3	-
Canidae	Wolves, dogs and foxes	19	0.2	-
Procyon lotor	Racoons	1	0.0	1
Felis catus	Domestic cats	28	0.4	3
Artiodactyla	Even-toed ungulates	64	0.8	-
Large		6	0.1	-
Medium to large		32	0.4	-
Medium		100	1.3	-
Cervidae	Cervids	1	0.0	-
Odocoileus virginianus	White-tailed deer	5	0.1	1
Bos taurus	Cattle	279	3.6	3
Caprinae	Sheep or goat	63	0.8	5
Sus scrofa	Pigs	591	7.6	10
Indeterminate		158	2.0	-
Total (all classes)		**7801**	**99.9**	

Bullen/OHT, Ashbridge Estate

Species (scientific name)	Species (common name)	NISP	%NISP	MNI
Mollusca	Molluscs	4	0.5	-
Bivalvia	Bivalves	25	3.3	-
Actinopterygii	Ray-fined fishes	1	0.1	-
Aves	Birds	51	6.8	-
Large		10	1.3	-
Medium to large		2	0.3	-
Medium		23	3.0	-
Small to medium		2	0.3	-
Small		3	0.4	-
Anserinae	Swans and geese	1	0.1	-
Meleagris gallopavo	Turkeys	2	0.3	1
Gallus gallus	Chickens	6	0.8	2
Passeriformes	Perching birds	1	0.1	-
Mammalia	Mammals	434	57.2	-
Large		28	3.7	-
Medium to large		3	0.4	-
Medium		39	5.1	-
Small to medium		2	0.3	-
Small		1	0.1	-
Leporidae	Rabbits and hares	1	0.1	-
Rodentia	Rodents	1	0.1	-
Sciurus carolinensis	Grey squirrels	1	0.1	1
Ondatra zibethicus	Muskrats	1	0.1	1
Cricetidae	Voles, New World rats and mice	1	0.1	-
Rattus sp.	Rats	9	1.2	2
Carnivora	Carnivores	2	0.3	-
Canidae	Wolves, dogs and foxes	2	0.3	-
Felis catus	Domestic cats	4	0.5	1
Artiodactyla	Even-toed ungulates	4	0.5	-
Large		1	0.1	-
Medium to large		4	0.5	-
Medium		8	1.1	-
Bos taurus	Cattle	18	2.4	3
Caprinae	Sheep or goats	5	0.7	1
Sus scrofa	Pigs	50	6.6	2
Indeterminate		9	1.2	-
Total		**759**	**100.0**	

The Graham site

Species (scientific name)	Species (common name)	NISP	%NISP	MNI
Mollusca	Molluscs	7	0.4	-
Bivalvia	Bivalves	56	3.5	-
Unionidae	Fresh water mussels	1	0.1	-
Gastropoda	Gastropods	1	0.1	-
Anura	Frogs	3	0.2	-
Chelydra serpentina	Snapping turtle	2	0.1	1
Aves	Birds	47	3.0	-
Medium		11	0.7	-
Meleagris gallopavo	Turkeys	2	0.1	1
Gallus gallus	Chickens	21	1.3	4
Mammalia	Mammals	1054	66.4	-
Large		58	3.7	-
Medium		101	6.4	-
Small to medium		1	0.1	-
Small		2	0.1	-
Leporidae	Rabbits and hares	6	0.4	-
Marmota monax	Groundhogs	1	0.1	1
Ondatra zibethicus	Muskrats	5	0.3	1
Rattus sp.	Rats	5	0.3	1
Carnivora	Carnivores	2	0.1	-
Procyon lotor	Racoon	4	0.3	1
Felis catus	Domestic cats	1	0.1	1
Artiodactyla	Even-toed ungulates	8	0.5	-
Large		1	0.1	-
Medium to large		6	0.4	-
Medium		15	0.9	-
Odocoileus virginianus	White-tailed deer	13	0.8	1
Bos taurus	Cattle	18	1.1	2
Caprinae	Sheep or goats	9	0.6	1
Sus scrofa	Pigs	108	6.8	3
Indeterminate		18	1.1	-
Total		**1588**	**100.0**	

The Hall site

Species (scientific name)	Species (common name)	NISP	%NISP	MNI
Bivalve	Bivalves	181	11.3	-
Unionidae	Fresh water mussels	14	0.9	-
Lasmigona costata	Fluttedshells	1	0.1	1
Anodontinae	Fresh water mussels (sub-family)	2	0.1	1
Strophitus ondulatus	Creepers	4	0.3	3
Actinopterygii	Ray-finned fishes	1	0.1	-
Aves	Birds	103	6.4	-
Large		4	0.3	-
Medium to large		2	0.1	-
Medium		15	0.9	-
Small to medium		9	0.6	-
Anatidae	Swans, geese and ducks	3	0.2	-
Anserinae	Swans and geese	9	0.6	-
Anser anser	Greylag geese	1	0.1	1
Meleagris gallopavo	Turkeys	2	0.1	1
Gallus gallus	Chickens	9	0.6	2
Strigidae	Owls	1	0.1	-
Picidae	Woodpeckers	3	0.2	-
Passeriformes	Perching birds	1	0.1	-
Mammalia	Mammals	592	37.1	-
Large		96	6.0	-
Medium to large		85	5.3	-
Medium		98	6.1	-
Rodentia	Rodents	1	0.1	-
Marmota monax	Groundhogs	2	0.1	2
Ondatra zibethicus	Muskrats	2	0.1	1
Rattus	Rats	3	0.2	3
Mustelidae	Mustelids	1	0.1	-
Felis catus	Domestic cats	53	3.3	2
Artiodactyla	Even-toed ungulates	7	0.4	-
Large		6	0.4	-
Medium to large		4	0.3	-
Medium		5	0.3	-
Bos taurus	Cattle	128	8.0	4
Bovidae	Bovids	2	0.1	-
Bovidae/cervidae	Bovids or cervids	2	0.1	-
Caprinae	Sheep or goats	38	2.4	4
Sus scrofa	Pigs	82	5.1	3
Indeterminate		25	1.6	-
Total		**1597**	**100**	

The John Beaton II site

Species (scientific name)	Species (common name)	NISP	%NISP	MNI
Aves	Birds	1	0.2	-
Medium		12	3.0	-
Phasianidae	Pheasants, turkeys and chickens	1	0.2	-
Gallus gallus	Chickens	20	5.0	5
Mammalia	Mammals	88	21.8	-
Large		31	7.7	-
Medium		61	15.1	-
Microtus sp.	Voles	3	0.7	2
Rattus sp.	Rats	1	0.2	1
Marmota monax	Groundhogs	1	0.2	1
Felidae	Cats	1	0.2	-
Felis catus	Domestic cats	1	0.2	1
Artiodactyla	Even-toed ungulates	6	1.5	-
Large		2	0.5	-
Medium		45	11.1	-
Bos taurus	Cattle	20	5.0	2
Caprinea	Sheep or goats	49	12.1	4
Sus scrofa	Pigs	56	13.9	3
Indeterminate		4	1.0	-
Total		**403**	**99.6**	

Early assemblage, Lewis site

Species (Scientific name)	Species (Common name)	NISP	%NISP	MNI
Mollusca	Molluscs	6	0.3	-
Bivalvia	Bivalves	6	0.3	-
Centrarchidae	Sunfishes	1	0.1	-
Anura	Frogs	3	0.2	-
Aves	Birds	53	3.0	-
Large		1	0.1	-
Medium		6	0.3	-
Anserinae	Swans and geese	2	0.1	-
Meleagris gallopavo	Turkeys	1	0.1	1
Gallus gallus	Chickens	16	0.9	3
Columbidae	Pigeons and doves	3	0.2	-
Columba livia	Rock pigeons	1	0.1	1
Mammalia	Mammals	876	50.0	-
Large		69	3.9	-
Medium		281	16.0	-
Small		19	1.1	-
Leporidae	Rabbits and hares	3	0.2	-
Muridae	Murids	1	0.1	-
Rattus sp.	Rats	5	0.3	2
Ondatra zibethicus	Muskrats	6	0.3	2
Marmota monax	Groundhogs	2	0.1	1
Carnivora	Carnivores	2	0.1	-
Mustelidae	Mustelids	1	0.1	-
Mephitis mephitis	Skunks	27	1.5	2
Procyon lotor	Racoons	1	0.1	1
Felis catus	Domestic cats	27	1.5	1
Artiodactyla	Even-toed ungulates	12	0.7	-
Large		1	0.1	-
Medium		14	0.8	-
Bovidae	Bovids	5	0.3	-
Bos taurus	Cattle	31	1.8	2
Caprinae	Sheep or goats	15	0.9	2
Sus scrofa	Pigs	235	13.4	8
Indeterminate		19	1.1	-
Total		**1751**	**100.1**	

Late assemblage, Lewis site

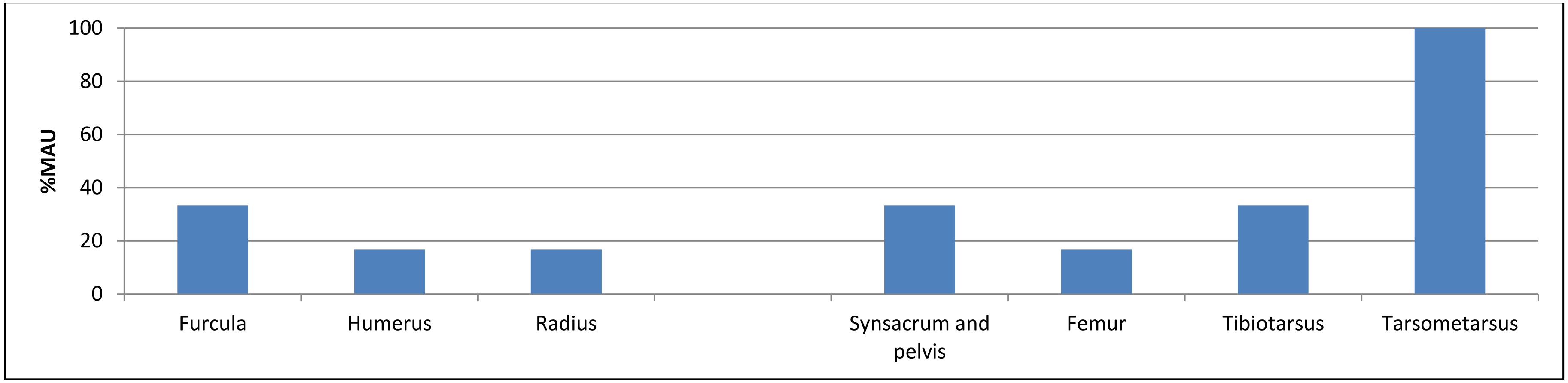
Species (scientific name)	Species (common name)	NISP	%NISP	MNI
Mollusca	Molluscs	3	0.2	-
Bivalvia	Bivalves	2	0.1	-
Gastropoda	Gastropods	1	0.1	-
Actinopterygii	Ray-finned fishes	2	0.1	-
Melanogrammus aeglefinus	Haddock	2	0.1	-
Salmonidae	Salmon	1	0.1	-
Sander sp.	Walleye or saugers	1	0.1	1
Anura	Frogs	1	0.1	-
Aves	Birds	99	6.9	-
Large		2	0.1	-
Medium		14	1.0	-
Anserinae	Swans and geese	3	0.2	-
Anser anser	Greylag geese	1	0.1	1
Phasianidae	Pheasants, turkeys and chickens	10	0.7	-
Meleagris gallopavo	Turkeys	10	0.7	2
Gallus gallus	Chickens	23	1.6	3
Columba livia	Rock pigeons	1	0.1	1
Ectopistes migratorius	Passenger pigeons	1	0.1	1
Mammalia	Mammals	537	37.4	-
Large		150	10.5	-
Medium		265	18.5	-
Small		2	0.1	-
Leporidae	Rabbits and hares	5	0.3	-
Ondatra zibethicus	Muskrats	33	2.3	3
Procyon lotor	Racoons	2	0.1	-
Artiodactyla	Even-toed ungulates	12	0.8	-
Large		1	0.1	-
Medium		11	0.8	-
Bos taurus	Cattle	73	5.1	-
Caprinae	Sheep or goats	25	1.7	-
Sus scrofa	Pigs	128	8.9	-
Indeterminate		12	0.8	-
Total		**1433**	**100.0**	

APPENDIX C –

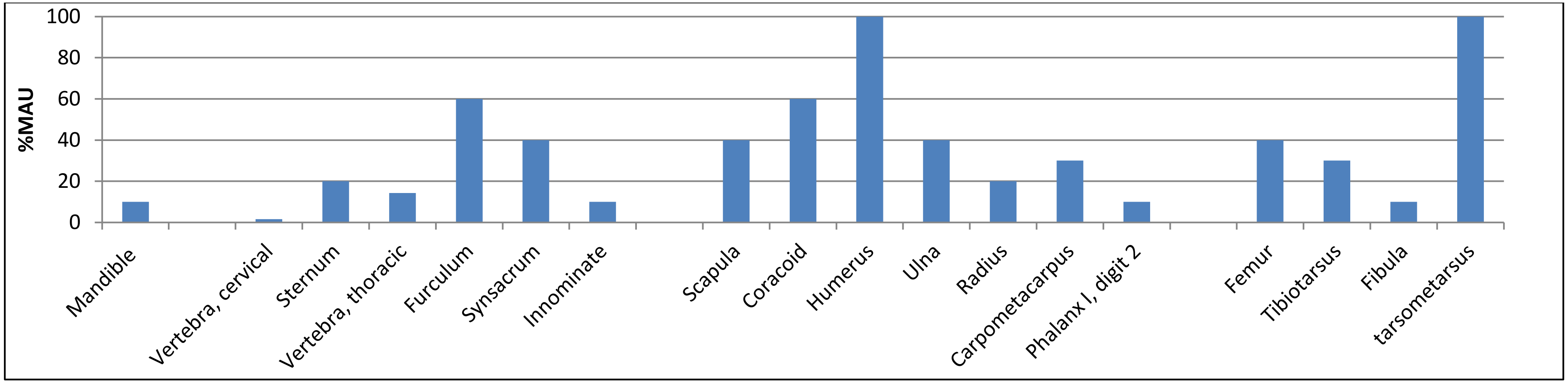
BODY PORTION REPRESENTATION

Chickens

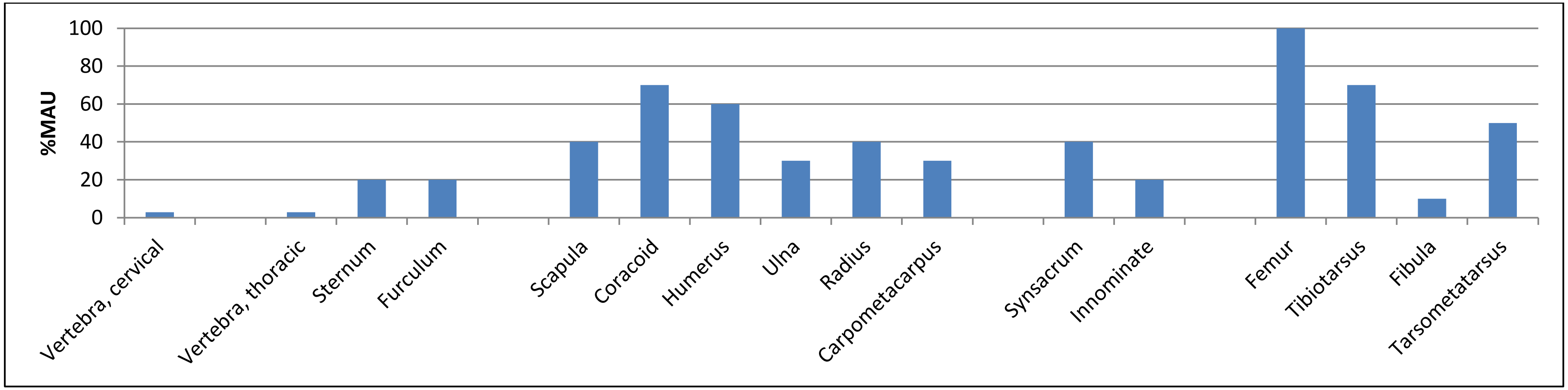
Feature 38, 327-333 Queen Street West



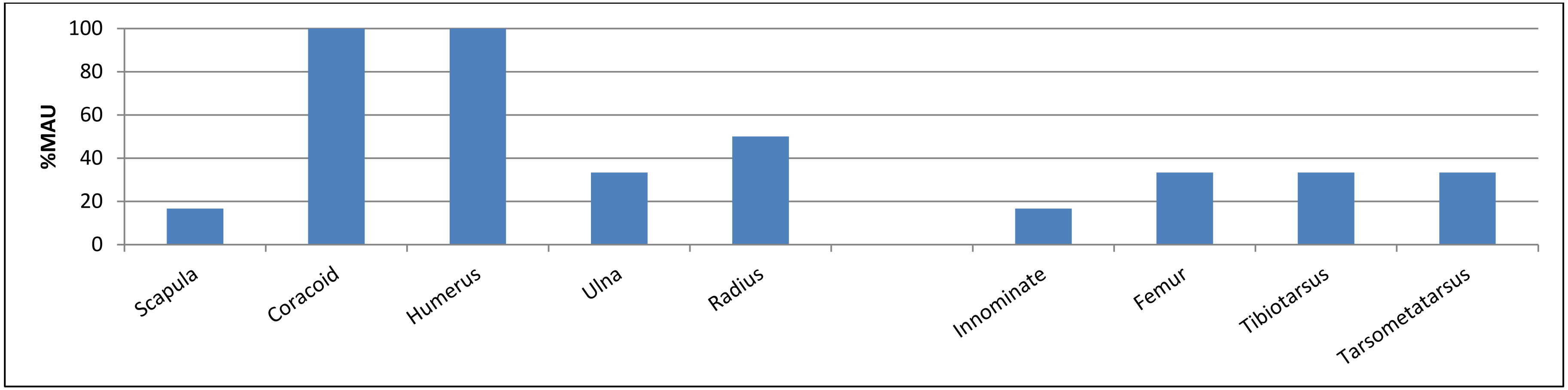
House 3, Bishop's Block



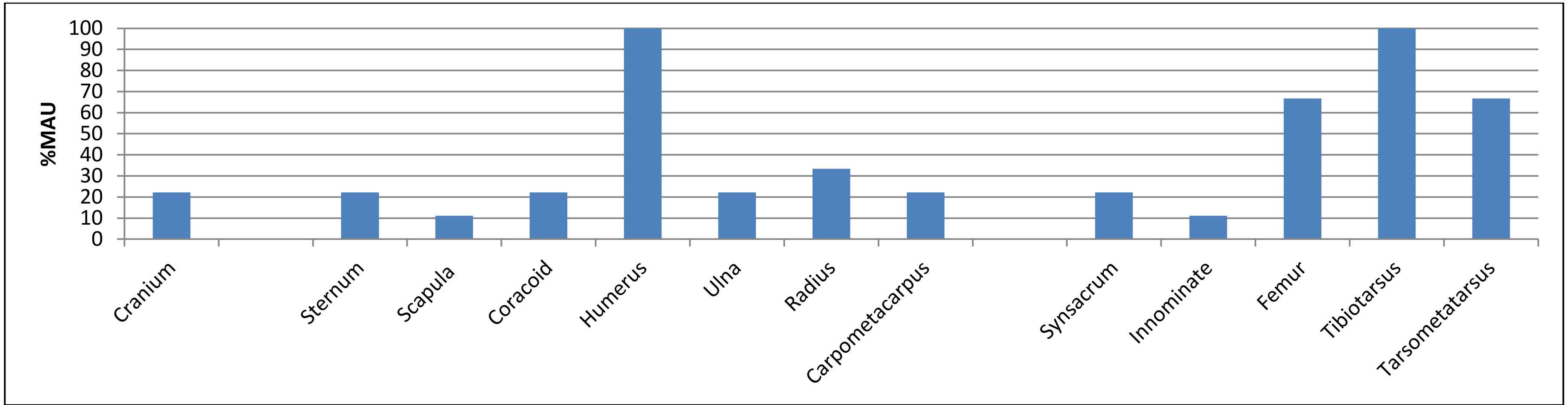
House 4, Bishop's Block



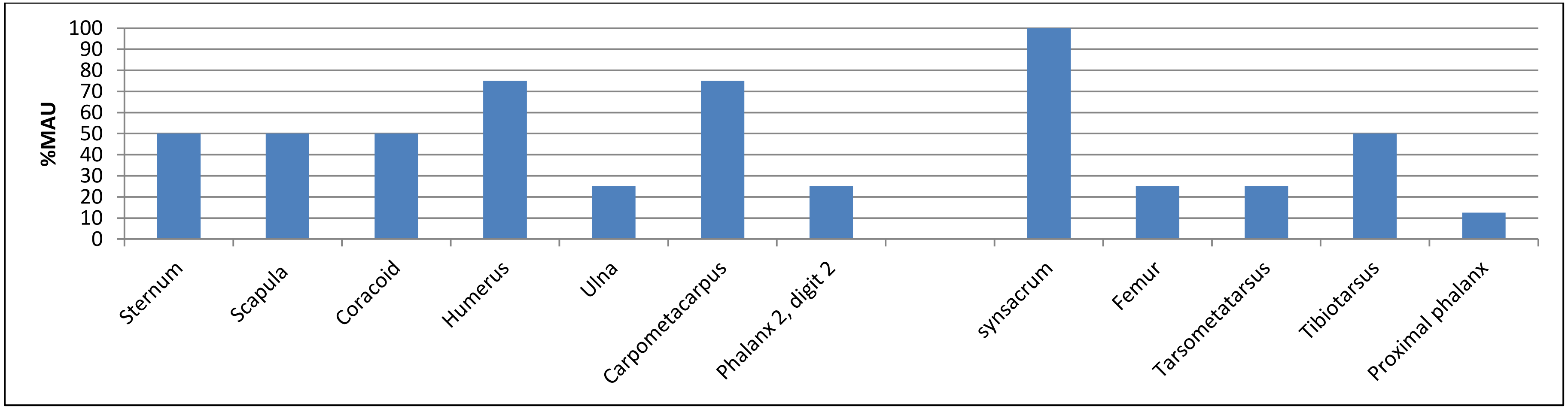
House 5, Bishop's Block



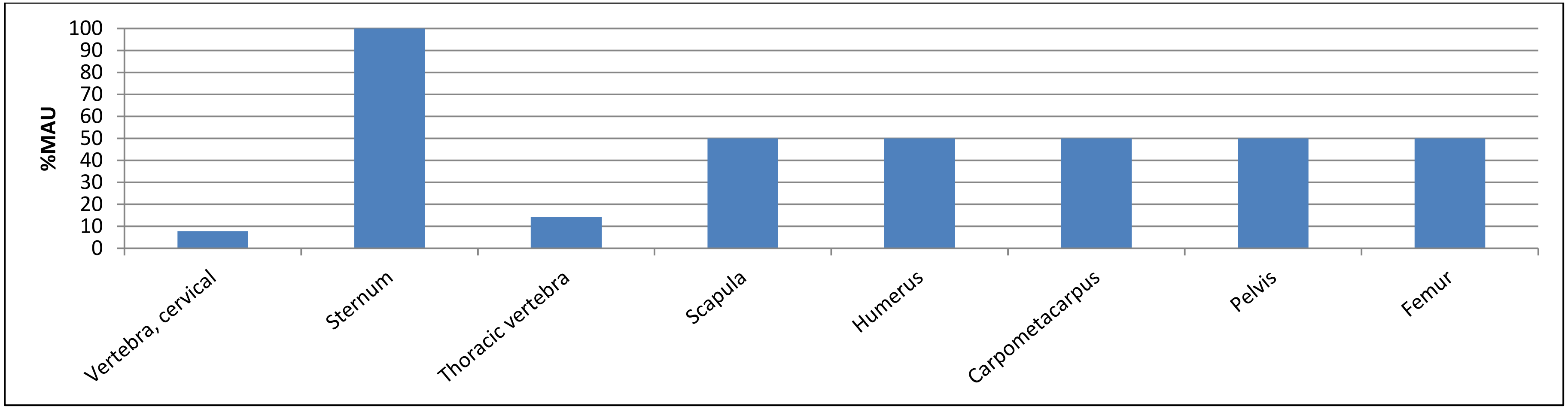
House 6, Bishop's Block



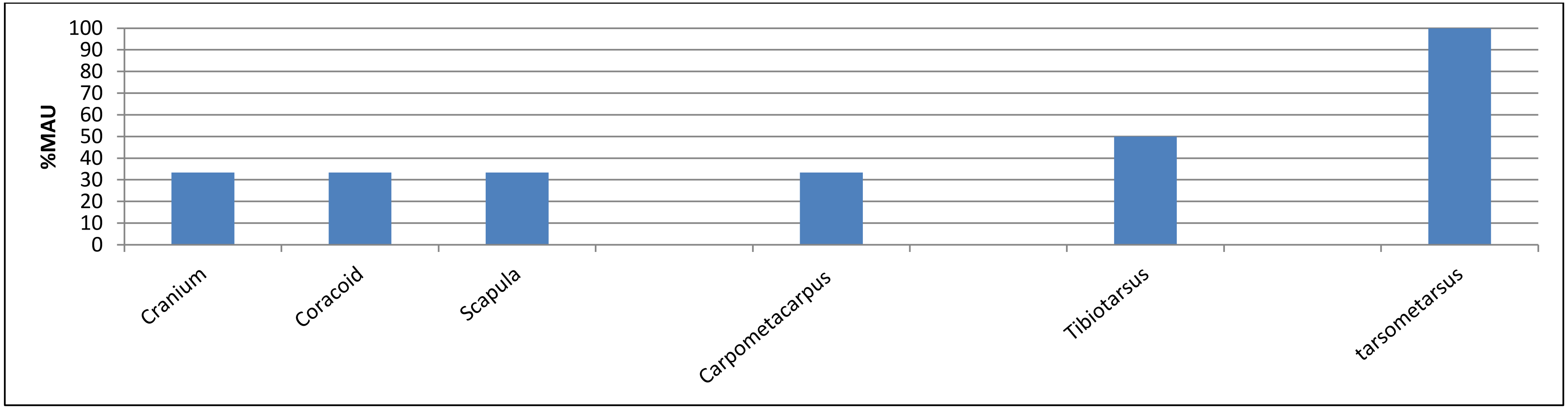
House 1, Dollery



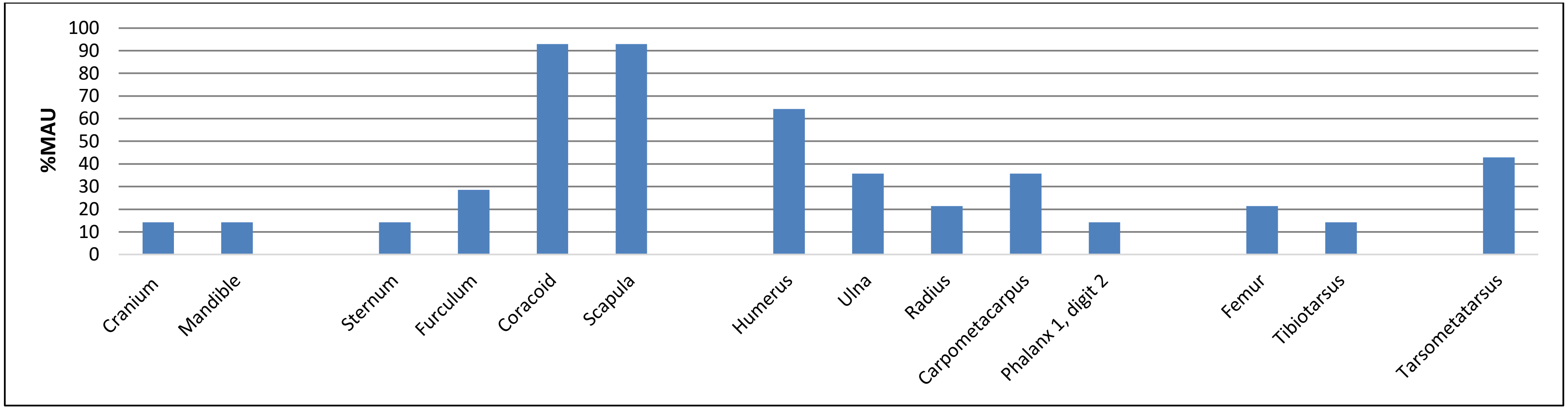
House 2, Dollery



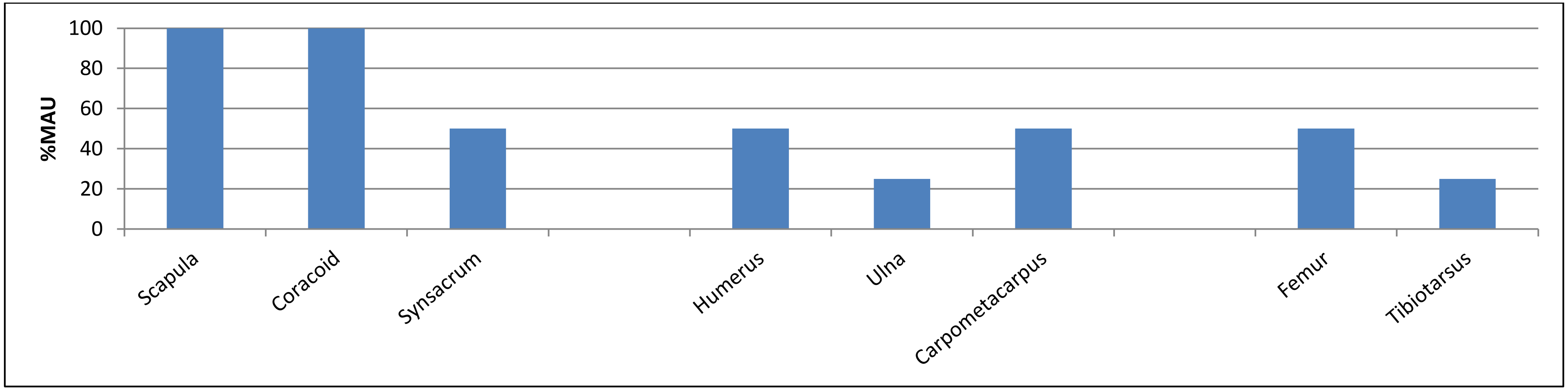
Ashbridge I/II, Ashbridge Estate



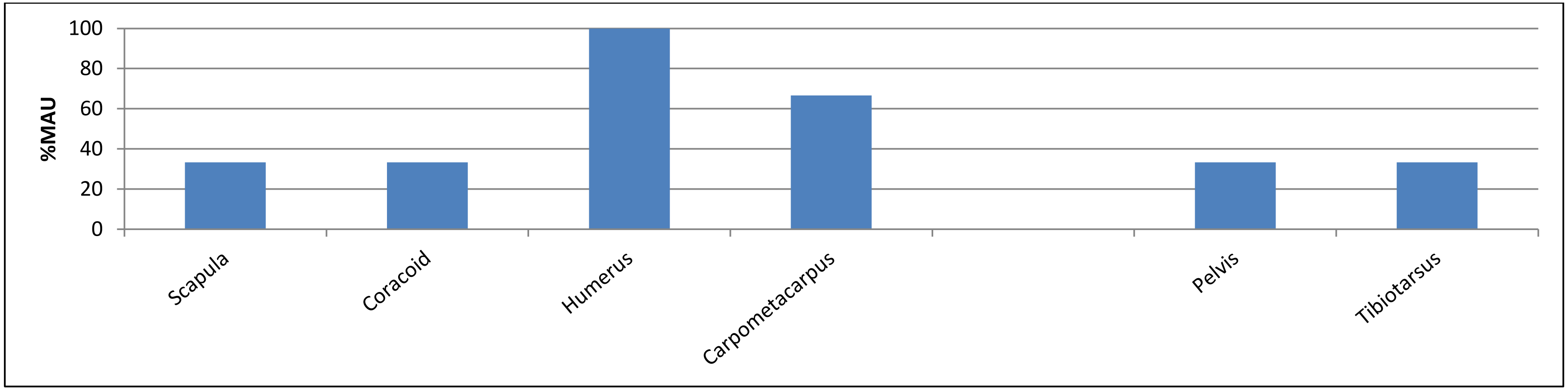
Ashbridge IV/V, Ashbridge Estate



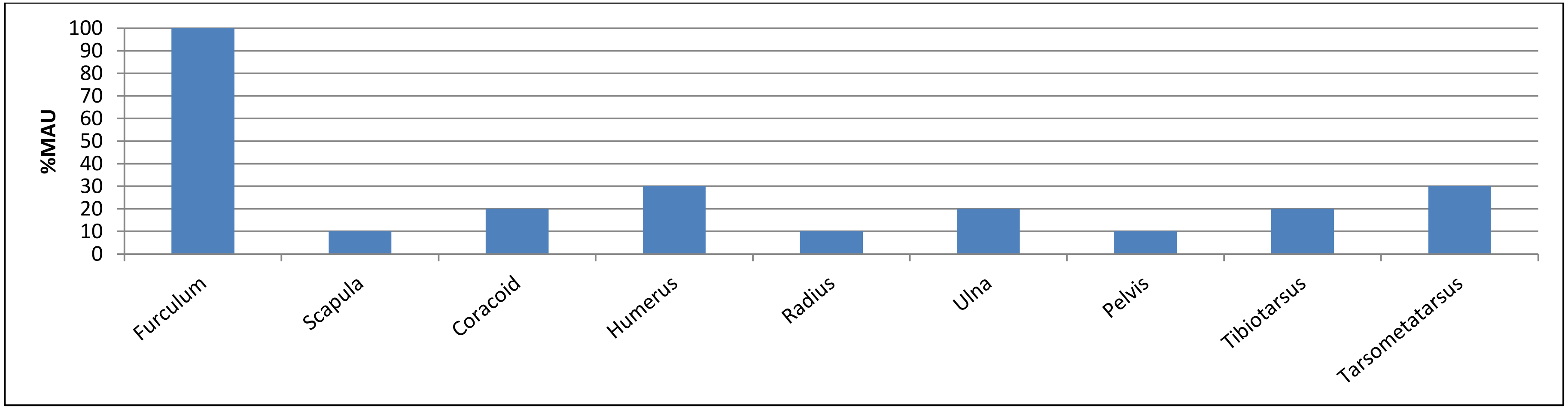
Graham site



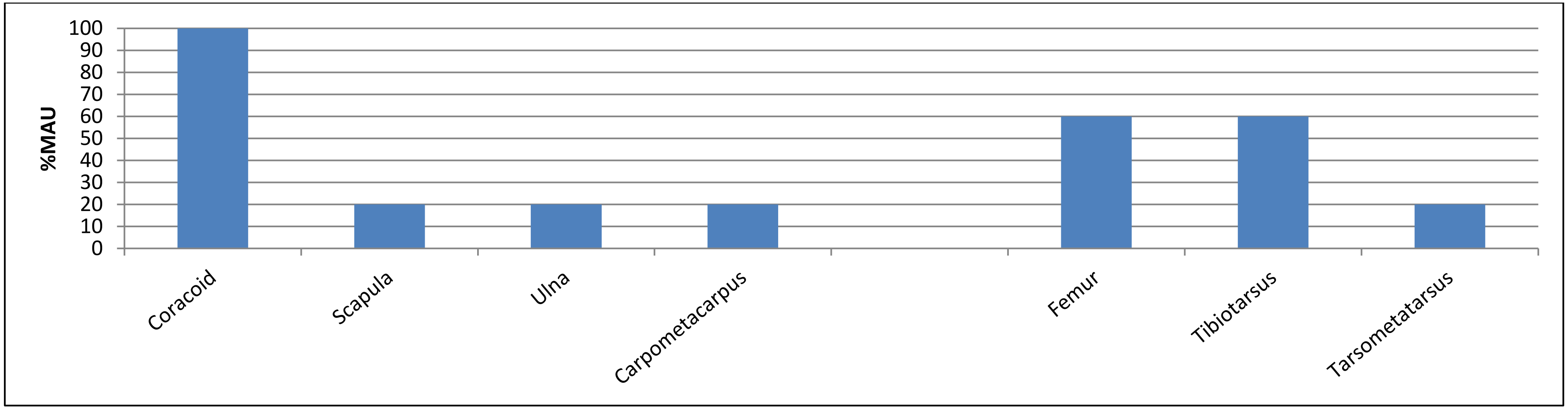
Hall site



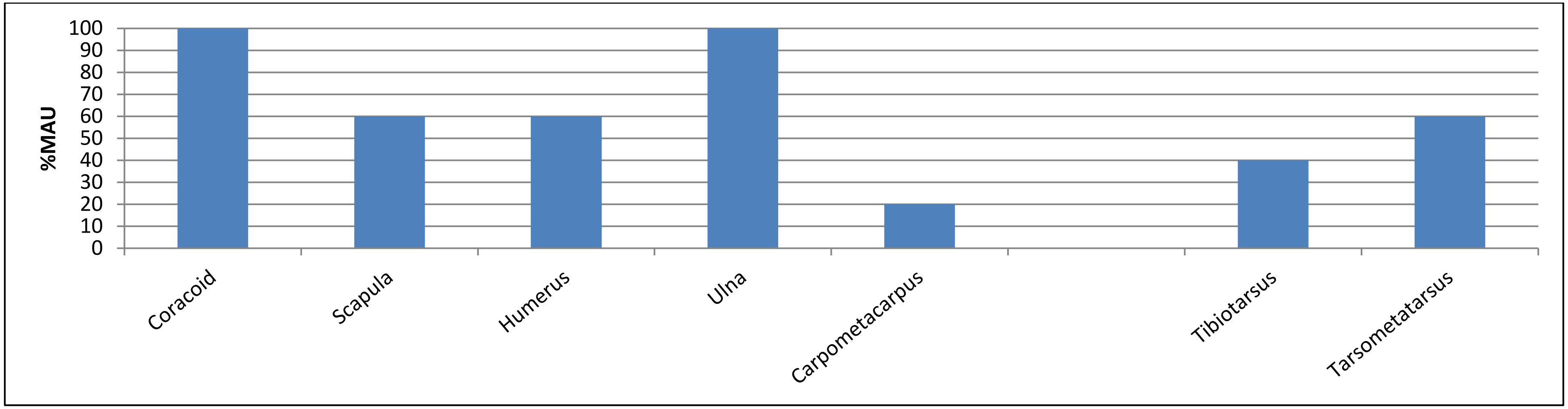
John Beaton II site



Early assemblage, Lewis site

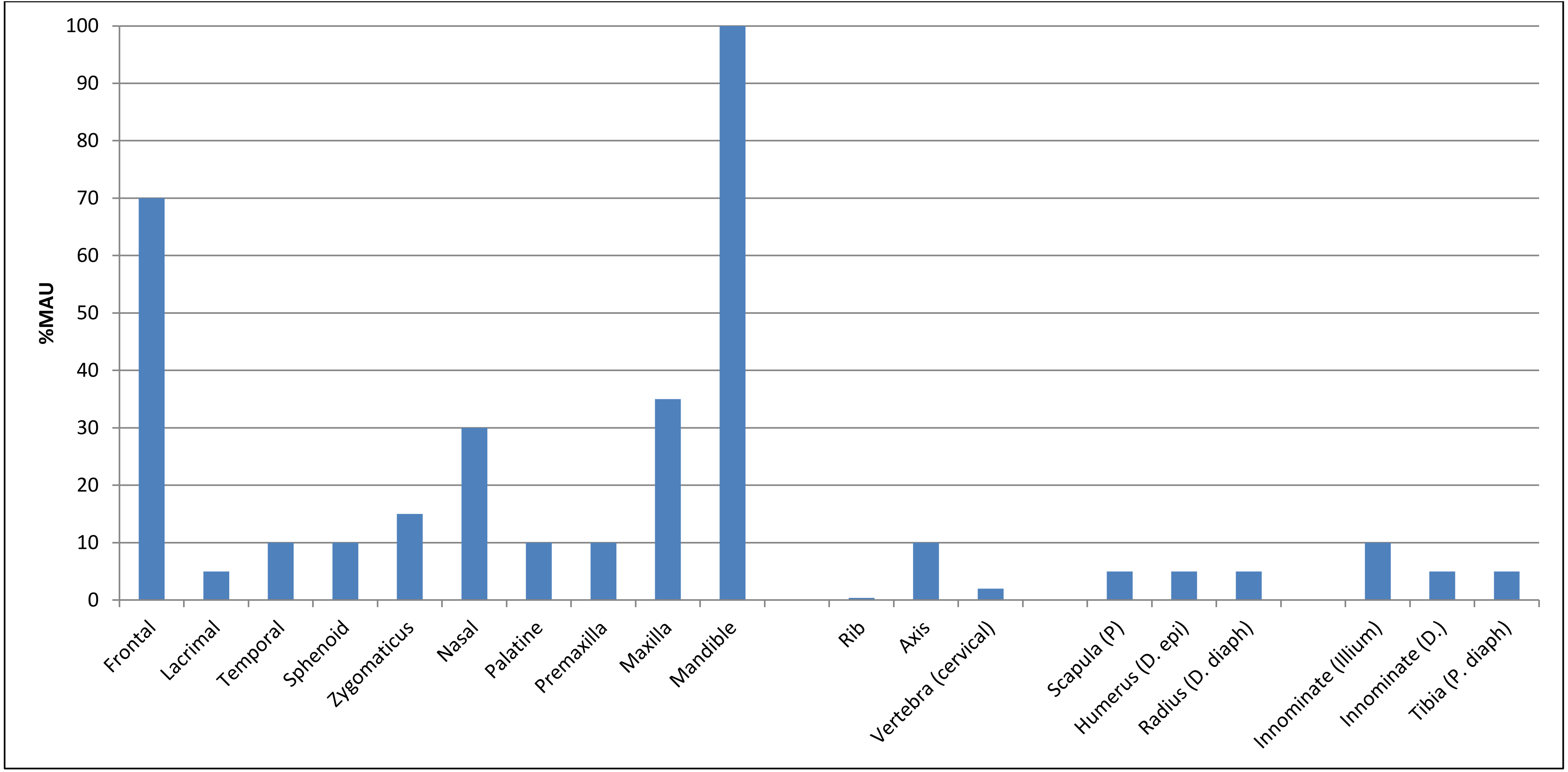


Late assemblage, Lewis site

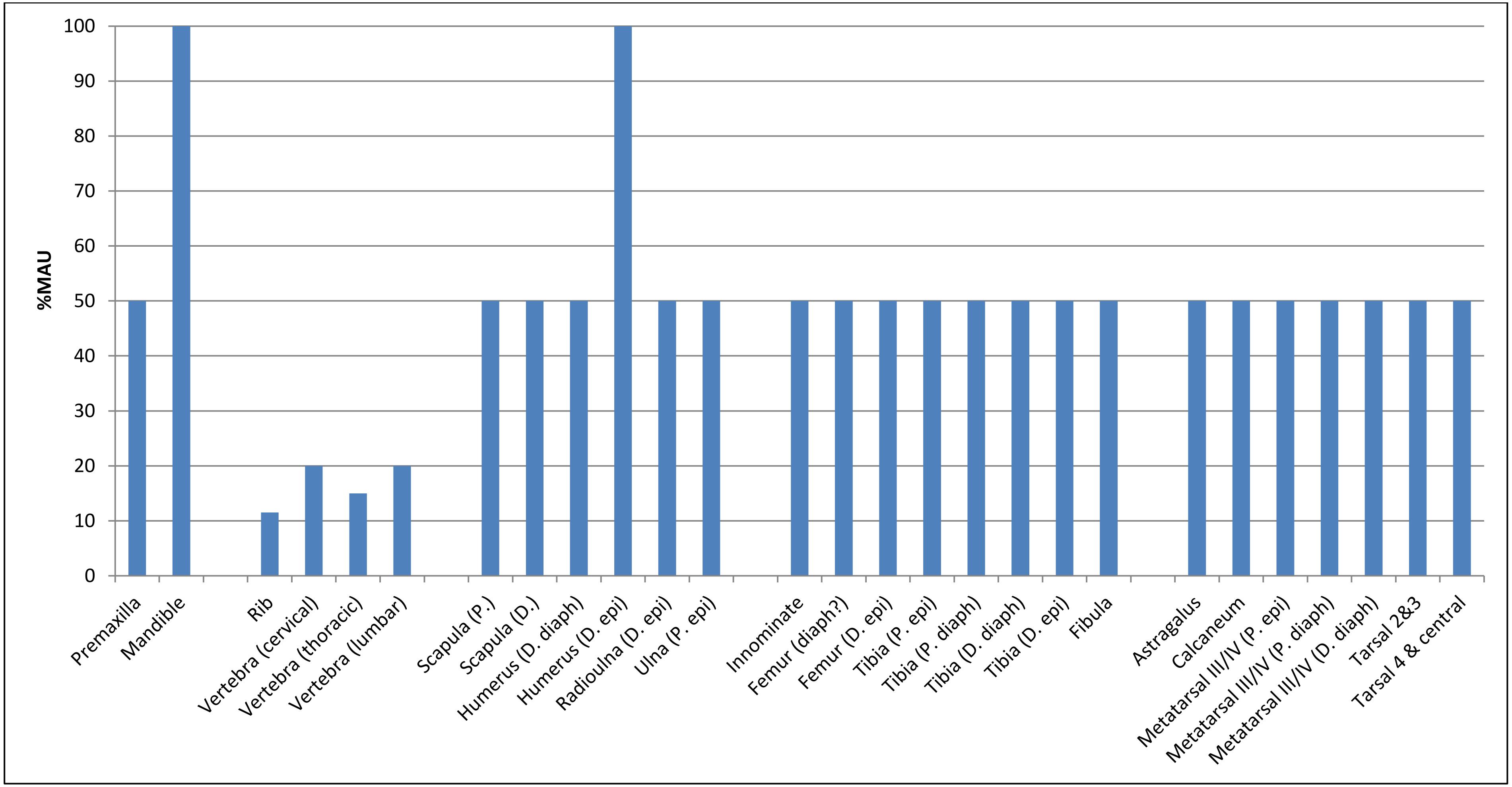


Cattle

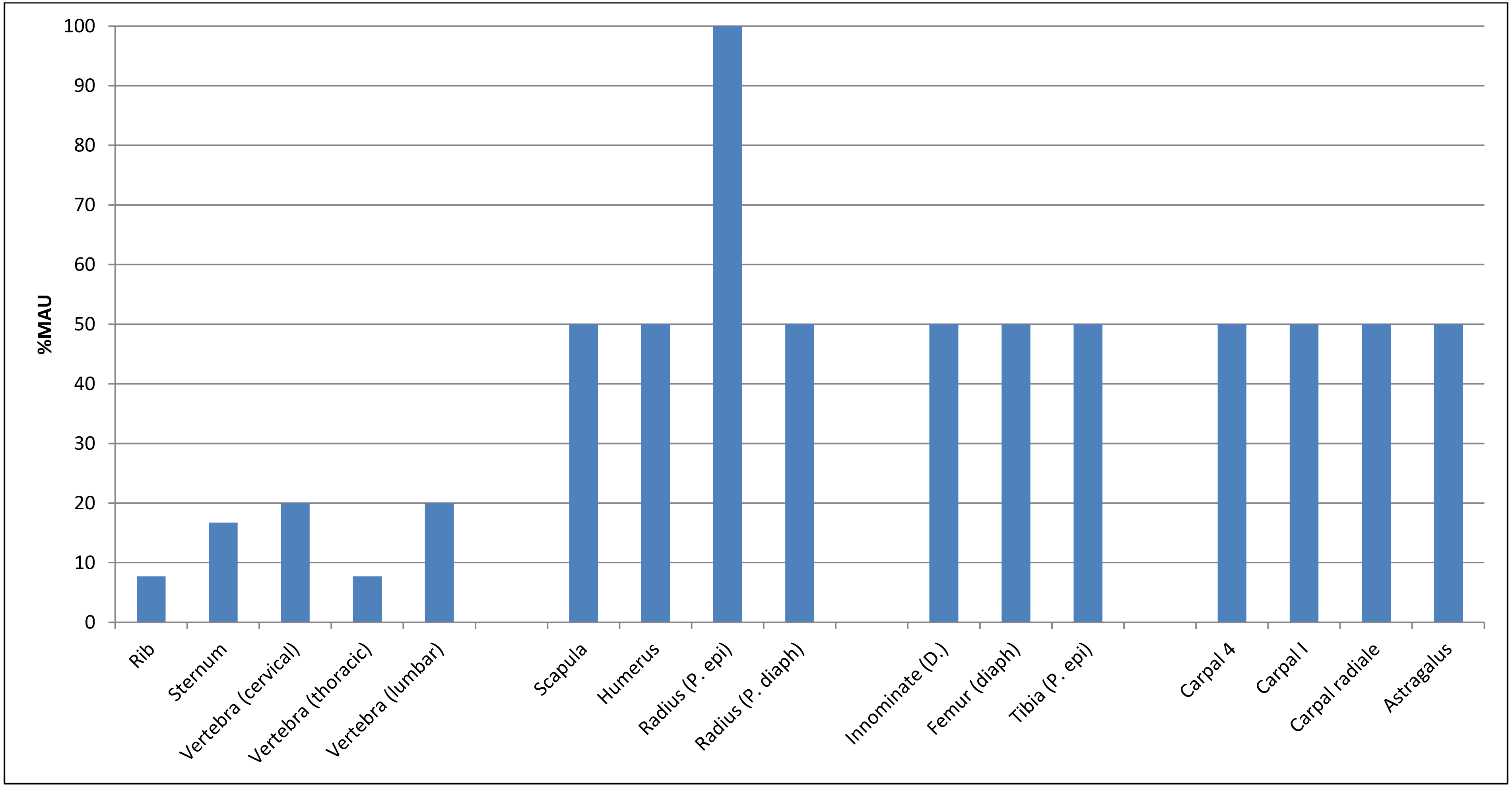
Feature 36, 327-333 Queen Street West



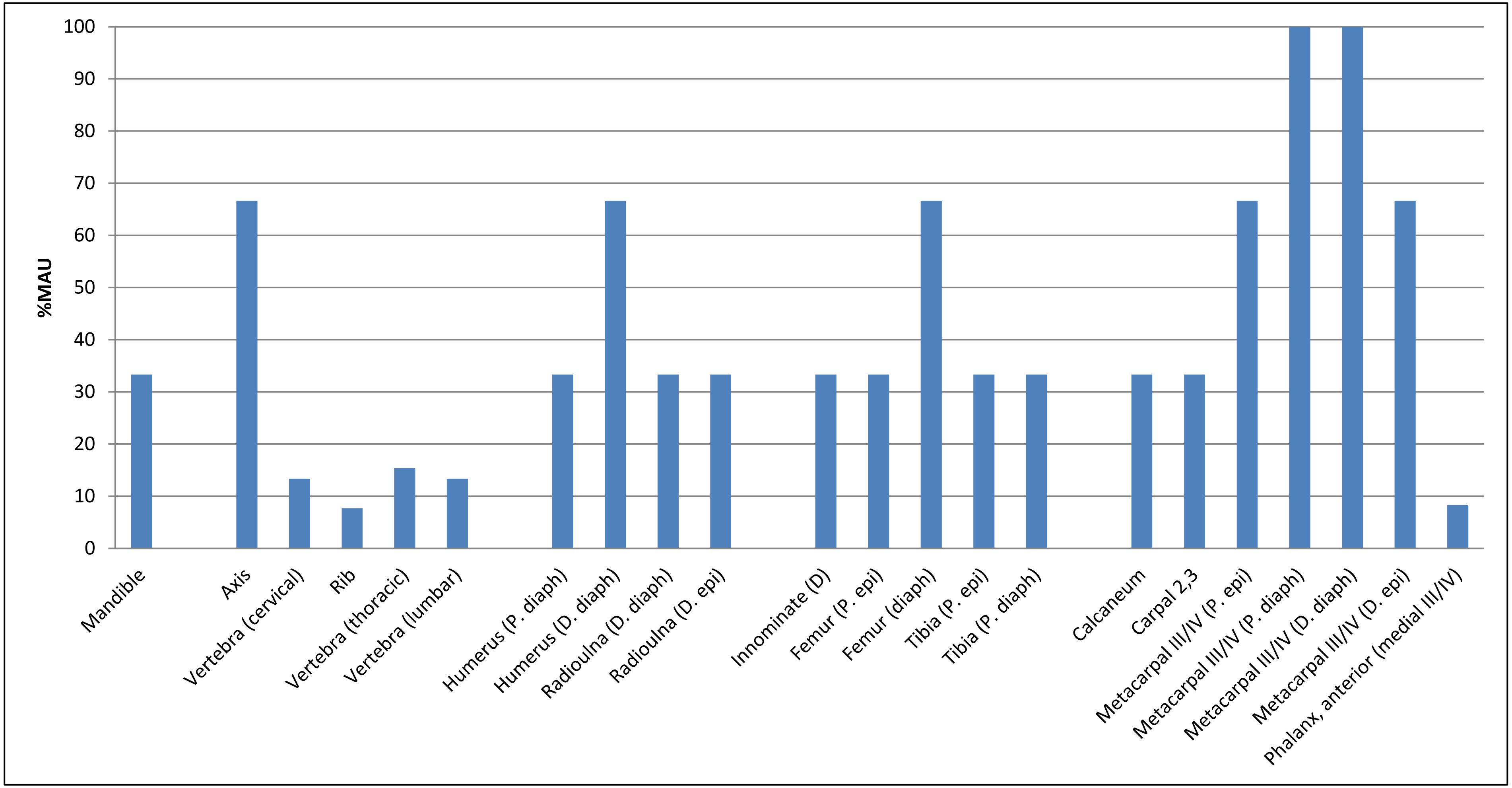
Feature 38, 327-333 Queen Street West



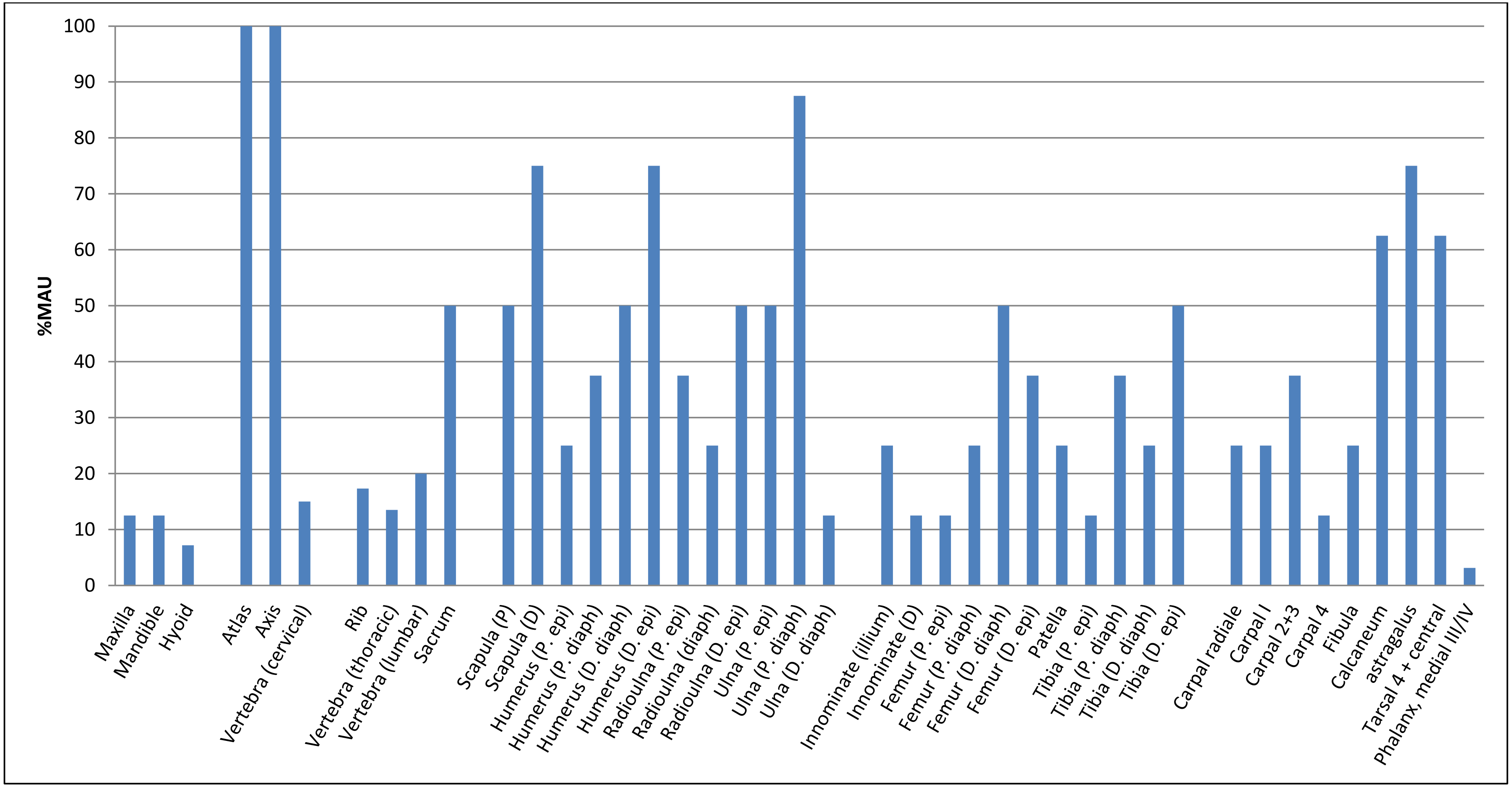
Feature 46, 327-333 Queen Street West



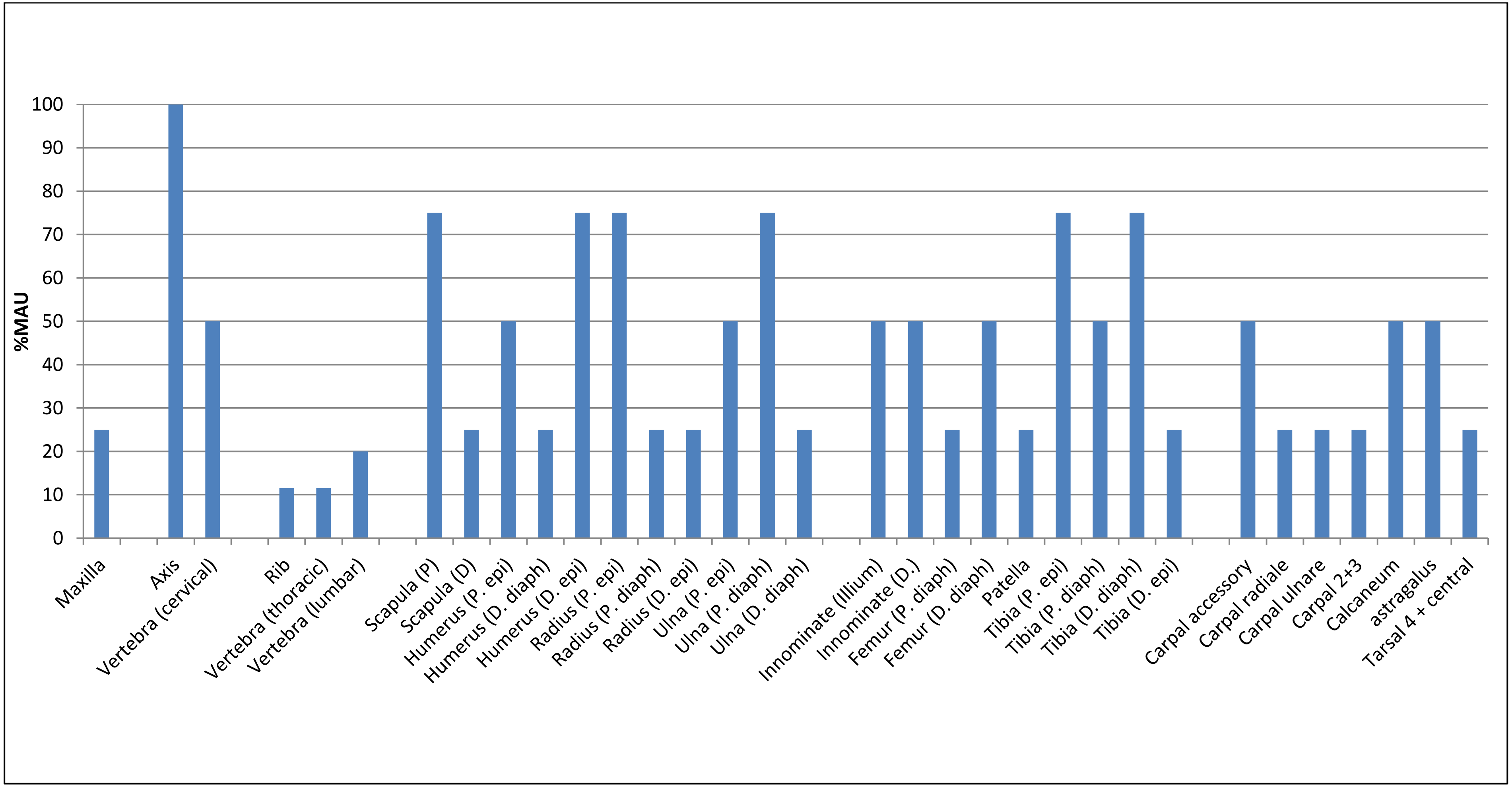
Bell site


100
90
80
70
60
50
40
30
20
10
0
%MAU
Mandible
Axis
Vertebra (cervical)
Rib
Vertebra (thoracic)
Vertebra (lumbar)
Humerus (P. diaph)
Humerus (D. diaph)
Radioulna (D. diaph)
Radioulna (D. epi)
Innominate (D)
Femur (P. epi)
Femur (diaph)
Tibia (P. epi)
Tibia (P. diaph)
Calcaneum
Carpal 2,3
Metacarpal III/IV (P. epi)
Metacarpal III/IV (P. diaph)
Metacarpal III/IV (D. diaph)
Metacarpal III/IV (D. epi)
Phalanx, anterior (medial III/IV)

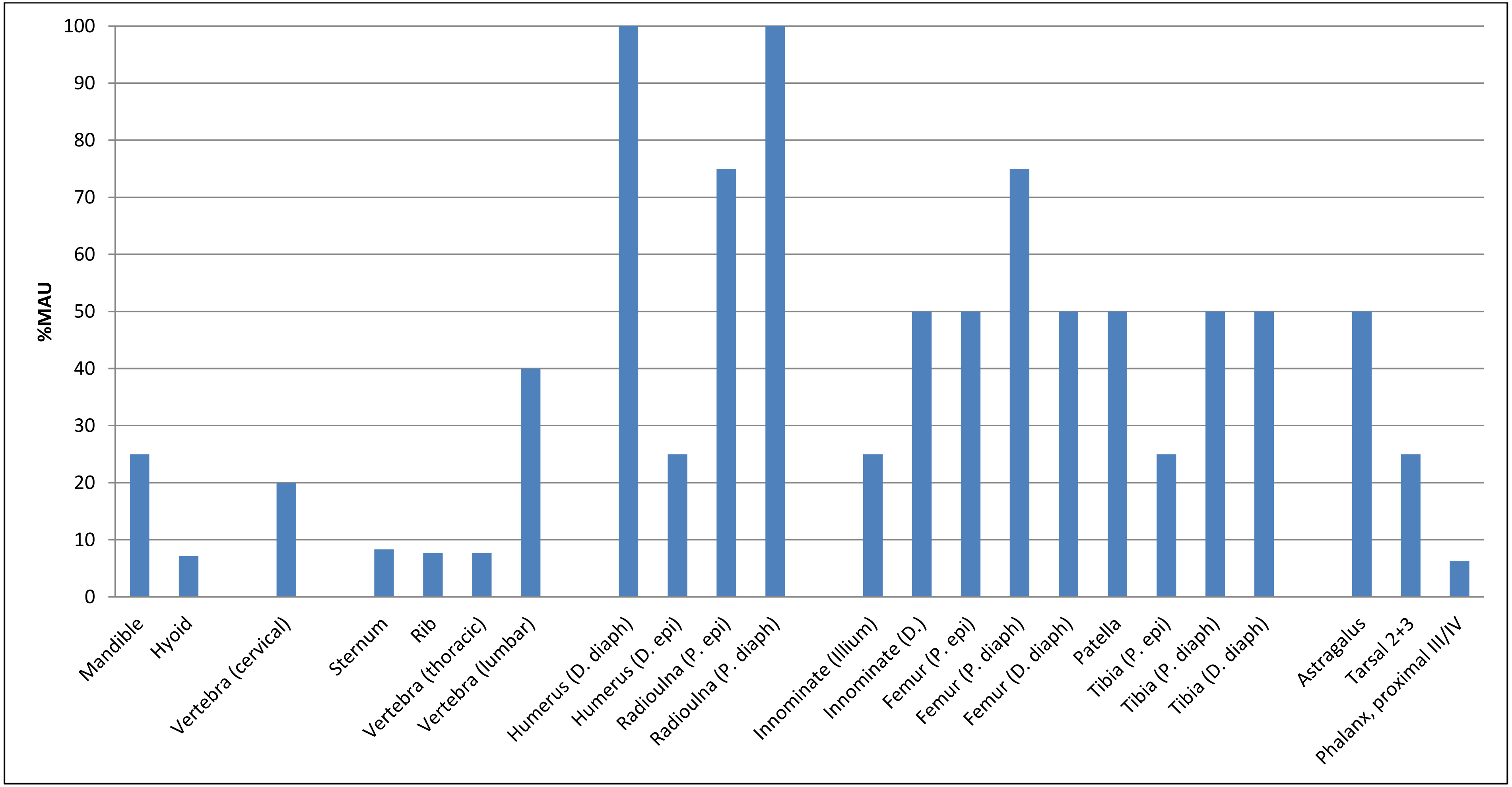
House 3, Bishop's Block



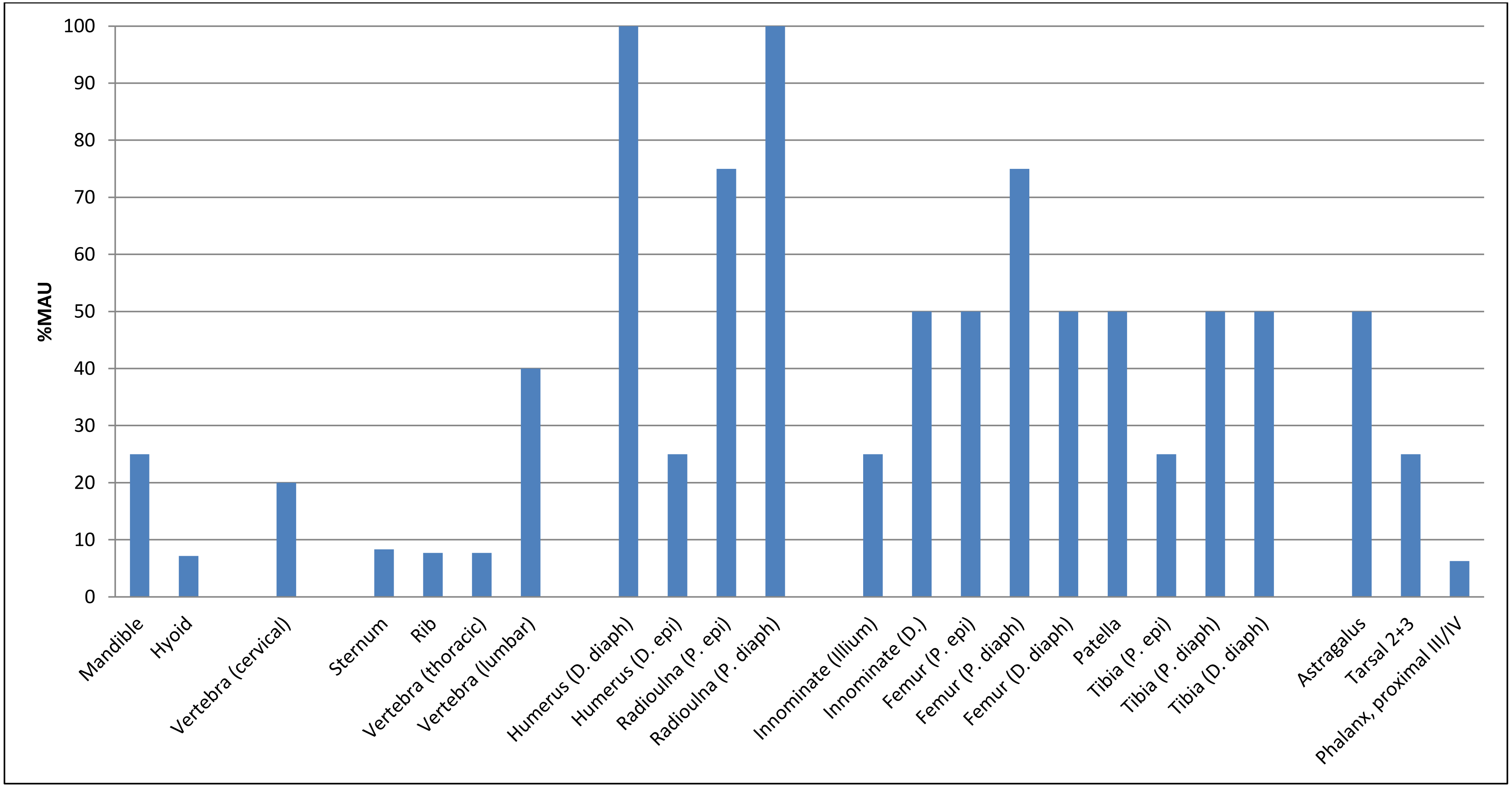
House 4, Bishop's Block



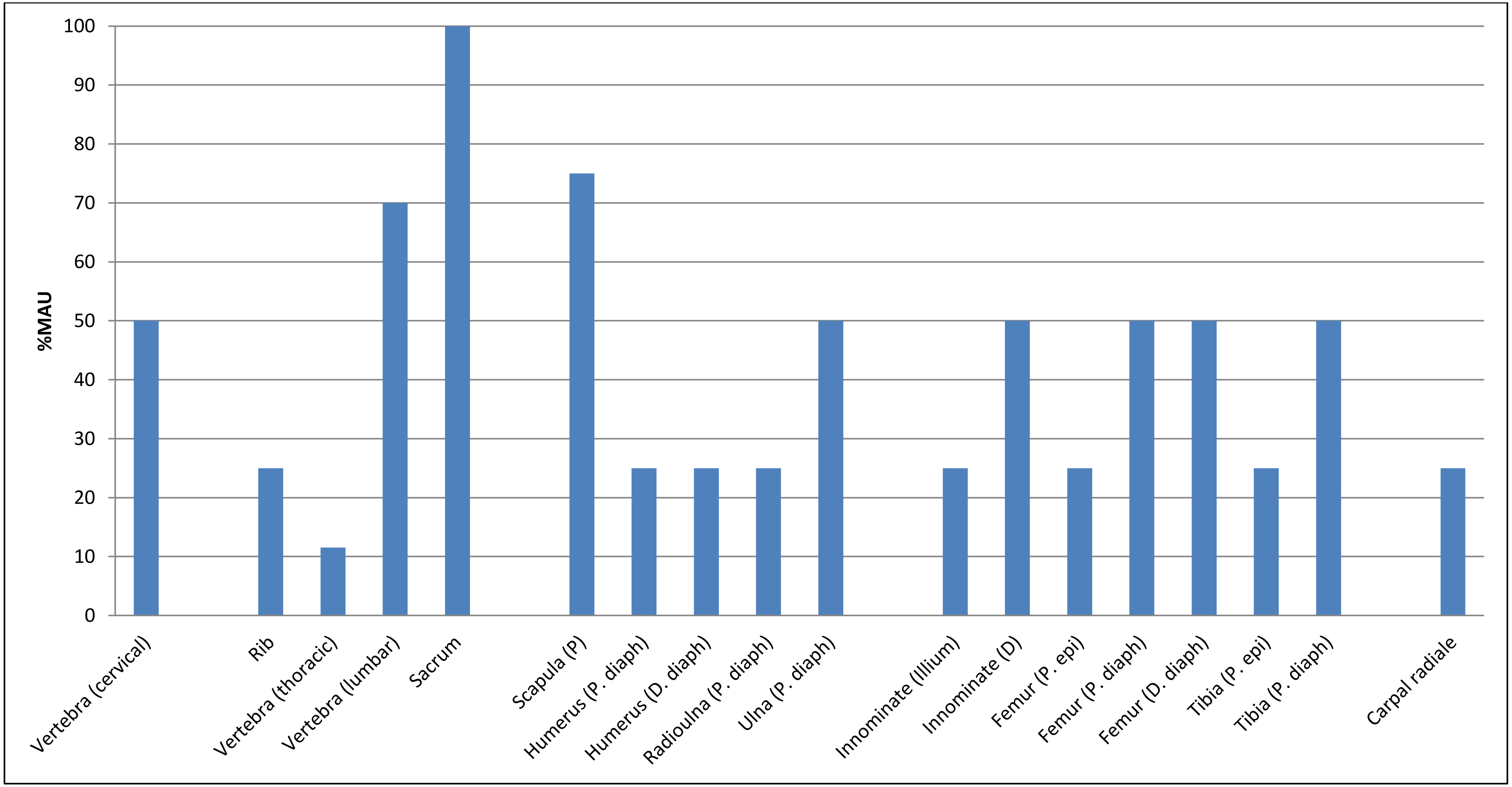
House 5, Bishop’s Block



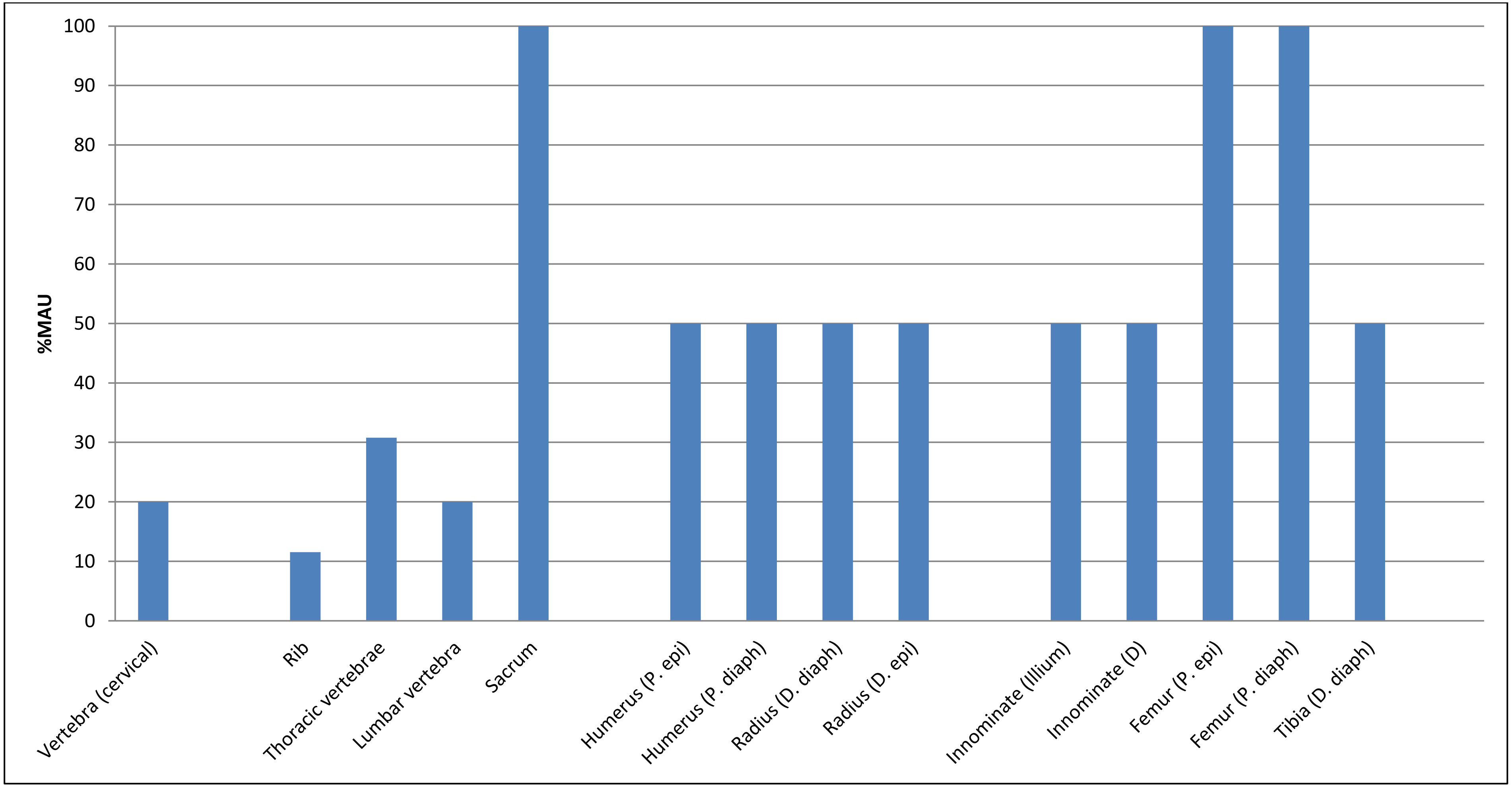
House 6, Bishop's Block



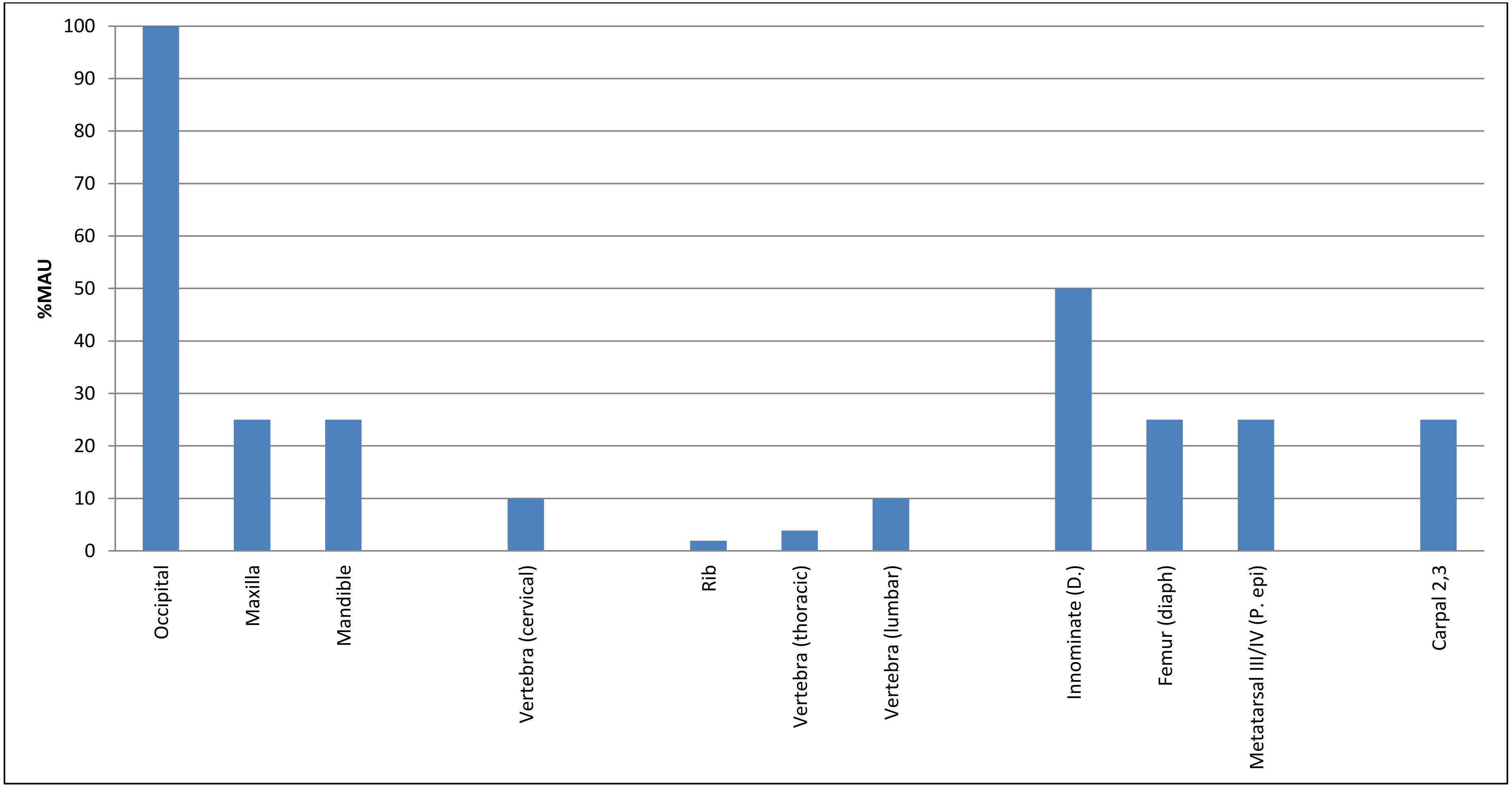
House 1, Dollery site



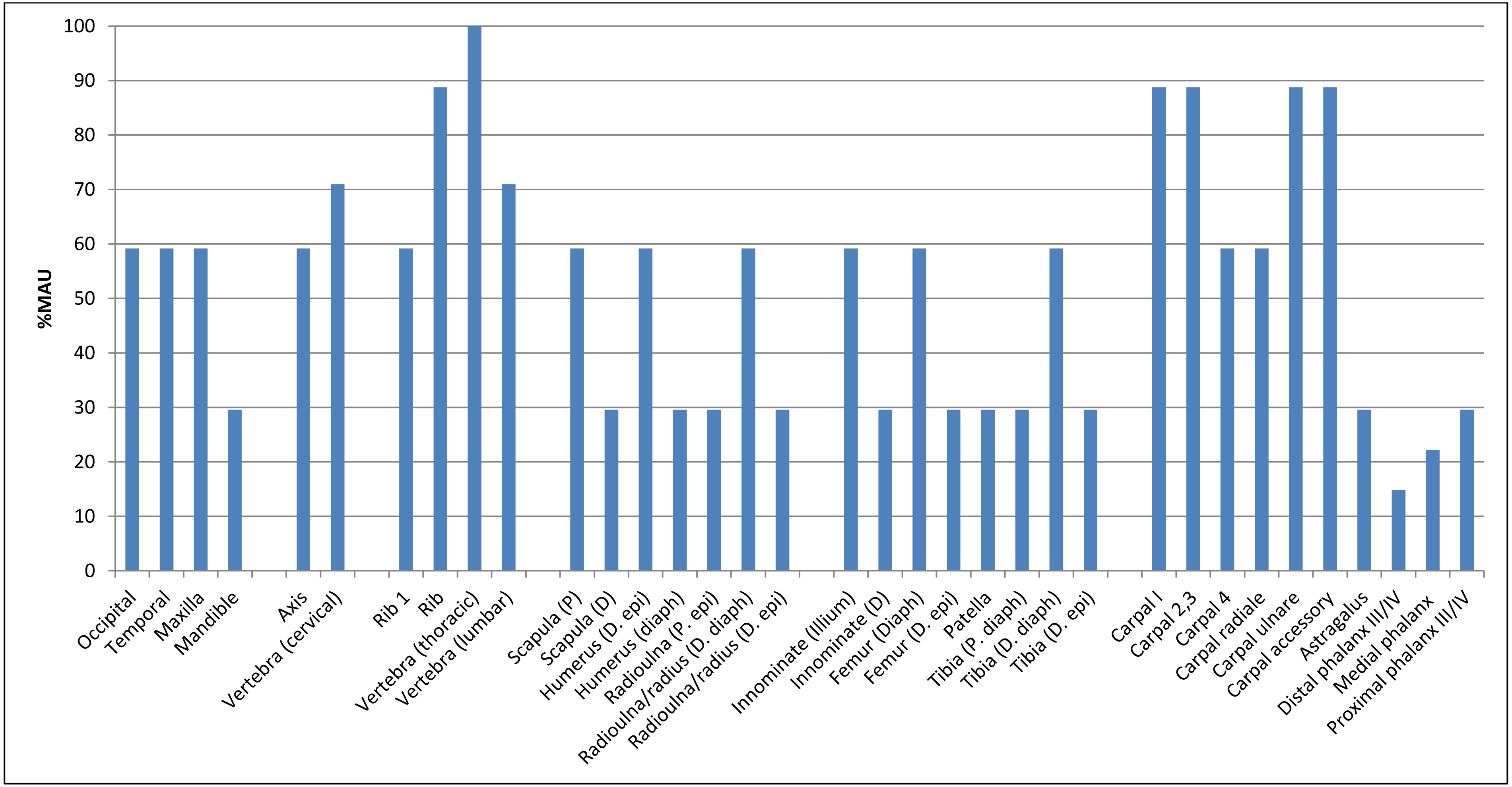
House 2, Dollery site



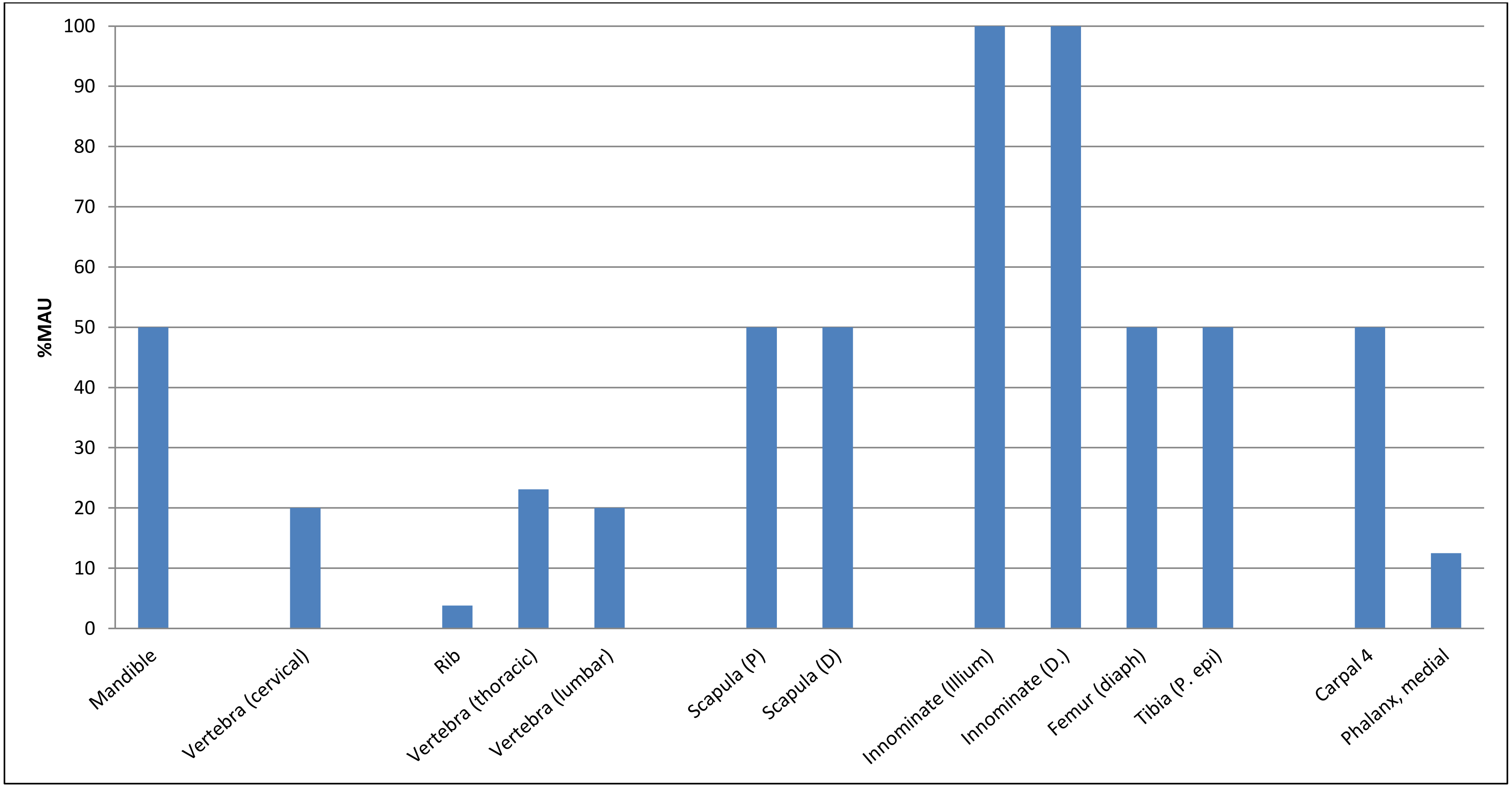
Ashbridge I/II, Ashbridge Estate



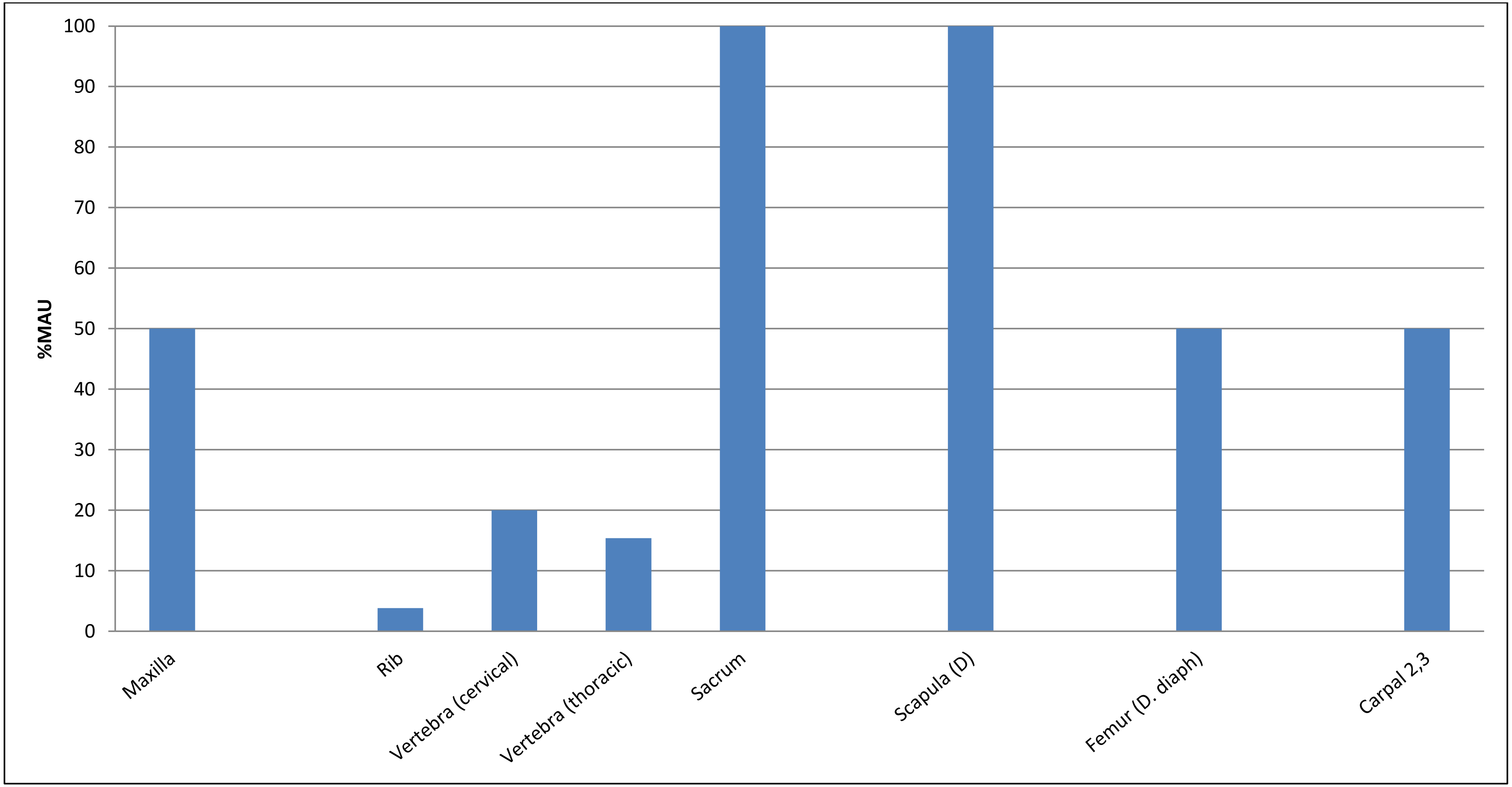
Ashbridge IV/V, Ashbridge Estate



Bullen/OHT, Ashbridge Estate



Graham site



%MAU
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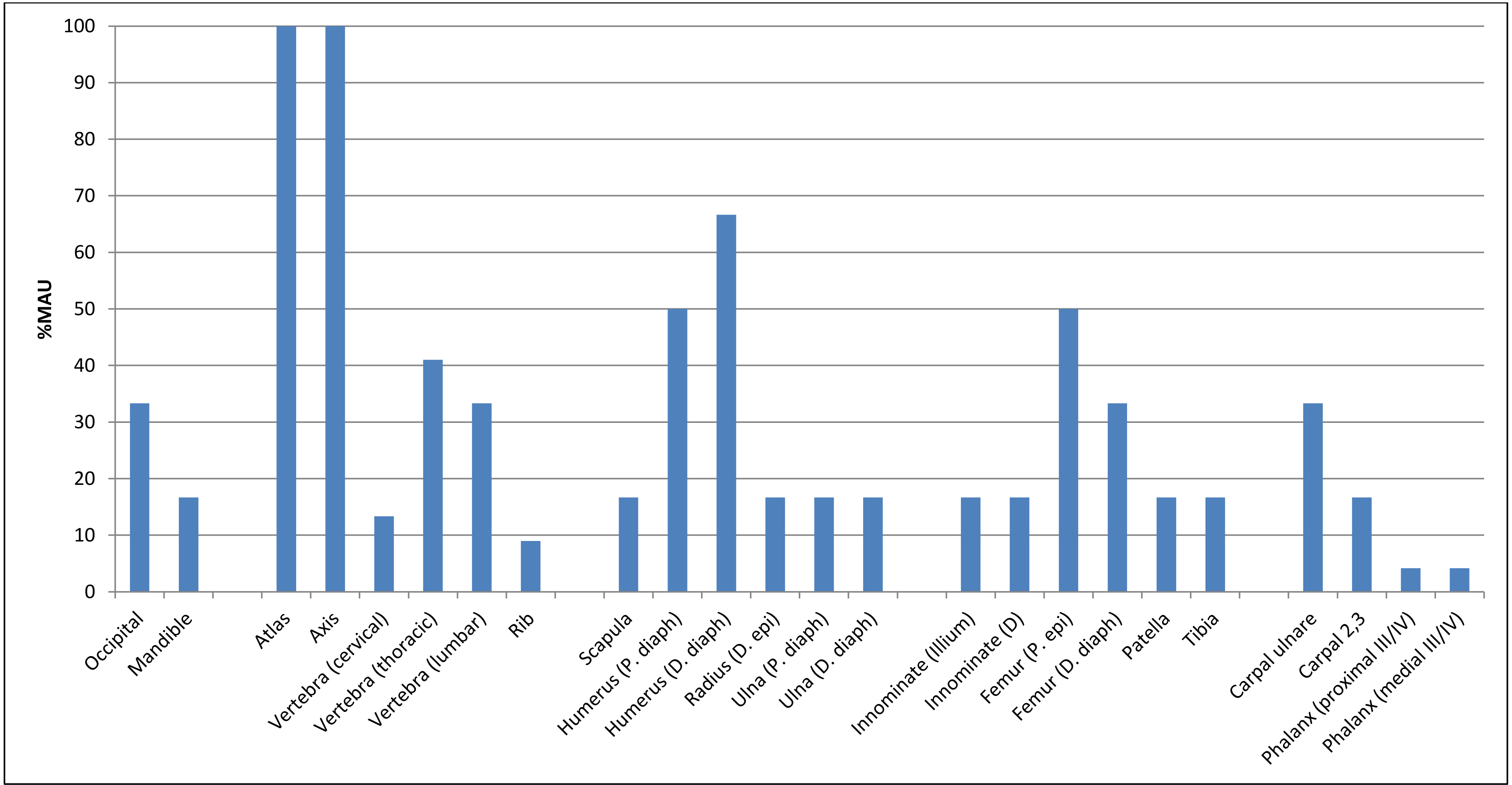
20
10
0
Maxilla
Rib
Vertebra (cervical)
Vertebra (thoracic)
Sacrum
Scapula (D)
Femur (D. diaph)
Carpal 2,3

Hall site


%MAU
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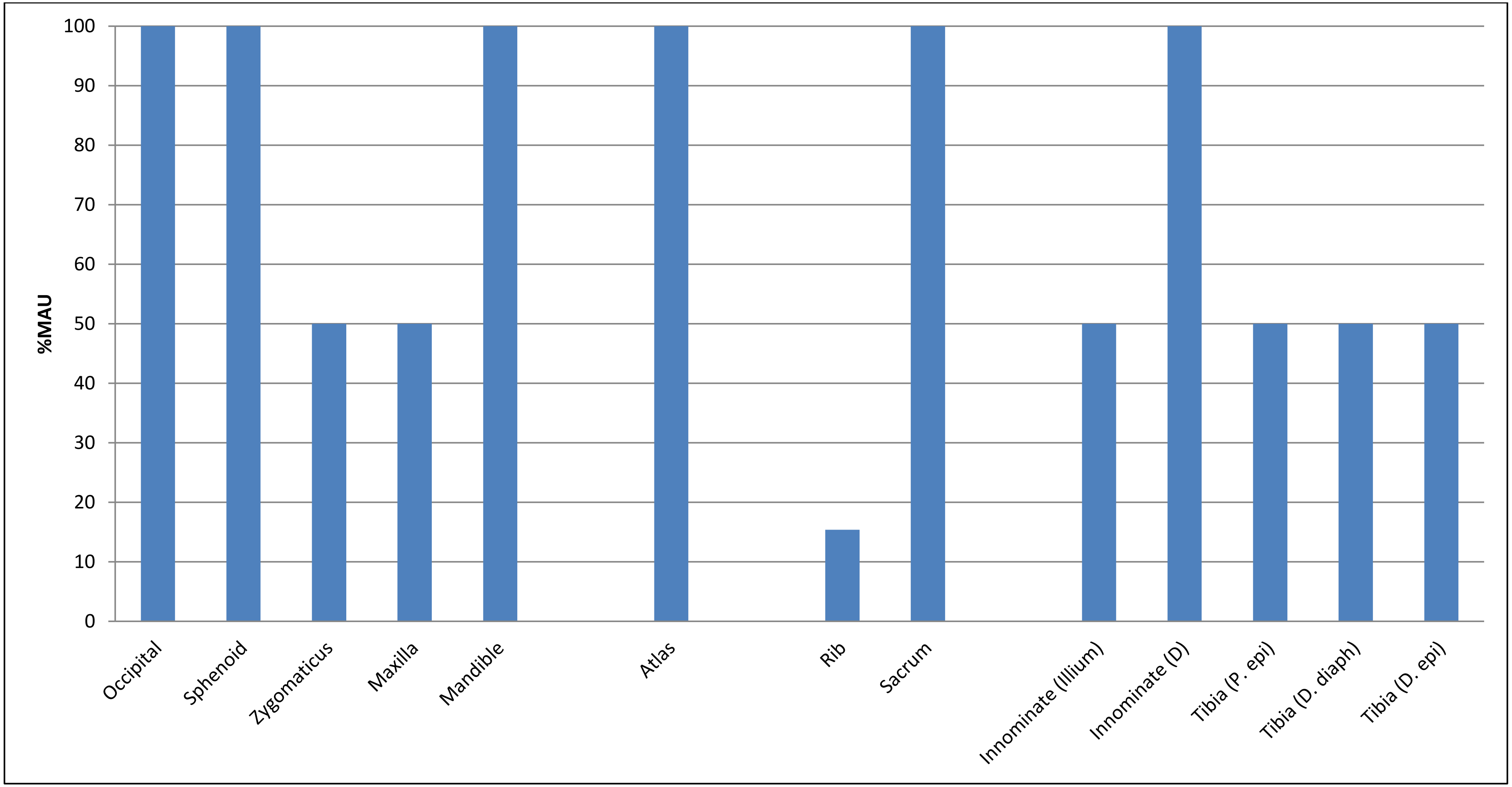
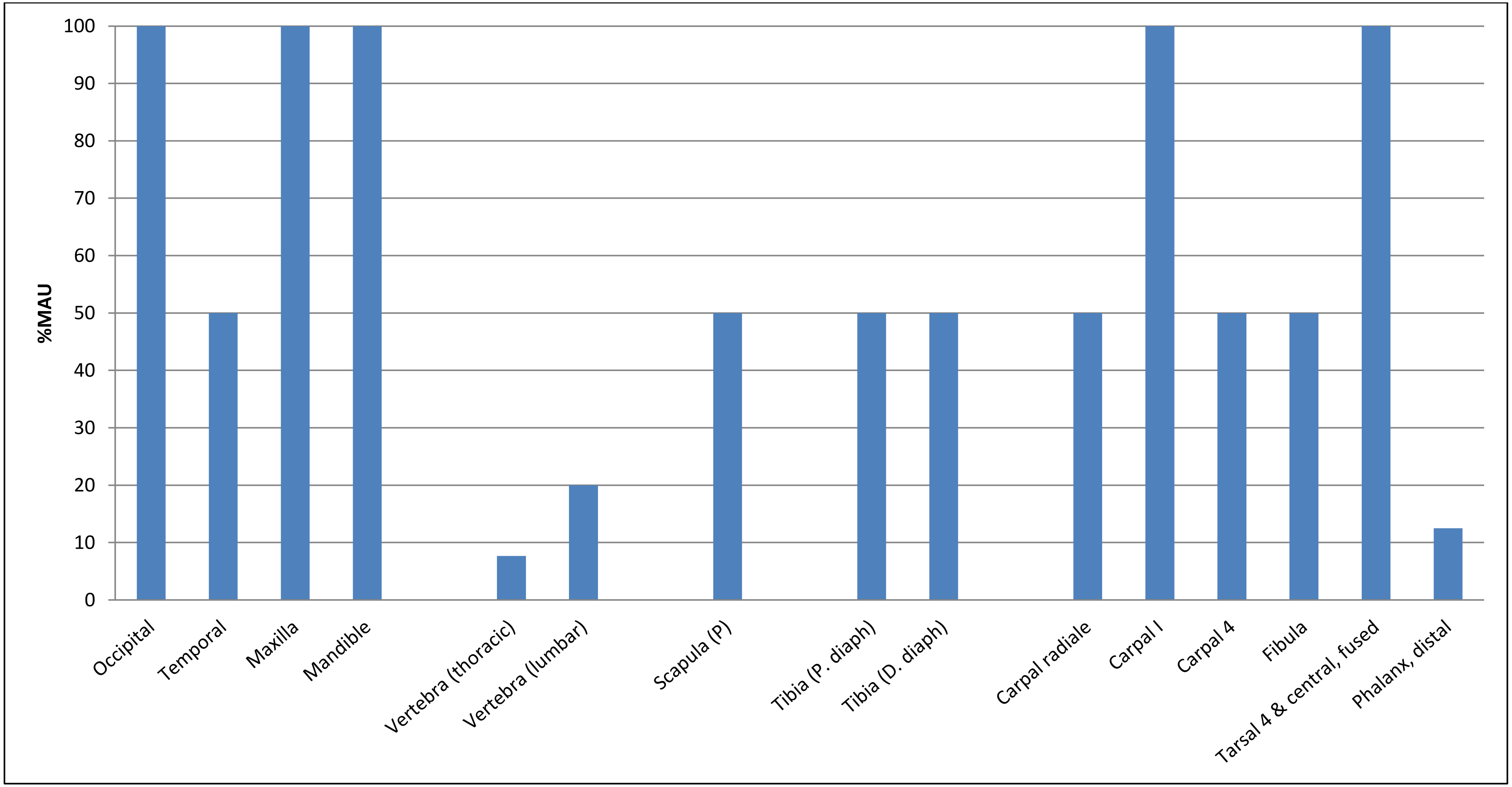
Occipital
Mandible
Atlas
Axis
Vertebra (cervical)
Vertebra (thoracic)
Vertebra (lumbar)
Rib
Scapula
Humerus (P. diaph)
Humerus (D. diaph)
Radius (D. epi)
Ulna (P. diaph)
Ulna (D. diaph)
Innominate (Illium)
Innominate (D)
Femur (P. epi)
Femur (D. diaph)
Patella
Tibia
Carpal ulnare
Carpal 2,3
Phalanx (proximal III/IV)
Phalanx (medial III/IV)

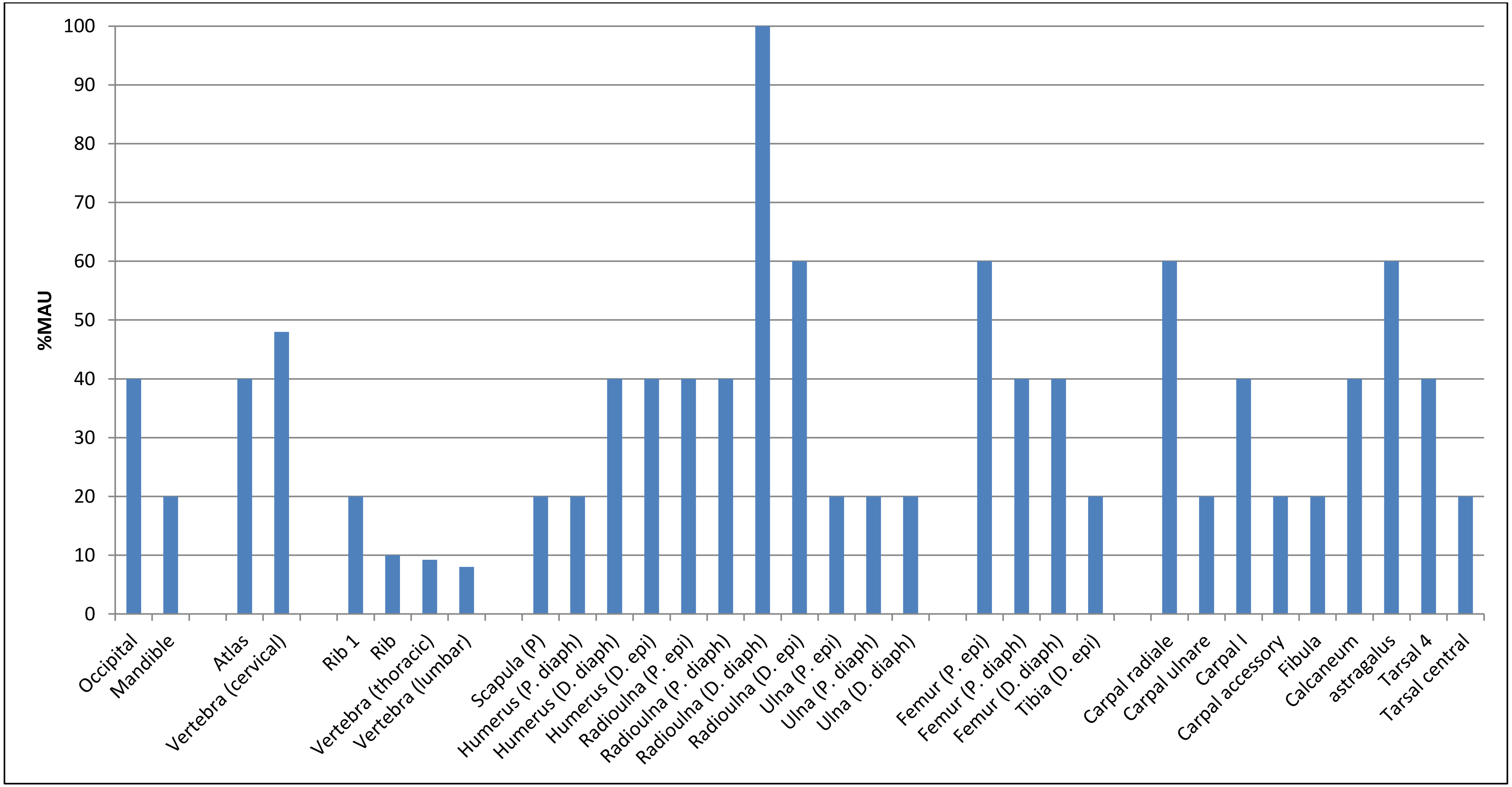
John Beaton II site



Early assemblage, Lewis site

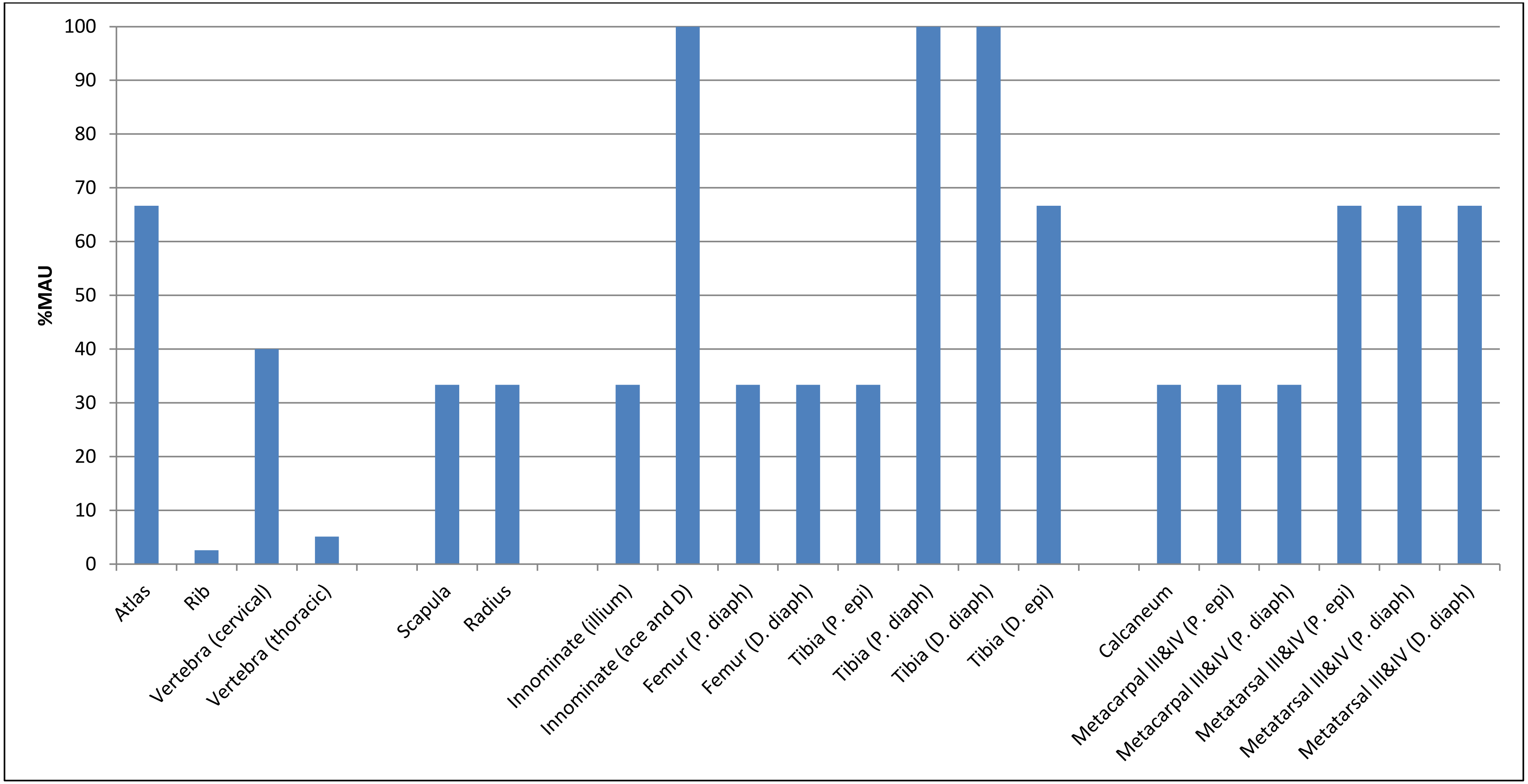


Late assemblage, Lewis site

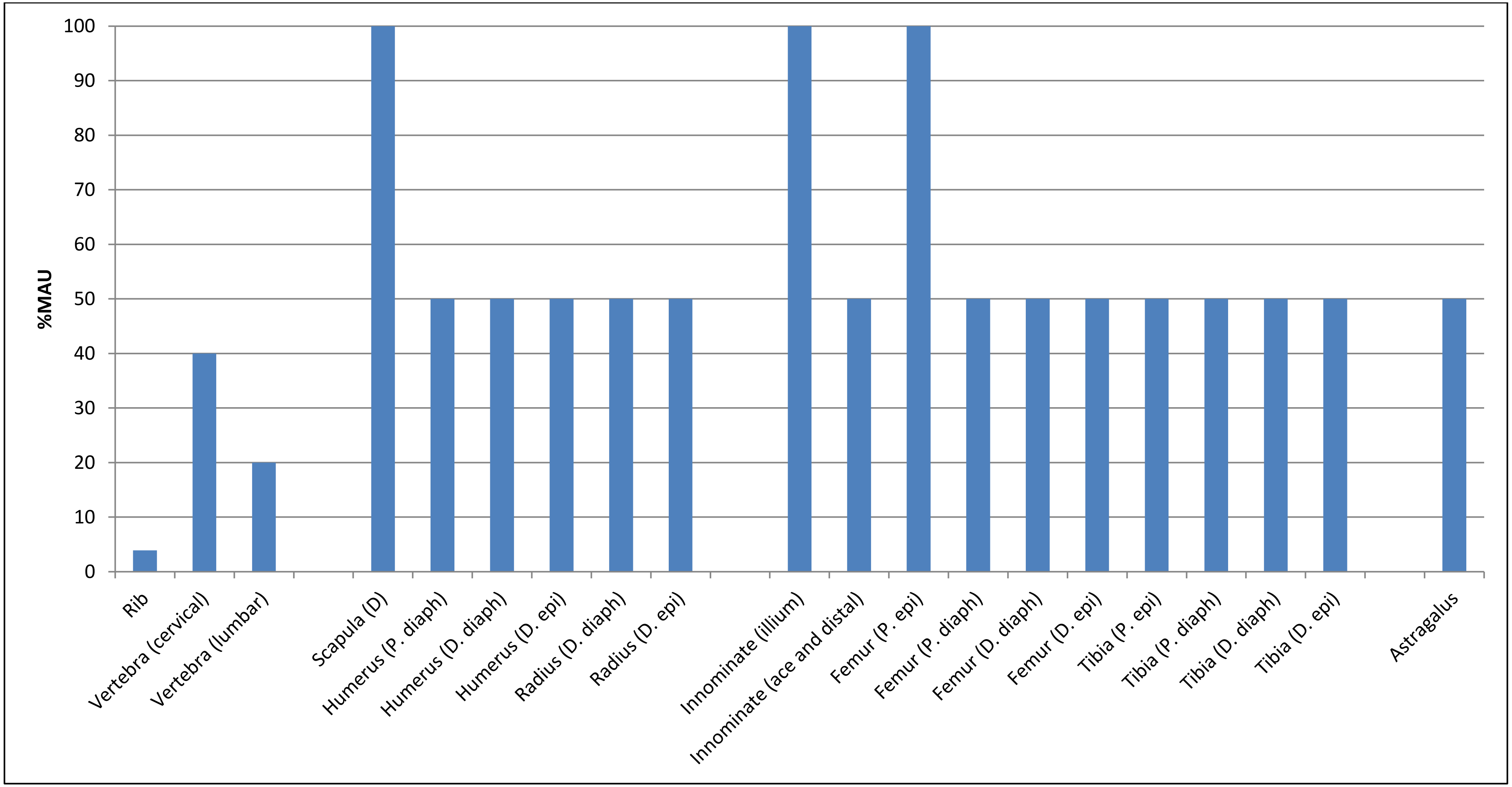


Caprines

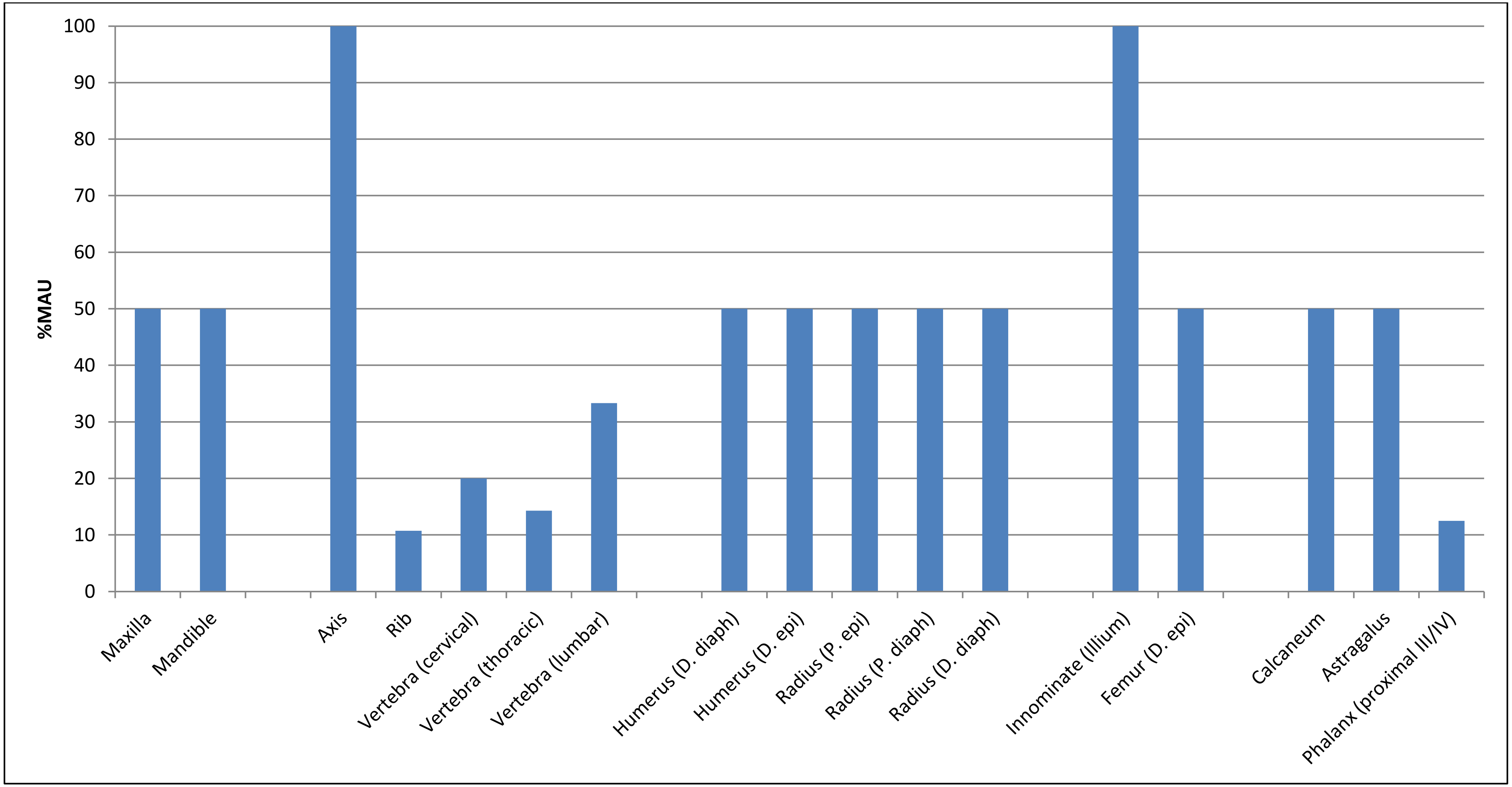
Feature 38, 327-333 Queen Street West



Feature 46, 327-333 Queen Street West



Bell site



%MAU
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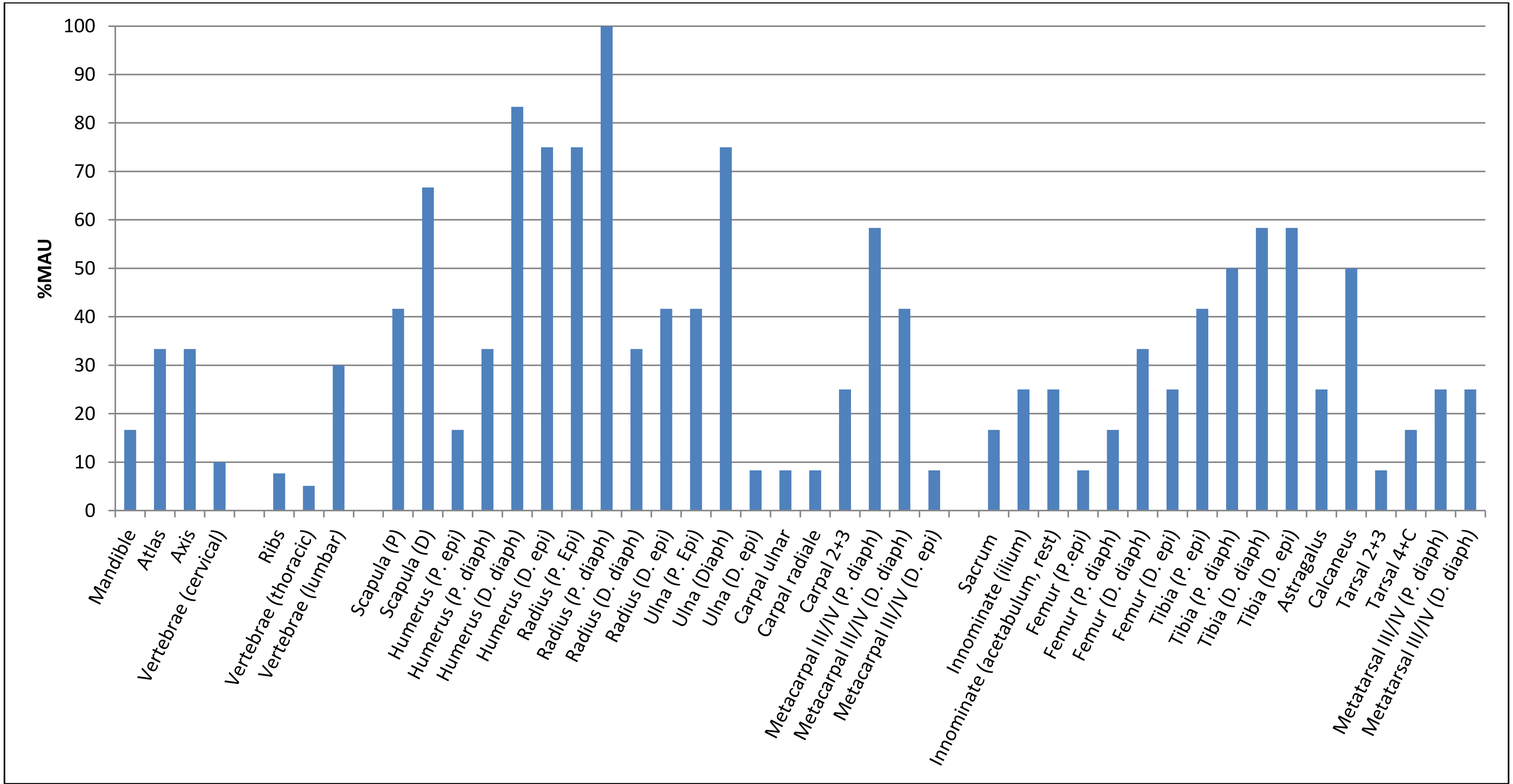
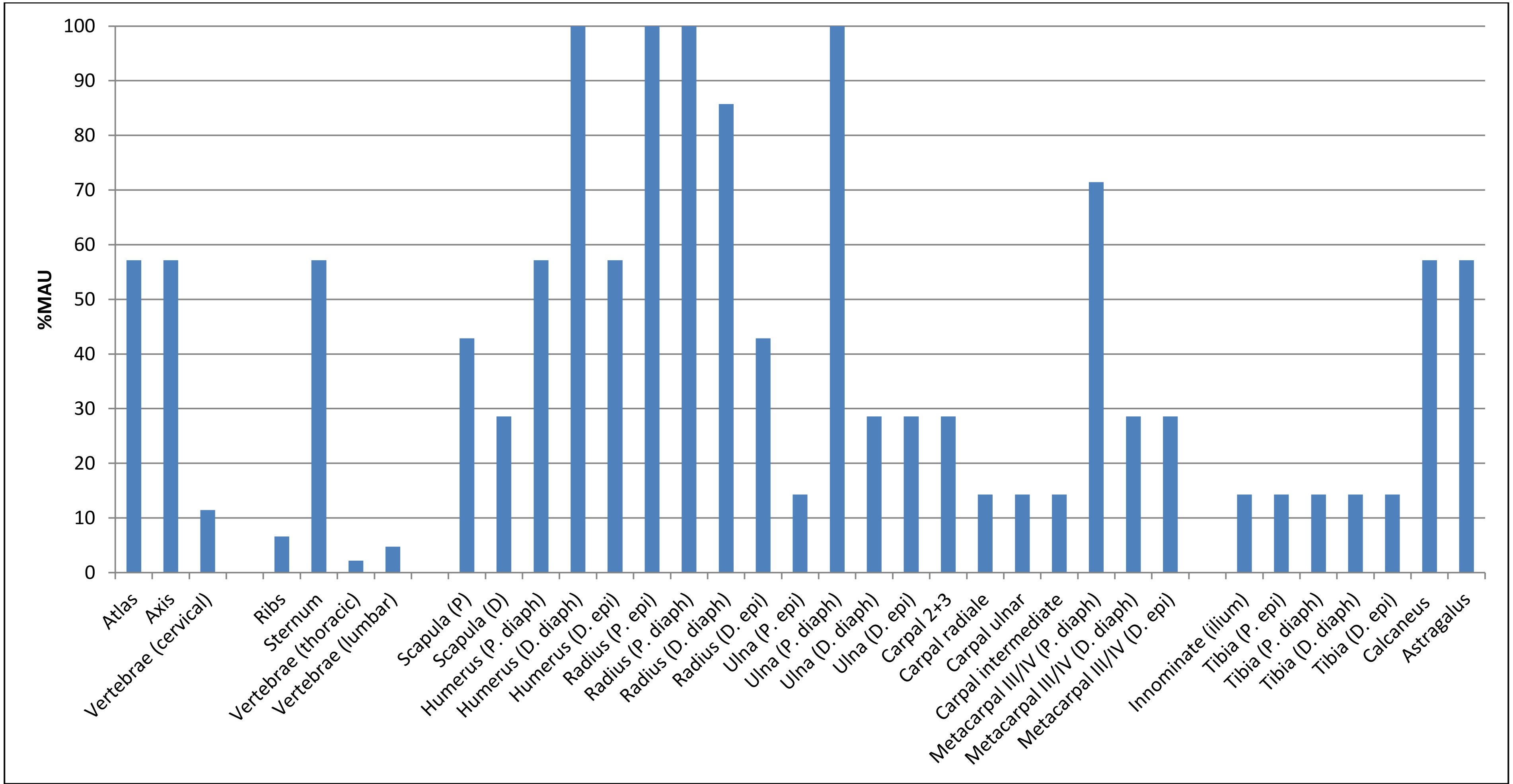
Maxilla
Mandible
Axis
Rib
Vertebra (cervical)
Vertebra (thoracic)
Vertebra (lumbar)
Humerus (D. diaph)
Humerus (D. epi)
Radius (P. epi)
Radius (P. diaph)
Radius (D. diaph)
Innominate (Illium)
Femur (D. epi)
Calcaneum
Astragalus
Phalanx (proximal III/IV)

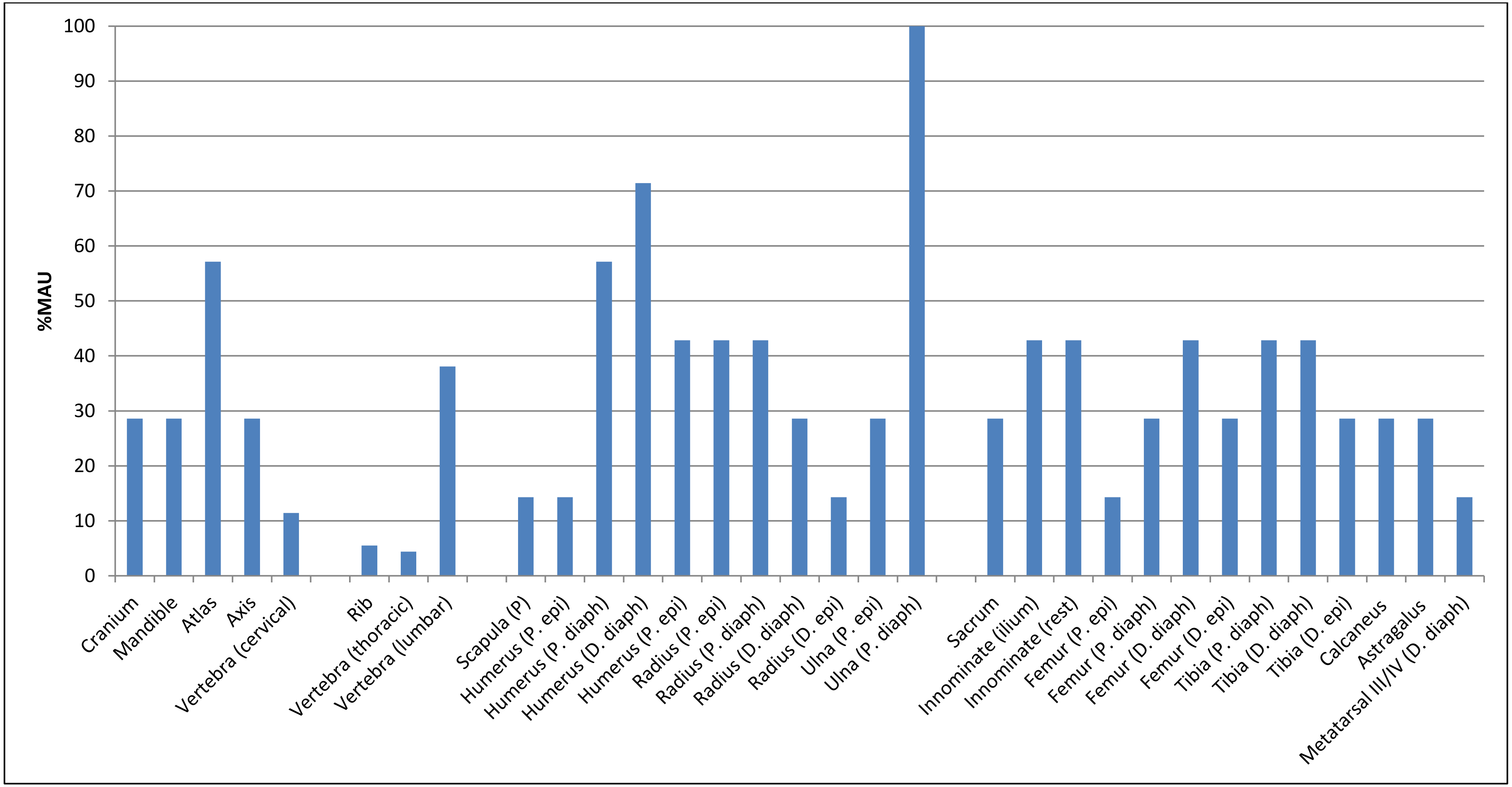
House 3, Bishop's Block



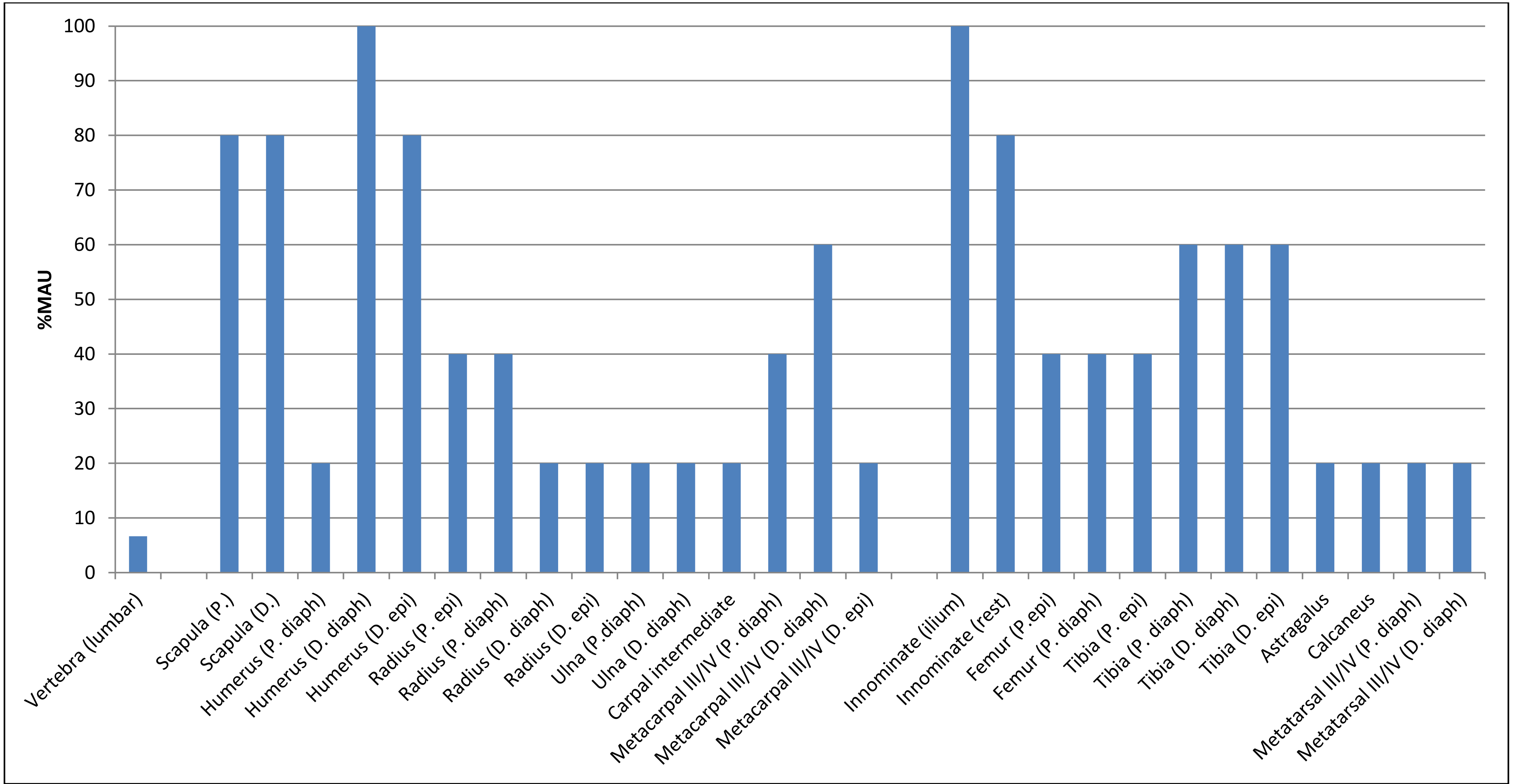
House 4, Bishop's Block



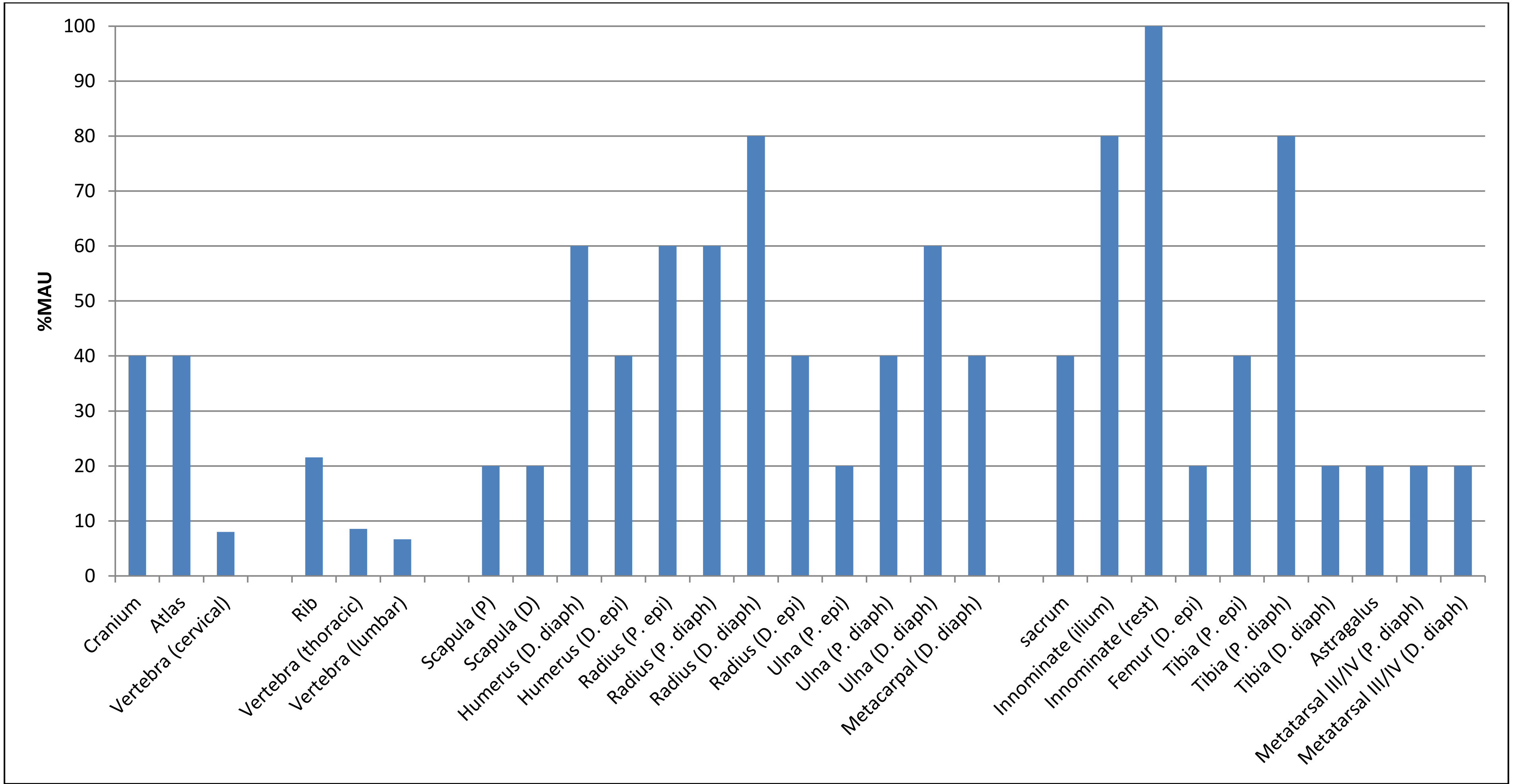
House 5, Bishop's Block



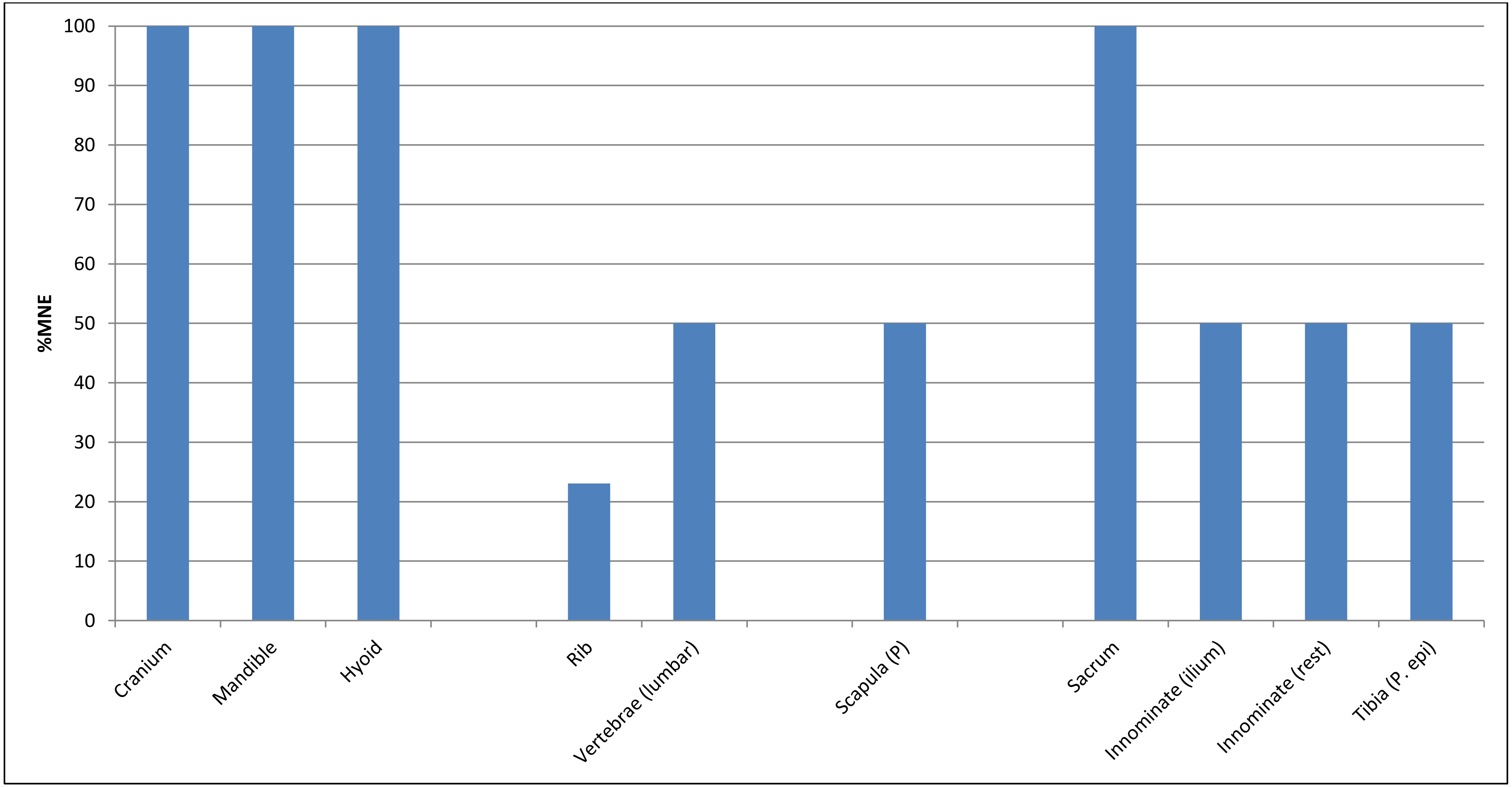
House 6, Bishop's Block



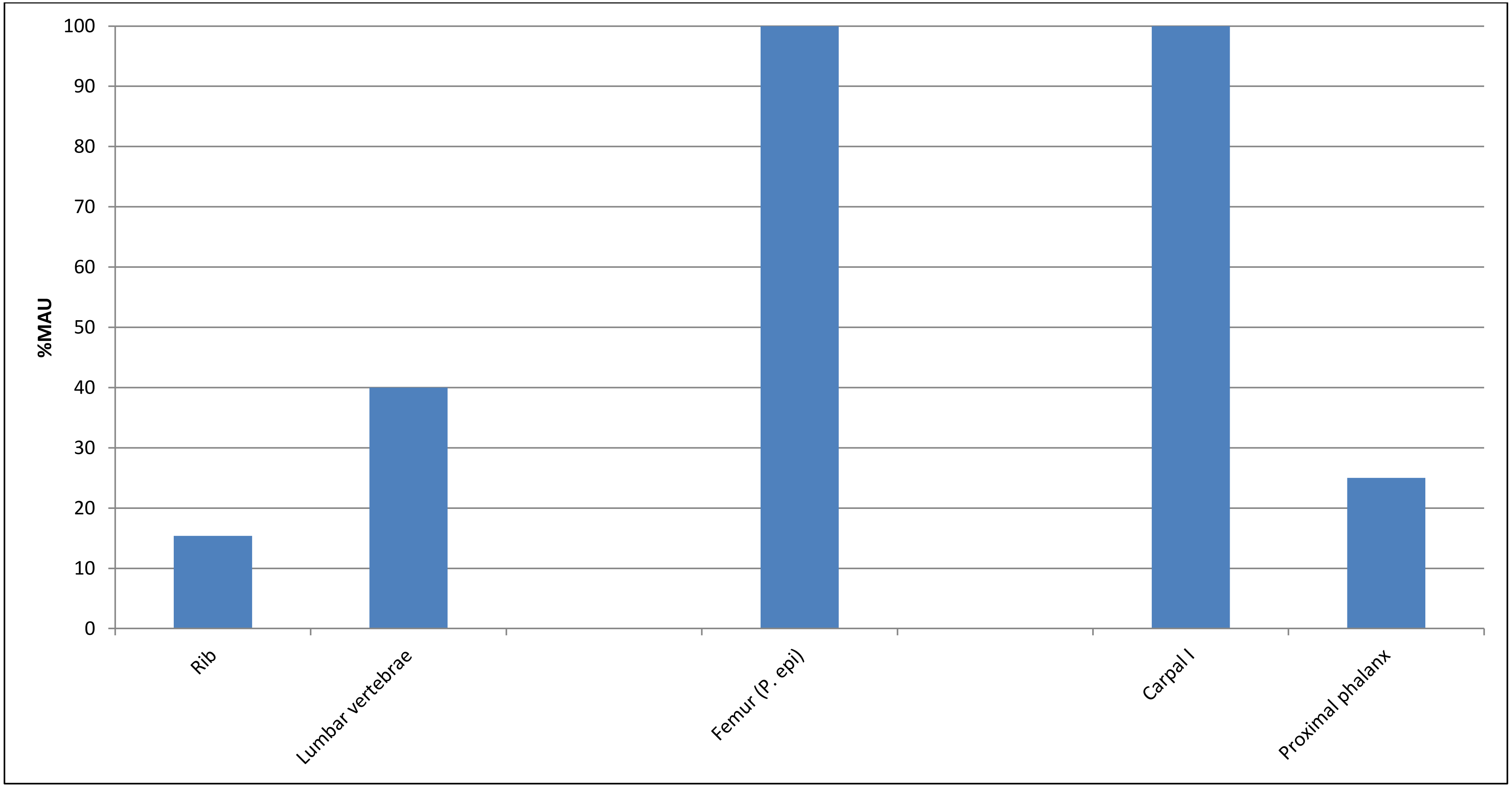
House 1, Dollery site



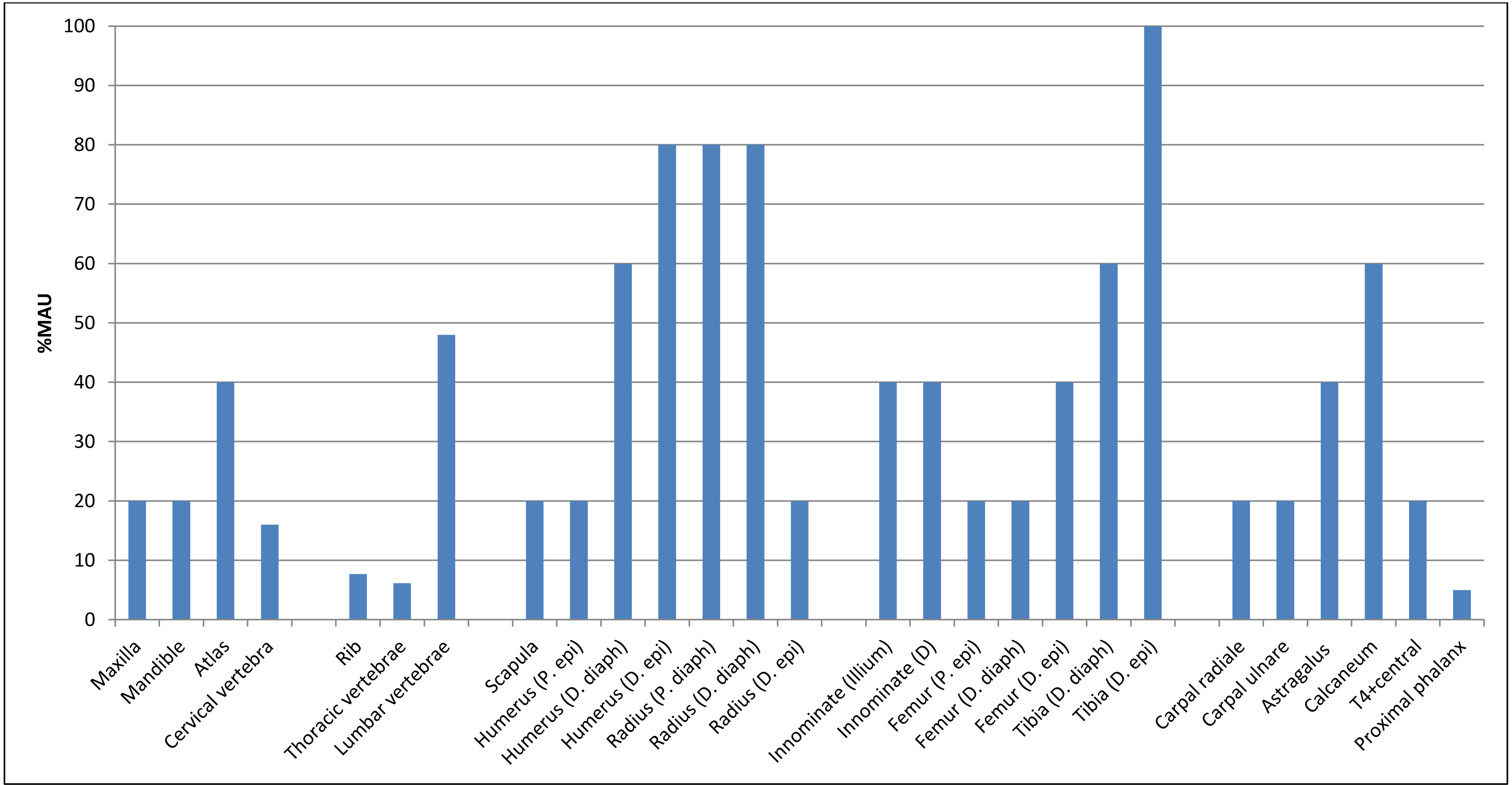
House 2, Dollery site



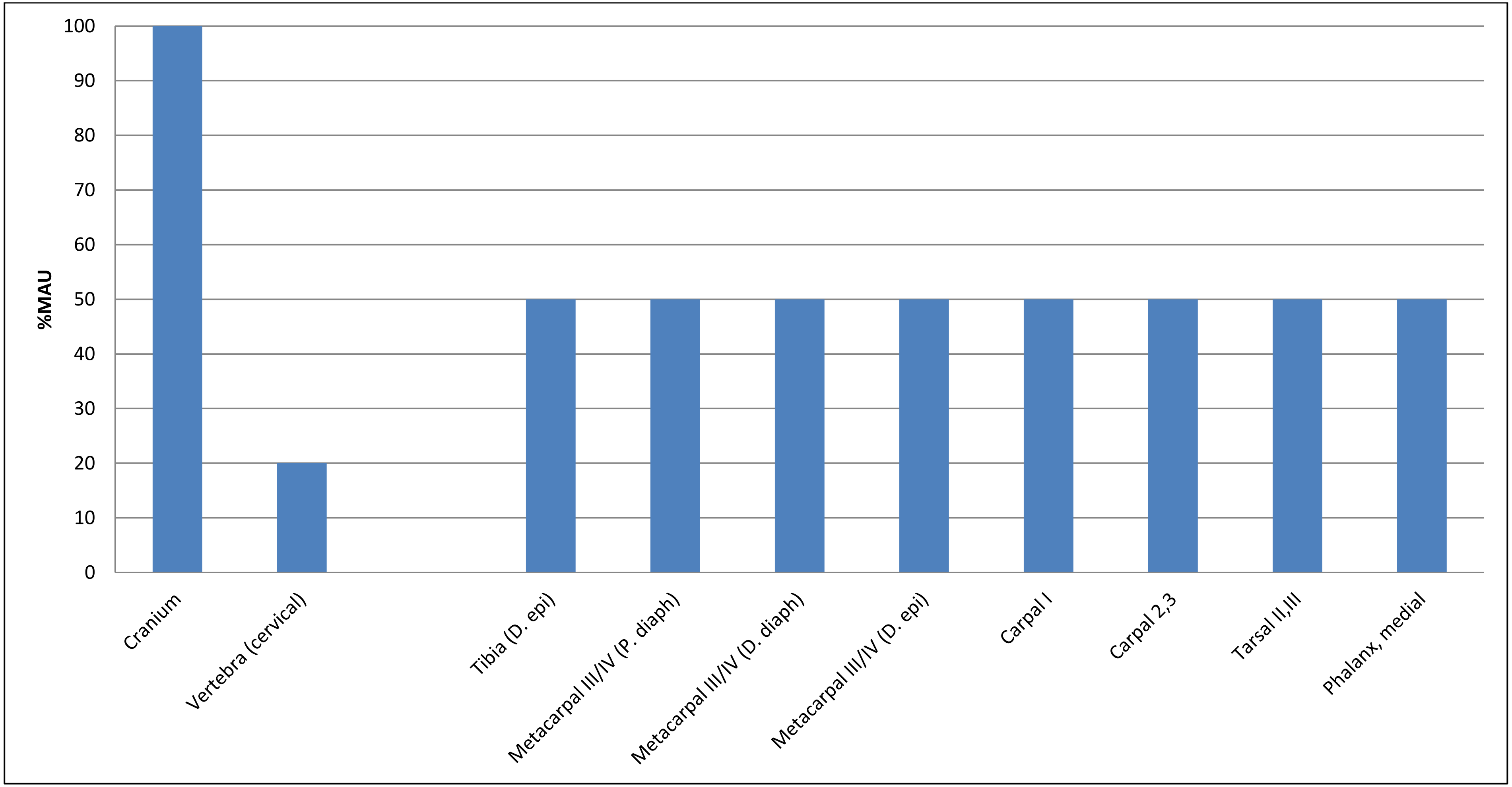
Ashbridge I/II, Ashbridge Estate



Ashbridge IV/V, Ashbridge Estate



Graham site


100
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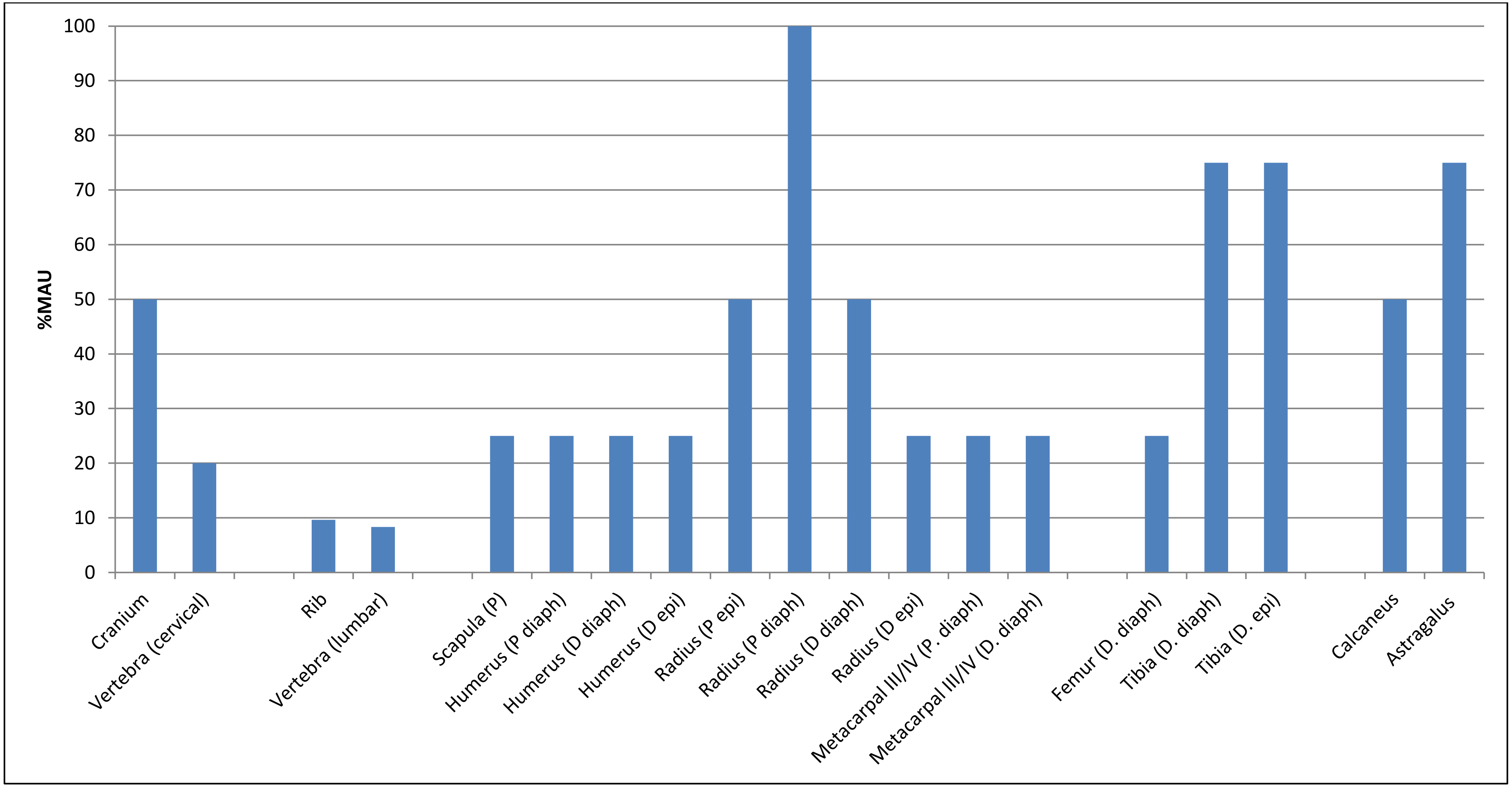
10
0
%MAU
Cranium
Vertebra (cervical)
Tibia (D. epi)
Metacarpal III/IV (P. diaph)
Metacarpal III/IV (D. diaph)
Metacarpal III/IV (D. epi)
Carpal I
Carpal 2,3
Tarsal II,III
Phalanx, medial

Hall site



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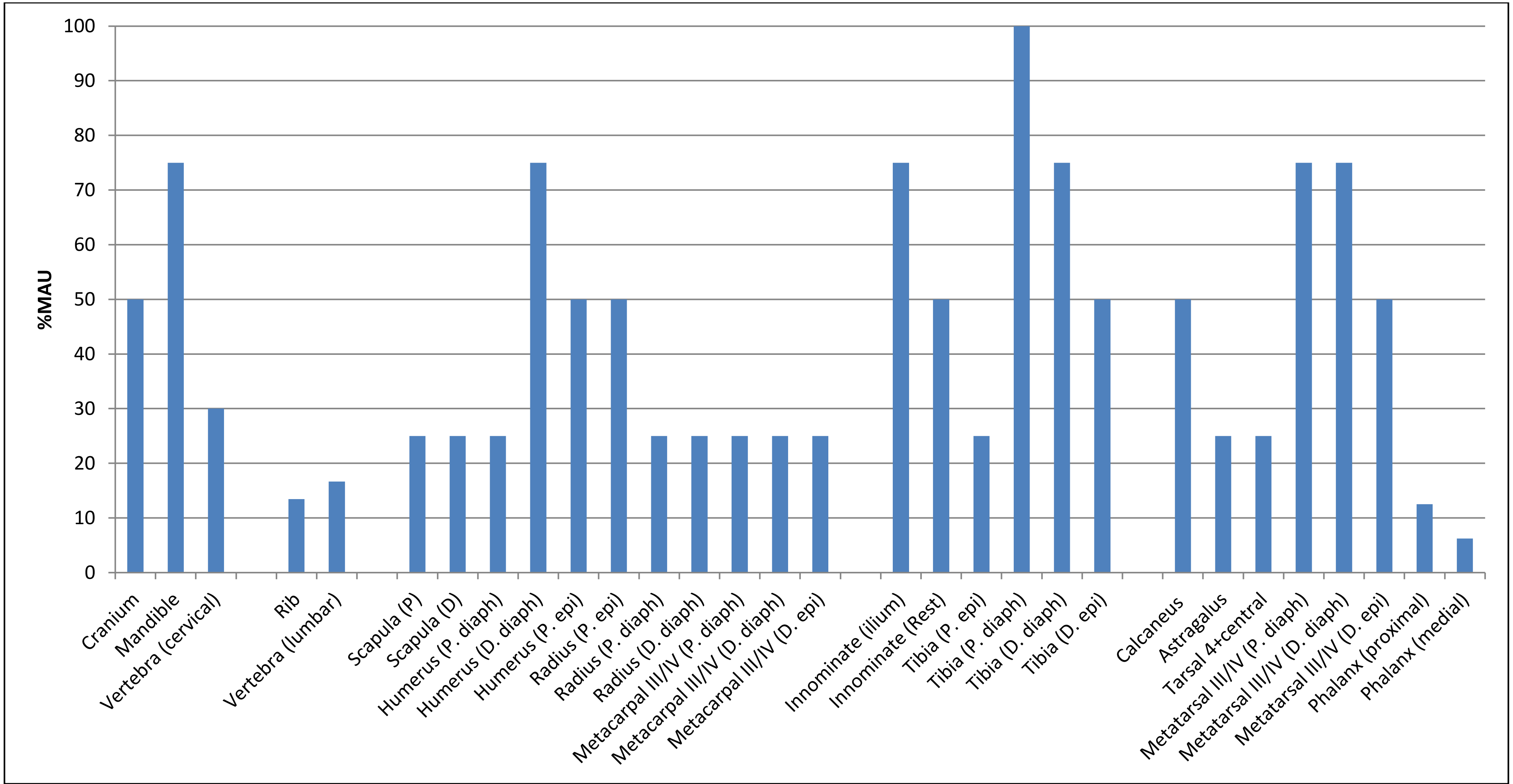
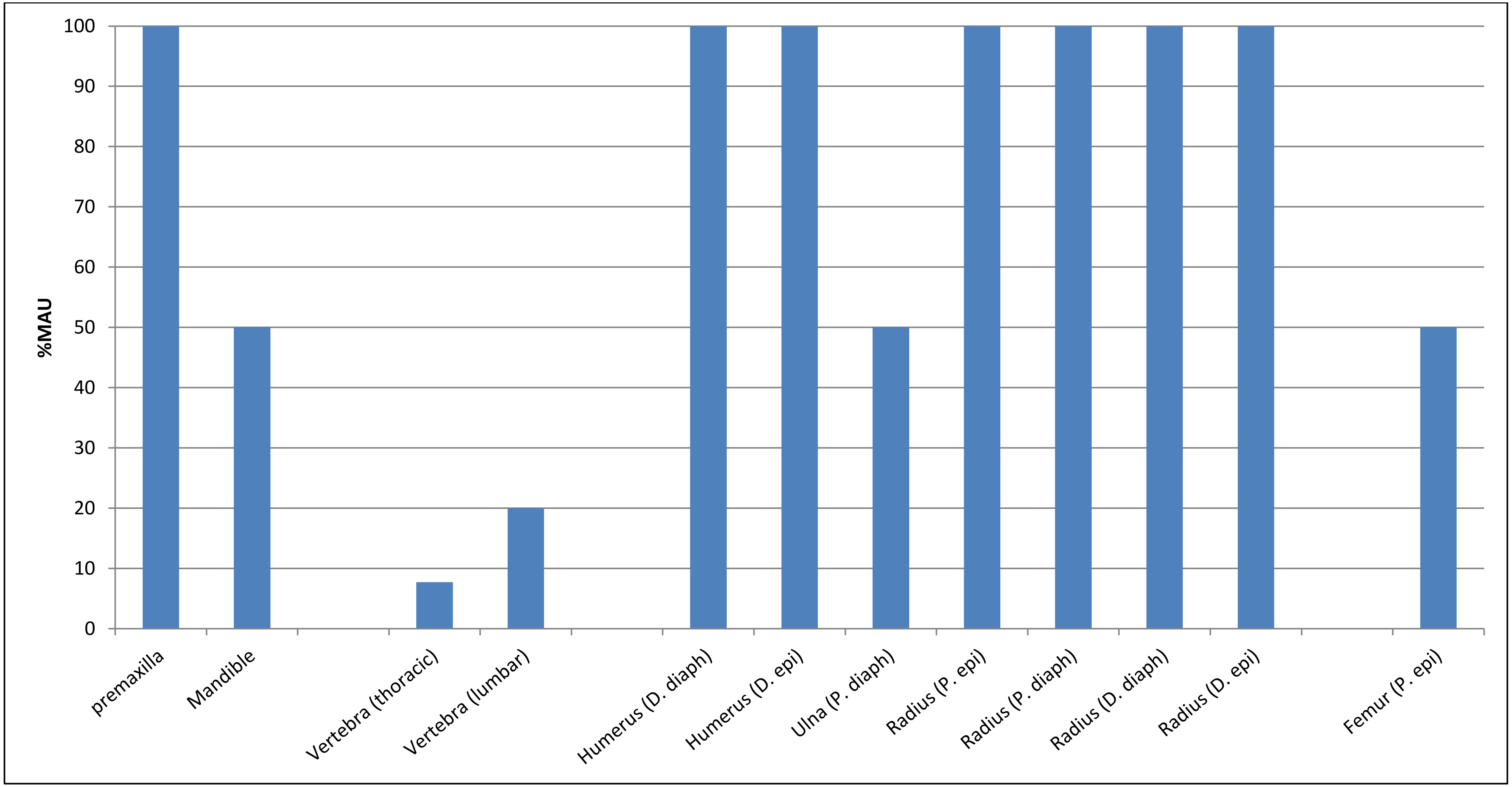
Cranium
Vertebra (cervical)
Rib
Vertebra (lumbar)
Scapula (P)
Humerus (P diaph)
Humerus (D diaph)
Humerus (D epi)
Radius (P epi)
Radius (P diaph)
Radius (D diaph)
Radius (D epi)
Metacarpal III/IV (P. diaph)
Metacarpal III/IV (D. diaph)
Femur (D. diaph)
Tibia (D. diaph)
Tibia (D. epi)
Calcaneus
Astragalus

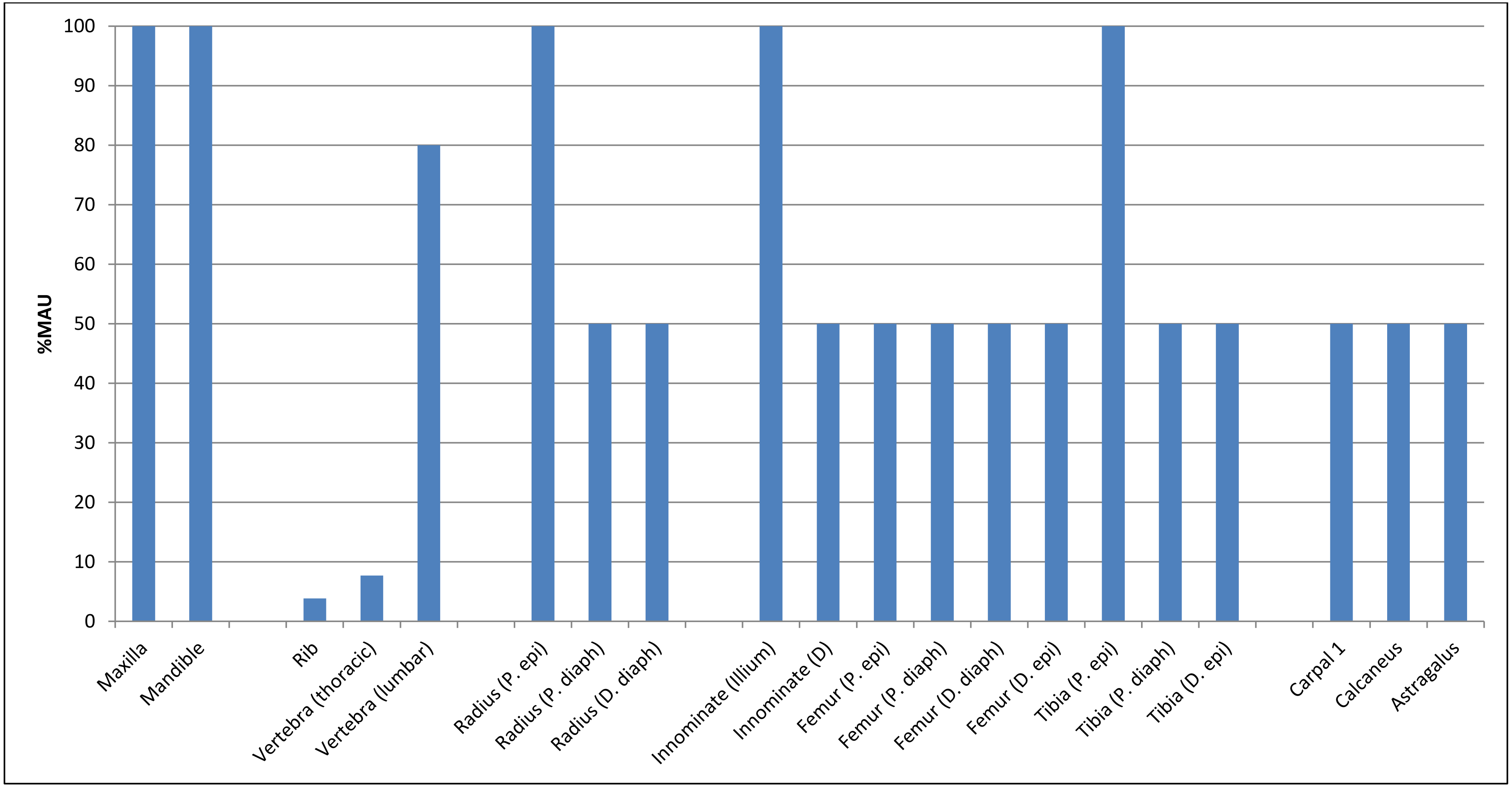
John Beaton II site



Early assemblage, Lewis site

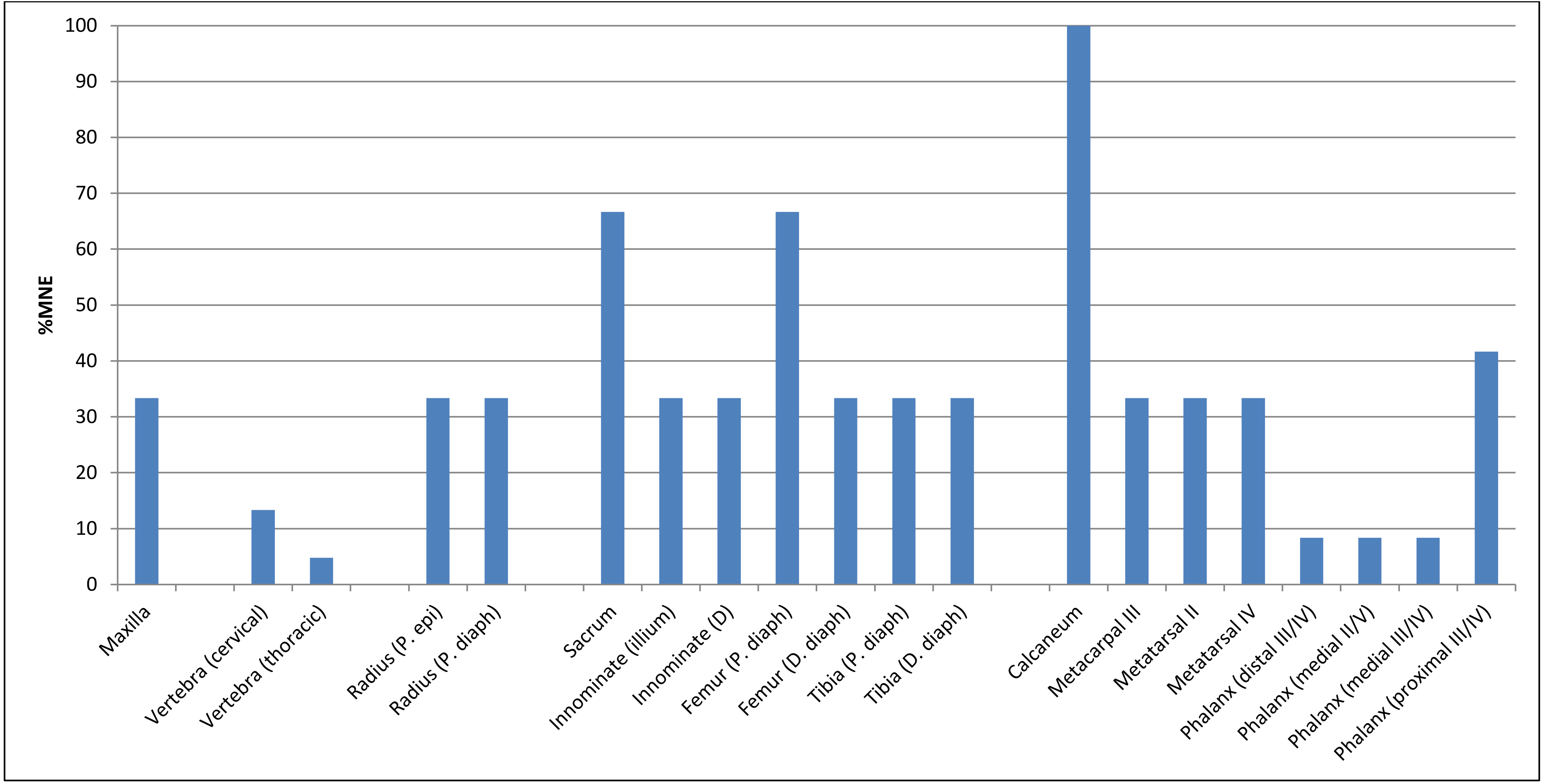


Late assemblage, Lewis site

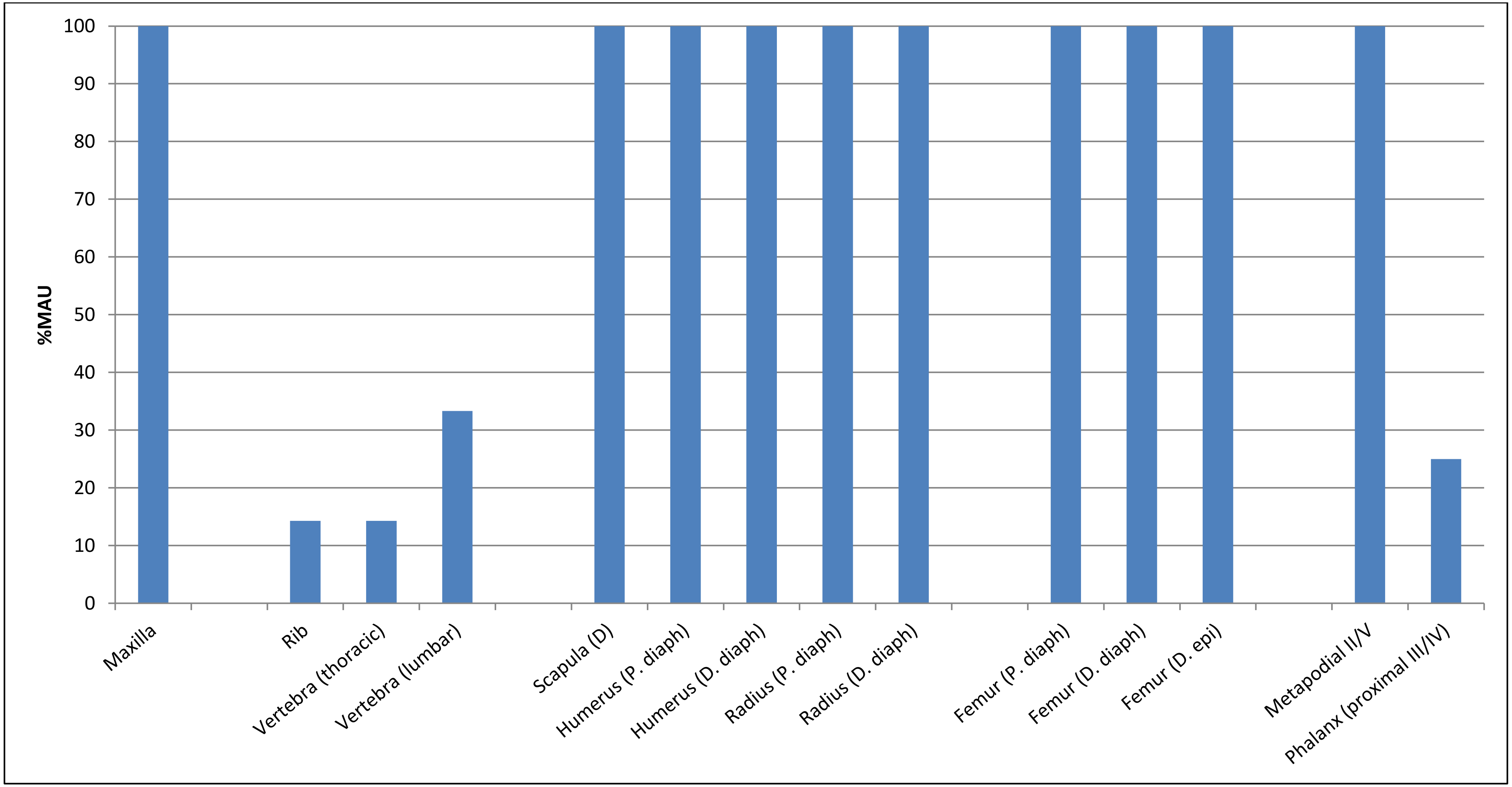


Pigs

Feature 46, 327-333 Queen Street West



Bell site


%MAU
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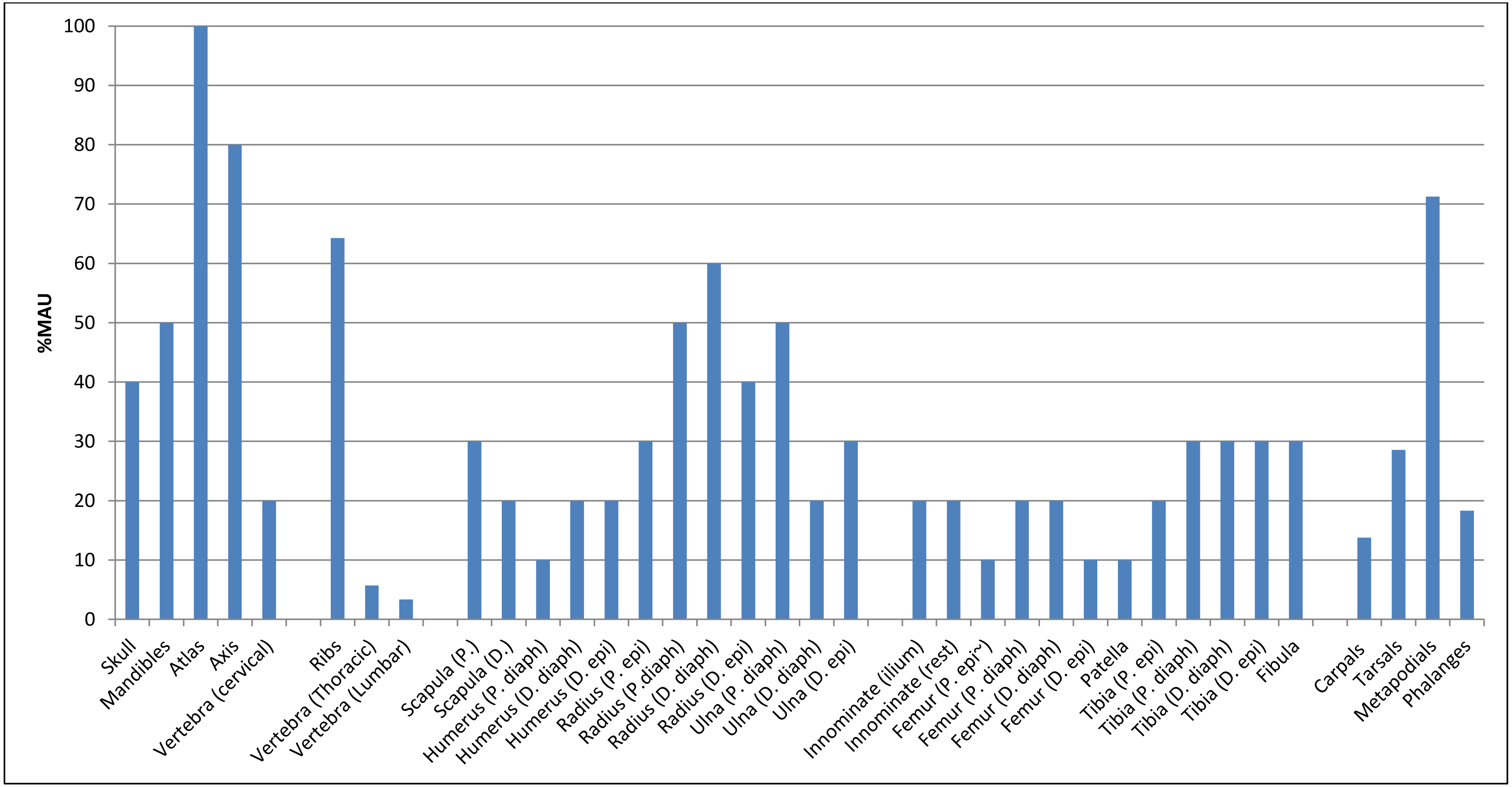
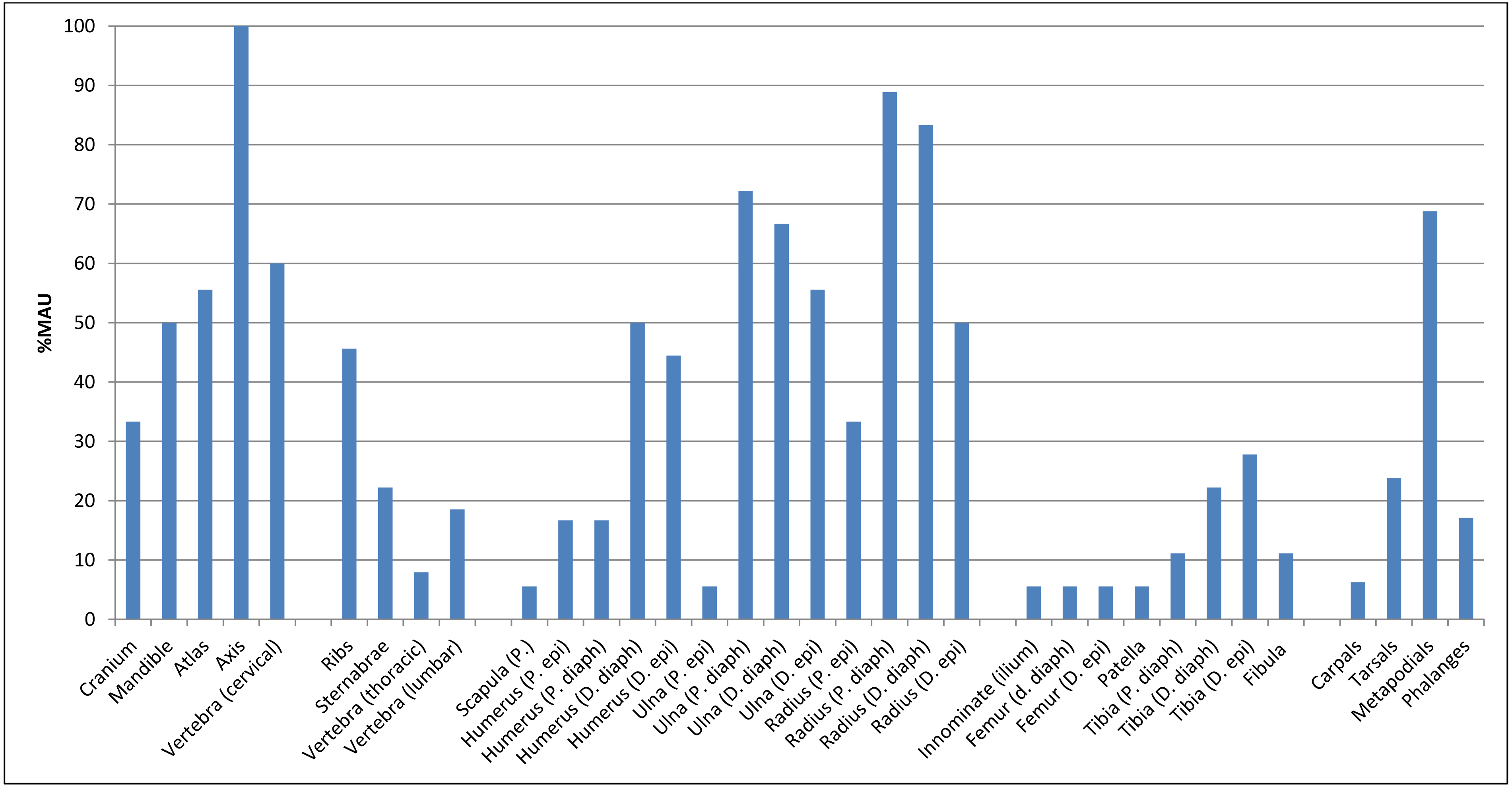
0
Maxilla
Rib
Vertebra (thoracic)
Vertebra (lumbar)
Scapula (D)
Humerus (P. diaph)
Humerus (D. diaph)
Radius (P. diaph)
Radius (D. diaph)
Femur (P. diaph)
Femur (D. diaph)
Femur (D. epi)
Metapodial II/V
Phalanx (proximal III/IV)

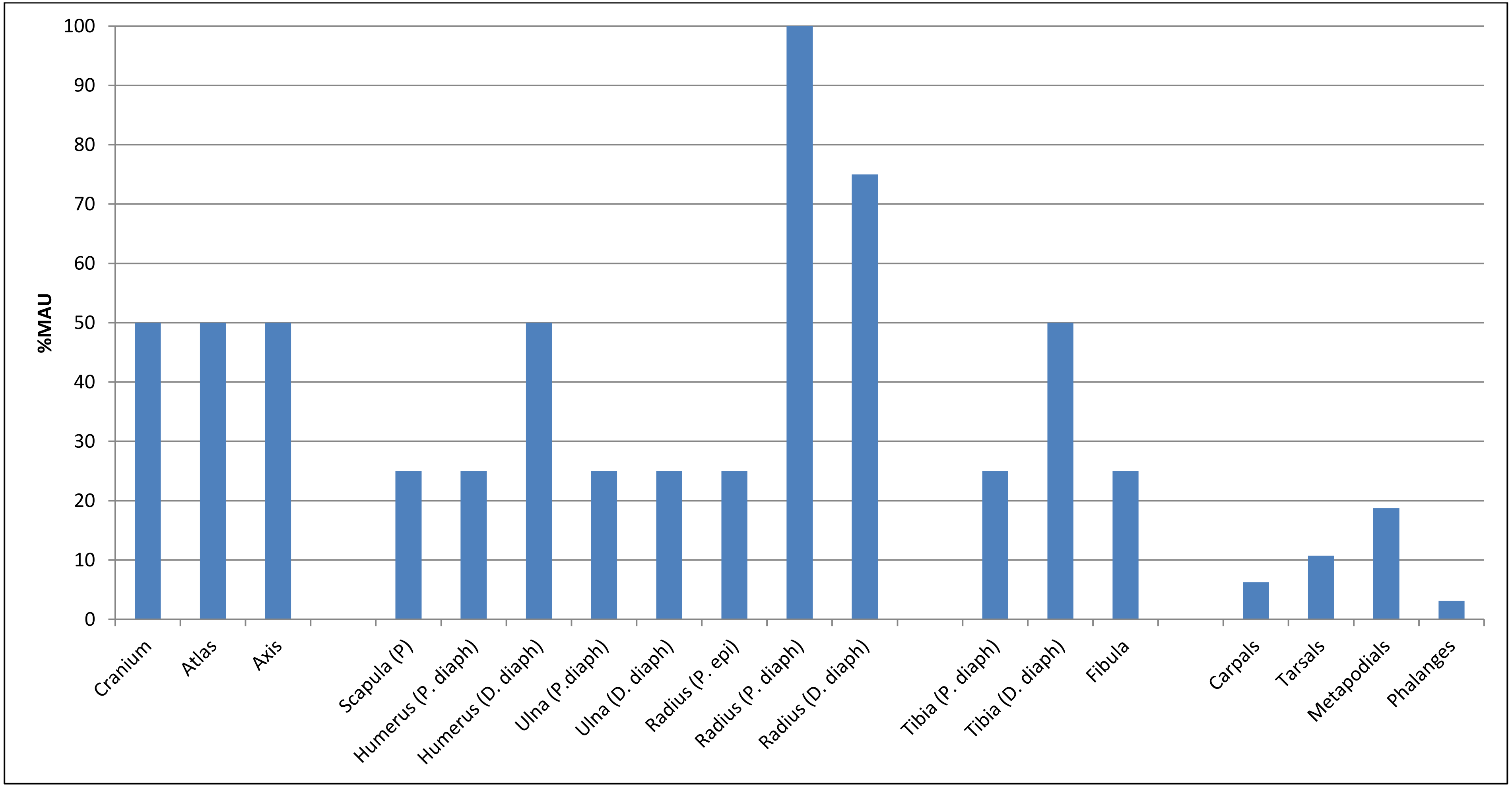
House 3, Bishop's Block



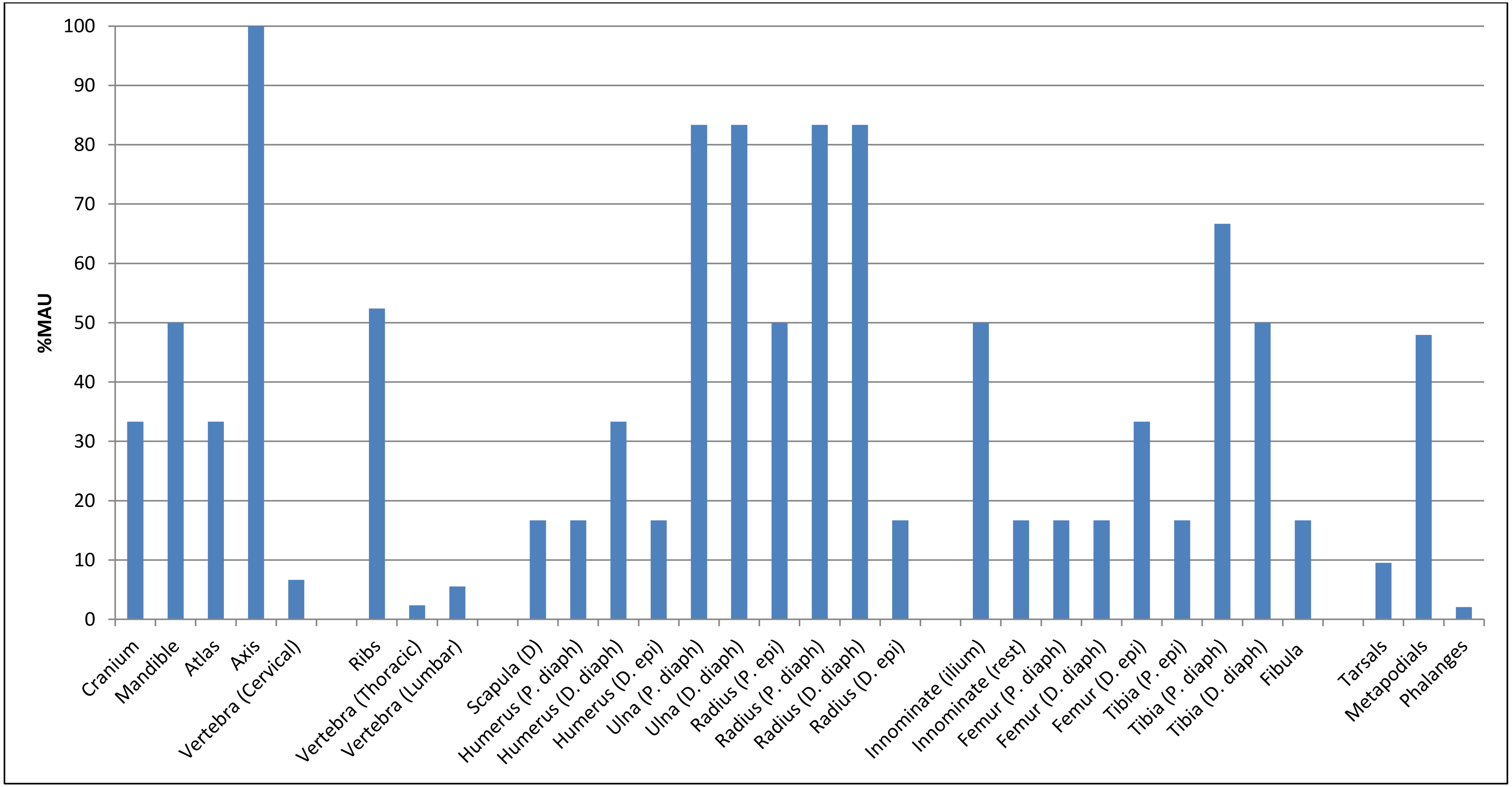
House 4, Bishop's Block



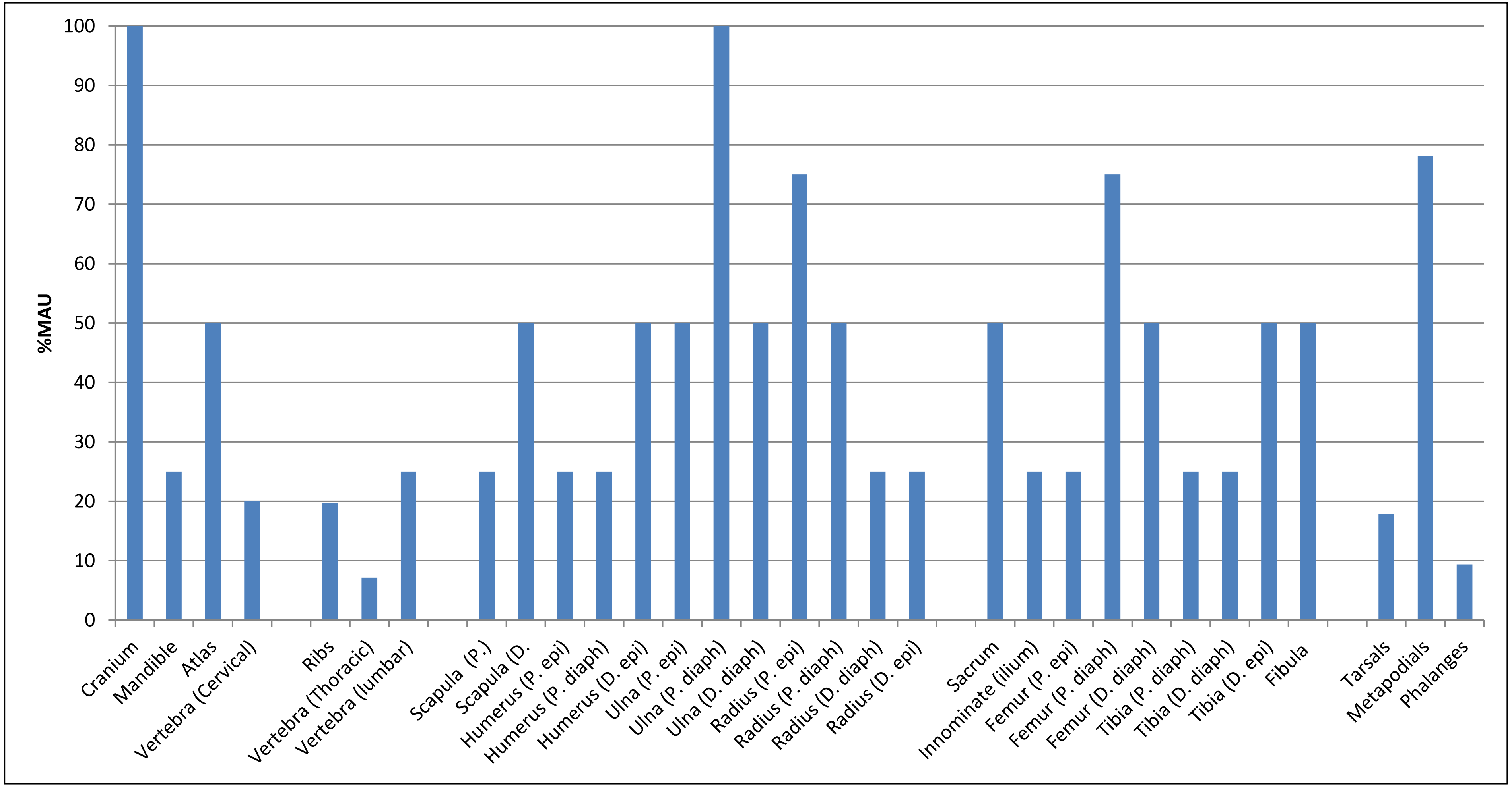
House 5, Bishop's Block



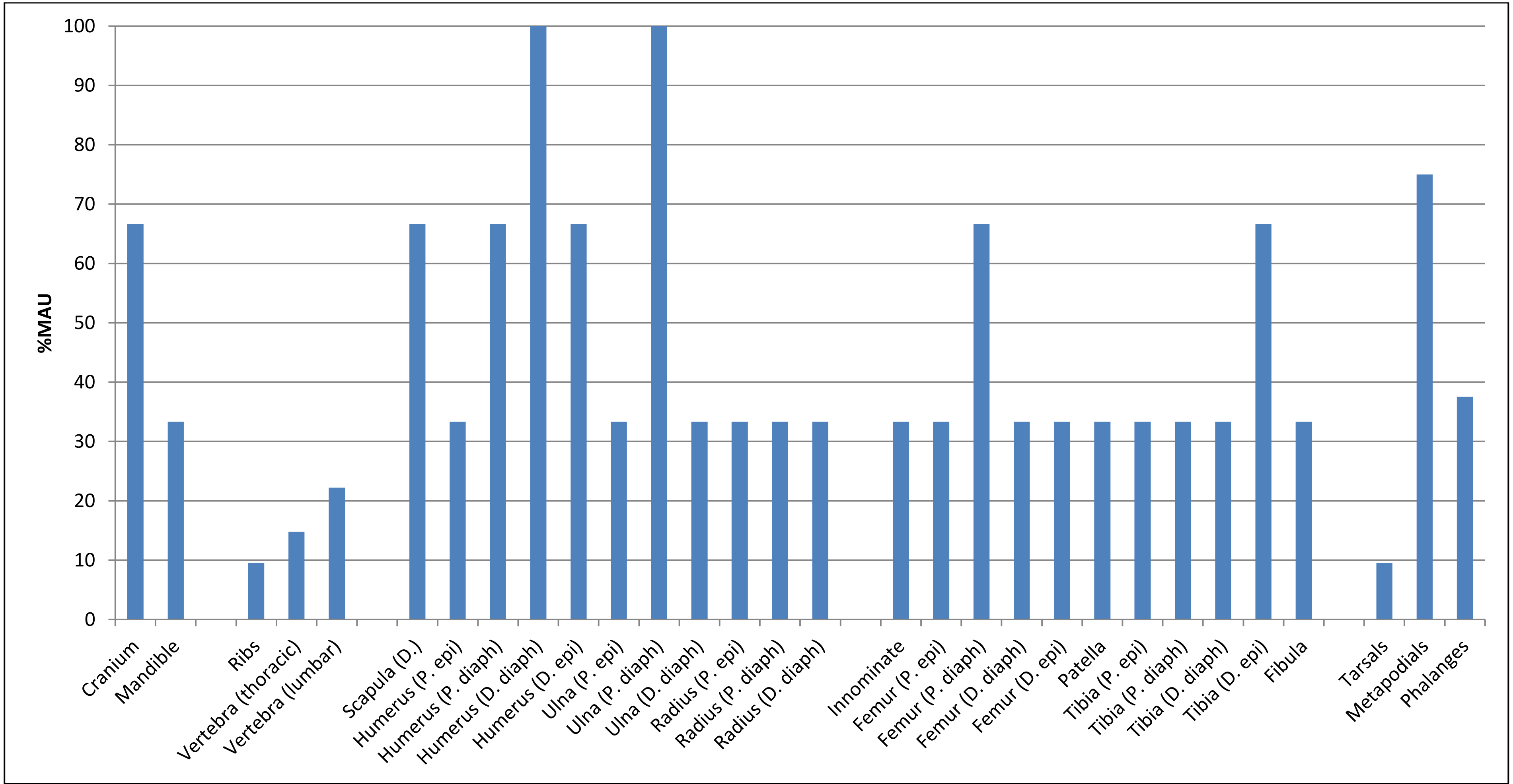
House 6, Bishop's Block



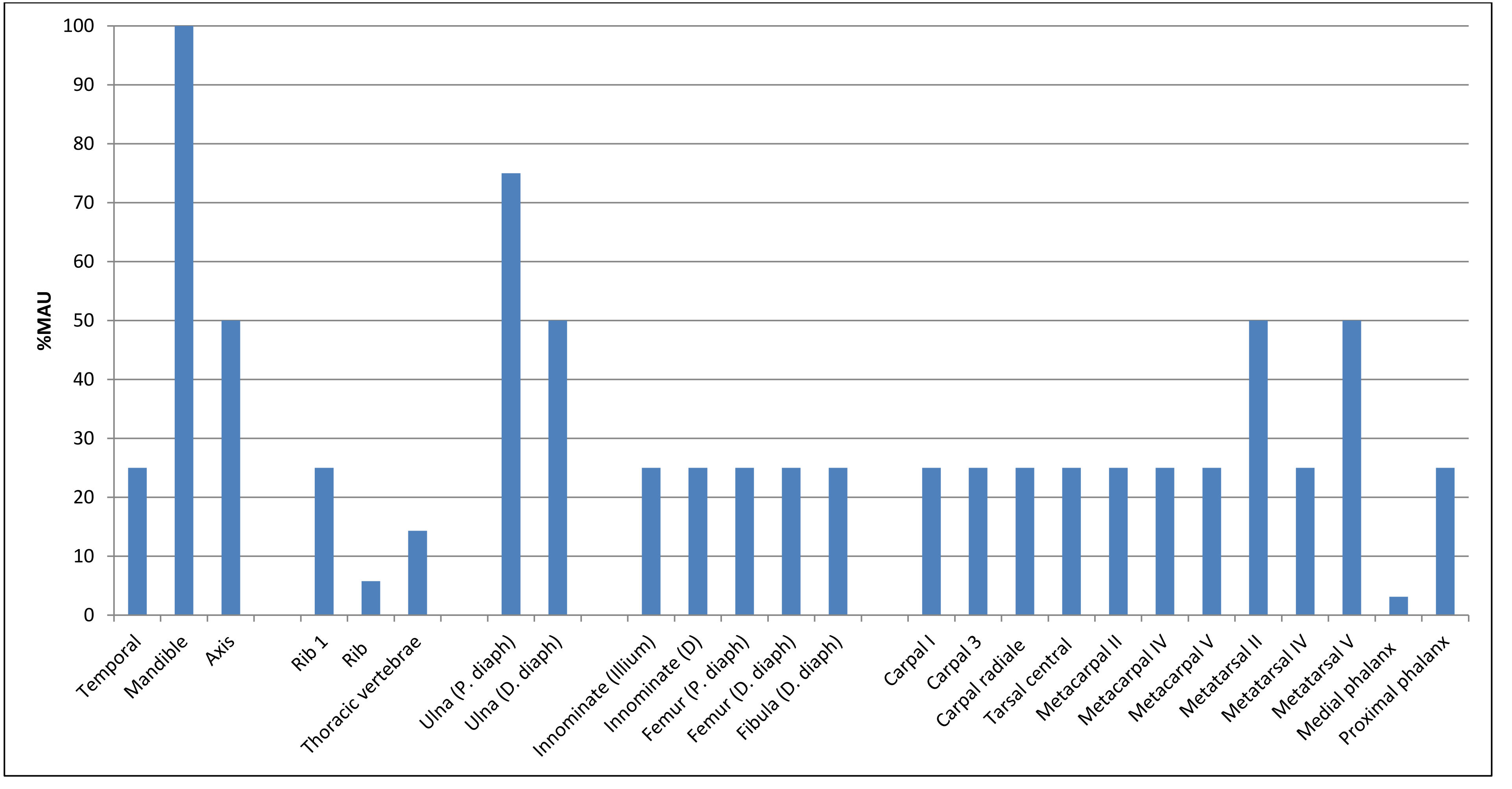
House 1, Dollery site



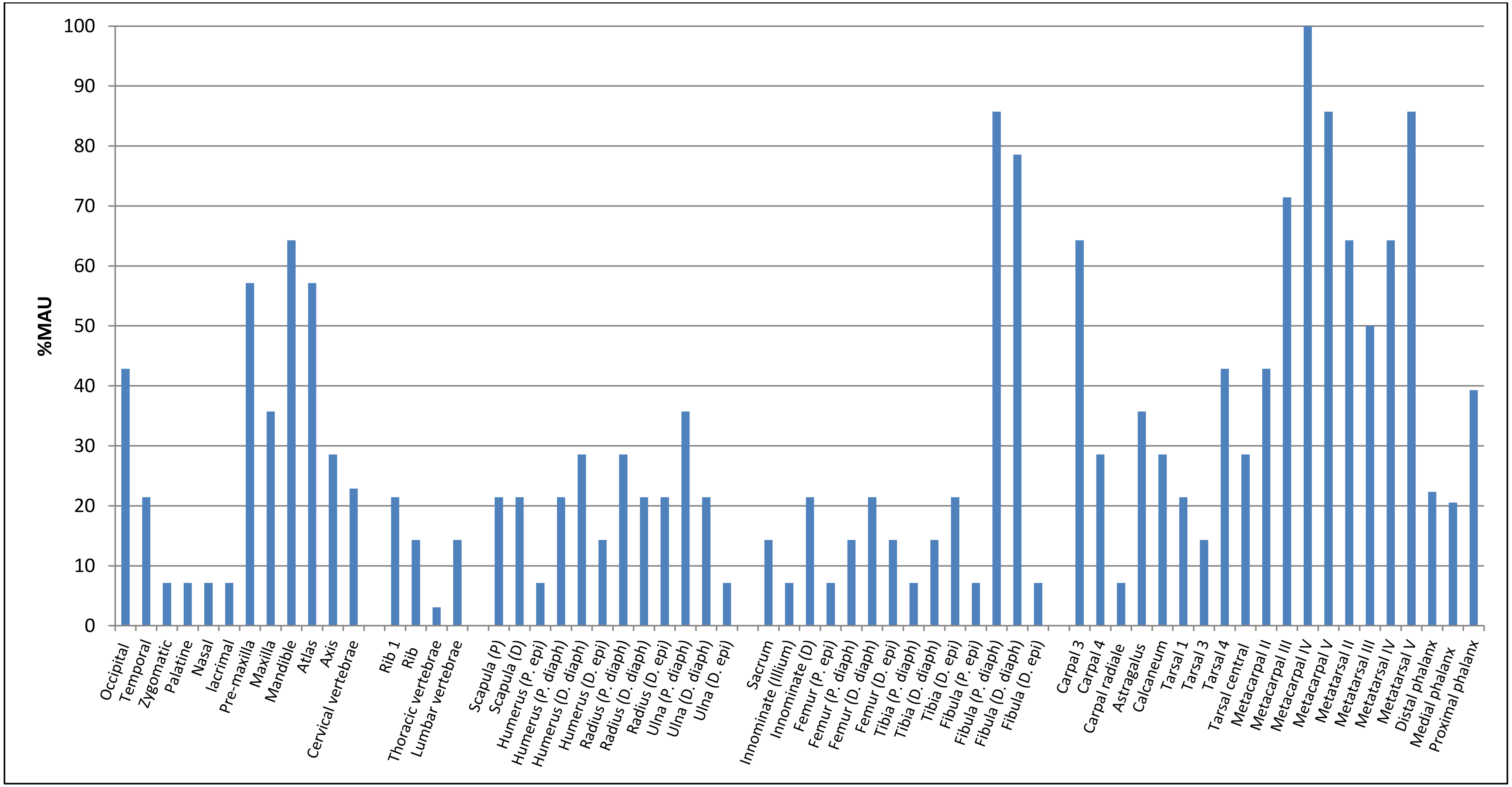
House 2, Dollery site



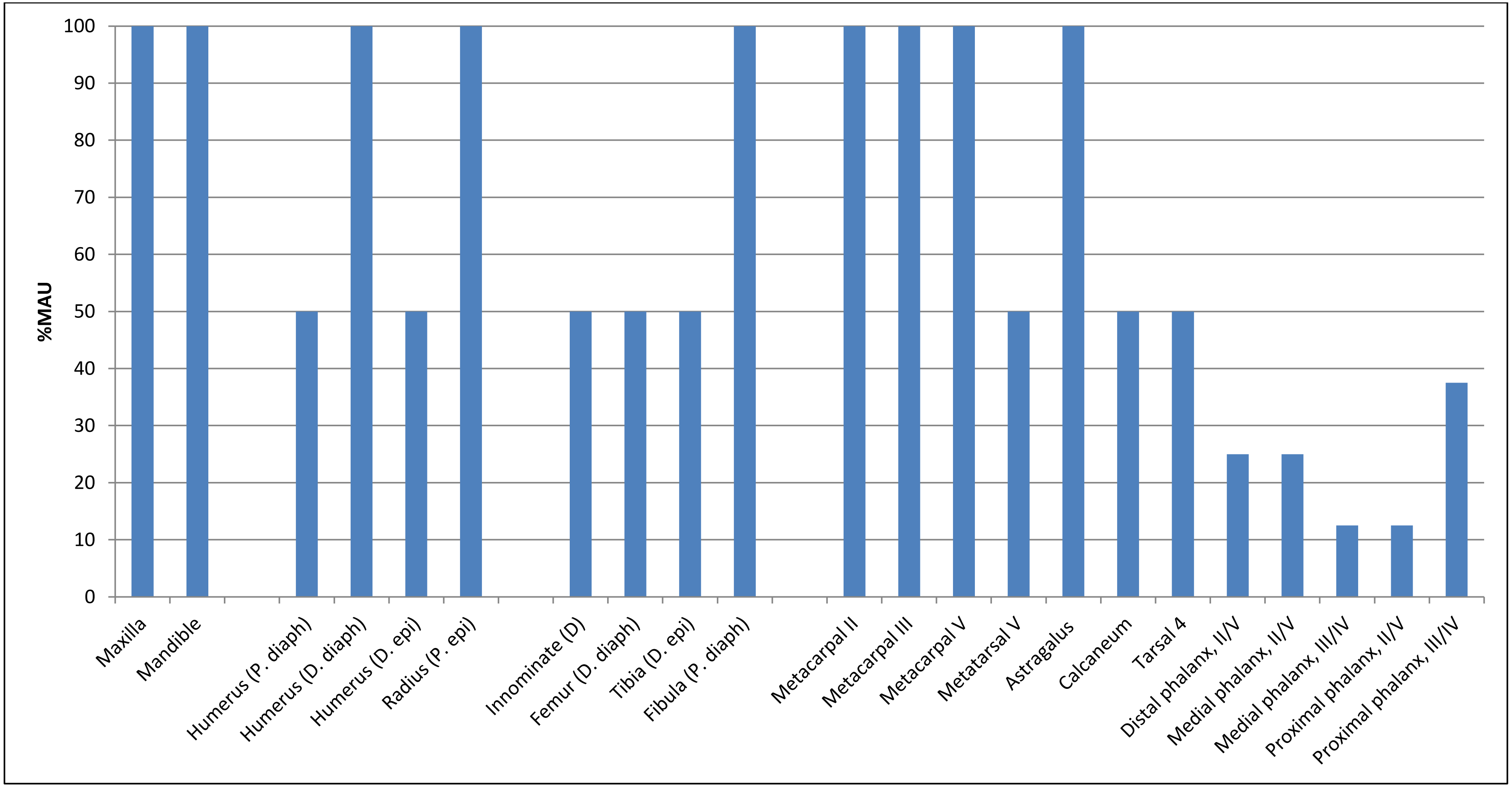
Ashbridge I/II, Ashbridge Estate



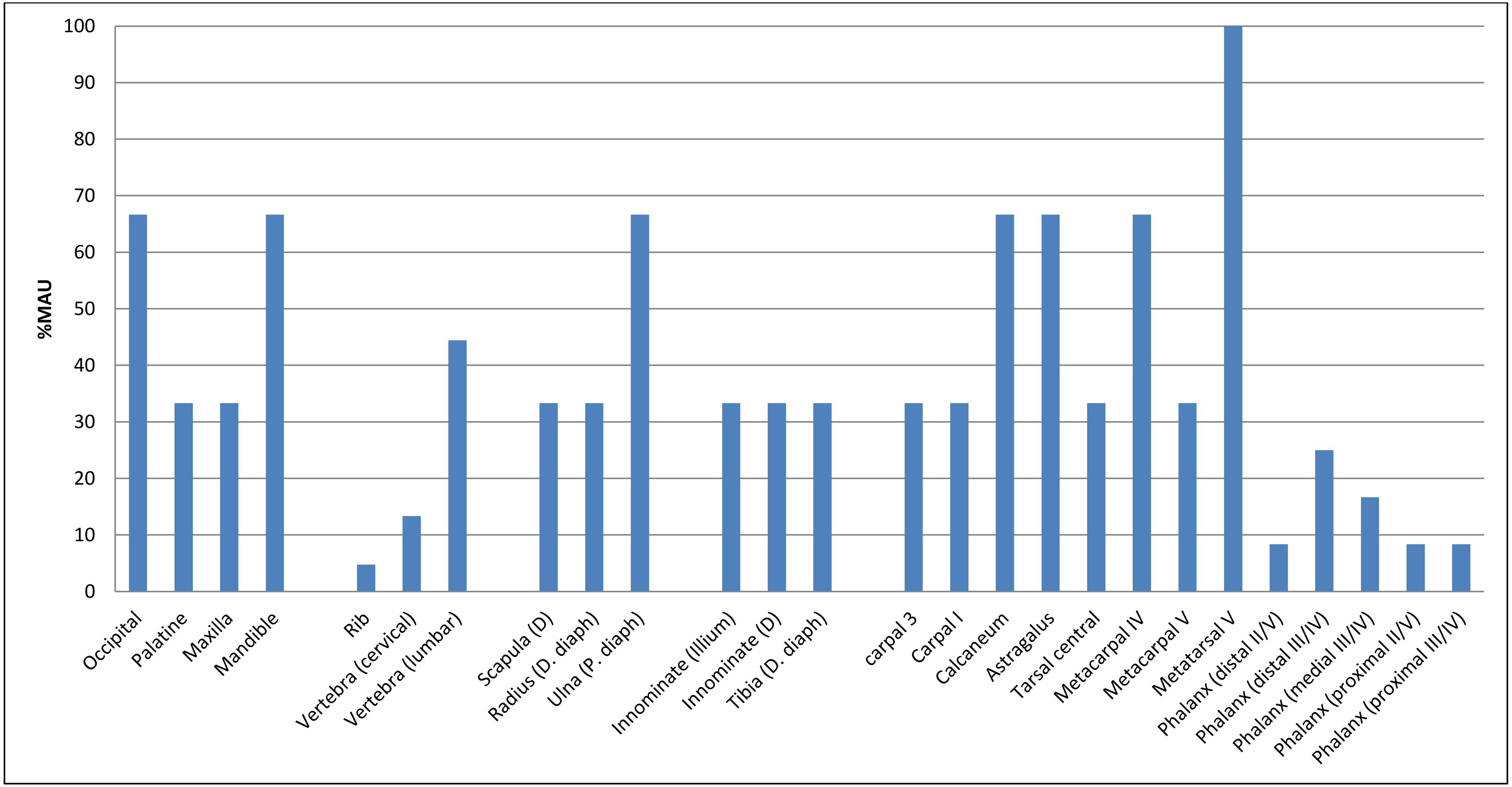
Ashbridge IV/V, Ashbridge Estate



Bullen/OHT, Ashbridge Estate



Graham site



%MAU
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10
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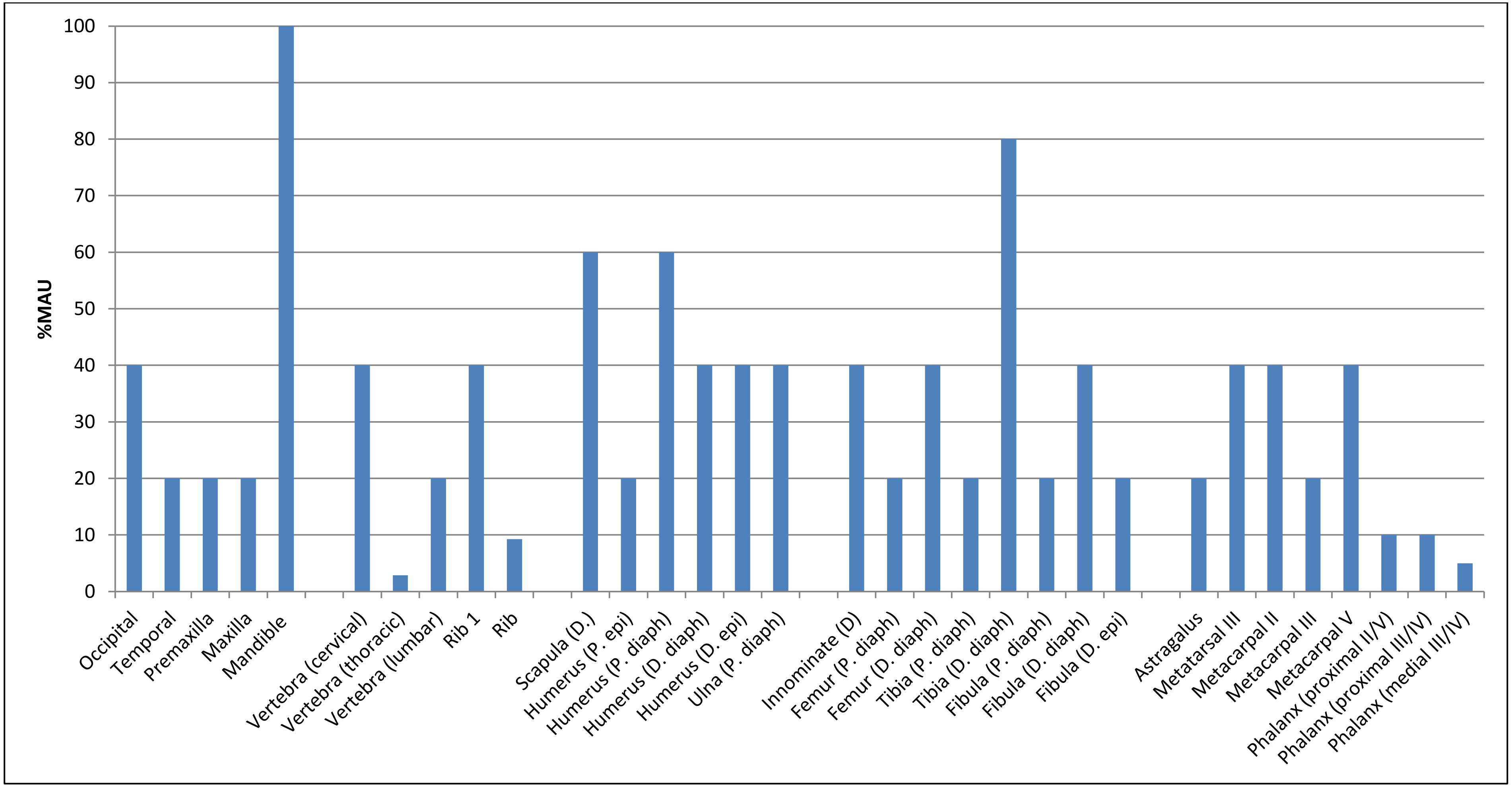
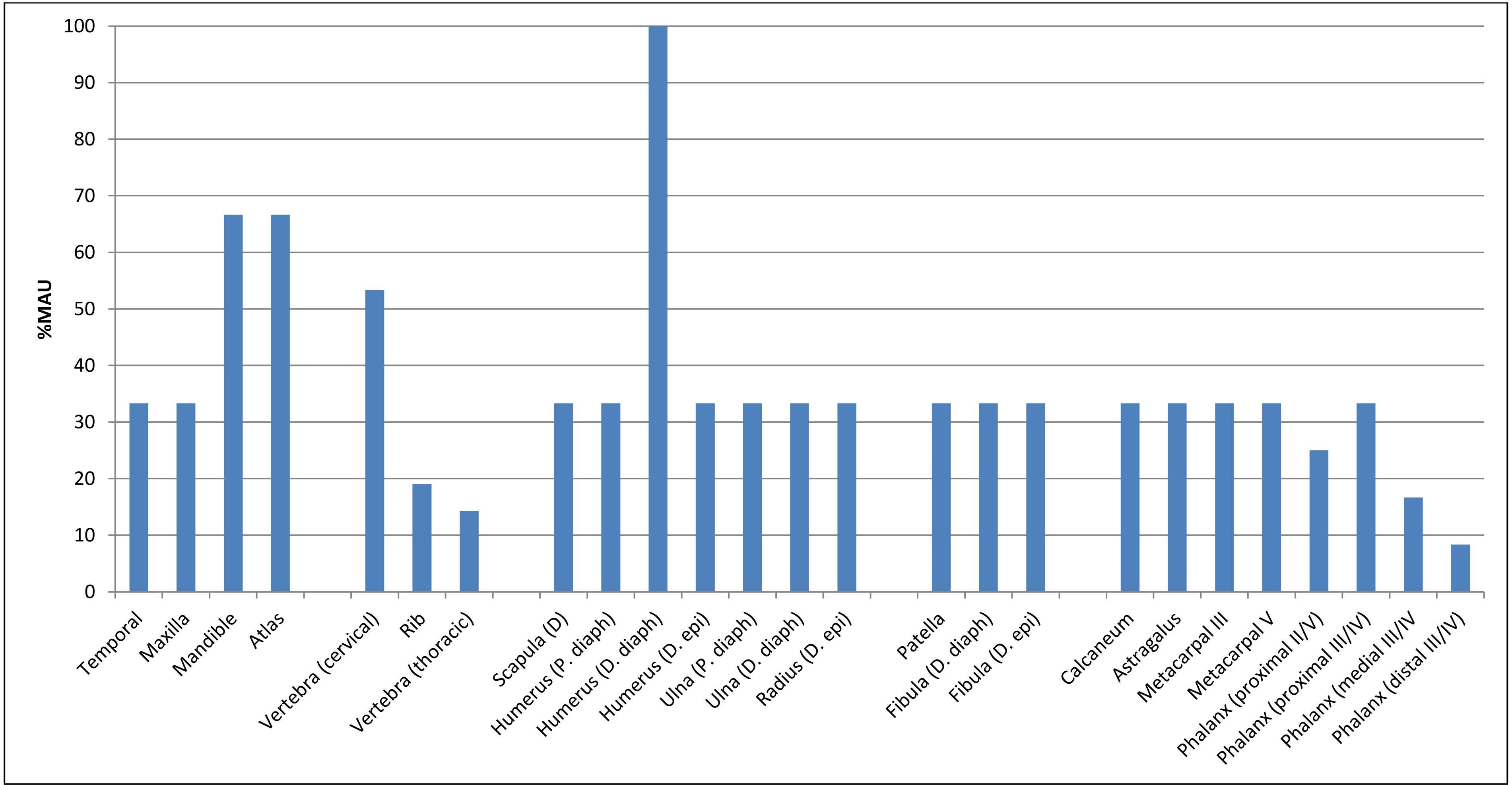
Occipital
Palatine
Maxilla
Mandible
Rib
Vertebra (cervical)
Vertebra (lumbar)
Scapula (D)
Radius (D. diaph)
Ulna (P. diaph)
Innominate (Illium)
Innominate (D)
Tibia (D. diaph)
carpal 3
Carpal I
Calcaneum
Astragalus
Tarsal central
Metacarpal IV
Metacarpal V
Metatarsal V
Phalanx (distal II/V)
Phalanx (distal III/IV)
Phalanx (medial III/IV)
Phalanx (proximal II/V)
Phalanx (proximal III/IV)

Hall site

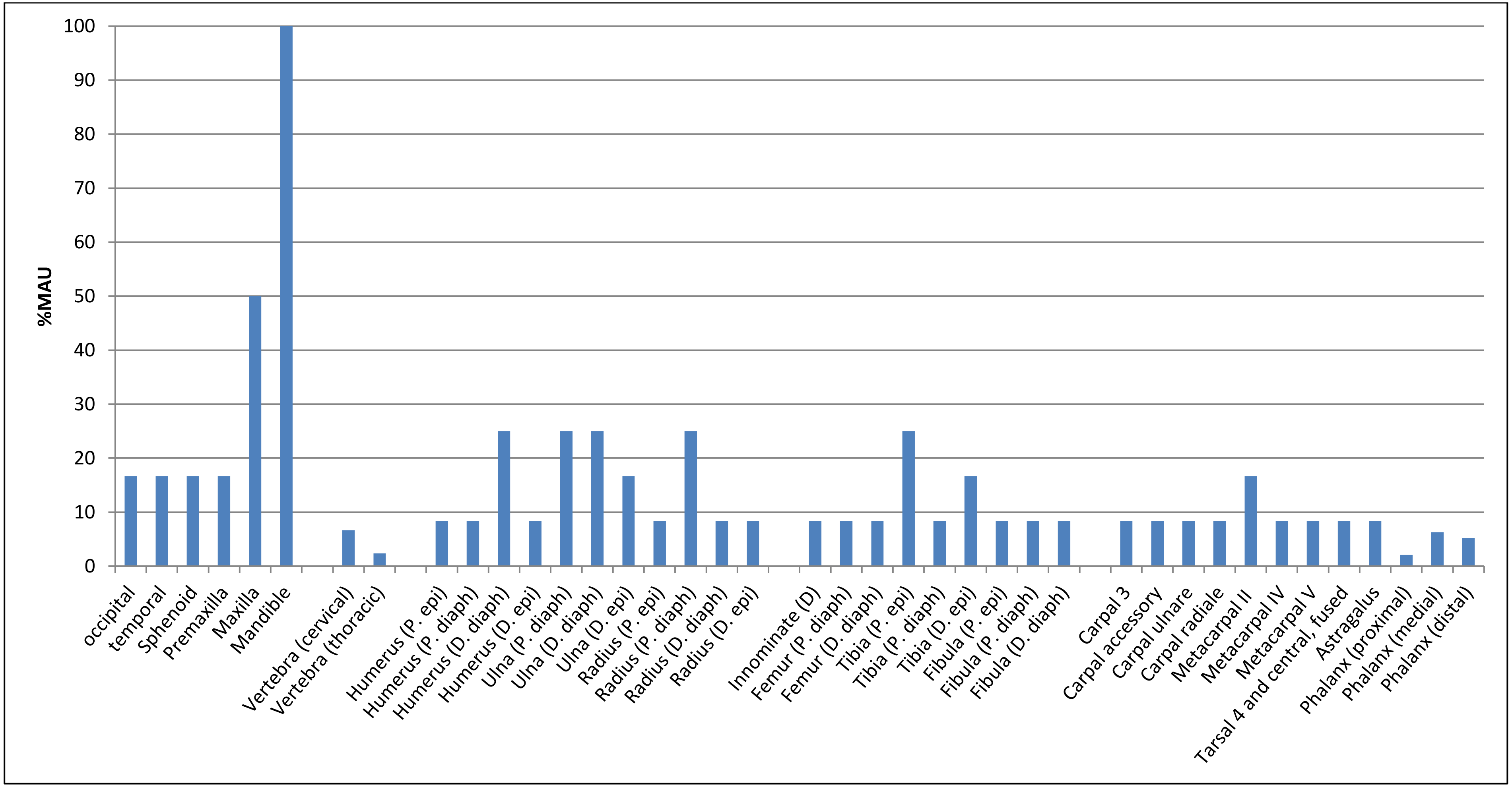


%MAU
100
90
80
70
60
50
40
30
20
10
0
Occipital
Temporal
Premaxilla
Maxilla
Mandible
Vertebra (cervical)
Vertebra (thoracic)
Vertebra (lumbar)
Rib 1
Rib
Scapula (D.)
Humerus (P. epi)
Humerus (P. diaph)
Humerus (D. diaph)
Humerus (D. epi)
Ulna (P. diaph)
Innominate (D)
Femur (P. diaph)
Femur (D. diaph)
Tibia (P. diaph)
Tibia (D. diaph)
Fibula (P. diaph)
Fibula (D. diaph)
Fibula (D. epi)
Astragalus
Metatarsal III
Metacarpal II
Metacarpal III
Metacarpal V
Phalanx (proximal II/V)
Phalanx (proximal III/IV)
Phalanx (medial III/IV)

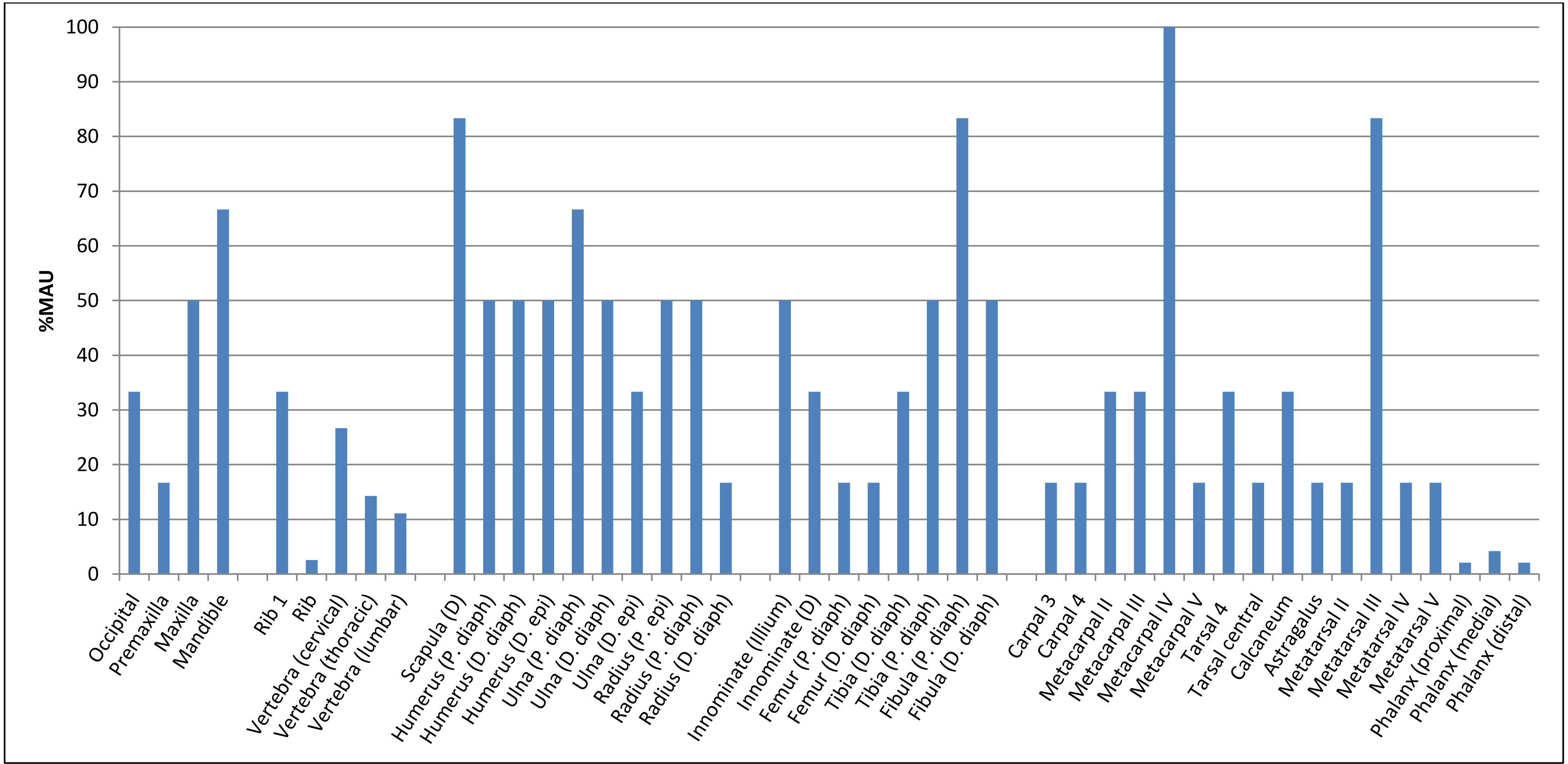
John Beaton II site



Early assemblage, Lewis site



Late assemblage, Lewis site



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