COALESCENCE AND ANIMAL USE: EXAMINING COMMUNITY BUILDING AT THE MULTI-ETHNIC MORTON VILLAGE SITE

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ABSTRACT

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Across human history, groups of people have come together, found commonalities, and negotiated their differences in order to form new communities; a process known as coalescence. Until recently, archaeologists have primarily studied this social phenomenon by looking at the large-scale changes that occur, including settlement aggregation and demography. New research has begun to focus on smaller scales of analysis, including aspects of daily life and the role of common behaviors in bringing people together. One such aspect of daily life is food. While previous research has recognized that changes in subsistence systems, such as a need to intensify the production of food to feed larger numbers of people, are commonly part of the coalescence process, little has been done to understand how these changes would affect a community or how a socially charged medium, such as food, may have contributed to ongoing coalescence. In this dissertation, I examine how animal use intersects with the broader process of coalescence through a multidimensional analysis of faunal remains from Morton Village, a site of on-going coalescence in the central Illinois River valley. Specifically, three aspects of animal use during the coalescence process were examined: 1) studying the overall diet as it intersects with the negotiation of everyday life, 2) animal access strategies including foodsharing practices, and 3) the use of animals and animal symbolism in ritual activities as a part of the long-term process of coalescence. These analyses found that the occupants of Morton Village used a diverse range of animal species, avian symbolism, and foodsharing/distribution practices within a variety of social interactions and practices. From this data, I argue that the use of animals played an

important role in the coalescence process at Morton Village by assisting in building social relationships that were critical to community formation and maintenance during the coalescence process. This study demonstrates that the study of animal use is a fruitful avenue of research that can reveal several mechanisms for how social relationships are formed and community building processes occurred during coalescence.

This dissertation is dedicated to my son, Oliver George Dean Painter.

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CHAPTER 1: INTRODUCTION

INTRODUCTION

Across human history, new communities have been formed by different groups of people coming together, negotiating their differences, and creating new traditions and identities; this process has been termed coalescence (Birch 2012; Clark et al. 2019; Kowalewski 2006). Research on coalescent communities has taken place on two different scales: the large-scale regional-level changes and smaller micro-scale patterns. The large-scale, regional-level changes that can occur during coalescence include settlement aggregation, changes in site size, abandonment of land, and demography; Micro-scale patterns include the day-to-day interactions and lived experiences (Birch 2012; Cameron 2013; Clark et al. 2019). To address the connections between these scales, Birch (2012, 2013) has worked to tack back and forth between the regional and local levels in order to explore how the long-term processes within coalescence impacted the everyday life of those living within these communities. These smaller, day-to-day activities and negotiations are critical to consider in coalescence research, as community relationships are formed and maintained through daily practice (Cameron 2013; O'Gorman 2010; Yaeger 2000).

One aspect of these daily practices and interactions that has been under-explored is the role of food and animal use within these situations. While previous research has recognized that changes in subsistence systems, such as a need to intensify the production of food to feed larger numbers of people (Kowalewski 2006), are commonly part of the coalescence process, little has been done to understand how these changes would affect a community or how a socially charged medium, such as food, may have contributed. While more food may have been necessary, a need for additional animal products, such as bones for tools and hides for clothing and housing, may

have also driven production intensification. In addition to shifts in resource acquisition and use during coalescence, migrants and locals can also be impacted by stress, conflict, and/or periods of adjustment, which in turn can result in food insecurity or circumscription. Such insecurity would affect a community's animal use and cuisine practices and may influence how the coalescence process progressed (Clark et al. 2019; Kowalewski 2006). Aside from subsistence, practices involving local faunal resources may have been important for building new relationships within a coalescing community. The sharing of portions of meat or cooked food could help to establish new bonds between neighbors, while the use of animals and animal symbols within the ceremonial life of a community may have helped to establish shared belief systems and a way of seeing the world (Birch 2012; Clark et al. 2019; Kowalewski 2006). While the above examples emphasize group cohesion, practices involving the use of animals could also be used to emphasize differences and create boundaries between neighbors, slowing the coalescence process or halting it entirely.

To explore these ideas further, this dissertation will seek to expand anthropological understandings of how animal use intersects with the broader process of coalescence. It will specifically approach the context of coalescent communities by looking at social interactions and community building through the broad theoretical framework of foodways. This will be accomplished through a multidimensional analysis of faunal remains, including studying the overall diet as it intersects with the negotiation of everyday life, animal access strategies including foodsharing practices, and the use of animals and animal symbols in ritual activities as a part of the long-term process of coalescence. The Morton Village site offers a unique opportunity to study the intersection of animal use and coalescence. This is because Morton Village is a late prehistoric occupation site (A.D. 1300-1400) located in the central Illinois River

valley that was inhabited by local Mississippian and migrant Oneota groups who appear to be engaged in the coalescence process (Esarey and Conrad 1998; O'Gorman and Conner in prep; Santure 1990a; Silva et al. 2014).

THEORETICAL PERSPECTIVE

As this dissertation includes a diverse set of questions, the theoretical approach employed for this research project uses a combination of perspectives. Particularly, coalescence and foodways are used to create an overarching theoretical framework that will be used to interpret the data. Theoretical frameworks specific to each research question will be discussed in the individual chapters.

Coalescence

For this research, the term coalescence is defined following Clark et al. (2019) and Kowalewski (2006), who describes it as a long-term process that occurs when people of different backgrounds come together to form new settlements and communities, sometimes as the result of a crisis or the collapse of a previous society. The coalescence process is not synonymous with aggregation, as aggregated communities do not always undergo the process of coalescence. Aggregation of people is when two or more groups of people, not always from different cultural backgrounds, come together but do not necessarily undergo social and cultural transformations. Aggregation can occur for many reasons, such as for celebrations, defense, and religious purposes, but is often followed by the disaggregation or the dispersal of those people (Birch 2012; Gyucha 2019; Kelly 2019). Aggregation is also not linked to an automatic increase in

population size, as aggregation "can take place without an increase in population within a given larger region" (Kelly 2019:109).

As the formation of a coalescent society is an ongoing process, communities continually need to negotiate rules for living together and overcome any issues that arise (Arkush 2017; Birch 2012; Clark et al. 2012). Potential issues that may need to be addressed during the coalescence process include (but are not limited to) disputes over leadership, land tenure, identity, and power (Arkush 2017; Clark et al. 2019; Birch 2012). For coalescent societies to be sustainable several mechanisms can be used to address any issues, bridging differences, and contributing to the creation of a community. These include collective defense and fortification; intensification of production; intensification of trade; elaborate community integration (i.e., rituals of intensification); architecture and village organization that promotes community integration; universalizing ideologies; and the development of systems of collective leadership (Kowalewski 2006: 81). Re-shaping the built environment and religious/ritual practices to "emphasize collective, universalizing, and participatory practices" (Clark et al. 2019:266) that either move beyond or crosscut the migrant and local communities' traditional practices are critical to the successful coalescence of a community. This is because they incorporate and integrate the diverse groups living in these communities, formalizing the new relationships, practices, and traditions that are developed into a new community system (Clark et al. 2019).

Because coalescence can be a long-term process that does not always result in a fully coalesced community, archaeologists may need to identify the presence of incomplete or ongoing coalescence. This can be traced by documenting changes in identities and traditions, such as technological practices, cuisine, and organizational patterns (Birch 2012; Cameron 2013; Clark et al. 2019). The process of coalescence occurs differently based on local social, political,

and historical circumstances, and does not appear identically within the archaeological record at every site of coalescence (Cameron 2013; Clark et al. 2019).

Foodways

Foodways, for this dissertation, is defined as the examination of how choices surrounding food items, including their production/procurement, preparation, consumption, and discard are related to broad social aspects including identity and religion. Foodways are put into practice daily by both individuals and groups, through which they can negotiate, create, and maintain their identity by the choices related to what is consumed and within what social context (Dietler 2007; Scott 2008; Twiss 2007, 2012).

As this day-to-day use of food, including preparation and consumption, commonly occurs within household settings, it is important to study food choices at this scale to learn about the negotiations related to social relationships (Morrison 2012). Additionally, analysis of food remains can reveal the socioeconomic status and ethnic identities of an archaeological site's occupants (Scott 2008:357), as the choices related to food can be used to emphasize or de-emphasize attributes, allowing individuals, families, and communities to construct new identities or align with previously existing ones.

Identity is not only how individuals view themselves within their society, but it is how they choose to portray themselves to others. As identity is socially constructed and dynamic it is affected by and affects cultural practices and experiences (Twiss 2007). There is also no such thing as a single, all-encompassing identity; every individual has multiple identities related to different aspects of life, linking themselves to broad identity groups including ethnic, religious, family, gender, and age groups, among others (Graff 2018; Maldonado and Russell 2016; Twiss

2007; Wynne-Jones 2007). Fluid in nature, identities are continually maintained and restructured, often through material culture and practices (Clark et al. 2019; Dietler 2007; Twiss 2007). Food choices are one of these practices that can be used daily to form and negotiate identities, that is, "we are what we eat" (Twiss 2007:1). The social practices surrounding food choice, both within the household and at larger community events, can then become visible markers of shared traditions, which can contribute to the creation of community in addition to delineating outsiders (Hastorf 2016; Twiss 2007; Weller and Turkon 2015).

Therefore, foodways practices are an important aspect of identity on multiple scales, allowing this area of archaeological research to better inform us about the process of coalescence. As mentioned previously, during the coalescence process, previous research indicates that changes to food production and consumption occur (Kowalewski 2006), however, very few projects investigate the ways that foodways shifted or became critical components of the integrative mechanisms inherent in coalescence (Painter 2021). The process of building a community is not only accomplished through large-scale mechanisms, but also the common, day-to-day interaction including food procurement, processing, cooking, and consumption. Investigations in this aspect of coalescence can provide new insights into the ways that negotiations related to many aspects of community formation, maintenance, and identity were navigated.

CASE STUDY: THE MOROTN VILLAGE SITE

Morton Village is a late precontact occupation on the western bluff of the central Illinois River valley (CIRV) located in west-central Illinois. Occupied approximately from A.D. 1300 to 1400 (Esarey and Conrad 1998; Santure 1990a; Silva et al. 2014), the site was inhabited

contemporaneously by local Mississippian and migrant Oneota groups who were in the process of coalescing. During the fourteenth century AD, Oneota group(s) migrated into the CIRV from the upper Midwest and began interacting with local Mississippian groups living in the area, a time period known as the Bold Counselor Phase (Esarey and Conrad 1998; Santure 1990a; Santure 1990b). Morton Village is one of five sites (the other sites being C.W. Cooper, Crable, Sleeth, and Otter Creek) known in the CIRV that are the result of this migration and is the most extensively investigated (Esarey and Conrad 1998; Santure et al. 1990; Santure 1990a). While this time period is relatively understudied, complex interactions between migrants and locals are evidenced by the adoption of new vessel forms on the part of the Oneota migrants (Esarey and Conrad 1998; Santure 1990a; Santure 1990b), possible shifts in diet (Tubbs 2013), and the appearance of unique mortuary ritual and symbolism (Bengston and O'Gorman 2016).

Initial survey and identification of Morton Village occurred in the 1930s and was followed by additional surveys and salvage excavations in the 1980s due to the construction of Illinois Route 78/97. Through these salvage excavations, portions of the habitation and mortuary components of the site were uncovered. Archaeological evidence of both Oneota and Mississippian-style material culture was found within the village context; however, the initial excavations and analysis treated this evidence as representing two separate occupations of the village site (Santure et al. 1990). The mortuary component, designated as the Norris Farms 36 Cemetery, contains Oneota style mortuary characteristics, including the mound structure, features, and organization of the graves (Bengston and O'Gorman 2016; Santure 1990a; Santure 1990b). Forty-three Oneota individuals out of the 264 interred at Norris Farms 36 exhibited signs of violent death (Milner 1999; Milner and Smith 1990; Milner et al. 1991; Santure 1990b). In addition to those individuals who succumbed as the result of violence, many other individuals

show signs of violence, with 34% of individuals interred at Norris Farms 36 over the age of 15 sustaining some type of traumatic injury (Bengston and O'Gorman 2016; Esarey and Conrad 1998; Milner and Smith 1990; Santure et al. 1990). It is this evidence of violence that influenced the initial interpretations of daily life at Morton Village. Based on the presence of violence and disease in the cemetery in addition to a relatively narrow diet, the original interpretation of life at Morton Village included social stress and fear which limited the inhabitants from traveling far from the village for foodstuffs and placed a focus on local agricultural fields (Styles and King 1990). This model has been extended to the earlier Mississippian phases of the Illinois River valley more recently (VanDerwarker and Wilson 2016).

Recent excavations at Morton Village have begun to change this narrative, as several lines of evidence that both Mississippian and Oneota people occupied the site contemporaneously has been determined (O'Gorman and Conner in prep). Radiocarbon dates taken from single post (architectural style typically associated with Oneota) and wall trench structures (architectural style typically associated with Mississippian) from throughout the habitation show no statistical difference between the dates for each style, suggesting that both types of material culture were in use at the site contemporaneously (Silva et al. 2014). Ceramic styles considered typical of both groups has also been identified within the same context, i.e., a burned and encapsulated structure floor (Conner and O'Gorman 2012; Santure 1990a). This evidence indicates that Morton Village was home to a multi-cultural population during its peak occupational period.

In addition to being found in the same context, objects and practices have been identified that blend the traits of both groups, such as ceramic plates and mortuary symbolism (Bengston and O'Gorman 2016; Painter and O'Gorman 2021). Integrative foodways and cuisine practices

have been identified through the analysis of ceramics at Morton Village, including changes in cooking and food presentation. (Painter and O'Gorman 2019, 2021; Painter 2021). Specifically, the evidence for the adoption and use of the plate vessel form by Oneota potters suggests that practices involving serving and food presentation at community events may have been an important avenue for bringing residents together and creating shared traditions (Painter 2021; Painter and O'Gorman 2021).

At the Norris Farms 36 cemetery, mortuary symbolism also points to ongoing negotiations of identity and community life between the residents (Bengtson and O'Gorman 2016). For example, within the cemetery, evidence of both hand and bird symbolism has been found, along with the presence of stone discoidals (Chunkey stones) and Mississippian-style or hybrid ceramics. Often, these objects are found with children. The inclusion of traditional Mississippian symbols and objects with children interred in an Oneota cemetery suggests that children played an important role in community negotiations and social integration at the site. The use of these symbols may represent a unique mortuary tradition that was the result of social identity negotiations at Morton Village (Bengtson and O'Gorman 2016).

In the village proper, excavations have revealed the presence of mixed domestic architecture styles in at least four structures (i.e. both single post and wall trench construction) (Yann et al. 2015). These architecture styles are indicative of traditional Mississippian wall trench and Oneota single post methods of domestic structure construction. The presence of both styles used in the construction of a single structure indicates the blending of practices. Additionally, the special use structures present at Morton Village could have served as integrative facilities for the community, in which new rituals could be negotiated and maintained. Together, these lines of evidence support the interpretation that there were ongoing

complex negotiations of community and identity taking place at the site between its residents (Bengston and O'Gorman 2016; Beyer et al. 2016; Nordine 2020; Painter 2021; Painter and O'Gorman 2017, 2019).

When viewing these lines of evidence together, it indicates that a "suite of transformations" was occurring at Morton Village (Clark et al. 2019:266). While there may be alternative explanations (aggregation, colonialism, captive-taking, warfare, trading/exchange center, marriage, and/or rapid re-occupation of an abandoned site) to all of these changes, when the lines of evidence are viewed together, I believe a theoretical framework of coalescence and foodways is a useful approach, keeping in mind that coalescence is a process that may or may not ultimately result in the successful integration of two groups.

ORGANIZATION OF DISSERTATION

This dissertation will address the overall theme of foodways and community within the coalescence process, contributing to a broader understanding of what roles animal use can play within the process of forming multi-cultural communities. To accomplish this, three distinct but overlapping aspects of animal use in coalescence will be examined, with each project resulting in an individual article. A conclusion chapter will provide an overall interpretation of animal use practices at Morton Village and within coalescence in general.

The first research topic focuses on the idea of intensification of production as a part of the process of coalescence. Within this topic, I ask: In what ways, if any, did animal use practices shift during the coalescence process? Can these changes be seen archaeologically through the analysis of faunal remains? To answer these questions, a stratified random sample was used, including faunal material from interior (within structures) and exterior pit features. To place the

results of the Morton Village faunal analysis in the larger process of coalescence, published faunal analyses from 34 Mississippian and Oneota communities from similar time periods were compiled to create expectations of diet trends using species lists, number of identified specimen (NISP) counts, and diversity statistics. The Morton Village statistical diversity results indicate that they aligned more with an Oneota use pattern, selecting a wider variety of animal taxa. However, as the general diet trends of the comparative Mississippian and Oneota were similar to one another, it was not possible to determine if there were any indicators of hybrid foodways practices taking place. In sum, the results of this research show that the Morton Village occupants used a diverse animal use strategy that focused on renewable, readily available species and that they were not significantly impacted by circumscription due to warfare and stress in the region.

The second research topic will look at how people used animals and animal symbols in ritual and ceremonial practices that were part of negotiating social and community relationships during the coalescence process. Specifically, the Morton Village faunal record will be examined for the visible, shared use of animals and/or animal symbols in ritual and ceremonial contexts that could indicate the development of similar practices. In this project, symbols are defined as something that represents or stands for something else, like an object representing an abstract idea.

To accomplish this, the four contexts at Morton Village designated as ritual or ceremonial (three structures and an individual feature) were analyzed in their entirety. Following the identification of the faunal remains from those contexts, the results were compared in three ways using species composition, NISP, minimum number of individuals (MNI), and biomass: 1) ritual contexts compared to each other, 2) ritual contexts compared to the overall Morton Village

faunal signature determined in Chapter 2, and 3) ritual contexts compared to Norris Farms 36 Cemetery faunal remains recovered from Bold Counselor Phase Oneota burials. Three main patterns were revealed from this analysis. First, while the ceremonial structure contexts would have served different purposes for the Morton Village community, the choice of animal classes/species was similar within those spaces, with a higher ratio of mammal remains than other animal classes. Second, the individual feature (Feature 224), based on the large scale of the feature, quantity of faunal remains, and material culture, represents a deposit that was the result of a ceremonially or ritually charged large, community-level feasting event that included both local Mississippian and migrant Oneota people. Third, the use of animals in village ceremonial and the mortuary contexts were different, except for the presence/use of an unusual avian species, bald eagle, in both spaces. This may represent the symbolic importance of this species for the Morton Village community, as they were used as part of creating and maintaining community relationships as well as in traditional burial practices. In general, animals were used as ritually charged food items and symbols as part of religious events, likely serving a mediating role in the ongoing integrative processes taking place at Morton Village.

The third research topic will evaluate the presence and extent of faunal access strategies for large game animals during the coalescence process. Access strategies, including the sharing of food, can serve as a mechanism for creating and maintaining bonds within a community through everyday practice. The goal of this project is to determine if these practices are archaeologically visible at Morton Village by means of skeletal remains of white-tailed deer (*Odocoileus virginianus*) and wapiti (*Cervus elaphus*) remains, and if so, how widespread the practices were. Additionally, this project will cross-evaluate and compare the utility of four different analysis methods: specimen refitting, pair matching, body portion ratios, and household

distribution methods. The analysis indicates that the sharing of wapiti at Morton Village occurred, in addition to differential access strategies. No visible indicators of white-tailed deer foodsharing were uncovered, but the household distribution analysis indicates similar access to deer within the community. It is possible that cooking or depositional practices obscured deer foodsharing practices in the archaeological record, or that, as deer are smaller mammals than wapiti, they may not have been as commonly shared between households. While the evidence for foodsharing practices within the Morton Village is subtle, this study successfully showed the utility of using four different analytical methods in tandem to provide a broad approach to uncovering faunal access strategies within a community.

Lastly, a conclusion chapter will weave the results of the three research projects to provide an overall interpretation of the use of animals during the coalescence process by Morton Village residences.

Overall, this dissertation will contribute to the anthropological understanding of the role animal use can play in coalescence through the application of faunal analysis, as past approaches to coalescent societies have not emphasized this aspect. My dissertation research, focusing specifically on faunal analysis, will help archaeologists and anthropologists to advance our understandings of this process and to assess any past assumptions on what types of resultant animal use took place. Through the analysis of faunal material, this dissertation will approach concepts of the roles that animal use plays in community formation, ritual practices, and animal access strategies within coalescent societies and address complications encountered by the use of faunal remains for these kinds of investigations. Together, they will expand how we, as anthropologists, understand what roles animal use practices play in the process of coalescence.

Continuing to advance our knowledge of this process will assist in our ability as anthropologists to contribute to modern-day discussions of multiculturalism and immigration issues.

REFERENCES

REFERENCES

Arkush, Elizabeth

2017 Coalescence and Defensive Communities: Insights from an Andean Hillfort Town. *Cambridge Archaeological Journal* 28(1):1-22.

Bengtson, Jennifer D., and Jodie A. O'Gorman

2016 Children, Migration and Mortuary Representation in the Late Prehistoric Central Illinois River Valley. *Childhood in the Past* 9(1):19-43.

Beyer, Autumn M., Michael Conner, Jodie O'Gorman, Jeffrey Painter, SarahJane Potter, and Nikki Silva

2016 There's No Place Like Home: Domestic Negotiations at Morton Village. Poster Presented at the 60th Annual Meeting of the Midwest Archaeological Conference, Iowa City, Iowa.

Birch, Jennifer

2012 Coalescent Communities: Settlement Aggregation and Social Integration in Iroquoian Ontario. *American Antiquity* 77(4):646-670.

2013 Between Villages and Cities: Settlement Aggregation in Cross-Cultural Perspective. In *From Prehistoric Villages to Cities: Settlement Aggregation and Community Transformation*, edited by Jennifer Birch, pp. 1-22. Routledge, New York.

Cameron, Catherine M.

2013 How People Moved among Ancient Societies: Broadening the View. *American Anthropologist* 115(2):218-231.

Clark, Jeffrey J., Jennifer A. Birch, Michelle Hegmon, Barbara J. Mills, Donna M. Glowacki, Scott G. Ortman, Jeffrey S. Dean, Rory Gauthier, Patrick D. Lyons, Matthew A. Peeples, Lewis Borck, and John A. Ware

2019 Resolving the Migrant Paradox: Two Pathways to Coalescence in the Late Precontact U.S. Southwest. *Journal of Anthropological Archaeology* 53:262-287.

Conner, Michael D., and Jodie A. O'Gorman

2012 Spatial Distribution of Cultural Components and House Types at Morton Village. Paper presented at 58th Annual Midwest Archaeological Conference, East Lansing, Michigan.

Dietler, Michael

2007 Culinary Encounters: Food, Identity, and Colonialism. In *The Archaeology of Food and Identity*, edited by Katheryn C. Twiss, pp. 1–15. Occasional Paper No. 34, Center for Archaeological Investigations Southern Illinois University Carbondale.

Esarey, Duane, and Lawrence A. Conrad

1998 The Bold Counselor Phase of the Central Illinois River Valley: Oneota's Middle Mississippian Margin. *The Wisconsin Archaeologist* 79(2):38-61.

Graff, Sarah
2018 Archaeological Studies of Cooking and Food Preparation. *Journal of Archaeological Research* 26:305-351.

Gyucha, Attila
2019 Population Aggregation and Early Urbanization from a Comparative Perspective: An Introduction to the Volume. In *Coming Together: Comparative Approaches to Population Aggregation and Early Urbanization*, edited by Attila Gyucha, pp. 1-36. IEMA Proceedings, Volume 8. State University Press of New York Press, Albany NY.

Hastorf, Christine A.
2016 *The Social Archaeology of Food: Thinking about Eating from Prehistory to the Present*. Cambridge University Press, Cambridge.

Kelly, John E.
2019 Contextualizing Aggregation and Nucleation as Demographic Processes Leading to Cahokia's Emergency as an Incipient Urban Center. In *Coming Together: Comparative Approaches to Population Aggregation and Early Urbanization*, edited by Attila Gyucha, pp. 105-134. IEMA Proceedings, Volume 8. State University Press of New York Press, Albany.

Kowalewski, Stephen A.
2006 Coalescent Societies. In *Light on the Path: The Anthropology and History of the Southeastern Indians*, edited Robbie R. Ethridge, Thomas J. Pluckhahn, and Thomas J. Hudson, pp. 68-84. University of Alabama Press, Tuscaloosa.

Maldonado, Adrian, and Anthony Russell
2016 Introduction: Creating Material Worlds. In *Creating Material Worlds: The Uses of Identity in Archaeology*, edited by Louisa Campbell, Adrian Maldonado, Elizabeth Pierce, and Anthony Russell, pp. 1-16. Oxbow Books, Oxford

Milner, George R.
1999 Warfare in Prehistoric and Early Historic Eastern North America. *Journal of Archaeological Research* 7:105-151.

Milner, George R., and Virginia G. Smith
1990 Oneota Human Skeletal Remains. In *Archaeological Investigations at the Morton Village and Norris Farms #36 Cemetery*, edited by S. Santure, A. Harn, D. Esarey, pp. 111-148. Illinois State Museum Report of Investigations, No. 45, Illinois State Museum, Springfield.

Milner, George R., Eve Anderson, and Virginia G. Smith
1991 Warfare in Late Prehistoric West-Central Illinois. *American Antiquity* 56(4):581-

603.

Morrison, Kathleen D.
2012 Great Transformations: On the Archaeology of Cooking. In *The Menial Art of Cooking: Archaeological Studies of Cooking and Food Preparation,* edited by Sarah R. Graff and Enrique Rodriquez-Alegria, pp. 231-244. University Press of Colorado, Boulder.

Nordine, Kelsey
2020 Building Communities: Interpreting Oneota and Mississippian Interaction Through Paleoethnobotanical Analysis at the Morton Village Site (11F2), West-Central Illinois. PhD dissertation, Department of Anthropology, Washington University, St. Louis, Missouri.

O'Gorman, Jodie
2010 Exploring the Longhouse and Community in Tribal Society. *American Antiquity* 75(3):571-597.

O'Gorman, Jodie, and Michael Conner
In prep Considering Hybridity and Coalescence at Morton Village.

Painter, Jeffrey M.
2021 Cooking and Coalescence: Exploring the Construction of Community and Cuisine at Morton Village. Ph D dissertation, Department of Anthropology. Michigan State University, East Lansing, Michigan.

Painter, Jeffery M., and Jodie O'Gorman
2021 You Are How You Eat: Towards and Understanding of Village Cuisine and Community Integration. Paper Presented at the Annual Meeting of the Midwest Archaeological Conference, Sponsored Symposium, East Lansing, Michigan.

2019 Cooking and Community: An Exploration of Oneota Group Variability through Foodways. *Midcontinental Journal of Archaeology* 44(3):231-258.

2017 Foodways Variability in the Oneota Tradition: A Pilot Study of Cooking Pots. Paper presented at the 82nd Annual Meeting of the Society of American Archaeology, Vancouver, B.C.

Santure, Sharron K.
1990a Summary of Excavation and Analyses. In *Archaeological Investigations at the Morton Village and Norris Farms 36 Cemetery*, edited by Sharron K. Santure, Alan D. Harn, and Duane Esarey, pp. 160-161. Illinois State Museum Reports of Investigations, No. 45. Springfield.

1990b Norris Farms 36: A Bold Counselor Phase Oneota Cemetery. In *Archaeological Investigations at the Morton Village and Norris Farms 36 Cemetery*, edited by Sharron

K. Santure, Alan D. Harn, and Duane Esarey, pp. 66-74. Illinois State Museum Reports of Investigations, No. 45. Springfield.

Santure, Sharron K., Alan D. Harn, and Duane Esarey (editors)
1990 *Archaeological Investigations at the Morton Village and Norris Farms 36 Cemetery.* Illinois State Museum Reports of Investigations, No. 45. Springfield.

Scott, Elizabeth M.
2008 Who Ate What? Archaeological Food Remains and Cultural Diversity. In *Case Studies in Environmental Archaeology*, edited by Elizabeth Reitz, C. Margaret Scarry, and Sylvia J. Scudder, pp. 357-374. Springer Science & Business Media, New York.

Silva, Nikki, Jodie O'Gorman, and Michael Conner
2014 Implications of Recent Radiocarbon Dating at Norris Farms 36 Cemetery and Morton Village. Paper presented at the 58th Annual Meeting of the Midwest Archaeological Conference, Champaign, Illinois.

Styles, Bonnie W., and Frances B. King
1990 Faunal and Floral Remains from the Bold Counselor Phase Village. In *Archaeological Investigations at the Morton Village and Norris Farms 36 Cemetery*, edited by Sharron K. Santure, Alan D. Harn, and Duane Esarey, pp. 57-65. Illinois State Museum Reports of Investigations, No. 45. Springfield.

Tubbs, Ryan
2013 Ethnic Identity and Diet in the Central Illinois River Valley. Ph.D. dissertation, Department of Anthropology, Michigan State University, East Lansing.

Twiss, Katherine C.
2007 We Are What We Eat. In *The Archaeology of Food and Identity*, edited by Katheryn C. Twiss, pp. 1–15. Occasional Paper No. 34. Center for Archaeological Investigations Southern Illinois University, Carbondale.

2012 The Archaeology of Food and Social Diversity. *Journal of Archaeological Research* 20(4):357-395.

Weller, Daniel L., and David Turkon
2015 Contextualizing the Immigrant Experience: The Role of Food and Foodways in Identity Maintenance and Formation for First- and Second-Generation Latinos in Ithaca, New York. *Ecology of Food and Nutrition* 54:57-73.

Wynne-Jones, Stephanie
2007 It's What You do with it That Counts: Performed Identities in the East African Coastal Landscape. *Journal of Social Archaeology* 7(3):325-345.

VanDerwarker, Amber M., and Gregory D. Wilson

2016 War, Food, and Structural Violence in the Mississippian Central Illinois Valley. In *The Archaeology of Food and Warfare*, edited by Amber M. VanDerwarker and Gregory D. Wilson, pgs. 75-106. Springer, New York.

Yann, Jessica, Jeffrey Painter, and Michael Conner
2015 The Spatial Distribution of Domestic Facilities in the Multiethnic Morton Village Site. Poster Presented at the 80th Society for American Archaeology Meeting, San Francisco, CA.

Yaeger, Jason
2000 Coalescent Societies. In *Light on the Path: The Anthropology and History of the Southeastern Indians*, edited by Robbie F. Ethridge, Thomas J. Pluckhahn, and Thomas J. Hudson, pp. 68-84. University of Alabama Press, Tuscaloosa.

CHAPTER 2: INTERSECTION OF COALESCENCE AND DIET: ANIMAL USE PRACTICES AT MORTON VILLAGE

INTRODUCTION

Throughout time and space, groups of people have come together to form new communities, negotiating differences, and creating new social systems through a process termed coalescence (Birch 2012; Clark et al. 2019; Kowalewski 2006). Located in the central Illinois River valley (CIRV), Morton Village was a late precontact (cal. A.D. 1300 – 1400) occupation site inhabited by local Mississippian and migrant Oneota groups who were undergoing the complicated process of coalescing into a new community (Esarey and Conrad 1998; Santure 1990a; Silva et al. 2014). There are few known sites in the region linked with the migration of Oneota peoples into the CIRV, with Morton Village being one of the only sites to have undergone a significant amount of investigation (Esarey and Conrad 1998; Santure 1990a, 1990b). Recent excavation and research at the site have documented that social negotiations of various kinds were on-going (Nordine 2020; O'Gorman and Conner in prep; Painter 2021; Painter and O'Gorman 2019) and have also generated a large and well-provenienced faunal sample. As such, Morton Village is unique and offers an exceptional opportunity to study the intersection of animal use and coalescence, specifically focusing on how people used and interacted with animals in everyday activities, including hunting and fishing patterns and species choice, to negotiate the challenges presented during post-migration/coalescence processes. In order to evaluate if foodways practices changed or shifted within the Morton Village site and to determine if any indicators of food insecurity or circumscription of hunting and fishing is present, a baseline of diet trends was created based on previously published faunal material from 34 Oneota and Mississippian communities. Including multiple lines of evidence will allow for a

well-rounded approach to understanding the day-to-day use of animals at Morton Village during the coalescence process and contribute to our understanding of post-migration/coalescent foodways practices in the past.

COALESCENCE AND FOODWAYS

For this research, coalescence is defined as the "coming together of groups from different cultural backgrounds due to various push and pull factors, and the inclusive ideologies and regional economies that develop in the aftermath" (Clark et al. 2019:263). The formation and maintenance of coalescent communities often can be the result of migration and aggregation; however, the creation of fully coalescent societies is not always the final result of these types of human activities. The long-term process of coalescence involves a "suite of transformations" (Clark et al. 2019:266) which includes political and social reorganization that leads to the creation of new integrative practices, institutions, intensification of production, and a shift towards inclusive ideologies (Arkush 2017; Birch 2012; Kowalewski 2006).

As outlined by Kowalewski (2006), one of the expectations from models of coalescence is the intensification of production, as increased group size would require an increase in subsistence resources. In addition to population increase during coalescence, migrants commonly find themselves in conflict, stress, and/or periods of adjustment with the local population, which can result in food insecurity and/or circumscription and would impact a community's animal use practices and foodways patterns (Clark et al. 2019; Kowalewski 2006). Changes in faunal patterns could also be impacted by the need for additional animal products such as hides for clothing and bones for tools (Birch and Williamson 2013). However, the roles that animal use plays as a part of the coalescence process has been under-investigated.

The concept of hybridity may offer a useful lens to explore foodways and identity within the process of coalescence. Hybridity is a term that has been applied to cases of culture contact and colonialism, usually as an alternative to the use of terms such as creolization, ethnogenesis, and acculturation (Card 2013). Generally, hybridity involves the incorporation of aspects from distinct traditions, including practices and symbols, through the processes of interaction and negotiation, into new cultural traditions and meanings (Deagan 2013:261). While there are many critiques of the concept of hybridity (Dietler 2010; Paulmié 2013; Silliman 2015), it is possible that 'uncoupling' hybridity from material production/culture will allow archaeologists to explore other avenues of understanding hybridity (Deagan 2013:262). One of these ways is through the concept of 'thirdspace' which occurs as a liminal space, or a region, in which differences converge and new meanings of beliefs, identity, practices, and material culture are negotiated (Alt 2006:292; Bhabaha 1990). Emphasis is placed on the creative potential of these spaces, as not only can a blending of traits or practices occur, but entirely new practices with no prior antecedents may also be generated (Alt 2018). It is through this thirdspace that many negotiations that are a part of the process of coalescence can occur, including the negotiation of identity. As hybridity stresses the importance of creativity within the thirdspace (Alt 2006; Bhabaha 1990), it allows for the exploration of how the occupants of Morton Village could have modified how they procured animals, as well as how they share food resources within the community.

Another way that archaeologists approach the construction of identity and community is through food practices (Hastorf 2016; Twiss 2007, 2012). This not only includes what food was consumed, but also the many activities that surround the preparation and consumption of that

food. Through these daily practices related to food, individuals and groups are able to create, maintain, and restructure their identity (Dietler 2010; Twiss 2007, 2012).

As food is intrinsically social, human relationships are maintained and defined through food (Gumerman 1997; Hastorf and Weismantel 2007). Cooking and consumption practices are structured through socially patterned culinary rules that are learned and shaped, often through family traditions that guide human behavior (Gumerman 1997). Food is one of the basic components of self and group identification, which is put into practice daily by the choice of what is actually consumed and within what social context (Smith 2006). Food remains can be leveraged to interpret many aspects of human life including socioeconomic position and ethnic identity of a site's occupant (Scott 2008:357). Through food choices, individuals, families, and communities can emphasize or de-emphasize certain attributes, such as the species of animals eaten or certain cuts of meat, allowing themselves to align with or construct broad identities. Since food preparation and consumption commonly takes place within household settings, we must investigate food choices at that scale to better understand the definition and negotiation of kinship, gender, and other social conditions (Morrison 2012).

An important aspect of identity and community, foodways is an avenue of research that can be utilized to better understand the process of coalescence. Foodways practices that are enacted daily provide a different perspective on the formation of coalescent societies than more commonly utilized approaches that take a wider perspective, such as the analysis of the built environment (Morrison 2012; Twiss 2007). Previous research has suggested that changes to food production and consumption occur during coalescence, such as an intensification of food production (Kowalewski 2006), yet few actually investigate the ways that food practices and choices shifted or became critical components of the integrative mechanisms inherent in

coalescence. As these choices can be critical components of identity construction and social negotiation, this approach seeks to discover if foodways practices adapt or change. Types and portions of food sources, in addition to when and where certain types of foodstuffs are consumed, may change as a part of the process of coalescence due to shifting population size and community negotiations as there would be more individuals in a community to feed within a limited area or resource zone. Foodways practices, including both everyday meals and feasting or ritual activities, may also be altered, emphasized, or invented as part of ongoing negotiations of identity, as food practices can become important components of community identity and tradition (Kowalewski 2006).

THE MORTON VILLAGE SITE

During the fourteenth century AD, Oneota group(s) migrated into the CIRV from the upper Midwest and began interacting with local Mississippian groups, resulting in what has been defined as the Bold Counselor Phase (Esarey and Conrad 1998; Santure 1990a, 1990b). Morton Village is the most extensively investigated out of the five sites known in the CIRV linked to this Oneota in-migration (Esarey and Conrad 1998; Santure 1990a, 1990b). Evidence from the village proper indicates that Morton Village was contemporaneously occupied from A.D. 1300 – 1400 by local Mississippian and migrant Oneota people based on material culture indicative of both groups present in the same context.

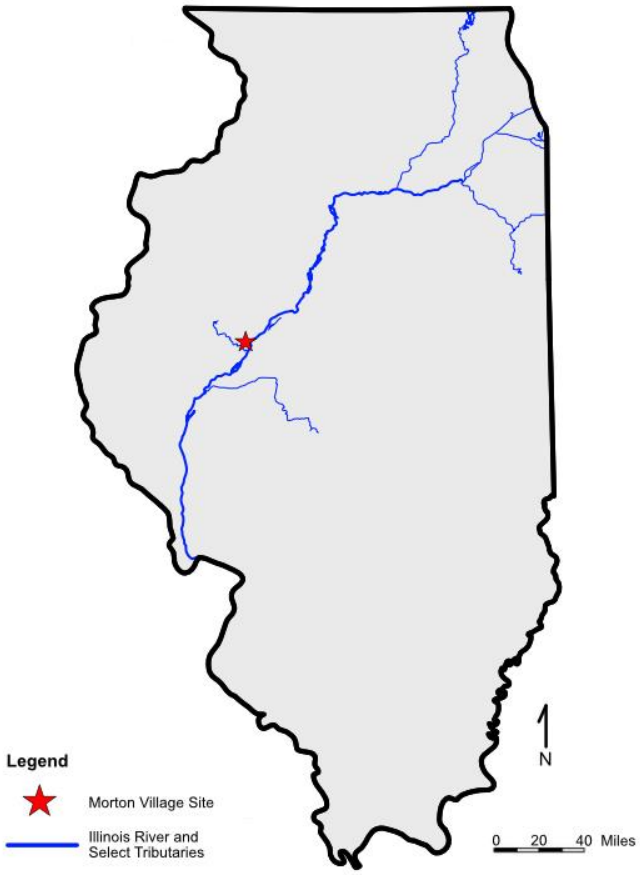

Figure 2.1. Location of the Morton Village Site along the Illinois River.

Recent excavations at Morton Village have revealed several lines of evidence that indicate that both Mississippian and Oneota people occupied the site at the same time. Radiocarbon dates from five single post structures (architectural style typically associated with Oneota) and three wall trench structures (architectural style typically associated with Mississippian) show that there is no significant statistical difference between dates for architecture types, indicating that there is overlap in the Mississippian and Oneota habitation of Morton Village (Silva et al. 2014). Material culture considered typical of both groups have also been identified within the same context, i.e., within a burned and encapsulated structure floor (Conner and O'Gorman 2012a). In addition to being found in the same context, objects and

practices have been identified that blend the traits of both groups, such as ceramic plates and mortuary symbolism. The presence of integrative foodways practices can be seen through ceramic analysis at Morton Village, which explores changes in cooking and food presentation at the site (Painter 2021; Painter and O'Gorman 2019).

In the village proper, excavations have revealed the presence of numerous single post and wall trench domestic architecture styles, as well as architectural styles at four structures that appear to combine both single post and wall trench construction (Yann et al. 2015). These architecture styles are indicative of traditional Mississippian and Oneota methods of domestic structure construction, and the presence of both styles used to construct at least one individual structure possibly indicates the blending of practices. Additionally, the presence of special use structures at Morton Village are interpreted as integrative facilities for the community, in which new rituals emerged (O'Gorman and Conner 2013, 2016; Raslich et al. 2015). Together, these lines of evidence indicate that a "suite of transformations" was occurring (Clark et al. 2019:266), supporting the interpretation that there were ongoing complex negotiations of community and identity taking place at the site between its residents, including the blending of traits and the maintenance of some traditional practices (Bengston and O'Gorman 2016; Beyer and Martin 2016; Nordine 2020; Painter 2021; Painter and O'Gorman 2017, 2019, 2021, O'Gorman and Conner in prep).

Connected with and located just south of Morton Village is Norris Farms 36 Cemetery, which is associated with the Oneota Tradition based on mound structure, material culture, and the organization of the interments (Bengston and O'Gorman 2016; Santure 1990a, 1990b). Of the 264 individuals traditionally identified as Oneota, 43 individuals (34.2 % of the adult population) exhibited signs of a violent death, while many others show signs of surviving violent

encounters (Esarey and Conrad 1998; Milner 1999; Milner and Smith 1990; Milner et al. 1991; Santure 1990b; Steadman 1998). Radiocarbon results from materials obtained from excavations at Morton Village and Norris Farms 36 indicate that both the village and cemetery were used in the 1300s. Coupled with the presence of disease and results of initial botanical and faunal remains that suggested a relatively narrow diet, researchers originally interpreted life at Morton Village as one of social stress and fear, where residents focused on agriculture near the village and were unwilling to travel far from the site to acquire a wider range of foods (Styles and King 1990).

In order to better understand the daily lives of people in a post-migration society undergoing coalescence in the past, this paper will re-evaluate and explore the overall foodways patterns from the Morton Village site to investigate ways in which animal use practices shifted during the coalescence process.

STUDY DESIGN AND METHODS

In order to determine the overall animal dietary practices that took place at Morton Village, a stratified random sampling strategy was used. This allowed for material to be analyzed from across the site and prevented the analysis from being biased towards features that contain the most or little to no faunal material. During sampling, the location and association of each pit feature that contained faunal material was identified and categorized by the following:

1) Within house structures (further separated by wall-trench, single post architecture, and mixed architecture)
2) Outside house structures

These contexts were identified and selected for several reasons. First, disposal patterns may differ between outside and inside house structures resulting in the differential disposal of faunal remains. Second, Mississippian and Oneota groups have traditionally been associated with specific types of architecture (Mississippian with wall-trench and Oneota with single-post architecture). Dividing the sample by architectural style allowed the faunal material to be used to investigate the foodways patterns associated with this major dimension of variability at Morton Village and explore the possibility that different diets existed at the site.

While this project is focused on the use of animals for dietary purposes, I recognize that there are other possible uses of animals beyond food. These uses can include as hides for clothing and housing, bone tools, adornments, trophies, and religious offerings (Russel 2012). It is also likely that animals were used not only to feed the human occupants of the community, but also any canine companions (Lovis and Hart 2015).

To create a random sample, a random number generator was used to select features. Contexts described as features include non-structural basins and pits, such as hearths and storage/trash pits. Initially, the goal was to reach a 30% sample of external and a 30% sample of interior features. However, due to the small number of internal features that contained faunal remains (31 total excavated at the site), this strategy would not have generated a large enough sample of internal features to be comparable (five or fewer features per architectural type). Instead, I selected a 32% sample of external features containing fauna, totaling 35 features, and then analyzed 100% of the internal features that contained animal remains, totaling 31. All faunal remains from the selected features, including screened and floated materials, were analyzed. Faunal analysis was conducted using reference material from the author's personal comparative collection, the Michigan State University Museum skeletal collection, and the Illinois State

Museum Research and Collection Center's comparative skeletal collection. Common and scientific names for animals are presented in tables and follow the Integrated Taxonomic Information System (ITIS) website.

The Morton Village faunal assemblage was analyzed as a synchronic dataset. This strategy was used because accelerator mass spectrometry (AMS) radiocarbon determinations from the site and Norris Farms 36 Cemetery intercept the calibration curve at multiple points, limiting the precision of these dates. In total, fifteen samples taken from short-lived species from a variety of contexts in the village, the majority of which were feature fill deposits, denotes the occupation of the village to AD 1300 to 1400. Five of the fifteen sample locations contained faunal material that were included in this study.

NISP (number of identified specimens) is primary data used to assess the relative frequency of taxa. MNI (minimum number of individuals) and estimated biomass are secondary data used to evaluate and interpret the faunal assemblage. MNI reports the smallest number of individuals that is needed to account for all the specimens of a particular species within a context, and biomass (via allometric regression formula) is the estimated meat weight (dietary contribution) based on archaeological specimen weight (Reitz and Wing 2008). The majority of features included in this study were bisected and excavated in two halves, with the first by arbitrary 10-centimeter levels and the second by cultural levels where profiles indicated distinctive zones, making it difficult to associate those arbitrary levels with any distinctive cultural zones within features. As such, each feature was treated as a singular individual entity for quantitative methods (combining all arbitrary levels), unless distinctive zones could be confidently associated with differential use or depositional episodes. This method may bias the calculated MNI to be smaller. The feature data were then combined to create the secondary data

and provide a representative sample of diet and animal use across the village site. Each quantification type includes a level of bias, which is why each method is used in tandem to determine if there are any potential discrepancies among the various data.

To examine the roles that animal use can play in the larger processes of coalescence, previously analyzed and published faunal material from Oneota and Mississippian communities, from similar time periods, were compiled to create expectations or models of diet trends. As there are few faunal assemblages from the CIRV, I expanded my selection to 34 sites from the Midwestern United States that were dated to between A.D. 1200-1650. These comparative data were used to provide a broad overview of practices in the region and allow for a better understanding of the variation in both Mississippian and Oneota foodways. Using species lists, NISP counts, and diversity statistics (Dominance [1-Simpson], Simpson Index 1-D, and Shannon Index) to understand animal use practices at each of comparative sites, general patterns were generated and used to compare against the Morton Village data and determine if there are changes in faunal use patterns or indicators of food insecurity/circumscription within the faunal record.

RESULTS

Morton Village Foodways

A total of 23,326 vertebrate specimens were present within the random sample of 66 features (representing 38% of all excavated features that contained fauna and 23% of all total excavated features), weighing 13.68 kg, of which, 70% (16,265 specimens) were identified to the animal class level (Table 1). When the unidentified vertebrata specimens are removed from the total NISP count, mammal and fish compose the majority of the NISP, at 55% and 42%

respectively. The calculated biomass shows that among the faunal resources, there is a higher emphasis on mammal protein consumption (Table 2).

Table 2.1. Morton Village Class Summary: NISP, MNI, and Bone Weight

Taxonomic Class	NISP	Proportion	MNI	Proportion	Weight (g)	Proportion
Mammal	8,932	38.29%	136	24.91%	10,844.17	79.26%
Bird	99	0.42%	29	5.31%	75.27	0.55%
Reptile	363	1.56%	54	9.89%	289.15	2.11%
Amphibian	1	0.00%	1	0.18%	0.1	0.00%
Fish	6,834	29.%	298	54.58%	798.41	5.84%
Bivalves	36	0.15%	28	5.13%	1,325.18	9.69%
Unidentified Vertebrata	7,061	30.27%	N/A	N/A	350.13	2.56%
Grand Totals	23,326	100%	546	100%	13,682.41	100%

Table 2.2. Morton Village Vertebrate Taxonomic Class Biomass

Taxa	Biomass (kg)	Proportion
Mammal	159.264	87.87%
Bird	1.357	0.75%
Reptile	4.825	2.66%
Amphibian	N/A	N/A
Fish	15.810	8.72%
Bivalves	N/A	N/A
Grand Totals	181.256	100.00%

Total Species Summary Data: NISP, MNI, Bone Weight, and Biomass

Mammals and fish comprise over 95% of all identified specimens at the site. Cervidae account for the majority of NISP, MNI, bone weight, and biomass for the entire site, with a total of 943 specimens (6,052.06 g) accounting for 37% of the biomass of the total fauna sample with 68 MNI (Table 3). White-tailed deer comprise the majority of the Cervidae specimens. Beaver, muskrat, wapiti, and raccoon are also prevalent mammalian species. Fish are primarily represented by bowfin and gar, 933 (86 MNI) and 414 NISP (33 MNI) respectively, followed by freshwater drum, suckers, sunfishes, catfishes, and buffalofishes, among other species. Birds

represent only 0.61% of the identified vertebrate remains with ducks, wild turkeys, and geese accounting for 30% of all bird remains. The majority (57%) of the bird remains were too fragmented to be identified to genus/species level. Amphibians are represented by a single American water frog specimen. Reptile specimens include both softshell turtles and pond turtles, and one non-venomous snake bone. Most of the bivalves consist of three-ridge and spike with the reminder of identified species represented by one or two specimens.

Table 2.3. Morton Village Species Composition of Animal Remains (all features)

	NISP	MNI	NISP Weight (g)	Biomass (kg)
CLASS: MAMMALS	8,932	136	10,844.17	159.264
Eastern Cottontail, *Sylvilagus floridanus*	3	3	1.21	0.034
Eastern Chipmunk, *Tamias striatus*	3	1	0.40	0.012
Eastern Gray Squirrel, *Sciurus carolinensis*	1	1	0.60	0.017
Tree Squirrel, *Sciurus* sp.	1	1	0.97	0.026
Beaver, *Castor canadensis*	70	19	273.51	5.068
Deer/White-footed mouse, *Peromyscus* sp.	2	1	0.16	0.005
Muskrat, *Ondatra zibethicus*	29	9	18.97	0.426
Small Rodents, *Rodentia*	4	1	0.45	0.013
Dog/Wolf/Coyote, *Canis* sp.	7	3	4.43	0.110
Raccoon, *Procyon lotor*	47	16	101.03	2.060
American Mink, *Neovison vison*	6	4	3.95	0.101
cf. American Badger, cf. *Taxidae taxus*	1	1	0.44	0.013
North American River Otter, *Lontra canadensis*	2	2	1.37	0.037
Striped Skunk, *Mephitis mephitis*	1	1	0.51	0.014
Mustelids, *Mustelidae*	3	-	0.53	0.015
Bobcat, *Lynx rufus*	9	5	21.16	0.471
Wapiti, *Cervus elaphus canadensis*	74	21	1,706.05	20.834
White-tailed Deer, *Odocoileus virginianus*	678	47	4,099.90	49.702
Wapiti/deer, Family Cervidae	191	-	246.11	0.423
Subtotals, Identified Mammals	*1,132*	*136*	*6,481.75*	*79.382*
Unidentified Very Small Mammal	3	-	0.03	0.001
Unidentified Small Mammal	22	-	2.94	0.086
Unidentified Small/Medium Mammal	32	-	3.62	0.101

Table 2.3 (cont'd)				
Unidentified Medium Mammal	218	-	82.76	1.833
Unidentified Medium/Large Mammal	4,248	-	1,489.96	25.036
Unidentified Large Mammal	2,935	-	1,998.12	32.465
Unidentified Very Large Mammal	198	-	773.73	11.269
Unidentified Mammal	144	-	11.26	9.092
Subtotals, Unidentified Mammals	*7,800*	-	*4,362.42*	*78.882*
CLASS: BIRDS	99	29	75.27	1.357
Pied-billed Grebe, *Podilymbus podiceps*	1	1	0.06	0.002
Blue/Snow Goose, *Chen caerulescens*	1	1	5.70	0.100
Canada Goose, *Branta canadensis*	2	2	1.44	0.030
Blue/Snow/Canada Goose, *Chen/Branta* sp.	1	1	1.00	0.020
Green/Blue-winged Teal, *Anas crecca/discors*	1	1	0.40	0.009
Large duck spp., Subfamily Anatinae	6	3	5.61	0.108
Medium-sized duck spp., Subfamily Anatinae	7	5	1.95	0.043
Small duck spp., Subfamily Anatinae	2	2	0.32	0.008
Greater Prairie-Chicken/Sharp-tailed Grouse, *Tympanuchus* sp.	1	1	0.20	0.006
Wild Turkey, *Meleagris gallopavo*	11	5	36.43	0.598
American Coot, *Fulica americana*	3	2	0.55	0.013
Passenger Pigeon, *Ectopistes migratorius*	1	1	0.30	0.007
cf. Red-tailed Hawk, *Buteo cf. jamaicensis*	1	1	0.10	0.003
Small Perching Birds, Order Passiformes	3	2	0.03	0.001
Small Shore Birds, Order Charadriiformes	1	1	0.10	0.003
Subtotals, Identified Birds	*42*	*29*	*54.19*	*0.947*
Unidentified Small Bird	4	-	0.43	0.011
Unidentified Small/Medium Bird	1	-	0.26	0.006
Unidentified Medium Bird	24	-	5.99	0.119
Unidentified Medium/Large Bird	3	-	1.02	0.022
Unidentified Large Bird	18	-	12.03	0.221
Unidentified Bird	7	-	1.35	0.031
Subtotals, Unidentified Birds	*57*	-	*21.08*	*0.409*
CLASS: REPTILES	363	54	289.15	4.825
Snapping Turtle, *Chelydra serpentina*	28	10	40.66	0.689
North American Softshell Turtle, *Apalone* sp.	143	18	109.01	1.493
Blanding's Turtle, *Emydoidea blandingii*	2	2	4.12	0.102
Eastern Box Turtle, *Terrapene carolina*	2	1	0.16	0.009
Ornate Box Turtle, *Terrapene ornata*	2	1	2.20	0.054

Table 2.3 (cont'd)				
American Box Turtles, *Terrapene* sp.	2	2	1.50	0.051
Painted Turtle, *Chrysemys picta*	11	7	11.91	0.284
Common Slider, *Trachemys scripta*	13	7	31.13	0.556
Common Map Turtle, *Graptemys geographica*	2	2	12.01	0.186
Pond Turtles, Family Emydidae	130	3	68.97	1.215
Unidentified Turtle	27	-	7.38	0.185
Non-Venomous Snake, Family Colubridae	1	1	0.10	0.001
Subtotals, Identified Reptiles	*363*	*54*	*289.15*	*4.825*
CLASS: AMPHIBIANS	1	1	0.10	-
Frog sp., *Lithobates* sp.	1	1	0.10	-
CLASS: FISH	6,834	298	798.41	15.810
American Paddlefish, *Polyodon spathula*	3	1	4.31	0.096
cf. American Paddlefish, cf. *Polyodon spathula*	4	2	0.27	0.012
Longnose Gar, *Lepisosteus osseus*	1	1	6.00	0.124
Gar spp., *Lepisosteus* spp.	414	33	48.10	1.081
Bowfin, *Amia calva*	933	86	209.23	3.573
Pike/Pickerel, *Esox* sp.	42	14	12.09	0.328
Bigmouth Buffalo, *Ictiobus cyprinellus*	6	5	2.78	0.088
Black/Bigmouth Buffalo, *Ictiobus niger/cyprinellus*	2	-	0.32	0.012
Smallmouth/Black Buffalo, *Ictiobus bubalus/niger*	12	4	4.13	0.109
Buffalo spp., *Ictiobus* spp.	96	17	40.26	0.821
Buffalo/Carpsucker, *Ictiobus/Carpiodes* sp.	3	-	0.94	0.029
Redhorse Suckers; *Moxostoma* spp.	13	5	2.91	0.094
Sucker spp., Family Catostomidae	128	4	37.77	0.687
Black Bullhead, *Ameiurus melas*	4	3	0.82	0.017
Yellow Bullhead, *Ameiurus natalis*	8	5	2.89	0.058
Brown Bullhead, *Ameiurus nebulosus*	16	9	3.75	0.076
Bullhead spp., *Ameiurus* spp.	63	8	11.71	0.222
Channel Catfish, *Ictalurus punctatus*	16	9	8.83	0.173
Catfishes, *Ictalurus* sp.	4	-	0.20	0.004
Flathead Catfish, *Pylodictis olivaris*	3	3	2.52	0.050
Bullhead/Catfishes, Family Ictaluridae	28	2	5.78	0.119
Striped Bass, *Morone* sp.	3	1	0.70	0.001
Black Bass, *Micropterus* sp.	38	14	9.50	0.262
cf. Green Sunfish, *Lepomis* cf. *cyanellus*	1	1	0.00	0.000
Redear Sunfish, *Lepomis microlophus*	3	3	0.27	0.011
Sunfish spp., *Lepomis* spp.	30	13	2.42	0.074

Table 2.3 (cont'd)				
Basses/Sunfishes, *Micropterus/Lepomis* sp.	2	2	0.06	0.003
Rock Bass, *Ambloplites rupestris*	7	3	0.66	0.022
White Crappie, *Pomoxis annularis*	2	1	0.18	0.007
Crappie spp., *Pomoxis* spp.	10	4	1.40	0.043
Sunfish/Crappies; *Lepomis/Pomoxis* spp.	1	-	<0.1	0.000
Sunfish spp., Family Centrarchidae	92	10	9.22	0.246
Walleye/Sauger, *Sander* sp.	10	7	2.18	0.064
cf. Walleye/Sauger/Striped Bass, cf. *Sander/Morone* sp.	1	-	0.10	0.004
Yellow Perch, *Perca flavescens*	3	2	0.54	0.001
Freshwater Drum, *Aplodinotus grunniens*	102	26	62.17	1.472
Subtotals, Identified Fish	*2,104*	*298*	*495.01*	*9.983*
Unidentified Fish	4,730	-	303.66	5.826
CLASS: BIVALVES	36	28	1,325.18	-
Three-ridge, *Amblema plicata*	12	10	271.90	-
Ebonyshell, *Fusconaia ebena*	2	2	12.80	-
Pimpleback, *Quadrula pustulosa*	2	2	37.23	-
Spike, *Elliptio dilatata*	5	5	80.50	-
Mucket, *Actinonaias ligamentina*	2	2	71.60	-
Rock Pocketbook, *Arcidens confragosus*	1	1	11.80	-
Plain Pocketbook, *Lampsilis cardium*	2	2	85.20	-
Yellow Sandshell, *Lampsilis teres*	1	1	3.30	-
Pink Heelsplitter, *Potamilus alatus*	1	1	12.10	-
Fluted-shell, *Lasmigona costata*	1	1	2.80	-
Pondhorn, *Uniomerus tetralasmus*	1	1	2.30	-
Subtotals, Identified Bivalves	*30*	*28*	*591.53*	-
Unidentified Bivalves	6	-	733.65	-
GRAND TOTALS	16,265	546	13,326.03	181.256
Totals, Identified Below Class	*3,672*	*546*	*7,911.74*	*95.138*

Morton Village Environment

Morton Village is surrounded by a wide variety of land cover types including forest, forest-edge, bottomland, prairie, wet prairie, marsh, slough, swamp, other wetlands (i.e., bayou,

slash, swale), and several types of water sources (Figure 2). Fish resources were obtained from a wide variety of aquatic sources including creeks, small rivers, backwater and floodplain lakes, swamps, deep quiet pools of water, and fast-flowing water in larger rivers (such as the nearby Illinois River). The bivalve species would have also been found in a wide variety of aquatic types from large rivers to small streams and lakes. Aquatic and semi-aquatic resources that were targeted include beaver, otter, mink, muskrat, American coot, geese, ducks, and the majority of the turtle species represented. Forest and forest-edge species include wapiti, bobcat, striped skunk, white-tailed deer, raccoon, tree squirrels, chipmunks, eastern cottontail, passenger pigeon, and wild turkey. Ornate box turtles and greater prairie chicken are typically found in prairie-like conditions (semi-arid or arid).

There are ten additional species that have been identified within the archaeological record at Morton Village that were not included in this study's random sample, 4 mammal, 3 bird, 2 fish, and 1 mussel: eastern mole, Franklin's ground squirrel, eastern fox squirrel, mountain lion, double crested cormorant, great blue heron, bald eagle, stoneroller, bluegill, and hickorynut mussel. Each of these species fit within the previously identified environmental zones, however, several of the species, such as the mountain lion, great blue heron, and bald eagle, may not have been used for consumption purposes based on their rarity and uniqueness in the archaeological record, in addition to the ceremonial context that several of the specimens were recovered from. It is possible that they were used as ritually charged food items or offerings and/or other non-food uses such as for medicine or other ritual objects/totems, imparting symbolic meaning to material culture as part of larger community religious events.

When all faunal resources are considered together, it shows that Morton Village was ideally located as all species that were identified in the random sample could have been obtained

within an approximate 10-kilometer radius surrounding the village site. From this, it appears that the villagers were not impacted by circumscription, as there are no obvious exclusions of any species or taxa only found in specific environmental zones.

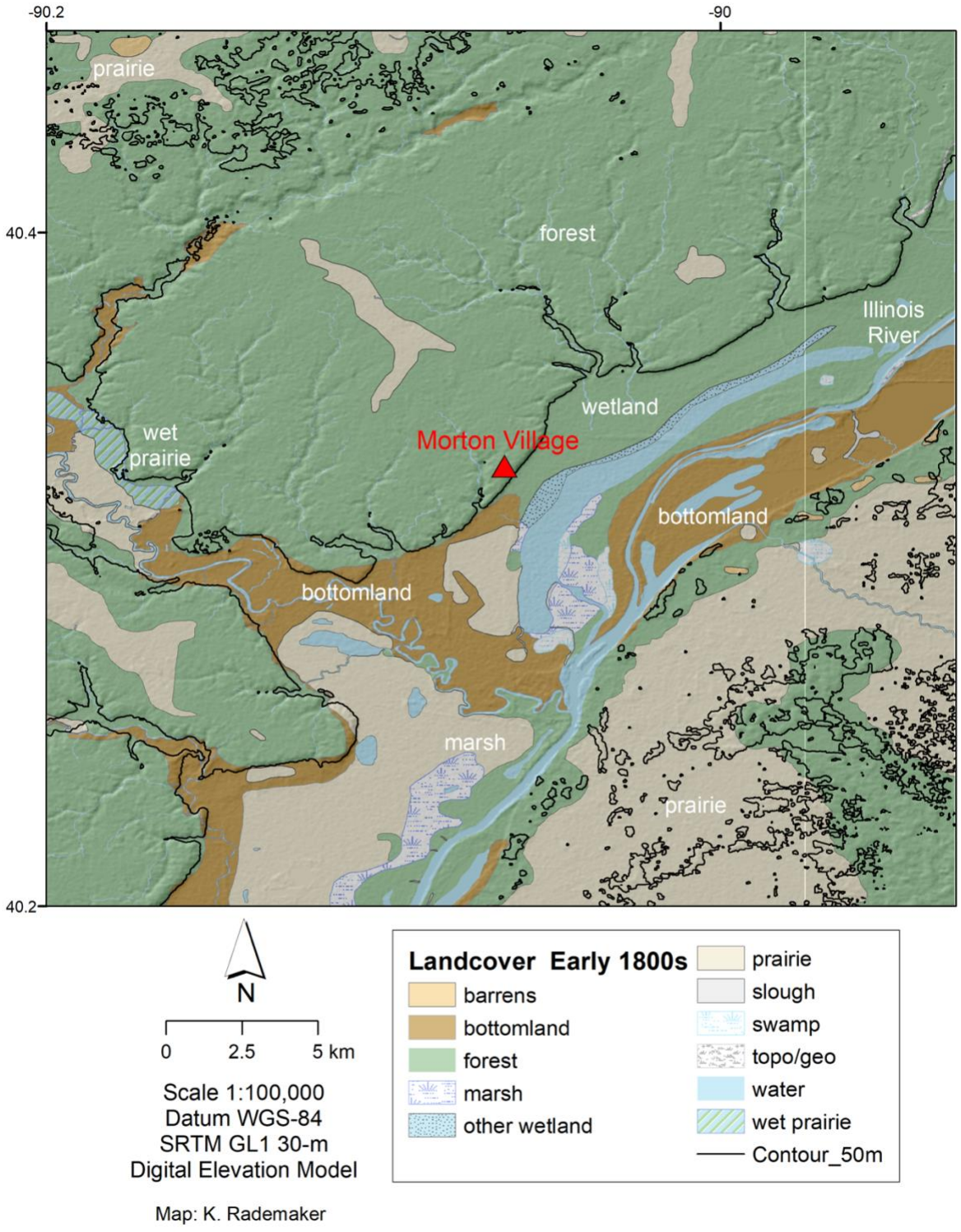

Figure 2.2. Map of presettlement land cover surrounding the Morton Village site. Map created by Kurt Rademaker.

As discussed previously, Morton Village was undergoing complex social negotiations during a time of stress and violence in the CIRV (Bengston and O'Gorman 2016; Beyer et al. 2016; Esarey and Conrad 1998; Milner et al. 1991; Milner et al. 2013; Milner and Smith 1990; Painter and O'Gorman 2017, 2019; Santure 1990a). If the population size at Morton Village increased drastically with the addition of the Oneota migrants, this shift in population size may have resulted in a re-evaluation of food resource procurement strategies. In addition, the known violence in the region could have been a significant factor of consideration for food production/procurement strategies, resulting in food insecurity or circumscription. As expected, it appears that people at Morton Village focused more on resources that were readily available, harder to over-use (Smith 2009), and provided large amounts of meat (for example: 29.6 – 37.6 kilograms of edible venison per deer, Goguen et al. 2018:206; 83.9 – 106.6 kilograms of edible venison per wapiti, Reed et al. 2019:326). Furthermore, many species found in the Morton Village assemblage could have been used in additional ways, beyond serving as food items, including hides for clothing and housing, ceremonial/ritual totems/offerings, and tools.

At Morton Village, the residents appear to use a diverse range of animal resources, similar to Oneota subsistence strategies, in addition to an emphasis on large mammals and fish. While the use of diverse resources may not appear as an obvious aspect of intensification, it can be interpreted as one because the addition to or elaboration of production strategies could allow for more resources to be procured across a wider array of space (Gallagher and Arzigian 1994; Morrison 1994). This intensification may include the idea of super-diversification due to the social environment during this time, such as the acquisition of a wider array of species including "starvation" species (i.e., supplemental species such as chipmunks, small rodents, and frogs identified within the sample) that are not commonly used when preferred food resources are

readily available. Very few skeletal elements were recovered of these species (15 NISP, 6 MNI, biomass contribution of 0.073 kg), suggesting that they may be intrusive instead of being a food source.

Morton Village: Internal vs. External Features

In order to determine if there were variations in butchering, consumption, and trash deposition locations in the village, the sample was separated and analyzed by context: internal and external features (Table 4 and 5, Figure 3). A total of 31 internal features were analyzed which is the total number of internal features excavated that contained faunal remains. Thirty-five external features were analyzed (32% of external features excavated that contained fauna). Overall, the external features contained a wider variety of species, larger MNI counts, and higher quantity of faunal remains per feature. The internal features only contained three species that were not present in the external features: blue-winged or green-winged teal, pied-billed grebe, and a pondhorn (mussel).

Table 2.4. Morton Village Class Summary: Internal and External Features

Taxonomic Class	Internal			External		
	NISP	MNI	Weight (g)	NISP	MNI	Weight (g)
Mammal	3853	48	3418.53	4775	90	7069.29
Bird	26	11	11.45	73	24	63.82
Reptile	163	17	122.65	193	34	163.37
Amphibian	0	0	0	1	1	0.10
Fish	925	64	142.49	5895	236	653.11
Bivalves	8	8	190.82	28	43	1134.36
Unidentified Vertebrata	1575	-	84.98	5376	-	257.34
Grand Totals	4975	148	3970.92	16341	428	9341.39

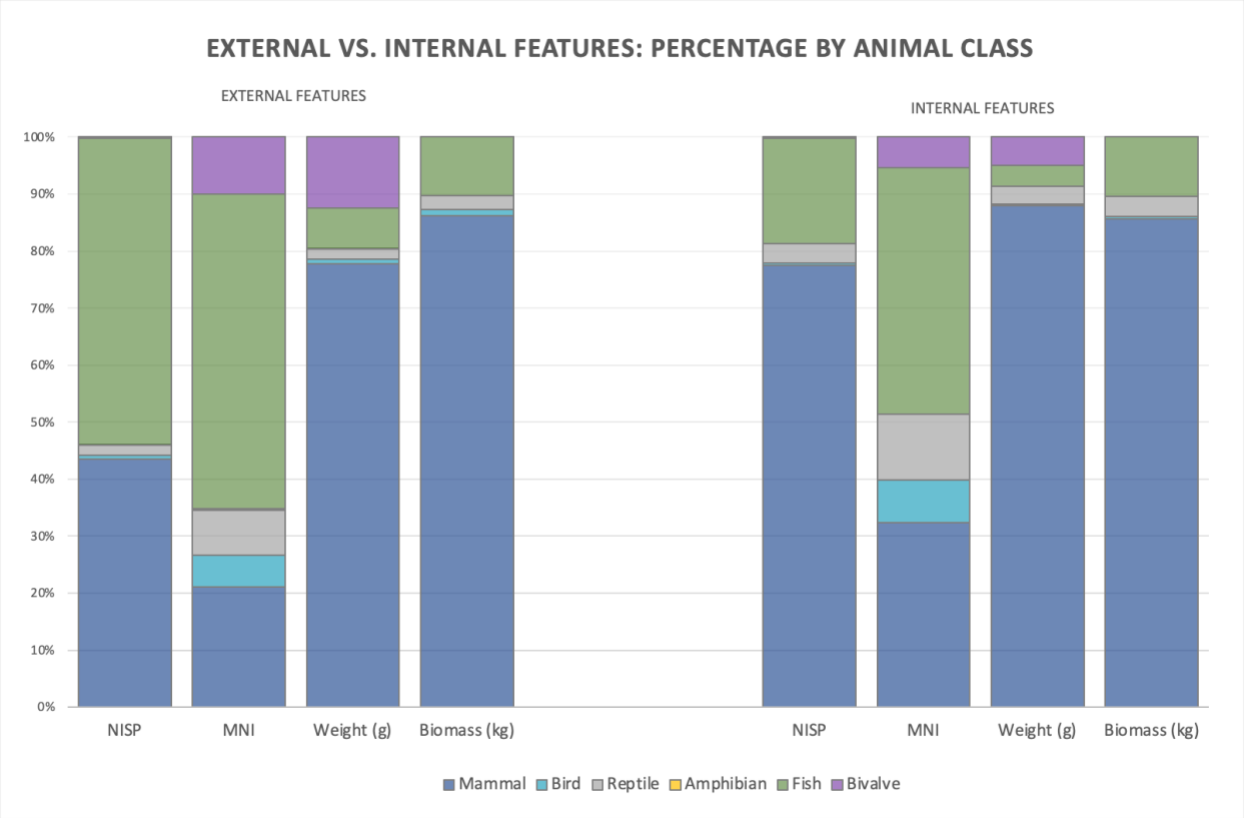

Figure 2.3. Comparison of NISP, MNI, weight, and biomass from external and internal features, by percent of animal class from Morton Village.

Table 2.5. Morton Village Vertebrate Taxonomic Class Biomass: Internal and External Features

Taxa	Internal		External	
	Biomass (kg)	Proportion	Biomass (kg)	Proportion
Mammal	45.674	85.69%	98.576	86.07%
Bird	0.230	0.43%	1.127	0.98%
Reptile	1.835	3.44%	2.894	2.53%
Amphibian	-	0.00%	-	0.00%
Fish	5.563	10.44%	11.926	10.41%
Bivalves	-	0.00%	-	-
Grand Totals	53.301	100%	114.523	100%

When comparing the internal and external features, the proportion of NISP of fish and mammals are different; however, when weight (g), MNI, and biomass (kg) proportions are

compared, the two feature locations have similar ratios (Figure 2). When only Mammalia are compared, there is a higher proportion of cervid specimens in the internal features (10.2%) versus the external features (6%). As stated previously, external features contain a wider variety of species than internal features, including otter, bobcat, skunk, cottontail, chipmunk, badger, red tailed hawk, passenger pigeon, and prairie chicken, among others; species that can be found in a wide variety of environments. The fish, reptile, and bivalve specimens in the external features were also identified to species level rather than genus level more often than in internal features. This discrepancy could be due to sample size, fragmentation, or preservation bias (for example: there are over five times more fish specimens present in the external features than internal). Additionally, the sole identified amphibian bone and non-venomous snake vertebra were recovered from external features. As there is a greater variety of species present in the external features, there is also a wider range of environmental zones utilized to obtain those resources. Potential reasons for a greater amount of faunal specimens present in external features could be 1) preference of disposal outside of the household for day-to-day consumption practices (i.e. removing of leftover food remains/trash due to smell and space management needs), 2) community events that included food would be more likely to be held outside of structures resulting in the disposal of food refuse away from structures, 3) butchering and processing of animal remains may have been conducted more often outside of structures, and/or 4) differential preservation of remains between internal and external features due to the type and frequency of activities that took place within those spaces, i.e. trampling.

Morton Village Internal Features: Wall Trench, Single Post, and Mixed Architecture

Architectural style is one of the major dimensions of variability at Morton Village, as such, dividing the faunal sample by each type allows us to investigate if there is evidence that points towards different foodways practices at the site. As mentioned previously, Mississippian and Oneota groups have been associated with specific types of architectural styles (Mississippian with wall trench and Oneota with single post architecture). At Morton Village, in addition to single architectural type structures, there are at least three structures that contain both wall trench and single post construction, referred to as mixed architecture in this paper. The analyzed internal features were further divided into sub-samples by architectural style to investigate any associated foodways patterns. Of the total 31 internal features excavated that contained faunal remains, 14 were associated with wall trench structures, 14 with single post structures, and three had mixed architectural styles present (both wall trench and single post construction).

Overall, each sub-sample is generally similar, with the features associated with mixed architecture biasing the comparison due to the small sample size (Table 6; Figure 4). There are several main distinctions in these sub-samples. First, there is a lack of bird remains in the mixed architectural features, which could be due to preservation bias. Second, bivalves are more abundant (8 MNI, 180 g) within wall-trench features as compared to the single post and mixed architectural style building features where no bivalves are present. Interestingly, the shells present in external contexts were all recovered from features that contained only Oneota-style ceramics and both Mississippian and Oneota stylistic ceramics. This may indicate differential use of mussels, variations in shell processing locations, or disposal practices between groups as represented by architectural style structures, however, sample bias and the possibility of differential preservation between sub-samples should be noted. Third, there is also a notable difference in the quantity of faunal remains recovered between architectural type (14 features

each for wall trench and single post structures), with wall trench structures containing nearly double the amount of material than the single post structures. Moreover, a large percentage of the faunal remains uncovered in mixed architectural style features were burned, 70% of the NISP (423 out of 596 specimens). This variation is likely the result of the use of different disposal practices between the occupants of these structure types, as each architectural type was used to build similarly sized structures.

Table 2.6. Morton Village Class Summary: Wall Trench, Single Post, Mixed Architectural Features*									
Taxonomic Class	Wall Trench			Single Post			Mixed		
	NISP	MNI	Weight (g)	NISP	MNI	Weight (g)	NISP	MNI	Weight (g)
Mammal	2,519	15	1,053.9	1,161	29	2,305.87	173	4	58.76
Bird	8	6	2.66	18	5	8.79	0	0	0
Reptile	44	7	48.58	118	9	73.98	1	1	0.09
Fish	618	37	105.27	211	21	33.66	96	6	3.56
Bivalves	8	8	179.95	0	0	10.87	0	0	0
Unidentified Vertebrata	763	-	45.16	486	-	30.26	326	-	9.56
Grand Totals	3,960	73	1,435.52	1,994	64	2,463.43	596	11	71.97

*14 Wall Trench Features, 14 Single Post Features, 3 Mixed Architectural Features

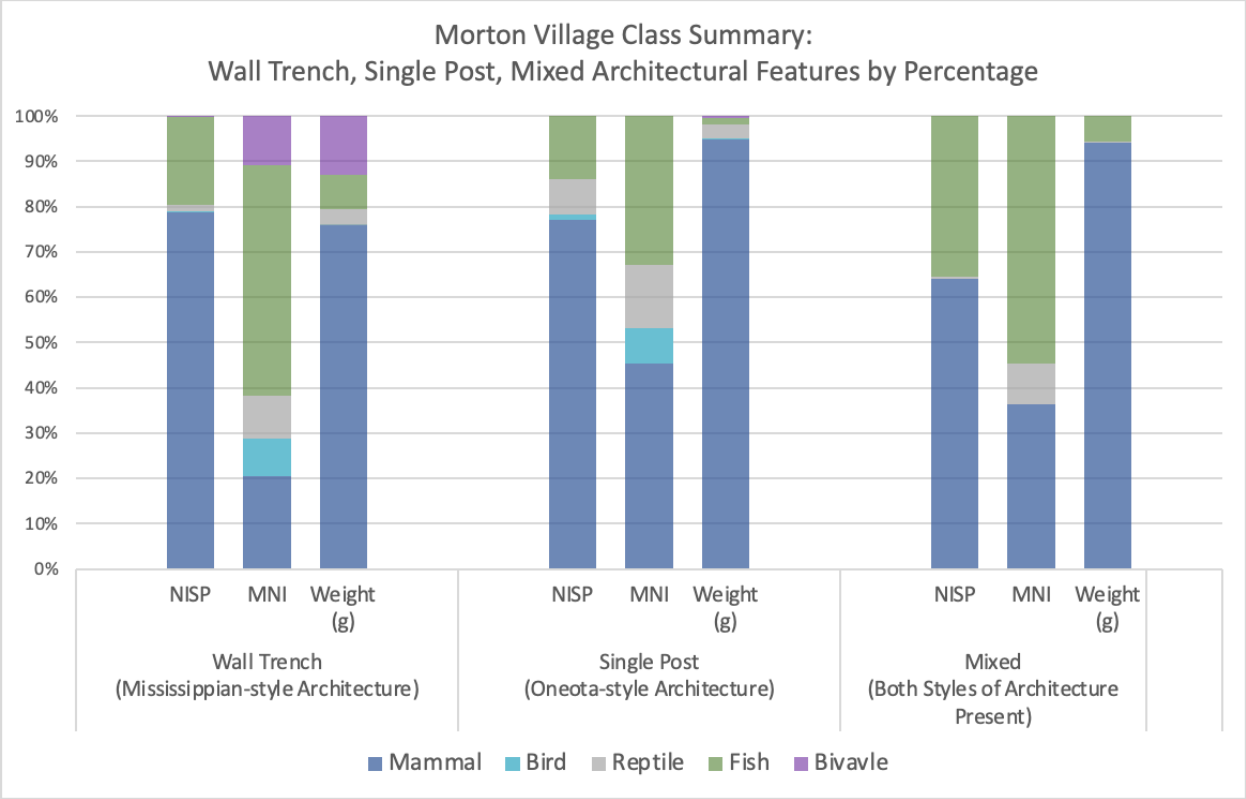

Figure 2.4. Morton Village animal classes present in features by associated building architectural style.

Table 2.7. Morton Village Vertebrate Taxonomic Class Biomass: Wall Trench, Single Post, and Mixed Architectural Features

Taxonomic Class	Wall Trench		Single Post		Mixed	
	Biomass (kg)	Proportion	Biomass (kg)	Proportion	Biomass (kg)	Proportion
Mammal	17.868	85.97%	26.630	92.97%	1.176	30.35%
Bird	0.059	0.28%	0.170	0.60%	0.000	0.00%
Reptile	0.820	3.95%	1.008	3.52%	0.006	0.16%
Fish	2.044	9.79%	0.835	2.92%	2.692	69.49%
Bivalves	-	0.00%	-	0.00%	-	0.00%
Grand Totals	20.792	100%	28.644	100%	3.874	100%

When fish are compared between the three architectural style features, the wall trench and single post features contain similar species, but at different ratios, especially when NISP, MNI, and biomass are simultaneously considered. Wall trench features are dominated by bowfin (42% NISP; 19 MNI, 54% biomass) (Table 7). Single post features are mainly represented by bowfin and gar (23% and 22%, NISP); however, freshwater drum represents 24% of the fish biomass but only 4% of the NISP of the single post features. This discrepancy of NISP versus biomass could indicate that there was a preference or selection for large freshwater drum fish by the occupants of single post structures or a difference in refuse disposal practices. Mixed architectural features are dominated by freshwater drum (19% NISP). However, when fish are analyzed through the lens of biomass (kg) ratios, mixed architectural features are dominated by bowfin (96%), while freshwater drum only represents 1.7% of the fish biomass. Bowfin and gar tend to live in calm, backwater lakes, small streams, and deep quiet pools, whereas freshwater drum are typically found in turbid large rivers. Fish resources found in the wall trench features are found more commonly in the calm oxbow and backwater lakes, while the single post and mixed architectural features fish were obtained by similar amounts from both calm lakes and fast-moving waters. This could indicate varying preferences of fishing locations, methods, and/or fish species by the occupants of the different architectural style structures.

Several distinctions were noted during mammal species comparison of feature types. Single post features are the only type to contain canid (*Canis sp.*), American mink, and muskrat specimens; wall trench features are the only type to contain rodent and squirrel remains. The mixed architectural features only contain three identified species: wapiti, white-tailed deer, and raccoon. These differences also illuminate potential environmental zone use choices, with single post features containing more identified species from semi-aquatic regions than the other feature

types. However, overall, the mixed architectural features are the only ones limited to solely forest/forest edge species.

Turtles were the only reptiles identified in the internal features, with similar species identified in the wall trench and single post features, while mixed architectural features could only be identified to the family level: *Emydidae* (pond turtles). No variation or patterns in environmental zones use can be seen through the turtle species selected. The only bivalves identified to the species level were found in wall trench features, including both spike and pondhorn specimens. While samples are small, diet between styles of architecture are largely the same, with only a few variations present.

Foodways Trends: Morton Village and Comparative Sites

To examine how the larger process of coalescence affects animal use and to determine if there are any indicators of food insecurity or circumscription, previously analyzed and published faunal material from Oneota and Mississippian communities, from similar time periods, were compiled to create expectations or models of diet trends. To accomplish this, 34 archaeological site reports from the North American Midwest were reviewed, composed of 21 Oneota and 13 Mississippian sites with analyzed faunal assemblages, with site occupations ranging from A.D. 1200 – 1650. General patterns of Oneota and Mississippian foodways including diet (amounts and ratios of species when possible) and general resource zones were created based on data from all 34 comparative sites (Table 8 and 9). However, of those 34 sites, only 7 Oneota and 8 Mississippian sites (or phases within sites) had adequate faunal assemblages reported to use for statistical comparison, notated by an asterisk next to the site name (Also see Figure 5 for map of site locations). Each comparative site's faunal assemblages are expected to reflect local available

faunal resources and that each site's inhabitants would have likely procured the local, seasonally available faunal resources despite 'general Mississippian' and 'general Oneota' patterns (Styles 1981). The variation in the types and amounts of available resources will then in turn impact the species diversity statistical results for each site. It should be noted that there were varying recovery methods used at the comparative sites, in addition to the percentage of each site excavated, which could bias the resultant faunal assemblages.

Table 2.8. Mississippian Comparative Sites

#	Mississippian	Citation
1	C.W. Cooper	VanDerwarker and Wilson 2016
2	Cahokia	Pauketat et al. 2002
3	Gray Estate	Winters 1967
4	Keeshin Farm*	Berres 2003
5	Kincaid Mounds*	Buchanan 2007
6	Lamb*	Kuehn and VanDerwarker 2015
7	Moundville	Jackson and Scott 2003
8	Old Edwardsville Road*	Berres 2003
9	Orendorf	Conrad 1991
10	Phipps	Fishel 1997
11	Range*	Kelly 2003a, b
12	Rench**	McConaughy et al. 1993
13	Vaughn Branch*	Berres 2003

*Only eight Mississippian sites (or phases within sites) had adequate faunal assemblages reported to use for statistical comparison.

Table 2.9. Oneota Comparative Sites		
#	Oneota	Citation
14	Anker	Bluhm and Liss 1961
15	Bastian	Harvey 1979
16	Carcajou Point	Hall 1962
26	Crescent Bay Hunt Club*	McTavish 2020
17	Dixon	Harvey 1979
18	Fifield	Parmalee 1972b
32	Filler*	Styles and White 1994
19	Fisher	Parmalee 1962
20	Gentleman Farm	Brown 1967
21	Greismer	Parmalee 1972a
22	Hoxie Farm*	Martin and Kuehn 2017
23	Huber	Parmalee 1990
24	Joe Louis	Kuehn 2013
25	Kingston*	Straffin 1971
26	Koshkonong Creek*	McTavish 2020
28	Midway Locality	Scott 1994
29	Oak Forest	Neusius 1990
32	OT*	Styles and White 1994
29	Pammel Creek	Theler 1989
30	Plum Island	Fenner 1963
31	Range	Kelly 2003c
32	Tremaine*	Styles and White 1994

*Only seven Oneota sites (or phases within sites) had adequate faunal assemblages reported to use for statistical comparison

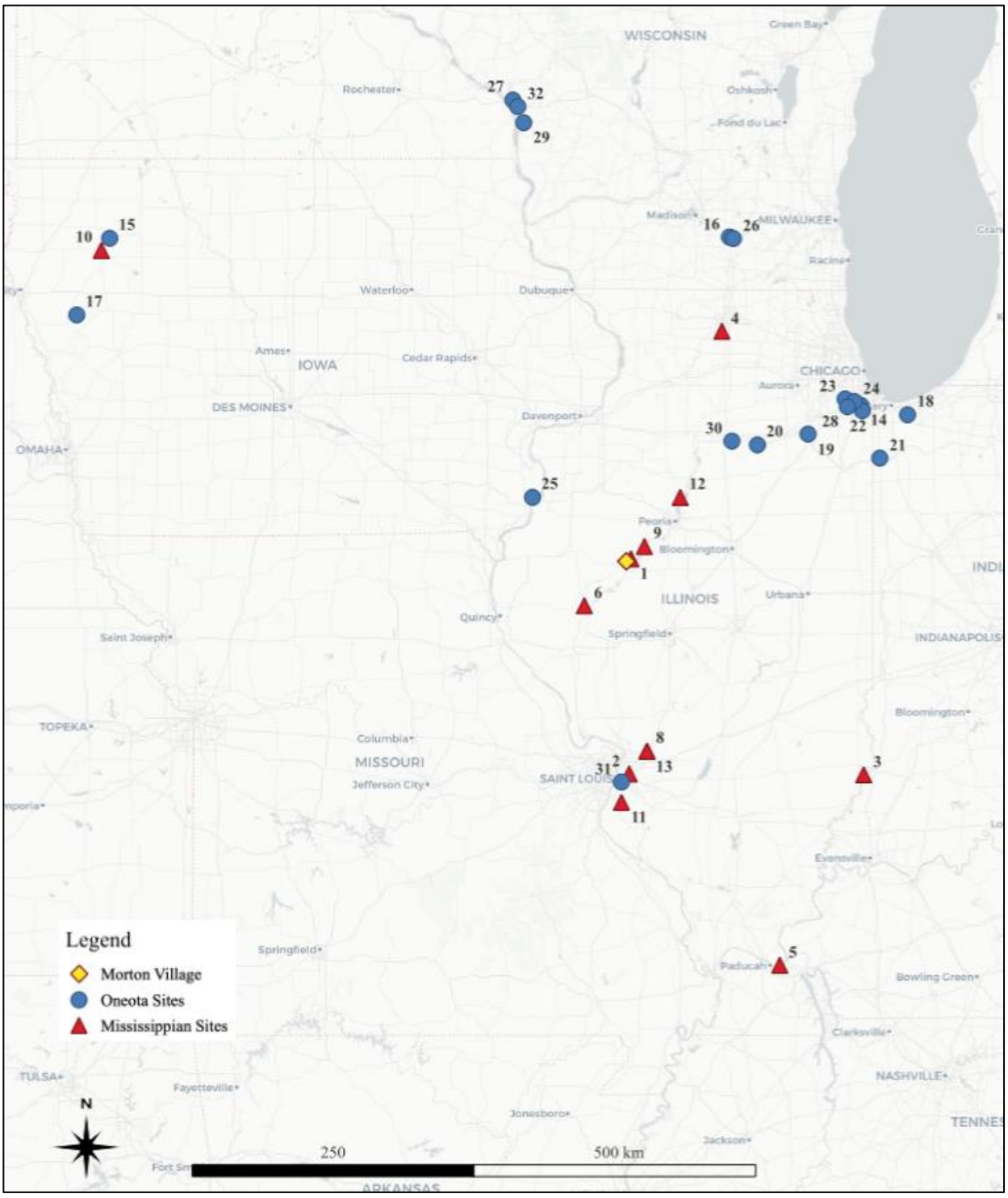

Figure 2.5. Map of Morton Village and comparative Mississippian and Oneota sites.

Overall, Oneota community diet trends are typically described as a mixed economy of agriculture and hunting/fishing/gathering of seasonally available resources, following an approach of intensification through diversification, based on geographic region, for risk reduction (Anderson et al. 1995; Henning 1998; Gallagher and Arzigian 1994; Overstreet 1997; Tiffany 1986; Theler 1994; Theler and Boszhardt 2006). Oneota communities included in this study are mainly located adjacent to rivers, lakes, and streams (Martin and Kuehn 2017; McTavish 2020; Scott 1994; Straffin 1971; Styles and White 1974; Theler 1989, 1994, 2000). The majority of the faunal assemblages from the comparative site communities contain some to approximately 50% NISP fish, with a general emphasis on species commonly and readily available in the local floodplain environments, such as beaver, otter, muskrat, and a wide variety of fish and turtles (Burt and Grossenheider 1964, Ernst and Lovich 2009, Smith 1979). However, two of the Oneota sites (both from Northwestern Iowa) have fish poorly represented but do include mussel shells that would have been obtained from aquatic environments (Harvey 1979). Large mammals that are commonly found in Oneota archaeological faunal assemblages include white-tailed deer, wapiti, and bison (Anderson et al. 1995; Gallagher and Arzigian 1994; Martin 2014; Sasso 1993, 2014).

Generally, subsistence practices in Mississippian communities are characterized by low species diversity, intensive bone processing through fragmentation, and relatively even representation of large mammal elements suggesting the use of whole animals (Nelson et al. 2020). Similar to Oneota communities, Mississippian peoples appear to also focus on a broad-based strategy of seasonally abundant species, in addition to localized aquatic and semi-aquatic species, with fish and deer as the primary targets (Berres 2003; Jackson and Scott 2003). Mississippian diet consisted of a mix of agricultural products and hunted terrestrial and aquatic

fauna including main channel and back-water species of fish, (i.e., bowfin, gar, catfishes, freshwater drum), migratory waterfowl (i.e., ducks and geese), white-tailed deer, raccoon, and wild turkey. However, diet within the larger Mississippian region varied geographically and socially, with higher echelons of society having more access to better cuts of meat and rarer species (Jackson and Scott 2003; Pauketat et al. 2002; Yerkes 2005). Additionally at the time of analysis, data from the Orendorf site was not publicly available, as such it was not included in this study as a comparative site. However, the animal use patterns are "characterized by a broad-based faunal exploitation strategy" which aligns with the other Mississippian comparative sites (Kuhne 2019:354).

To understand the diversity and evenness of the Morton Village faunal resources as compared against other Mississippian and Oneota occupation sites in the region, diversity statistics were calculated at the genus level using Past4 (V4.04) software (Table 10). Three diversity statistics were used to compare MV to Mississippian and Oneota sites: Dominance (1-Simpson), Simpson index 1-D, and Shannon index (Faith and Du 2018). Dominance (1-Simpson) index ranges from 0, where all taxa are equally present, to 1 where one taxon dominates the community completely (Hammer PAST 4.04 Manual pg. 171; Figure 5). The Simpson index 1-D measures the 'evenness' of the community from 0-1 (Hammer PAST 4.04 Manual pg. 171; Figure 6); it is considered a dominance index as it gives more weight to common (also known as dominant) species represented in the sample. For example, a community that is dominated by two species would be considered less diverse than another with several different species with similar abundances (Gillet and Gregorius and 2008; Simpson 1949). Lastly, the Shannon is a diversity index that accounts for the number of individuals within a taxon, with results of 0 for communities with only a single taxon ranging to high values for

communities with many taxa, each with few individuals (Hammer PAST 4.04 Manual pg. 171; Shannon 1948; Figure 7), meaning the higher the resultant number, the more diverse the diet.

These three statistics were also calculated for each comparative site with adequate faunal data. Results separated by Mississippian and Oneota communities and the average and approximate confidence intervals (also referred to as minimum and maximum range) for each diversity statistic was compiled for comparison (Tables 11 and 12).

Table 2.10. Morton Village Diversity Statistics: Average & Confidence Range

	Average (B)	Minimum	Maximum
Taxa	59	55	59
Individuals	3040	3040	3040
Dominance	0.170	0.162	0.178
Simpson 1-D	0.830	0.822	0.838
Shannon	2.352	2.307	2.406

Table 2.11. Oneota Comparative Sites Diversity Statistics: Average & Confidence Range

	Average (B)	Minimum	Maximum
Taxa	41.714	41.714	41.714
Individuals	3932.857	3932.857	3932.857
Dominance	0.185	0.169	0.202
Simpson 1-D	0.815	0.798	0.831
Shannon	2.346	2.277	2.423

Table 2.12. Mississippian Comparative Sites Diversity Statistics: Average & Confidence Range

	Average (B)	Minimum	Maximum
Taxa	25.625	6	49
Individuals	534.625	25	1548
Dominance	0.231	0.0951	0.551
Simpson 1-D	0.769	0.449	0.905
Shannon	1.995	1.087	2.529

When comparing the averaged diversity and evenness statistics between the Oneota and Mississippian communities and Morton Village, both similarities and differences are apparent (Figures 6, 7, and 8). The Dominance (1-Simpson) Index averaged Mississippian result indicates that those assemblages were dominated by fewer taxa than both the Oneota communities and Morton Village. However, the overall confidence ranges for the Oneota and Mississippian comparative sites do overlap (0.17-0.20 and 0.23-0.55 respectively), indicating that there are no clear differences between the comparative Oneota and Mississippian Dominance Index results. A two-tailed t-test on the dominance index B values resulted in a p-value of 0.385, indicating that the dominance indices from the comparative Oneota and Mississippian sites are not significant at $p < 0.05$. Morton Village resulted in a lesser average number of 0.17, indicating that taxa are more equally represented throughout the assemblage. The evenness results from the Simpson 1-D statistic shows that Morton Village and the averaged Mississippian and Oneota comparative sites are relatively similar, with results indicating a more even representation of species within each group. However, the Mississippian comparative sites (0.44-.90) have a much larger confidence range of evenness results than Morton Village and the Oneota comparative sites (0.82-0.83 and 0.80-0.83 respectively). Even with the difference in confidence ranges, a two-tailed t-test on the Simpson 1-D index B values resulted in a p-value of 0.437, indicating that the comparative Oneota and Mississippian sites are not significant at $p < 0.05$. The Shannon Index indicated that, by average, Oneota communities obtained a greater number of different taxa, each with few individuals, as compared to the average of Mississippian comparative sites. However, two-tailed t-test on the Shannon index B values resulted in a p-value of 0.098, indicating that the comparative Oneota and Mississippian sites are not significant to each other at the $p < 0.05$ threshold. While not statistically significant at $p < 0.05$, the low p-value of 0.098 indicates that

some meaningful differences might be present. Morton Village has a slightly higher number (2.352) than the average Oneota and Mississippian site (2.35 and 1.99 respectively), indicating many taxa with fewer individuals, however, it is still within the total range of confidence results from both Mississippian and Oneota sites.

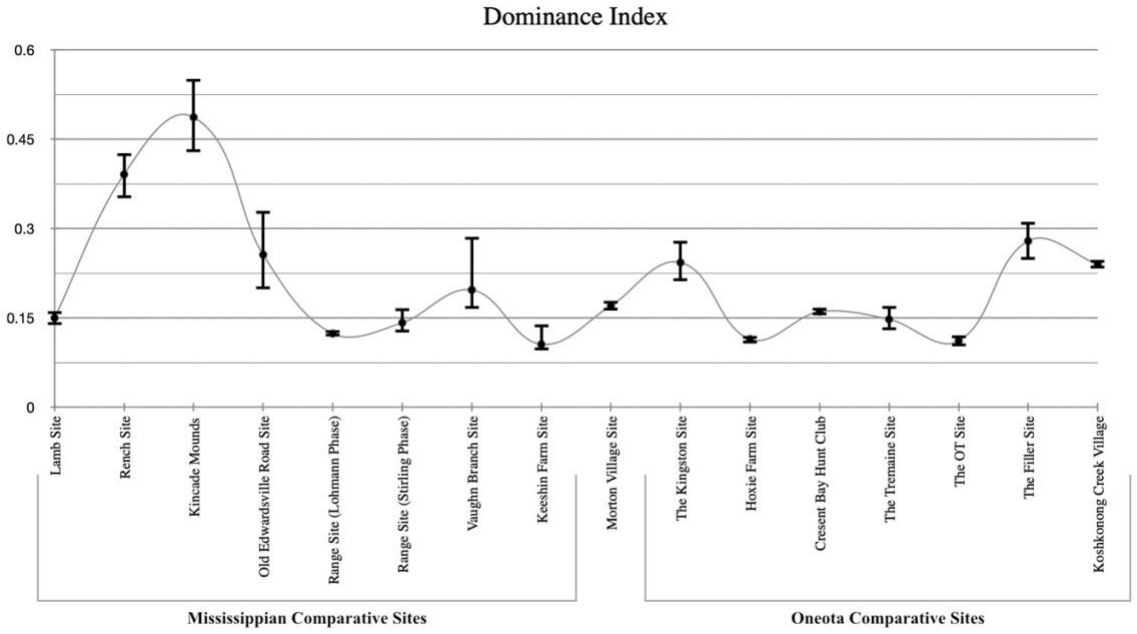

Figure 2.6. Box and whisker plot illustrating the results of the Dominance diversity statistic for Morton Village (center) and the 15 comparative sites.

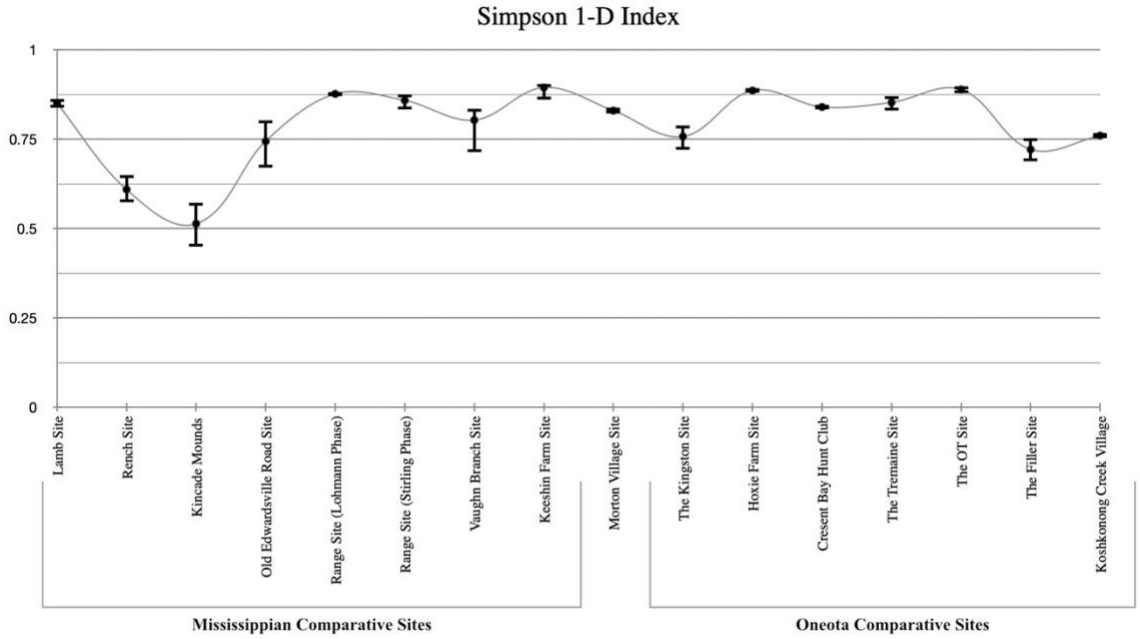

Figure 2.7. Box and whisker plot illustrating the results of the Simpson 1-D diversity statistic for Morton Village (center) and the 15 comparative sites.

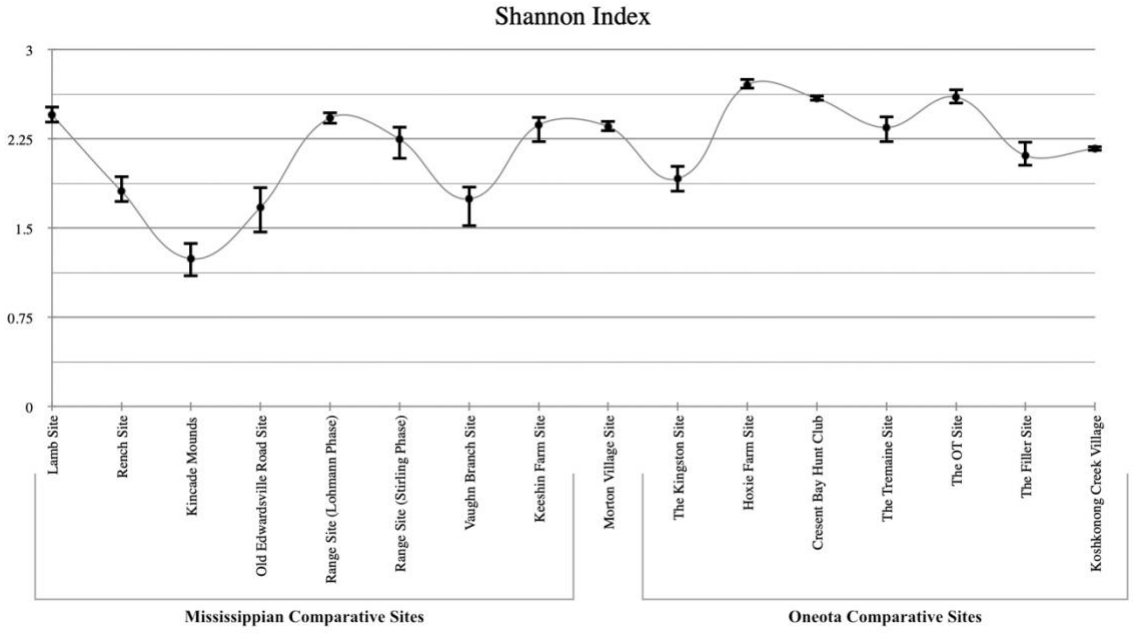

Figure 2.8. Box and whisker plot illustrating the results of the Shannon diversity statistic for Morton Village (center) and the 15 comparative sites.

As expected, white-tailed deer are present in each of the 15 comparative archaeological sites, as it is one of the larger and more prevalent mammal species. While bison is represented within many Oneota faunal assemblages, it is less common than deer or wapiti. Bison are commonly represented at Oneota sites throughout the Midwest through the presence of scapula hoes, which could represent seasonal patterns, butchering at the kill site, and/or trading practices (Martin 2014; Sasso 1993, 2014). Interestingly, no bison elements at this time have been identified at the Morton Village site, which was unexpected since bison played a role in both Oneota subsistence and tool use in other areas.

A significant fish species present within the Morton Village assemblage is bowfin (*Amia calva*) with 930 NISP (86 MNI) representing nearly half (44%) of the identified fish assemblage. Bowfin are not as abundant in the Mississippian comparative sites (3 sites: Lamb, Rench [Lohman and Stirling Phases], and Range) with a total combined 321 NISP, representing an average of 18% of identified fish specimens at the sites, than the Oneota sites (5 sites: Kingston, Hoxie Farm, OT, Tremaine, and Filler) with a total combined 810 NISP, representing an average of 29% of identified fish species. Interestingly, the wall trench features (traditionally Mississippian architecture style) at Morton Village had a higher amount of bowfin, representing 42% of identified fish, than single post features with 23% (traditionally Oneota architecture style). As bowfin typically are found in relatively shallow, clear, well-vegetated waters such as oxbows and backwater pools (Smith 1979), the majority of the comparative sites would have had adequate access to aquatic sources where bowfin would have been present. The difference in representation of bowfin specimens at the Mississippian and Oneota sites to Morton Village could be due to specific environmental zones surrounding the comparative sites, variation in fish species preferences, and/or excavation biases.

A small case study comparison within the CIRV is possible using the Lamb site, located south of Morton Village along the Illinois River. The Lamb site is an Early Eveland Phase (A.D. 1100-1150) Early Mississippian settlement that was occupied prior to the Oneota migration into the CIRV (VanDerwarker and Wilson 2016). The three diversity statistical results for both Morton Village and the Lamb site are analogous, indicating that there is similar foodways patterns between these two sites. The interpretation of the Lamb faunal data by Kuehn and VanDerwarker (2015) is that the occupants of the site used a broad-based strategy that focused on white-tailed deer and fish, which aligns with the general interpretation of the Morton Village assemblage. A 2016 study by VanDerwarker and Wilson on the Lamb, C.W. Cooper (A.D. 1150-1200), Orendorf (A.D. 1200-1250), and Myer-Dickson (A.D. 1250-1300) sites in the CIRV provides an updated interpretation. Using floral and faunal remains obtained via floatation samples from each of the sites (a different faunal dataset for the Lamb site from the 2015 study), VanDerwarker and Wilson (2016) interpret the CIRV regional subsistence patterns as one that was deteriorating starting around AD. 1200, the result of limited foraging excursions because of the intensification of intergroup violence and warfare at this time, in addition to seasonal food shortages. This interpretation indicates that the Lamb site (occupied prior to Morton Village) flotation dataset also does not include any evidence for food insecurity or circumscription. As Lamb and Morton Village have similar species lists and analogous diversity indices, this suggests that Morton Village was also not impacted by circumscription. These data indicate that Morton Village does not follow the pattern of general circumscription and food insecurity seen in later post A.D. 1200 Mississippian sites (VanDerwarker and Wilson 2016).

Overall, the Mississippian and Oneota comparative site foodways patterns throughout the midcontinent appear to be similar, as both communities took advantage of local and readily

available animal resources. Additionally, the diversity and evenness of the Oneota and Mississippian communities are also similar to each other and to the Morton Village site, which indicates that the occupants of Morton Village did not have any visible significant deviations from traditional animal use patterns.

DISCUSSION AND CONCLUSION

There were two main factors that needed to be considered when interpreting the Morton Village faunal assemblage. First, the presence of violence during this time is a factor that would impact foodways patterns (Bengston and O'Gorman 2016; Santure 1990b). A hostile living environment could restrict the movement of people and in turn, restrict the types and amounts of species used for subsistence or animal biproducts, resulting in food insecurity or circumscribed procurement strategies. Species of note in the case study that may be indicative of restricted hunting are the small amount of wild turkey and duck specimens which, based on the surrounding environmental zones would most likely have been readily available. However, mammalian bones "are denser, and thus tend to preserve better than the light gracile bones of birds" (Peres 2010:26). More importantly, at Morton Village, the procurement of a wide variety of fish and bivalve species in addition to white-tailed deer and wapiti counter the circumscription interpretation. Based on the faunal remains, circumscription did not appear to be impacting the residents of Morton Village. The availability of diverse dietary options may have allowed for an easier transition of incorporating new members who came with their own inherent food biases into the community, than if the village had less diverse animal resource options, in addition to the need for additional animal biproducts such as hides for clothing and bone tools.

Second, the inhabitants of Morton Village, if they did drastically intensify food production, may have focused on agriculture instead of hunting and fishing to produce more food during the coalescence process, which would be invisible in the faunal record. Analogous to the interpretation of the faunal remains, recent research by Kelsey Nordine (2020) on the archaeobotanical remains from Morton Village indicates that the Oneota and Mississippian residents had similar access to plant types, but that the Oneota villagers may have retained a preference for several food types (including thick hickory and *Chenopodium*) (Nordine 2020:66). From the archaeological record, it appears that the inhabitants of Morton Village did not heavily emphasize traditional foodways practices through the selection or exclusion of certain plant (Nordine 2020) or animal species. It is possible that village inhabitants engaged in hybrid foodways practices through their use of cuisine/cooking to transform the commonly utilized animals and plants into dishes that either emphasize separateness, blending, or introduce entirely new creations (Nordine 2020; Painter 2021).

In sum, it appears that the Morton Village occupants utilized diverse animals, with a focus on readily available, renewable species, and were not significantly restricted or impacted in resource options by circumscription due to stress and warfare in the region. While the use of diverse animal species may not initially appear as an obvious aspect of intensification, it is interpreted as the elaboration of production strategies that can allow for a wider array of resources to be obtained (Gallagher and Arzigian 1994; Morrison 1994). Although there are no statistically significant differences between traditional Oneota and Mississippian diet trends, there was a slight variation in the Oneota comparative sites indicating a wider variety of species utilized than at Mississippian sites. The Morton Village statistical diversity results indicated that they aligned more with the Oneota use pattern of a wider variety of species types (as shown

through the Shannon Index) but were more evenly represented within the sample (Dominance Index). As the general diet trends of the comparative Oneota and Mississippian sites were similar, it was not possible to determine if there were any visible indicators of hybrid foodways practices occurring at Morton Village from the faunal remains. However, the similar patterns of animal use found between the comparative Oneota and Mississippian sites and Morton Village indicates that the coalescence process was not hindered by any drastic differences in resource utilization.

This research has shown that faunal remains can be used to understand the roles that animal use plays during coalescence. Alongside species presence, several things should be considered including the types of species selected, relative abundance, where species can be obtained from in the local environment, and the context they are recovered from within a coalescing community. Another factor to acknowledge is the relative sizes of the immigrant and local populations, as this could impact the amount of food and/or strategies for obtaining those resources needed to sustain a newly formed community. Further, in coalescing societies where the threat of violence is fairly common and circumscription is a possibility, it is necessary to investigate whether foodways patterns or access to certain resources were restricted, as this may influence how coalescing groups were able to adapt their foodways practices in new social circumstances. In the case of Morton Village, it does not appear that the residents were restricted in their diet choices. In other places, however, restrictions may occur, and this should be carefully assessed.

To account for these issues, it is important to incorporate multiple lines of evidence in addition to the faunal remains to get a broad perspective of the day-to-day activities that play key roles in the creation and integration process. Ceramics, botanical remains, lithics, and spatial use

patterns should all be leveraged to assist with the interpretation of the diet and cuisine during coalescence process in the past. Furthermore, additional research focused on exploring the variety of roles that animal use plays in community formation and maintenance during the coalescence process is needed, including exploring foodsharing practices and the distribution of animal resources as a part of community building and how animals are used in both domestic and community-wide ceremonial activities to promote integration. As more data are analyzed and included in the interpretation of the coalescence process, we should attempt to understand what roles animal use practices can play. Furthermore, continuing to advance our knowledge of the process of coalescence will assist in our ability as anthropologists to contribute to modern day discussions of multiculturalism and immigration issues.

APPENDIX

APPENDIX: Morton Village Species Composition of Animal Remains by Recovery Method

Table A2. Morton Village Species Composition of Animal Remains by Recovery Method

Species	Macro-Recovery		Flotation		MNI	Biomass (kg)
	NISP	Weight (g)	NISP	Weight (g)		
CLASS: MAMMALS	6374	10203.91	2558	634.01	136.00	159.264
Eastern Cottontail, *Sylvilagus floridanus*	2	0.51	1	0.70	3.00	0.034
Eastern Chipmunk, *Tamias striatus*	3	0.40	0	0.00	1.00	0.012
Eastern Gray Squirrel, *Sciurus carolinensis*	1	0.60	0	0.00	1.00	0.017
Tree Squirrel, *Sciurus* sp.	1	0.97	0	0.00	1.00	0.026
Beaver, *Castor canadensis*	68	265.95	2	7.56	19.00	5.068
Deer/White-footed mouse, *Peromyscus* sp.	2	0.16	0	0.00	1.00	0.005
Muskrat, *Ondatra zibethicus*	26	18.13	3	0.84	9.00	0.426
Rodents, *Rodentia* - need to add in size	4	0.45	0	0.00	1.00	0.013
Dog/Wolf/Coyote, *Canis* sp.	7	4.43	0	0.00	3.00	0.110
Raccoon, *Procyon lotor*	42	100.08	5	0.95	16.00	2.060
American Mink, *Neovison vison*	5	2.81	1	1.14	4.00	0.101
cf. American Badger, cf. *Taxidae taxus*	1	0.44	0	0.00	1.00	0.013
North American River Otter, *Lontra canadensis*	2	1.37	0	0.00	2.00	0.037
Striped Skunk, *Mephitis mephitis*	1	0.51	0	0.00	1.00	0.014
Mustelids, *Mustelidae*	3	0.53	0	0.00	-	0.015
Bobcat, *Lynx rufus*	9	21.16	0	0.00	5.00	0.471
Wapiti, *Cervus elaphus canadensis*	72	1675.54	2	30.51	21.00	20.834
White-tailed Deer, *Odocoileus virginianus*	665	4089.96	13	9.95	47.00	49.702
Wapiti/deer, Family Cervidae	188	240.82	3	5.29	-	0.423
Subtotals, Identified Mammals	*1102*	*6424.82*	*30*	*56.94*	*136.00*	*79.382*
Unidentified Very Small Mammal	0	0.00	3	0.03	-	0.001

Table A2 (cont'd)						
Unidentified Small Mammal	14	1.62	8	1.32	-	0.086
Unidentified Small/Medium Mammal	22	3.23	10	0.39	-	0.101
Unidentified Medium Mammal	198	77.29	20	5.47	-	1.833
Unidentified Medium/Large Mammal	3615	1356.24	633	133.72	-	25.036
Unidentified Large Mammal	1205	1562.18	1730	429.82	-	32.465
Unidentified Very Large Mammal	198	773.73	0	0.00	-	11.269
Unidentified Mammal	20	4.80	124	6.32	-	9.092
Subtotals, Unidentified Mammals	*5272*	*3779.09*	2528	577.07	-	*79.882*
CLASS: BIRDS	88	71.66	11	3.61	29.00	1.357
Pied-billed Grebe, *Podilymbus podiceps*	0	0.00	1	0.06	1.00	0.002
Blue/Snow Goose, *Chen caerulescens*	1	5.70	0	0.00	1.00	0.100
Canada Goose, *Branta canadensis*	2	1.44	0	0.00	2.00	0.030
Blue/Snow/Canada Goose, *Chen/Branta* sp.	1	1.00	0	0.00	1.00	0.020
Green/Blue-winged Teal, *Anas crecca/discors*	1	0.40	0	0.00	1.00	0.009
Large duck spp., Subfamily Anatinae	3	2.99	3	2.62	3.00	0.108
Medium-sized duck spp., Subfamily Anatinae	7	1.95	0	0.00	5.00	0.043
Small duck spp., Subfamily Anatinae	1	0.26	1	0.06	2.00	0.008
Greater Prairie-Chicken/Sharp-tailed Grouse, *Tympanuchus* sp.	1	0.20	0	0.00	1.00	0.006
Wild Turkey, *Meleagris gallopavo*	11	36.43	0	0.00	5.00	0.598
American Coot, *Fulica americana*	2	0.40	1	0.15	2.00	0.013
Passenger Pigeon, *Ectopistes migratorius*	1	0.30	0	0.00	1.00	0.007
cf. Red-tailed Hawk, *Buteo cf. jamaicensis*	0	0.00	1	0.10	1.00	0.003
Small Perching Birds, Order Passiformes	3	0.03	0	0.00	2.00	0.001
Small Shore Birds, Order Charadriiformes	1	0.10	0	0.00	1.00	0.003
Subtotals, Identified Birds	*35*	*51.20*	7	2.99	*29.00*	*0.947*
Unidentified Small Bird	3	0.40	1	0.03	-	0.011

Table A2 (cont'd)						
Unidentified Small/Medium Bird	1	0.26	0	0.00	-	0.006
Unidentified Medium Bird	22	5.72	2	0.27	-	0.119
Unidentified Medium/Large Bird	3	1.02	0	0.00	-	0.022
Unidentified Large Bird	17	11.71	1	0.32	-	0.221
Unidentified Bird	7	1.35	0	0.00	-	0.031
Subtotals, Unidentified Birds	*53*	*20.46*	4	0.62	-	*0.409*
CLASS: REPTILES	345	283.24	18	5.91	54.00	4.825
Snapping Turtle, *Chelydra serpentina*	26	38.82	2	1.84	10.00	0.689
North American Softshell Turtle, *Apalone* sp.	140	108.57	3	0.44	18.00	1.493
Blanding's Turtle, *Emydoidea blandingii*	2	4.12	0	0.00	2.00	0.102
Eastern Box Turtle, *Terrapene carolina*	0	0.00	2	0.16	1.00	0.009
Ornate Box Turtle, *Terrapene ornata*	2	2.20	0	0.00	1.00	0.054
American Box Turtles, *Terrapene* sp.	2	1.50	0	0.00	2.00	0.051
Painted Turtle, *Chrysemys picta*	11	11.91	0	0.00	7.00	0.284
Common Slider, *Trachemys scripta*	12	30.08	1	1.05	7.00	0.556
Common Map Turtle, *Graptemys geographica*	2	12.01	0	0.00	2.00	0.186
Pond Turtles, Family Emydidae	123	67.18	7	1.79	3.00	1.215
Unidentified Turtle	24	6.75	3	0.63	-	0.185
Non-Venomous Snake, Family Colubridae	1	0.10	0	0.00	1.00	0.001
Subtotals, Identified Reptiles	*345*	*283.24*	18	5.91	*54.00*	*4.825*
CLASS: AMPHIBIANS	1	0.10	0	0.00	1.00	-
Frog sp., *Lithobates* sp.	1	0.10	0	0.00	1.00	-
CLASS: FISH	3832	696.70	3002	101.71	298.00	15.810
American Paddlefish, *Polyodon spathula*	2	4.30	1	0.01	1.00	0.096
cf. American Paddlefish, cf. *Polyodon spathula*	2	0.07	2	0.20	2.00	0.012

Table A2 (cont'd)						
Longnose Gar, *Lepisosteus osseus*	1	6.00	0	0.00	1.00	0.124
Gar spp., *Lepisosteus* spp.	233	39.55	181	8.55	33.00	1.081
Bowfin, *Amia calva*	770	191.25	163	17.98	86.00	3.573
Pike/Pickerel, *Esox* sp.	41	11.98	1	0.11	14.00	0.328
Bigmouth Buffalo, *Ictiobus cyprinellus*	5	2.53	1	0.25	5.00	0.088
Black/Bigmouth Buffalo, *Ictiobus niger/cyprinellus*	2	0.32	0	0.00	-	0.012
Smallmouth/Black Buffalo, *Ictiobus bubalus/niger*	10	3.87	2	0.26	4.00	0.109
Buffalo spp., *Ictiobus* spp.	88	38.96	8	1.30	17.00	0.821
Buffalo/Carpsucker, *Ictiobus/Carpiodes* sp.	3	0.94	0	0.00	-	0.029
Redhorse Suckers; *Moxostoma* spp.	13	2.91	0	0.00	5.00	0.094
Sucker spp., Family Catostomidae	124	37.31	4	0.46	4.00	0.687
Black Bullhead, *Ameiurus melas*	3	0.62	1	0.20	3.00	0.017
Yellow Bullhead, *Ameiurus natalis*	7	2.85	1	0.04	5.00	0.058
Brown Bullhead, *Ameiurus nebulosus*	13	2.88	3	0.87	9.00	0.076
Bullhead spp., *Ameiurus* spp.	60	11.39	3	0.32	8.00	0.222
Channel Catfish, *Ictalurus punctatus*	13	7.32	3	1.51	9.00	0.173
Catfishes, *Ictalurus* sp.	4	0.20	0	0.00	-	0.004
Flathead Catfish, *Pylodictis olivaris*	3	2.52	0	0.00	3.00	0.050
Bullhead/Catfishes, Family Ictaluridae	20	4.86	8	0.92	2.00	0.119
Striped Bass, *Morone* sp.	3	0.70	0	0.00	1.00	0.001
Black Bass, *Micropterus* sp.	36	8.98	2	0.52	14.00	0.262
cf. Green Sunfish, *Lepomis* cf. *cyanellus*	1	<0.1	0	0.00	1.00	0.000
Redear Sunfish, *Lepomis microlophus*	1	0.15	2	0.12	3.00	0.011
Sunfish spp., *Lepomis* spp.	24	2.22	6	0.20	13.00	0.074
Basses/Sunfishes, *Micropterus/Lepomis* sp.	0	0.00	2	0.06	2.00	0.003
Rock Bass, *Ambloplites rupestris*	6	0.56	1	0.10	3.00	0.022
White Crappie, *Pomoxis annularis*	2	0.18	0	0.00	1.00	0.007
Crappie sp., *Pomoxis* spp.	10	1.40	0	0.00	4.00	0.043

Table A2 (cont'd)						
Sunfish/Crappies; *Lepomis/Pomoxis* sp.	1	<0.1	0	0.00	-	0.000
Sunfish spp., Family Centrarchidae	79	8.61	12	0.61	10.00	0.246
Walleye/Sauger, *Sander* sp.	10	2.18	1	0.00	7.00	0.064
cf. Walleye/Sauger/Striped Bass, cf. *Sander/Morone* sp.	1	0.10	0	0.00	-	0.004
Yellow Perch, *Perca flavescens*	3	0.54	0	0.00	2.00	0.001
Freshwater Drum, *Aplodinotus grunniens*	81	60.60	21	1.57	26.00	1.472
Subtotals, Identified Fish	*1675*	*458.85*	429	36.16	*298.00*	*9.983*
Unidentified Fish	2157	237.85	2573	65.55	-	5.826
CLASS: BIVALVES	36	1316.74	0	8.44	28.00	-
Three-ridge, *Amblema plicata*	12	271.90	0	0.00	10.00	-
Ebonyshell, *Fusconaia ebena*	2	12.80	0	0.00	2.00	-
Pimpleback, *Quadrula pustulosa*	2	37.23	0	0.00	2.00	-
Spike, *Elliptio dilatata*	5	80.50	0	0.00	5.00	-
Mucket, *Actinonaias ligamentina*	2	71.60	0	0.00	2.00	-
Rock Pocketbook, *Arcidens confragosus*	1	11.80	0	0.00	1.00	-
Plain Pocketbook, *Lampsilis cardium*	2	85.20	0	0.00	2.00	-
Yellow Sandshell, *Lampsilis teres*	1	3.30	0	0.00	1.00	-
Pink Heelsplitter, *Potamilus alatus*	1	12.10	0	0.00	1.00	-
Fluted-shell, *Lasmigona costata*	1	2.80	0	0.00	1.00	-
Pondhorn, *Uniomerus tetralasmus*	1	2.30	0	0.00	1.00	-
Subtotals, Identitfied Mussels	*30*	*591.53*	0	0.00	*28.00*	-
Unidentified Mussels	6	725.21	0	8.44	-	-
Grand Totals	10676	12572.35	5589	753.68	546.00	181.256
Totals, Identified Below Class	3188	7809.74	484	102.00	546.00	95.138

REFERENCES

REFERENCES

Alt, Susan M.
2006 The Power of Diversity: The Roles of Migration and Hybridity in Culture Change. In *Leadership and Polity in Mississippian Society*, edited by Brian M. Butler and Paul Dr. Welch, pp. 289-308. Occasional Paper No. 33, Center for Archaeological Investigations, Southern Illinois University Carbondale.

Anderson, Adrian, Allan Westover, Terrance J. Martin, Mathew L. Murray, Susan M. T. Myster, Barbara O'Conell, and L. Anthonly Zalucha
1995 The State Road Coulee Site: 47LC176. *The Wisconsin Archaeologist* 76(1-2):48- 230.

Arkush, Elizabeth
2017 Coalescence and Defensive Communities: Insights from an Andean Hillfort Town. *Cambridge Archaeological Journal* 28(1):1-22.

Bengtson, Jennifer D., and Jodie A. O'Gorman
2016 Children, Migration and Mortuary Representation in the Late Prehistoric Central Illinois River Valley. *Childhood in the Past* 9(1):19-43.

Berres, Thomas E.
2003 Chapter 9 - Faunal Remains. In *The Vaughn Branch and Old Edwardsville Road Sites: Late Stirling and Early Moorehead Phase Mississippian Occupations in the Northern American Bottom,* edited by Douglas K. Jackson and Philip G. Millhouse, pp. 191-196. Illinois Transportation Archaeological Research Reports No. 16.

Beyer, Autumn M., and Terrance J. Martin
2016 Food and Public Ritual at Morton Village: Faunal Remains from Structure 16. Poster Presented at the 60th Annual Meeting of the Midwest Archaeological Conference, Iowa City, Iowa.

Bhabha, Homi K.
1990 The Third Space. In *Identity: Community Culture, Difference*, edited by Jonathan Rutherford, pp. 207-221. Lawrence and Wishart, London.

Birch, Jennifer
2012 Coalescent Communities: Settlement Aggregation and Social Integration in Iroquoian Ontario. *American Antiquity* 77(4):646-670.

Birch, Jennifer, and R.F. Williamson
2013 *The Mantle Site: An Archaeological History of an Ancestral Wendat Community*, AltaMira, Lanham, MD.

Bluhm, Elaine A., and Allen Liss
1961 The Anker Site. In *Chicago Area Archaeology*, edited by Elaine A. Bluhm, pp. 89-137. Bulletin No. 3. Illinois Archaeological Survey, Urbana.

Brown, James A.
1967 *The Gentleman Farm Site*. Report of Investigation, No. 12. Illinois State Museum, Springfield.

Buchanan, Meghan E.
2007 *Patterns of Faunal Utilization at Kincaid Mounds, Massac County, Illinois*, MS thesis, Department of Anthropology, Southern Illinois University at Carbondale, Carbondale, Illinois.

Burt, W. H., and R. P. Grossenheider
1962 *A Field Guide to the Mammals.* Houghton Miffin Co., Boston.

Card, Jeb J.
2013 Introduction. In *The Archaeology of Hybrid Material Culture*, edited by Jeb J. Card, p. 1-24. Southern Illinois University Press, Carbondale.

Clark, Jeffrey J., Jennifer A. Birch, Michelle Hegmon, Barbara J. Mills, Donna M. Glowacki, Scott G. Ortman, Jeffrey S. Dean, Rory Gauthier, Patrick D. Lyons, Matthew A. Peeples, Lewis Borck, and John A. Ware
2019 Resolving the Migrant Paradox: Two Pathways to Coalescence in the Late Precontact U.S. Southwest. *Journal of Anthropological Archaeology* 53:262-287.

Conner, Michael D., and Jodie A. O'Gorman
2012a Spatial Distribution of Cultural Components and House Types at Morton Village. Paper presented at 58th Annual Midwest Archaeological Conference, East Lansing, Michigan.

Conrad, Lawrence A.
1991 Middle Mississippian Cultures of the Central Illinois Valley. In *Cahokia and the Hinterlands: Middle Mississippian Cultures of the Midwest*, edited by Thomas E. Emerson and R. Barry Lewis, pp. 164-182. University of Illinois Press, Urbana.

Deagan, Kathleen
2013 Hybridity, Identity, and Archaeological Practice. In *The Archaeology of Hybrid Material Culture*, edited by Jeb J. Card, pp. 260-278. Southern Illinois University Press, Carbondale.

Dietler, Michael
2010 *Archaeologies of Colonialism: Consumption, Entanglement, and Violence in Ancient Mediterranean France*. University of California Press, Berkeley.

Ernst, Carl H., and Jeffrey E. Lovich
2009 *Turtles of the United States and Canada*. JHU Press, Baltimore.

Esarey, Duane, and Lawrence A. Conrad
1998 The Bold Counselor Phase of the Central Illinois River Valley: Oneota's Middle

Mississippian Margin. *The Wisconsin Archeologist* 79(2):38-61.

Fenner, Gloria J.
1963 The Plum Island Site, LaSalle County, Illinois. In Reports on Illinois Prehistory, Vol 1, edited by Elaine A. Bluhm, pp. 1-106. Bulletin 4. Illinois Archaeological Survey. University of Illinois, Urbana.

Fishel, Richard L
1997 Medicine Birds and Mill Creek-Middle Mississippian Interaction: The Contents of Feature 8 at the Phipps Site. *American Antiquity* 62(3):538-553

Foss, Dorothy B., and Paul W. Parmalee
1990 Animal Remains from the Hoxie Farm Site (11CK4). In *At the Edge of Prehistory: Huber Phase Archaeology in the Chicago Area: I. Hoxie Farm and Huber: Two Upper Mississippian Archaeological Sites in Cook County, Illinois*, edited by Elaine Bluhm Herold, Patricia J. O'Brien, and David J. Wenner, pp. 108-109. Center for American Archaeology, Kampsville, Illinois.

Gallagher, J.P., and C. M. Arzigian
1994 A New Perspective on Late Prehistoric Agricultural Intensification in the Upper Mississippi River Valley. In *Agricultural Origins and Development in the Midcontinent*, edited by W. Green, pp. 171-188. Report 19, Office of the State Archaeologist, University of Iowa, Iowa City.

Goguen, Amber D., Shawn J. Riley, John F. Organ, and Brent A. Rudolph
2018 Wild-Harvested Venison Yields and Sharing by Michigan Deer Hunters, *Human Dimensions of Wildlife* 23(3):197-212.

Gillet, Elizabeth, and Hans-Rolf Gregorius
2008 Measuring differentiation among populations at different levels of genetic integration. *BMC genetics* 9(1):60.

Gumerman, George
1997 Food and Complex Societies. *Journal of Archaeological Methods and Theory* 4(2):105-139.

Hall, Robert L.
1962 *The Archaeology of Carcajou Point: With an Interpretation of the Development of Oneota Culture in Wisconsin*. Volume 1. University of Wisconsin Press, Madison.

Hammer, Øyvind
Version 4.04 PAleontological STatistics (PAST) Reference Manual. Natural History Museum, University of Oslo.

Hanenberger, Ned H., editor
2003 *The Range Site 3: Mississippian and Oneota.* Illinois Dept of Transportation.

Illinois Transportation Archaeological Research Program 17, Urbana-Champaign.

Harvey, Amy E.
1979 *Oneota Culture in Northwestern Iowa*. Office of the State Archaeologist, University of Iowa, Iowa City.

Hastorf, Christine A.
2016 *The Social Archaeology of Food: Thinking about Eating from Prehistory to the Present*. Cambridge University Press, Cambridge.

Hastorf, Christine A., and Mary Weismantel
2007 Food: Where Opposites Meet. In *The Archaeology of Food and Identity*, edited by Katheryn C. Twiss, pp. 1–15. Center for Archaeological Investigations Southern Illinois University Carbondale, Occasional Paper No. 34.

Henning, Dale R.
1998 The Oneota Tradition. In *Archaeology on the Great Plains*, edited by W. Raymond Wood, pp. 345-414. University Press of Kansas, Lawrence.

Jackson, H. E., and S. L. Scott
2003 Patterns of Elite Faunal Utilization at Moundville, Alabama. *American Antiquity* 68(3):552-572.

Kelly, Lucretia
2003a Chapter 8: Lohmann Phase Faunal Remains. In *Vol. 17 The Range Site 3: Mississippian and Oneota Occupations*, edited by Ned H. Hanenberger, pp. 173-190. Illinois Department of Transportation, Department of Anthropology, University of Illinois at Urbana-Champaign, Urbana-Champaign.

Kelly, Lucretia
2003b Chapter 13: Stirling Phase Faunal Remains. In *Vol. 17 The Range Site 3: Mississippian and Oneota Occupations*, edited by Ned H. Hanenberger, pp. 317-324. Illinois Department of Transportation, Department of Anthropology, University of Illinois at Urbana-Champaign, Urbana-Champaign.

Kelly, Lucretia
2003c Chapter 20: Oneota Faunal Remains. In *Vol. 17 The Range Site 3: Mississippian and Oneota Occupations*, edited by Ned H. Hanenberger, pp. 407-408. Illinois Department of Transportation, Department of Anthropology, University of Illinois at Urbana-Champaign, Urbana-Champaign.

Kowalewski, Stephen A.
2006 Coalescent Societies. In *Light on the Path: The Anthropology and History of the Southeastern Indians*, edited Robbie R. Ethridge, Thomas J. Pluckhahn, and Thomas J. Hudson, pp. 68-84. University of Alabama Press, Tuscaloosa.

Kuehn, Stephan A.
2019 Faunal Analysis. In *Orendorf Settlement D: A Burned Fortified Mississippian Town in the Central Illinois River Valley*, edited by Lawrence A. Conrad, Kjersti E. Emerson, Thomas E. Emerson, and Duane E. Esarey, pp. 345-354. Illinois State Archaeological Survey Research Reports No. 50, University of Illinois.

2013 Faunal Assemblage. In *Archaeological Investigations at Site 11CK284 for the Cal-Sag Channel Trail, 127th Street at Cal-Sag to Burnham Greenway Trail,* edited by Melissa Baltus, pp. 51-73. Archaeological Testing Short Report No. 429. Illinois State Archaeological Survey, Prairie Research Institute, University of Illinois at Urbana-Champagne.

Kuehn, Stephan A., and Amber VanDerwarker
2015 Lamb Site Zooarchaeological Analysis: Early Mississippian Faunal Exploitation in the Central Illinois River Valley. *Illinois Archaeology* 27:236-253.

Lovis, William A., and John P. Hart
2015 Fishing for Dog Food: Ethnographic and Ethnohistoric Insights on the Freshwater Reservoir in Northeastern North America. *Radiocarbon* 57(4):557-570.

Martin, Terrance J.
2014 Bison Scapulae from Hoxie Farm, Illinois: Perspectives on Upper Mississippian Subsistence and Regional Interaction. *The Wisconsin Archaeologist* 95(2):185-196.

Martin, Terrance J., and Steven Kuehn
2017 Faunal Analysis. In *The Hoxie Farm Site Main Occupation Area: Late Fisher and Huber Phase Components in South Chicago*, edited by Douglas K. Jackson, pp. 415-494. Research Report No. 40, Illinois State Archaeological Survey, Urbana-Champaign.

McConaughy, Mark A., Terrance J. Martin, and Frances B. King
1993 Late Late Woodland/Mississippian Period Component. *In Rench: A Stratified Site in the Central Illinois River Valley*, edited by Mark A. McConaughy, pp. 76-128. Illinois State Museum Reports of Investigation, No. 49, Springfield.

McTavish, Rachel C.
2020 Archaeofauna as Evidence for a Specialized Oneota Economy. *Midwest Archaeological Conference Occasional Papers* 4:83-102.

Milner, George R.
1999 Warfare in Prehistoric and Early Historic Eastern North America. *Journal of Archaeological Research* 7:105-151.

Milner, George R., and Virginia G. Smith
1990 Oneota Human Skeletal Remains. In *Archaeological Investigations at the Morton*

Village and Norris Farms #36 Cemetery, edited by S. Santure, A. Harn, D. Esarey, pp. 111-148. Illinois State Museum Report of Investigations, No. 45, Illinois State Museum, Springfield, IL.

Milner, George R., Eve Anderson, and Virginia G. Smith
1991 Warfare in Late Prehistoric West-Central Illinois. *American Antiquity* 56(4):581-603.

Morrison, Kathleen D.
2012 Great Transformations: On the Archaeology of Cooking. In *The Menial Art of Cooking: Archaeological Studies of Cooking and Food Preparation*, edited by Sarah R. Graff and Enrique Rodriquez-Alegria, pp. 231-244. University Press of Colorado, Boulder.

Nelson, Erin S., Ashley Peles, and Mallory A. Melton
2020 Foodways and community at the Late Mississippian site of Parchman Place. *Southeastern Archaeology* 39(1):29-50

Neusius, Sarah W.
1990 Archaeozoology. In *At the Edge of Prehistory: Huber Phase Archaeology in the Chicago Area: II. The Oak Forest Site: Investigations into Oneota Subsistence-Settlement in the Cal-Sag Area of Cook County Illinois*, edited by James A. Brown, pp. 266-279. Center for American Archaeology, Kampsville, IL.

Nordine, Kelsey
2020 Building Communities: Interpreting Oneota and Mississippian Interaction Through Paleoethnobotanical Analysis at the Morton Village Site (11F2), West-Central Illinois. PhD dissertation, Department of Anthropology, Washington University, St. Louis, Missouri.

O'Gorman, Jodie, and Michael Conner
2013 Piecing together Ritual at the Intersection of Oneota and Mississippian Worlds. Paper presented at the 57th Annual Meeting of the Midwest Archaeology Conference, Columbus, OH.

2016 Variability in Ritual at the Intersection of Oneota and Mississippian Worlds. Poster Presented at the 60th Annual Meeting of the Midwest Archaeological Conference, Iowa City, Iowa.

In Prep. Considering Hybridity and Coalescence at Morton Village.

Overstreet, David F.
1997 Oneota Prehistory and History. *The Wisconsin Archaeologist* 78(1-2):250-296.

Painter, Jeffrey M.

2021 Cooking and Coalescence: Exploring the Construction of Community and Cuisine at Morton Village. Ph D dissertation, Department of Anthropology, Michigan State University, East Lansing, Michigan

Painter, Jeffery M., and Jodie O'Gorman
2017 Foodways Variability in the Oneota Tradition: A Pilot Study of Cooking Pots. Paper presented at the 82nd Annual Meeting of the Society of American Archaeology, Vancouver, B.C.

2019 Cooking and Community: An Exploration of Oneota Group Variability. *Midcontinental Journal of Archaeology* 44(3):231-258.

2021 You are How You Eat: Towards an Understanding of Cuisine and Community Integration at Morton Village. Paper presented at the Annual Meeting of the Midwest Archaeological Conference, East Lansing, Michigan.

Pauketat, Timothy R., Lucretia S. Kelly, Gayle J. Fritz, Neal H. Lopinot, Scott Elias, and Eve Hargrave
2002 The Residues of Feasting and Public Ritual at Early Cahokia. *American Antiquity* 67(2):257-279.

Paulmié, Stephan
2013 Mixed Blessings and Sorrowful Mysteries: Second Thoughts about "Hybridity." *Current Anthropology* 54(4):463-482.

Parmalee, Paul W.
1962 The Faunal Complex of the Fisher Site, Illinois. *American Midland Naturalist* 68(2):399-408.

1972a Vertebrate Remains from the Griesmer Site, Lake County, Indiana. In *The Late Prehistoric Occupation of Northwestern Indiana: A Study of the Upper Mississippi Cultures of the Kankakee Valley*, edited by Charles H. Faulkner, pp. 199-201. Prehistory Research Series Vol. 5, No. 1. Indiana Historical Society, Indianapolis.

1972b Vertebrate Remains from the Fifield Site, Porter County, Indiana. In *The Late Prehistoric Occupation of Northwestern Indiana: A Study of the Upper Mississippi Cultures of the Kankakee Valley*, edited by Charles H. Faulkner, pp. 202-205. Prehistory Research Series Vol. 5, No. 1. Indiana Historical Society, Indianapolis.

1990 Vertebrate Remains from the Huber Site (11CK1), Cook County, Illinois. In *At the Edge of Prehistory: Huber Phase Archaeology in the Chicago Area: I. Hoxie Farm and Huber: Two Upper Mississippian Archaeological Sites in Cook County, Illinois*, edited by Elaine Bluhm Herold, Patricia J. O'Brien, and David J. Wenner, pp. 104-107. Center for American Archaeology, Kampsville.

Penman, John T.

1999 Chapter 8 - Faunal Remains from the Keeshin Farm Site. In The Keeshin Farm Site and the Rock River Langford Tradition in Northern Illinois. Edited by Thomas E. Emerson, pp. 115-151. Illinois Transportation Archaeological Research Program Transportation Archaeological Research Reports No. 7, Department of Anthropology. University of Illinois Urbana-Champaign, Urbana-Champaign.

Peres, T. M.
2010 Methodological Issues in Zooarchaeology. In *Integrating Zooarchaeology and Paleoethnobotany*, edited by VanDerwarker and Peres, pp. 15-36. Springer, NY.

Raslich, Frank J., Jodie A. O'Gorman, and Michael Conner
2015 Coming Together: Evidence of Ritual and Public Space as Mechanisms of Social Integration. Poster Presented at the 80th Society for American Archaeology Meeting, San Francisco, CA.

Reed, DeMetris, Paul T. Berg, Marty Marchello, Jennifer M. Young, and Eric P. Berg
2019 Product Yield and Fatty Acid Content of North Dakota Mule Deer, Elk, and Moose. *Meat and Muscle Biology* 3(1):324-329.

Reitz, Elizabeth, and Elizabeth S. Wing
2008 *Zooarchaeology*. Cambridge Manuals in Archaeology, New York.

Russel, Nerissa
2012 *Social Zooarchaeology: Humans and Animals in Prehistory*. University Press, Cambridge.

Santure, Sharron K.
1990a Summary of Excavation and Analyses. In *Archaeological Investigations at the Morton Village and Norris Farms 36 Cemetery*, edited by Sharron K. Santure, Alan D. Harn, and Duane Esarey, pp. 160-161. Illinois State Museum Reports of Investigations, No. 45. Springfield.

1990b Norris Farms 36: A Bold Counselor Phase Oneota Cemetery. In *Archaeological Investigations at the Morton Village and Norris Farms 36 Cemetery*, edited by Sharron K. Santure, Alan D. Harn, and Duane Esarey, pp. 66-74. Illinois State Museum Reports of Investigations, No. 45. Springfield.

Sasso, Robert F.
2014 Review of Bison Remains at Wisconsin Oneota Sites. *The Wisconsin Archaeologist* 95(2):173-184.

1993 LaCrosse Region Oneota Adaptation: Changing Late Prehistoric Subsistence and Settlement Patterns in the Upper Mississippi Valley. *The Wisconsin Archaeologist* 74(1):246-290.

Scott, Elizabeth M.

2008 Who Ate What? Archaeological Food Remains and Cultural Diversity. In *Case Studies in Environmental Archaeology*, edited by Elizabeth Reitz, C. Margaret Scarry, and Sylvia J. Scudder, pp. 337-356. Springer Science & Business Media, New York.

Scott, Michael
1994 Faunal Remains from the Midway Village Site. *The Wisconsin Archaeologist* 75(3&4):393-421.

Shannon, C. E.
1948 A Mathematical Theory of Communication. *Bell Systems Tech* 27:379-423, 623-656.

Silliman, Stephan W.
2015 A Requiem for Hybridity? The Problem with Frankensteins, Purées, and Mules. *Journal of Social Archaeology* 0(0):1-22.

Silva, Nikki, Jodie O'Gorman, and Michael Conner
2014 Implications of Recent Radiocarbon Dating at Norris Farms 36 Cemetery and Morton Village. Paper presented at the 58th Annual Meeting of the Midwest Archaeological Conference, Champaign, Illinois.

Simpson, E.
1949 Measurement of Diversity. *Nature* 163(688).

Smith, Bruce D.
2006 Household, Community, and Subsistence in Hopewell Research. In *Recreating Hopewell*, edited by Douglas K. Charles and Jane E. Buikstra, pp. 491-509. University Press of Florida, Gainsville, FL.

Smith, P. W.
1979 *The Fishes of Illinois*. University of Illinois Press, Urbana

Straffin, Dean
1971 *The Kingston Oneota Site*. Office of the State Archaeologist of Iowa. Iowa City, Iowa.

Steadman, D. W.
1998 The Population Shuffle in the Central Illinois Valley: A Diachronic Model of Mississippian Biocultural Interactions. *World Archaeology* 30 (2): 306–326.

Styles, Bonnie W.
1981 *Faunal Exploitation and Resource Selection: Early Late Woodland Subsistence in the Lower Illinois Valley*. Northwestern University Archaeological Program. Evanston, IL.

Styles, Bonnie W., and Frances B. King

1990 Faunal and Floral Remains from the Bold Counselor Phase Village. In *Archaeological Investigations at the Morton Village and Norris Farms 36 Cemetery*, edited by Sharron K. Santure, Alan D. Harn, and Duane Esarey, pp. 57-65. Illinois State Museum Reports of Investigations, No. 45. Springfield.

Styles, Bonnie W., and Karli White
1994 Analysis of Faunal Remains. In *The Tremaine Site Complex: The Filler Site*, edited by Jodie O'Gorman, pg. 91-104. Wisconsin Historical Society, Madison.

Theler, James L.
1994 Oneota Faunal Remains From Seven Sites in the LaCrosse, Wisconsin, Area. *The Wisconsin Archaeologist* 75(3-4):343-392

1989 Ch 5: The Pammel Creek Site Faunal Remains. *The Wisconsin Archaeologist* 1 and 2:157-241.

2000 Animal Remains from Native American Archaeological Sites. *The Wisconsin Archaeologist* 88:121-142.

Theler, James L., and Robert F. Boszhardt
2006 Collapse of Crucial Resources and Culture Change. *American Antiquity* 71(3):433-472.

Tiffany, Joseph A.
1986 Preliminary Report on Excavations at the McKinney Oneota Village Site (13LA1), Louisa County, Iowa. *The Wisconsin Archaeologist* 69(4):227-312.

Twiss, Katherine C.
2007 We Are What We Eat. In *The Archaeology of Food and Identity*, edited by Katheryn C. Twiss, pp. 1–15. Occasional Paper No. 34. Center for Archaeological Investigations Southern Illinois University, Carbondale.

2012 The Archaeology of Food and Social Diversity. *Journal of Archaeological Research* 20:357-395.

VanDerwarker Amber M., and Gregory D. Wilson
2016 War, Food, and Structural Violence in the Mississippian Central Illinois Valley. In *The Archaeology of Food and Warfare*, edited by Amber VanDerwarker and Greg Wilson, pp. 75-105. Springer, New York.

Winters, Howard D.
1967 *An Archaeological Survey of The Wabash Valley in Illinois*. Illinois State Museum Reports of Investigation, No. 10. Springfield.

Yann, Jessica, Jeffrey Painter, and Michael Conner

2015 The Spatial Distribution of Domestic Facilities in the Multiethnic Morton Village Site. Poster Presented at the 80th Society for American Archaeology Meeting, San Francisco, CA.

Yerkes, Richard W.

2005 Bone Chemistry, Body Parts and Growth marks: Evaluating Ohio Hopewell and Cahokia Mississippian Seasonality, Subsistence, Ritual, and Feasting. *American Antiquity* 70(2):241.

CHAPTER 3: THE RITUAL USE OF ANIMALS DURING COALESCENCE

INTRODUCTION

Rituals, particularly community-level ones, are commonly used to assist in the formation and maintenance of group identity (Brown 1997; Fogelin 2007; Laneri et al. 2015; Rautman 2013; Swenson 2015). Generally, ritual and/or ceremonial practices can contain different characteristics including symbolism, public displays of performance, repetitive patterns, and formal speech and actions, in addition to the use of varied material culture (Bell 1997). One facet of ritual practices can include the preparation, consumption, and use of rare or ritually charged animals, both as food items, symbolic representations, and/or active participants (Russel 2012). The use of animals during these practices can be archaeologically visible in a number of ways, including but not limited to feasting remains, trophy deposits, and food offerings for the afterlife. As rituals can be viewed as an on-going process, they can play an important role in creating, continuing, or resisting power relationships within a community (Fogelin 2007; Swenson 2015).

During the coalescence process, the formation and negotiation of community identity is also continuous, as many different mechanisms are used to help bring people of different backgrounds together to create shared traditions and a new sense of identity (Arkush 2017; Birch 2012; Clark et al. 2019; Kowalewski 2006). Therefore, community ritual practices could have served an important role in the negotiation of a new group ideology (Clark et al. 2019; Laneri et al. 2015). Clark et al. (2019) state that ritual and religious practices can be created or shaped to emphasize "collective, universalizing, and participatory practices" (Clark et al. 2019:266), meaning these practices could include the incorporation of symbols and concepts from all parties involved to form a new ritual practice (Clark et al. 2019). The ability of rituals to be a part of crafting new identities and communities in post-migration settings can be seen even today

(Pedersen and Rytter 2018). While ritual is important to coalescence, identifying and interpreting it within the archaeological record can be challenging. Specifically, it can be difficult to interpret the meanings or functions of rituals in the past, as there is little information regarding cosmology and religion besides more recent ethnographic information and Indigenous knowledge. Furthermore, interpreting ritual at a site of coalescence can be complex as each instance of coalescence is unique and can include the blending of past meanings and traits, or the creation of entirely new symbols and meanings.

The broad goal of this research is to provide a more nuanced understanding of how people used animals and animal symbols in ritual and ceremonial practices that were part of negotiating social and community relationships during the coalescence process. Specifically, this project will focus on examining the faunal record at the Morton Village site for the visible, shared use of animals or animal symbols in ritual and ceremonial contexts that could indicate the development of similar practices. For this project, symbols are considered instruments of communication and defined following DeMarrais et al. (1996): "Symbols, including icons, rituals, monuments, and written texts, all convey and transmit information and meaning to their viewers (DeMarrais et al. 1996:16). Put simply, as something that represents or stands for something else, like an object representing an abstract idea. The Morton Village site offers a unique opportunity to study the varied use of animals in ritual practices as there are both domestic and community ritual contexts, coupled with excellent preservation across the site that generated a large faunal sample. If rituals are aiding in the creation of shared practices, I expect to find reoccurring and/or shared use of animals and animal symbols in multiple contexts. If there are clear differences in the types of animals and/or animal symbols used, it is likely that animals were not an important part of the new community shared practices, that different

animals/animal symbols were needed in the different ritual spaces, and/or that community members were holding onto past traditional practices. By looking for common practices or symbols, this study will yield new insight into the development of community relationships and the role of shared animal use and symbols within ritual practices in that process. Additionally, this study also demonstrates the importance of considering multiple and varied ritual contexts for identifying the development of a shared community ideology.

MORTON VILLAGE SITE BACKGROUND

This aspect of coalescence is explored through Morton Village, a late precontact habitation site that was occupied by local Mississippian and migrant Oneota peoples from A.D. 1300 – 1400. Located in Fulton County within the central Illinois River valley (CIRV; Figure 1), Morton Village is one of five known sites that are the result of the Oneota migration into the region from the upper Midwest during the fourteenth century AD, known as the Bold Counselor phase (Esarey and Conrad 1998; Santure 1990a; Silva et al. 2014). Furthermore, Morton Village is the most extensively investigated site in the valley. Adjacent to Morton Village is Norris Farms 36, an associated cemetery site which contained 264 interred individuals, 43 of which exhibited signs of a violent death (Milner 1999; Milner and Smith 1990; Milner et al. 1991; Santure 1990b).

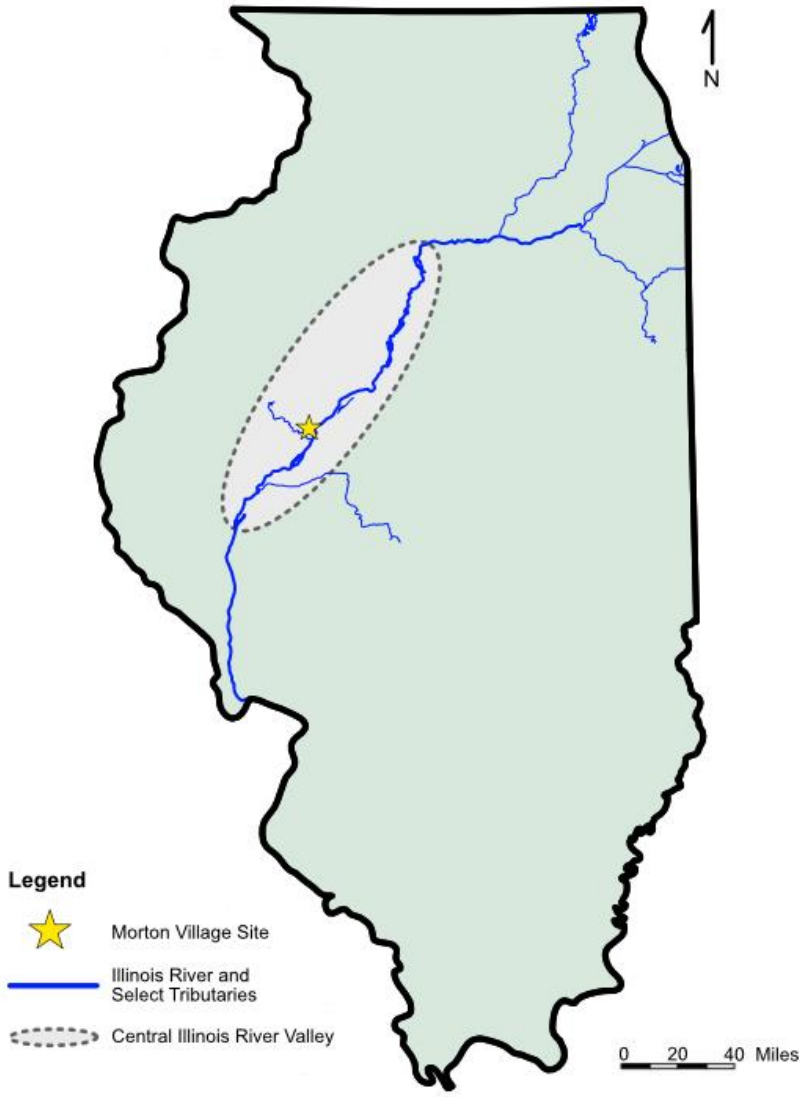

Figure 3.1. Morton Village site location within the central Illinois River valley. Map created by Autumn Painter.

While initial excavations of the site and associated contemporary mortuary component, led to the interpretation of day-to-day life at Morton Village as filled with stress and fear due to the undeniable violence seen in the cemetery, recent excavations have begun to shift this narrative (Bengston and O'Gorman 2016; Santure 1990a, 1990b). Several lines of evidence have been identified by O'Gorman and Conner (in prep) to support the synchronous occupation of the

village by both Mississippian and Oneota peoples, including the presence of wall-trench (traditionally Mississippian-style architecture) and single-post structures (traditionally Oneota-style architecture) containing both Oneota and Mississippian ceramics on their floors, and overlapping radiocarbon date range results from single-post and wall-trench structures (O'Gorman and Conner in prep). Furthermore, community building efforts were identified through the orientation and distribution of structures; the presence of special use structures that have been interpreted as serving as integrative facilities for the community, in which, new rituals could be created, negotiated, and maintained; and integrative foodways practices (O'Gorman and Conner in prep). When these lines of evidence are viewed together, it indicates that a "suite of transformations" was occurring (Clark et al. 2019:266), supporting the interpretation that complex community negotiations were taking place between the residents of Morton Village (Bengston and O'Gorman 2016; Beyer et al. 2016; Painter and O'Gorman 2017, 2019, O'Gorman and Conner in prep; O'Gorman et al. 2020).

THEORETICAL PERSPECTIVE

Clark et al. (2019) defines coalescence as the "coming together of groups from different cultural backgrounds due to various push and pull factors, and the inclusive ideologies and regional economies that develop in the aftermath" (Clark et al. 2019:263). Coalescence is often the result of migration and aggregation. The process of coalescence is a long-term one, involving a "suite of transformations" (Clark et al. 2019:263), including continual social and political reorganization and the creation and maintenance of new integrative practices, intensification of production, and ideological shifts (Arkush 2017; Birch 2012; Kowalewski 2006). Extensive

ethnographic research conducted by Kowalewski (2006) determined 12 common features of coalescence, one of which is "elaborate community integration" including rituals of intensification (Kowalewski 2006:81). An emphasis on community-level ceremonies during the coalescence process would create a context of thirdspace, a liminal space in which differences can meet and new cultural practices can be negotiated, which could allow multi-ethnic communities to create and maintain new traditions (Alt 2006:292, 2018; Bhabaha 1990). Furthermore, as the coalescence process is often the result of migration and aggregation into a new setting, the creation of communal participatory practices with the inclusion of commonly recognized concepts and symbols from the merging societies could be one method a community could use to deal with the stresses of adjusting to a new setting and interactions (Clark et al. 2019; Potter 2000).

Within the study of community ritual practices, animal remains have been used to establish when a community ritual took place (seasonal availability of resources impacts the timing of the ritual) and the extent to which status within the practice was important (through the selective use of high-ranking resources) (Kelly 2000; Potter 1997). Additionally, public events that include ritual feasting in precontact societies in eastern North America have been identified as an important aspect of community interaction that led and contributed to intergroup negotiations and social change (Muller 1997; Pauketat and Emerson 1991; Pauketat et al. 2002; Rees 1997; Welch and Scarry 1995), which could serve as an important mechanism for building community relationships during the coalescence process. The integration and use (or avoidance) of animal as foodstuffs, as other material items such as tools or sacred items, and symbols within the context of community and household rituals during the coalescence process has not been studied. The exploration of this facet of coalescence could yield new insight into community

relationships and symbolic practices, as the shared use of animals and/or animal symbols in community ritual practices can indicate the development of shared practices.

STUDY DESIGN AND METHODS

To examine how people used animals and animal symbols in ritual/ceremonial practices at Morton Village, three structures (and their associated features), and an isolated feature that have been designated as ritual or ceremonial context were analyzed in their entirety following standard zooarchaeological methodology (Figure 2). Faunal material recovered from the ritual structure contexts were identified by the author, and Dr. Terrance Martin identified the faunal remains found in the isolated feature context. The designation of ritual or ceremonial contexts was conducted in conjunction with previous analyses of other material culture, as well as in consultation with the Morton Village Project co-directors, Dr. Jodie O'Gorman and Dr. Mike Conner.

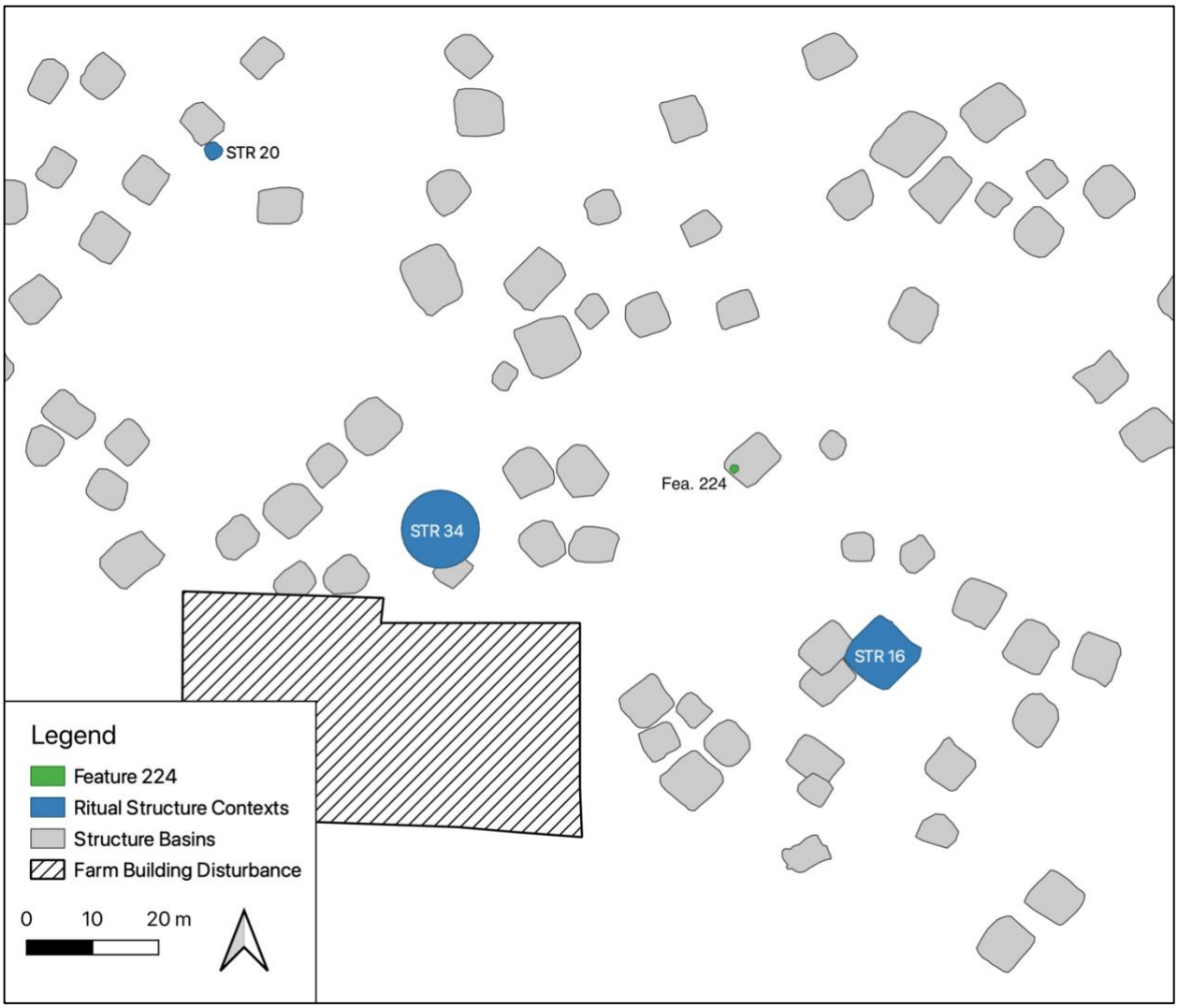

Figure 3.2. Map of ritual contexts at Morton Village. Created by Autumn Painter.

For two of the structures, 34 and 16, unique features and associated material culture, which includes the presence of both Oneota and Mississippian pottery styles, has led to the interpretation that they may have served as ritual facilities that were used to integrate the migrant Oneota and local Mississippian peoples in the on-going coalescence process at Morton Village (Beyer and Martin 2016; Conner and O'Gorman 2011; O'Gorman and Conner 2016). The third ritual context, Structure 20, has been interpreted as a sweat lodge or another type of restricted-use, household level ancillary structure that most likely was associated with ritual activity

(O'Gorman and Conner 2016). The fourth and final context is Feature 224, a pit in the corner of a partially excavated wall-trench structure. The feature contained material culture, including a sandstone pipe, celt, quartz crystal, bone tools, and both Oneota- and Mississippian-style ceramics, suggesting a ritual or special use context (Conner and O'Gorman 2012b; O'Gorman and Conner 2016).

Following the identification of the faunal material from each context, the results were compared in three different ways using a list of species present, NISP, MNI, and biomass. First, the four ritual contexts were compared against each other to look for any patterns visible within the faunal material. Second, each ritual context was examined against the overall Morton Village animal use patterns to determine if there were any variation in the species, portions, and quantities of the utilized animals. Third, each ritual context was compared against the previously analyzed faunal materials that were recovered from the Norris Farm 36 Cemetery excavations to look for any commonalities or differences between animal use and symbols in community ritual and mortuary practices to better understand the role animals/animal use plays in the formation and maintenance of community identity.

As each ceremonial context within the village and the Norris Farms 36 Cemetery most likely were used for different types of ritual practices, as determined through structure and material culture analysis, it is likely that the use of animals in each space and therefore the faunal signatures present within the archaeological record will vary. The village ceremonial contexts are expected to have a wider variety of faunal remains that were used for ceremonial consumption practices than those found within the mortuary context. The classification or conceptualization of feasting varies greatly between archaeologists and anthropologists. Consideration of the social landscape of Morton Village also will be critical for the interpretation of ritual use of animals

(Kelly 2000). Martin and Parker (2017:337) note that specifically feasting activities "will exhibit patterns depending on the social complexity of the population responsible for the sites or facilities being considered." As the creation of new rituals is common in the coalescence process (Clark et al. 2019; Kowalewski 2006), examining a range of facilities may reveal patterns in the use of animals and animal symbols, which will aid in exploring the role that these contexts played in the process of coalescence at Morton Village.

Given that Morton Village is located close to a variety of resource zones (Painter 2022, *Chapter 2*), Morton Village occupants likely had access to a wide range of resources to choose from for ritual practices. Evidence for unique or rare resources in ritual contexts and/or an unusual ratio of species or skeletal elements, such as medium and high utility portions of white-tailed deer or wapiti, as compared to household settings is expected. As shown by research conducted on faunal material from Cahokia's sub-Mound 51 pit, several of the species may have been chosen based on symbolic meaning (Kelly 2000), which may also be an expectation for some of the materials recovered from ritual contexts at Morton Village. In addition, the volume of faunal materials along with the presence or absence of domestic cooking vessels and other archaeological materials within each context will be utilized to interpret the social context of the event(s), such as the attendance of the general public, or a more restricted group of participants.

RESULTS

The results from each context will be first presented individually, then compared against one another, the overall Morton Village domestic faunal material, and the Norris Farms 36 Cemetery faunal remains.

Structure 34

Structure 34 is a large, circular wall trench structure or enclosure with a large post and thermal feature at the center, which has been interpreted as an integrative ritual facility. Approximately 25% of the structure was excavated, revealing that there were at least two rebuilding episodes. While both Oneota and Mississippian style pottery have been recovered from the structure's wall trenches indicating the presence of both traditions during construction, the majority of the ceramic sherds recovered were Mississippian style, which aligns with use of the traditional Mississippian architectural construction method (Figure 3; O'Gorman 2016; O'Gorman and Conner 2016). Faunal material from this structure were recovered from a thermal feature (F. 321) located just to the northwest of the central post and from an excavation block (BL 18) on the west side of the structure containing associated general refuse.

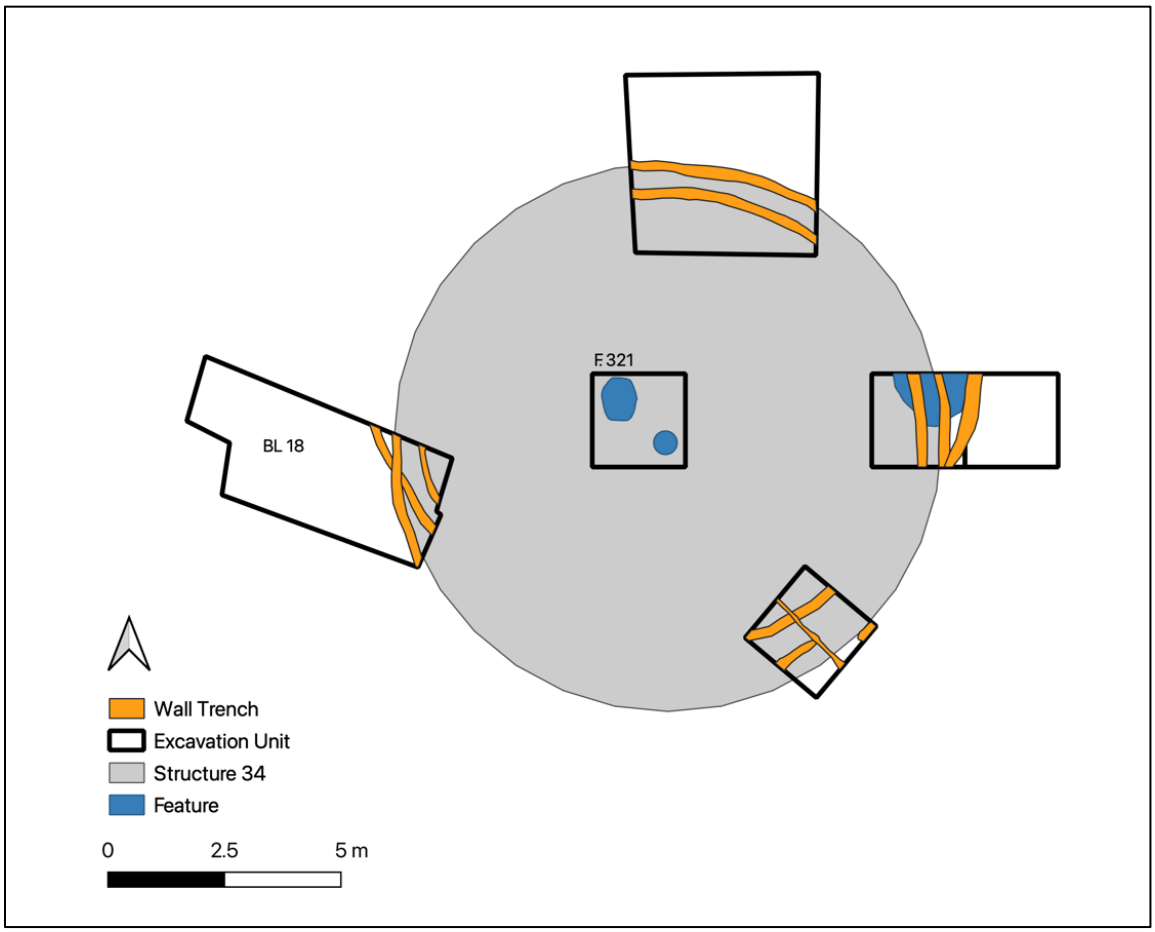

Figure 3.3. Map of Structure 34. Created by Autumn Painter.

Relatively little fauna, a total of 136 specimens, were associated with Structure 34 (Table 1). All specimens that were identified to class or below were mammalian, with three unique taxa identified: beaver (*Castor canadensis*), wapiti (*Cervus elaphus*), and white-tailed deer (*Odocoileus virginianus*). The structure has a total of four minimum number of individuals (MNI): two beaver, one wapiti, and one white-tailed deer. The remainder of faunal remains (19 specimens) could not be identified to species. Only beaver was associated with both the hearth feature and general structure debris (teeth only), while wapiti (36 specimens; teeth only) was recovered solely from the general debris and white-tailed deer only from the hearth/thermal

feature (1 specimen; calcaneus). No unique animal species or material culture with animal symbols was present within the structure.

The identified animal remains, beaver and wapiti, found near the edge of the structure in general debris were all teeth and the remainder of unidentified mammal and vertebrata remains were small fragments. This indicates that there may have been regular cleaning around the structure, obscuring the use of animals. The thermal feature near the center of the structure has been interpreted as a hearth, used for a fire, cleaned out, and then filled in with faunal remains, lithics, and ceramics. Given the central position of the feature and that it appears to have been carefully cleaned out and materials deposited within it, it could have been involved in a ritual/ceremonial practice that took place within the structure.

Table 3.1. Structure 34 Species Composition

Species	Feature 321		BL 18		Total Structure 34	
	NISP	NISP Wt. (g)	NISP	NISP Wt. (g)	MNI	Biomass (kg)
Castor canadensis	3	2.7	1	0.1	2	0.0643
Cervus elaphus	-	-	36	6.6	1	0.1437
Odocoileus virginianus	1	12.9	-	-	1	0.2627
Unidentified Mammal	6	5.19	70	11.3	-	0.3684
Unidentified Vertebrata	1	0.05	18	0.8	-	-
Grand Totals	*11*	*20.84*	*125*	*18.8*	*4*	*0.8391*

Structure 16

Structure 16 was a semi-subterranean facility that contained a prepared outer bench, a unique architectural feature at the site. The bench and vertical wall were covered in a prepared clay surface that was smoothed and hardened. On the east side of the structure is an extension ramp that could have functioned as an alcove, providing a space for ritual display. The hearth

located in front of the alcove and a pavement of carefully placed Oneota jar sections placed face down with burned soil below extended from the east corner, aligning along an east-west axis, signaling an unusual use of fire in this area. A shallow basin on the floor contained commingled remains from a female adult, an indeterminate adult, infant, and child. Both Oneota and Mississippian pottery were present within the structure, with Oneota predominating. Structure 16 was nearly excavated in its entirety over several field seasons. Combined, this information led to the interpretation that it served as a ceremonial or integrative facility (O'Gorman and Conner 2016).

Only faunal remains from distinct features and post molds associated with Structure 16 were included in this sample, eight contexts total (7 features, 1 post mold) (Figure 4). While animal remains were uncovered within test units that explored Structure 16, the majority of the fauna could not be definitively associated with the use of the structure, therefore general test unit faunal remains was not included in this study. Five out of the eight features that included faunal remains were interpreted as purposeful pit features that were used for a religious offering, storage, and/or trash disposal, with the remaining three either being a post mold, very shallow, or not containing well-defined edges as seen in most pit features at Morton Village.

Of the 1,455 total faunal specimens associated with Structure 16, 79% of the material could be identified to animal class or better (Table 3). The majority of the identified faunal remains were mammal (77% NISP), followed by fish (18% NISP), reptile (3% NISP), and bird (2% NISP). Twenty-two unique taxa were identified, with a total of 51 MNI (calculated via maximum distinction approach, i.e. feature-by-feature). Structure 16 faunal material consisted of mostly forest and forest-edge species with a heavy focus on white-tailed deer (*Odocoileus*

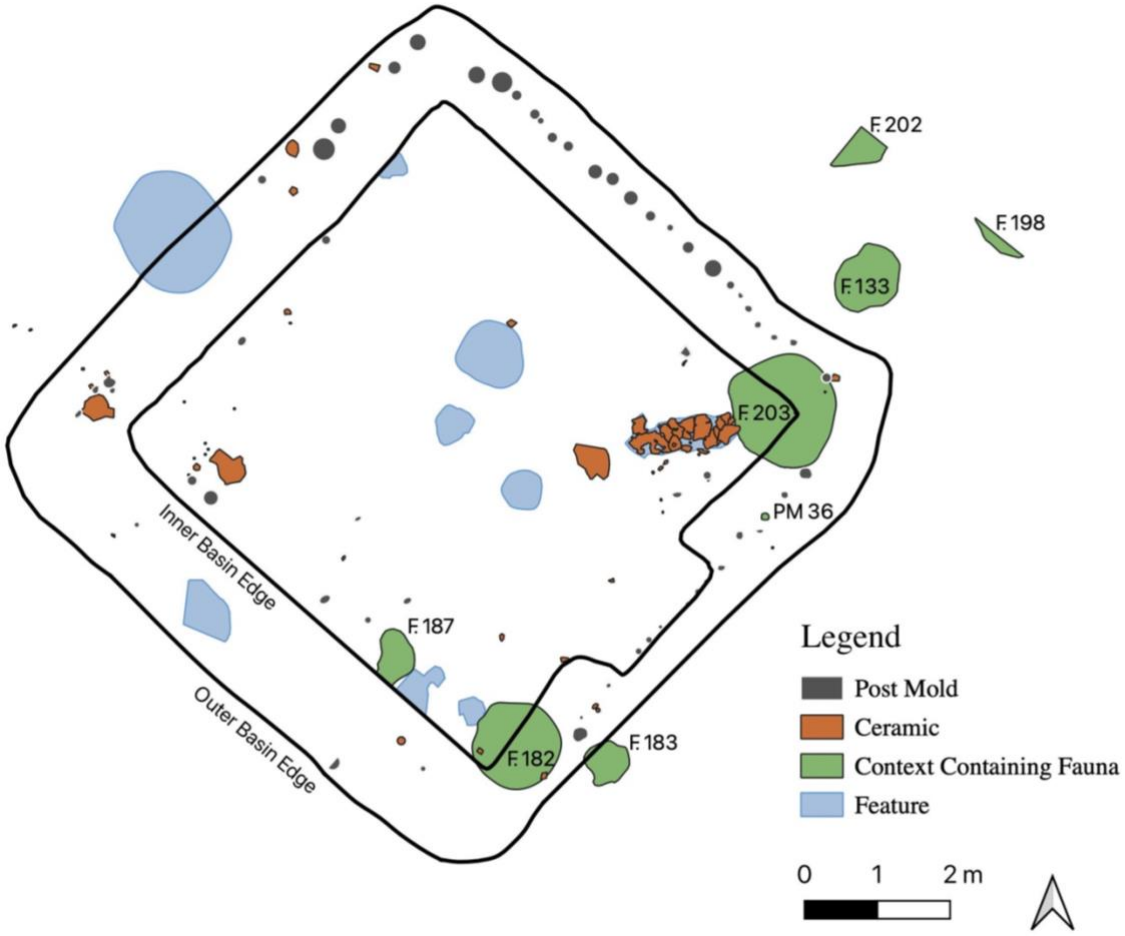

Figure 3.4. Map of Structure 16 adapted by Autumn Painter from Michael Conner's base project illustration.

virginianus), which provided 50% of all biomass from identified taxa. All mammals contributed 93% of Structure 16's biomass, with wapiti being another major contributor (Table 4). The close proximity of the Illinois and Spoon Rivers and their backwater lakes account for 6.6% of the biomass from identified fish, turtles, and aquatic birds. Most of the MNI are fishes (24 total) with the most prevalent species being bowfin (*Amia calva*), pike or pickerel (*Esox* sp.), gar (*Lepisosteus* spp.), freshwater drum (*Aplodinotus grunniens*), and bullheads (*Ameiurus* spp.). Two specimens show evidence of human modification: a polished wild turkey radius (*Meleagris gallopavo*) and a fragment of a white-tailed deer antler that was used as a tool.

Table 3.2. Structure 16 Morton Class Summary: NISP, MNI, and Bone Weight						
Identification	NISP	Proportion	MNI	Proportion	Weight (g)	Proportion
Identified	1144	78.52%	51	100.00%	1505.30	98.63%
Unidentified	313	21.48%	N/A	-	20.93	1.37%
TOTAL	1457	100.00%	51	100.00%	1526.23	100.00%
Taxonomic Class	NISP	Proportion	MNI	Proportion	Weight (g)	Proportion
Mammal	880	76.92%	19	37.25%	1423.24	94.55%
Bird	19	1.66%	5	9.80%	9.33	0.62%
Reptile	36	3.15%	3	5.88%	25.72	1.71%
Amphibian	0	0.00%	0	0.00%	0	0.00%
Fish	209	18.27%	24	47.06%	38.29	2.54%
Bivalve	N/A	N/A	N/A	N/A	8.72	0.58%
TOTAL	1144	100.00%	51	100.00%	1505.3	100.00%

Table 3.3. Structure 16 Vertebrate Taxonomic Class Biomass		
Taxa	Biomass (kg)	Proportion
Mammal	18.111	93.46%
Bird	0.156	0.80%
Reptile	0.279	1.44%
Amphibian	N/A	N/A
Fish	0.833	4.30%
Bivalve	N/A	N/A
TOTAL	19.379	100.00%

There was very little natural modification on the faunal materials from Structure 16. Only four individual skeletal elements showed evidence of carnivore or rodent gnawing; all are white-tailed deer. Evidence of carnivore gnawing was found on a femur shaft fragment, a proximal humerus epiphysis, and the distal portion of an astragalus. A tibia shaft fragment had evidence of rodent gnawing. This low occurrence of natural modifications on the faunal materials suggests that the remains were immediately buried after consumption/butchering.

The majority of the faunal remains found associated with Structure 16 were recovered from two features, accounting for 75% of the structure's 39 MNI. These two main features are located in Structure 16's corners and were incorporated into the architecture in a purposeful and unique way. Located in the eastern and southern corners, the features were sealed over by the bench and would have been inaccessible but present during the use of the building (Figure 4).

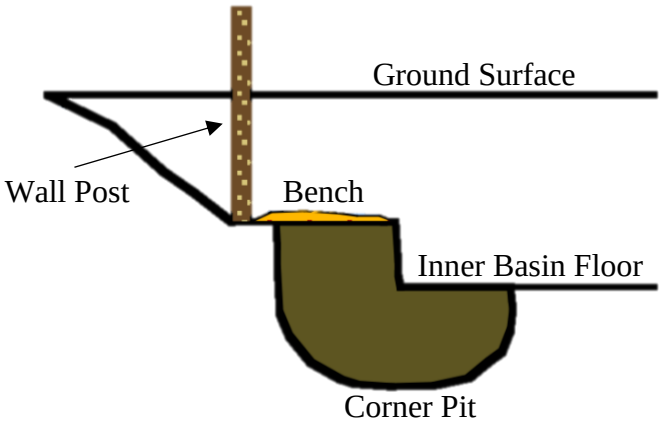

Figure 3.5. Diagram of corner pit cross section adapted from Conner and O'Gorman (2011) poster.

Feature 203 (east corner) is the larger of the two with a MNI of 25 and has a diverse collection of mammals, fish, birds, and a turtle (Table 5). The animal remains from Feature 182 (south corner), has fewer taxa with a MNI of 14, white-tailed deer and wapiti being the only terrestrial species. When compared against each other, Feature 203 shows a greater diversity of both mammals and fishes, unlike Feature 182, which contained a higher ratio of aquatic resources. Generally, both features contain the same species that have been identified from domestic refuse deposits throughout the village site.

Table 3.4. MNI Species Distribution within Corner Features of Structure 16			
Feature 182		Feature 203	
Species	MNI	Species	MNI
Beaver, *Castor canadensis*	1	Beaver, *Castor canadensis*	1
Wapiti, *Cervus elaphus*	1	Muskrat, *Ondatra zibethicus*	1
White-tailed Deer, *Odocoileus virginianus*	1	Dog/Wolf/Coyote, *Canis* sp.	1
Duck - Medium, Anatinae spp.	1	Raccoon, *Procyon lotor*	2
N. American Softshell Turtle, *Apalone* sp.	1	American Mink, *Neovison vison*	1
Painted Turtle, *Chrysemys picta*	1	Wapiti, *Cervus elaphus*	1
cf. Gar, *Lepisosteus* sp.	1	Wapiti, *Cervus elaphus* - fetal	1
Bowfin, *Amia calva*	3	White-tailed Deer, *Odocoileus virginianus*	1
Bullhead, *Ameiurus nebulosus*	1	Duck - Large, Anatinae sp.	1
Catfish, Ictaluridae	1	Duck - Medium, Anatinae sp.	1
Northern Pike, *Esox lucius*	1	Wild Turkey, *Meleagris gallopavo*	1
Freshwater Drum, *Aplodinotus grunniens*	1	Painted Turtle, *Chrysemys picta*	1
Total MNI	14	Gar, *Lepisosteus* sp.	1
		Bowfin, *Amia calva*	3
		cf. Buffalo sp., *Ictiobus* sp.	1
		Catfishes, Ictaluridae	1
		Bullhead, *Ameiurus* sp.	2
		Pikes, *Esox* sp.	1
		cf. Black Bass sp., *Micropterus* sp.	1
		Walleye, *Sander vitreus*	1
		Freshwater Drum, *Aplodinotus grunniens*	1
		Total MNI	25

Based on the context of the features, these faunal remains were most likely part of an event(s) which included a feasting or consumption component associated with the construction of this facility or as a ritual/ceremonial offering. It is possible that these two features represent two different events or offerings, as the faunal remains contained different ratios and varieties of animal species in addition to their association with different cardinal directions.

The remaining six Structure 16 contexts (five features, one post mold) had relatively few faunal remains for comparison (12 MNI total), with five out of the six contexts containing only one specimen each: gar (F.133), white-tailed deer (F.187), cf. white-tailed deer (F.198), wild turkey (F.202), and eastern mole (PM 36). As these deposits contained few faunal remains as well as very little other types of material culture, there is limited information to infer what activities these contexts reflect. However, Feature 183, an associated external feature, contained a total of 7 MNI, each representing a single species: muskrat, unidentified medium rodent, wapiti, white-tailed deer, bowfin, bullhead, and flathead catfish. This feature also contained high concentrations of ash that covered ceramic sherds and the faunal remains. In sum, Feature 183 may represent refuse that was associated with a consumption event that took place within the structure or was a depression in the landscape that was filled in with debris following the burning of the structure.

There was one ceramic figure that contained an animal symbol recovered from within Structure 16, an anthropomorphic owl clay figurine. The anthropomorphic figure was found within a broken pot in the western corner of the building, on the bench. This figurine has the shape and features of an owl, including a beak and circular head, but with a human-like body. Ethnographic records have shown that owls and other birds of prey are typically associated with warfare, aggression, and magical abilities. Owls specifically are commonly associated with witches and people of magical abilities and were typically used for ritual purposes, rather than for subsistence (Hollinger 2005; Hudson 1976; Lankford 2007).

It appears that animals and animal symbols were used as part of ceremonial/ritual activities associated with both the construction and use of Structure 16. Most of the faunal remains were found in corner pit features associated with the construction of the building, likely

as part of a consumption event or ritual offering. The presence of an anthropomorphic owl figurine that would most likely be used or associated with a ritual based on its provenience shows the importance of animal symbols, specifically avian representation, within the Morton Village community, especially with the relationship to warfare during this period of tension in the central Illinois River valley. However, no owl or other birds of prey were identified within Structure 16 contexts. Overall, Structure 16's ceremonial and ritual uses could have helped integrate the Morton Village community as a whole or have helped to continue strengthening the Oneota sub-community bonds at Morton Village. In either case, animals, in the form of food, ritual offering, and/or symbolic representations, served an important role in these rituals.

Structure 20

Structure 20 is a small, circular, single-post structure that contained both Oneota- and Mississippian-style ceramics. It is interpreted as a sweat lodge or another type of restricted-use, household level ancillary structure due to its association with probable domestic structures in the northwest village area (Figure 6) and the presence of fire-cracked rocks and a small basin located near the center of the structure that contained charcoal from logs but no oxidized soil (O'Gorman and Conner 2016).

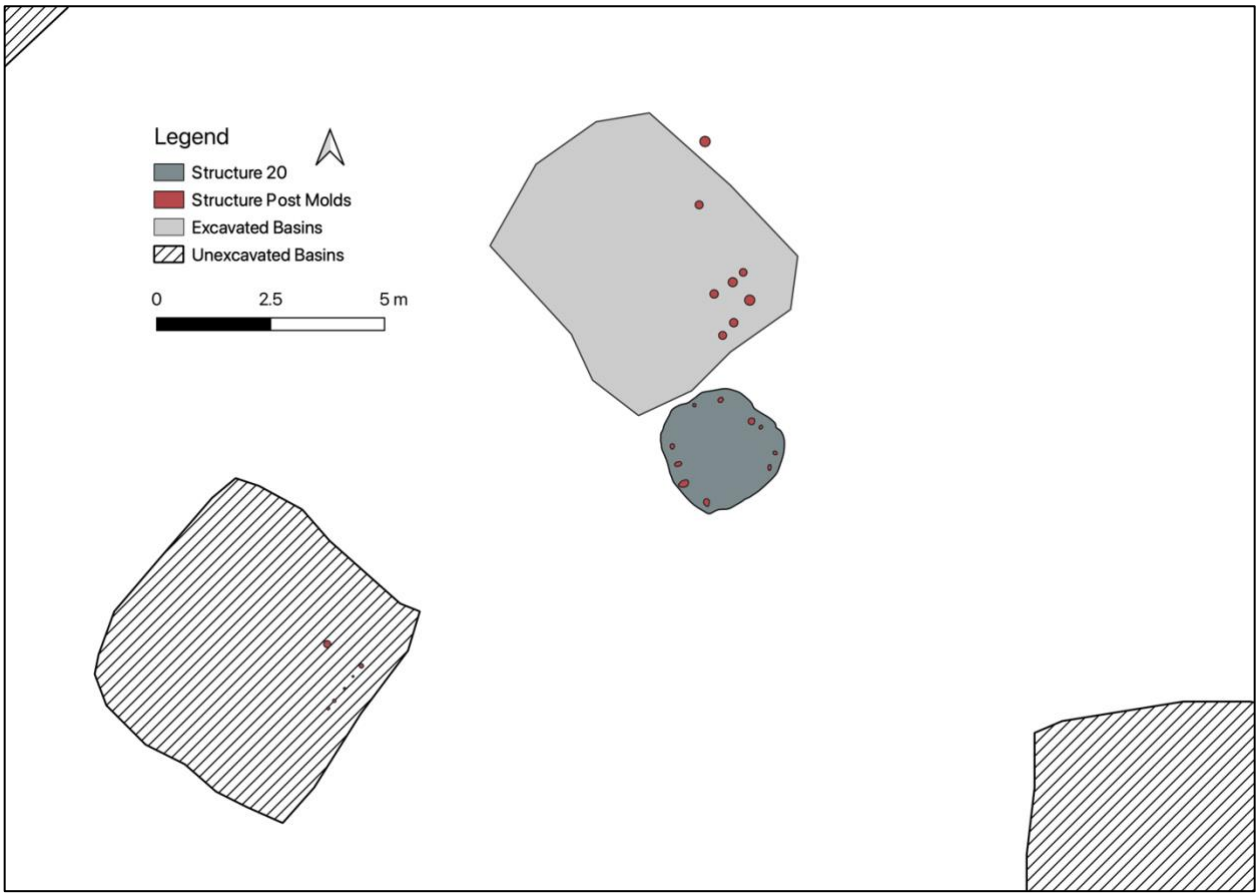

Figure 3.6. Map of Structure 20. Created by Autumn Painter.

The structure was excavated in its entirety, with animal bones recovered on the floor in association with charcoal near the center. No material culture with animal symbols was present within the structure. Similar to Structure 34, very few specimens were uncovered associated with this structure (68 total specimens; Table 6).

Table 3.5. Structure 20 Species Composition

Species	NISP	MNI	Weight (g)	Biomass
Unidentified Mammal	59	-	29.61	0.587
Unidentified Fish	1	-	.1	0
Unidentified Vertebrata	8	-	0.25	N/A
Grand Totals	*68*	-	*29.96*	*0.587*

Almost 90 percent of the specimens were identified to animal class, with one specimen as fish and 59 specimens as mammal. As the material was very fragmented, no specimens could be identified below class level. The limited information from Structure 20 makes it difficult to make any detailed interpretations about the use of animals. This could be due to several reasons including: 1) regular cleaning of the structure, which would have removed the majority of evidence of the use of animals, 2) practices associated with the use of animals in the structure, including the deposition of the remains in another context, or 3) very few animals were used in activities that took place within the structure.

Feature 224

Feature 224 is a pit that was uncovered in the corner of a partially excavated burned wall-trench structure. This feature was located in the corner of the structure alongside five other internal pit features. The other five features within the structure contained very few artifacts in contrast to Feature 224 (Figure 7). Additionally, Feature 224 also stands out from all other domestic refuse deposits uncovered to date at Morton Village as it contained a substantial and unusual amount of material culture and faunal remains not seen elsewhere at the site.

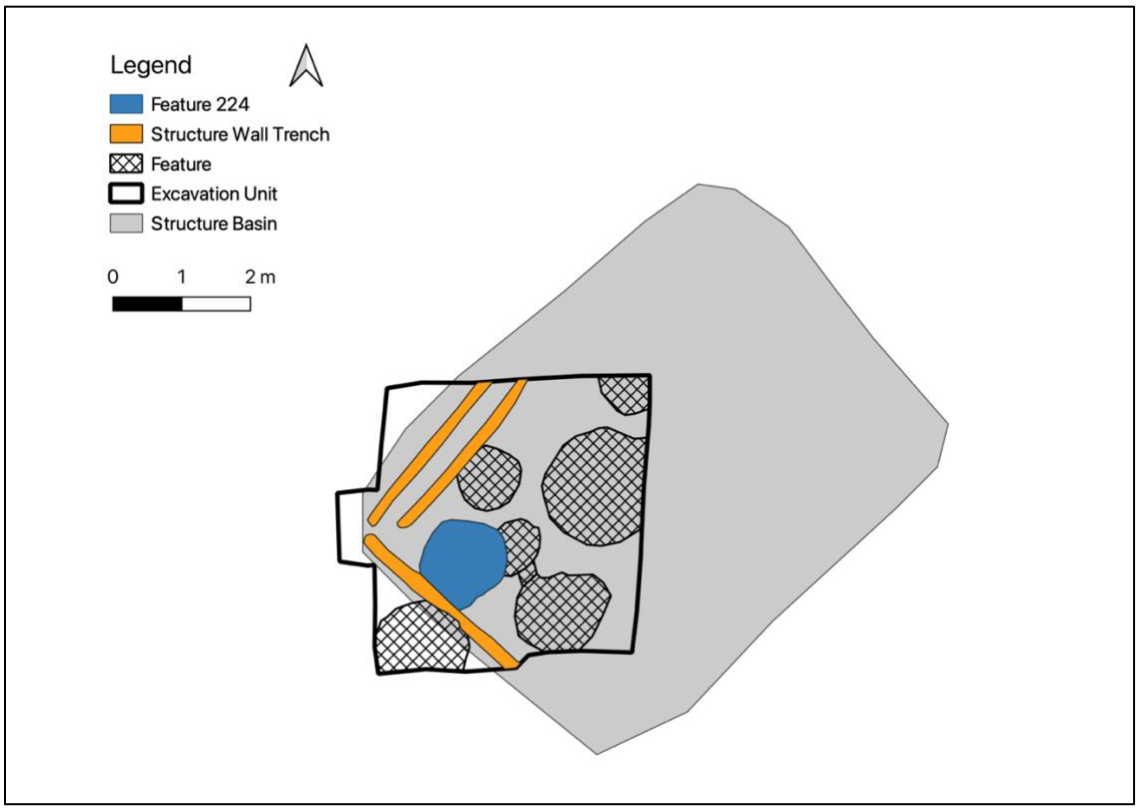

Figure 3.7. Map of Feature 224 within structure context. Created by Autumn Painter.

Figure 3.8. Profile of Feature 224 with depositional zones indicated.

Feature 224 contained four major zones in its 75 cm (Figure 8). Zone 4, at the base of the feature, was 10-15 cm of relatively clean B-horizon soil. It contained a 3.3 kg slab of iron ore, unmodified rock, pottery, and very little bone. A very abrupt boundary existed between Zones 3 and 4, with Zone 3 being the main artifact bearing zone. Approximately 19.6 kg of material culture was recovered including pottery, faunal remains, rough rock, and various tools (Conner and O'Gorman 2015). The relatively small amount of floral remains identified by Nordine

(2020) from Zone 3, as compared to Zone 1, included nutshell (majority consisting of thick hickory), maize, squash, and wild chenopodium. Zone 2 is a capping layer over Zone 3, containing similar material culture to Zone 3 but in a lower density, including Mississippian-style ceramics and a trailed Oneota sherd. Zone 1 was the top of the feature and contained scattered burned earth in addition to a small basin-shaped area with in-situ burning. This zone contained few cultural materials, with those found including a large section of an Oneota jar and a small Oneota sandstone pipe (Conner and O'Gorman 2015). The botanical assemblage present in Zone 1 was significantly different than Zone 3 as it contained a higher density and greater diversity of plant remains (Nordine 2020). Interestingly, Nordine (2020) identified Eastern black nightshade in this level, a plant remain that can be toxic if consumed in too high a quantity or if the berries have not ripened. It should be noted that no artifacts that include representations of animal symbols were found in this feature.

While some artifacts recovered from this feature are similar to those found in domestic refuse throughout the site, the presence of unusual artifacts and plant species, along with density of faunal material indicates that it represents a different type of activity. The large quantity of faunal remains (5.9 kg total), wide diversity of species, presence of unique/rare species, and unique artifacts including a quartz crystal, celt, and deer antler tool with an embedded beaver incisor, suggests that Feature 224 contains the remains of a feast that was likely ritual or ceremonial in nature. In total, Feature 224 contains a minimum of 31 vessels based on lip/rim sherds, however the minimum vessel count could rise to over 40 if distinctive body sherds are included (Conner and O'Gorman 2015, *2021 in prep*). Additionally, cross-matched portions of five ceramic vessels confirm the contemporaneity of the upper and lower deposits (O'Gorman and Conner in prep). The majority of the ceramics from this feature were Mississippian in style;

Oneota style ceramics were only found in the top two zones (Zones 1 and 2) and represent a singular large vessel (O'Gorman and Conner in prep). Based on this difference, it is possible that both Mississippian and Oneota groups were participating in the event but could have played different roles in the ritual performance (Nordine 2020).

Feature 224 contains the largest amount of faunal refuse of all four ceremonial contexts in this study, with a total of 16,063 specimens recovered, with 30.2% of those identified below class, and 25.1% unidentifiable (Martin 2021). Within the faunal sample, 45% of the remains were recovered through flotation (Table 7).

In addition to having the largest count of specimens, forty-three unique taxa were identified, with a total of 346 MNI for the entire feature (MNI was calculated using the maximum distinction approach, i.e. sum of MNI calculated separately for each depositional zone, then combined). When the feature is examined as a whole, most of the identified faunal remains were fish (79.25% NISP), followed by mammals (16.86% NISP), bird (2.04% NISP), reptile (1.2% NISP), and bivalve (0.64% NISP) (Martin 2021, personal communication). Feature 224 also contains the largest variety of species, including 22 identified species not recovered in any of the Morton Village ceremonial structure contexts. While fish dominate the feature assemblage in terms of both NISP and MNI, mammals unsurprisingly dominate the proportion of biomass (73.5%), as they are comprised of larger species which can contribute a larger portion of meat per individual (Table 8).

Table 3.6. Feature 224 Morton Class Summary: NISP, MNI, and Bone Weight						
Identification	NISP	Proportion	MNI	Proportion	Weight (g)	Proportion
Identified	12,036	74.93%	346	100%	5808.60	95.63%
Unidentified	4,027	25.07%	N/A	N/A	265.50	4.37%
TOTAL	16,063	100.00%	346	100%	6074.10	100.00%
Taxonomic Class	NISP	Proportion	MNI	Proportion	Weight (g)	Proportion
Mammal	2,029	16.86%	38	10.98%	3,979	68.50%
Bird	246	2.04%	23	6.65%	179.6	3.09%
Reptile	144	1.20%	17	4.91	211.7	3.64%
Amphibian	2	0.02%	1	0.29%	0.1	0.00%
Fish	9,538	79.25%	262	75.72%	1,339	23.05%
Bivalve	77	0.64%	5	1.45%	99.3	1.71%
TOTAL	12036	100.00%	346	100.00%	5808.6	100.00%

Table 3.7. Feature 224 Vertebrate Taxonomic Class Biomass		
Taxa	Biomass (kg)	Proportion
Mammal	55.929	73.50%
Bird	2.840	3.73%
Reptile	2.428	3.19%
Amphibian	0.000	0
Fish	14.893	19.57%
Bivalve	0.000	0
TOTAL	76.090	100.00%

Mammal remains were from forest and forest-edge environments, with a heavy focus on white-tailed deer (*Odocoileus virginianus*), which provided 36% of all biomass of identified taxa (13 MNI). In total, mammals contributed 73.5% of Feature 224's biomass, with wapiti being another major contributor. The majority of the MNI is represented by fishes (262 total) with the most prevalent species being bowfin (*Amia calva*), bullheads (*Ameiurus* spp.), sunfish spp. (*Lepomis* spp.), black bass (*Micropterus* spp.), pike/pickerel (*Esox* sp.), buffalo sp. (*Ictiobus* spp.), and gar (*Lepisosteus* spp.) (Martin 2021, personal communication). Over 30% the biomass

of the feature assemblage was obtained from aquatic and semi-aquatic landscapes, including two mammal species and the majority of the identified bird species, in addition to the fish, reptiles, and mussels. The fish and mussels identified in the feature would have been obtained from a wide variety of aquatic habitats including large rivers, most likely the nearby Illinois and Spoon Rivers, as well as smaller rivers, streams, creeks, oxbow lakes and backwater pools, ponds, and swamps.

When the skeletal portions of white-tailed deer and wapiti are examined, there is an abundance of specimens from the lower legs, over 50% of the NISP for both species, rather than more meat-bearing portions from the upper limbs. It is possible that the quantity, rather than the quality of remains was more important for this event. When this data is viewed in terms of food utility indices, the cervid remains from Feature 224 may indicate an emphasis on marrow processing from lower limb bones, specifically the metacarpals and metatarsals (Martin 2021, personal communication; Martin 2021).

When the feature is examined on a zone-by-zone basis (4 total zones), there are several distinctions to note. First, there is a wide range in the number of species types by zone, as well as total specimens. Zone three contains the largest variety of taxa and 77% of the feature's animal remains (50 identifications, 10,624 specimens), followed by zone two (29 identifications, 2,954 specimens), zone one (26 identifications, 711 specimens), and finally zone four (11 identifications, 142 specimens) (Martin 2021, personal communication). When this is examined further, there are very little variations in the proportions of species identified below animal class present within each depositional episode. This may indicate that each zone deposit was a component of a single depositional event.

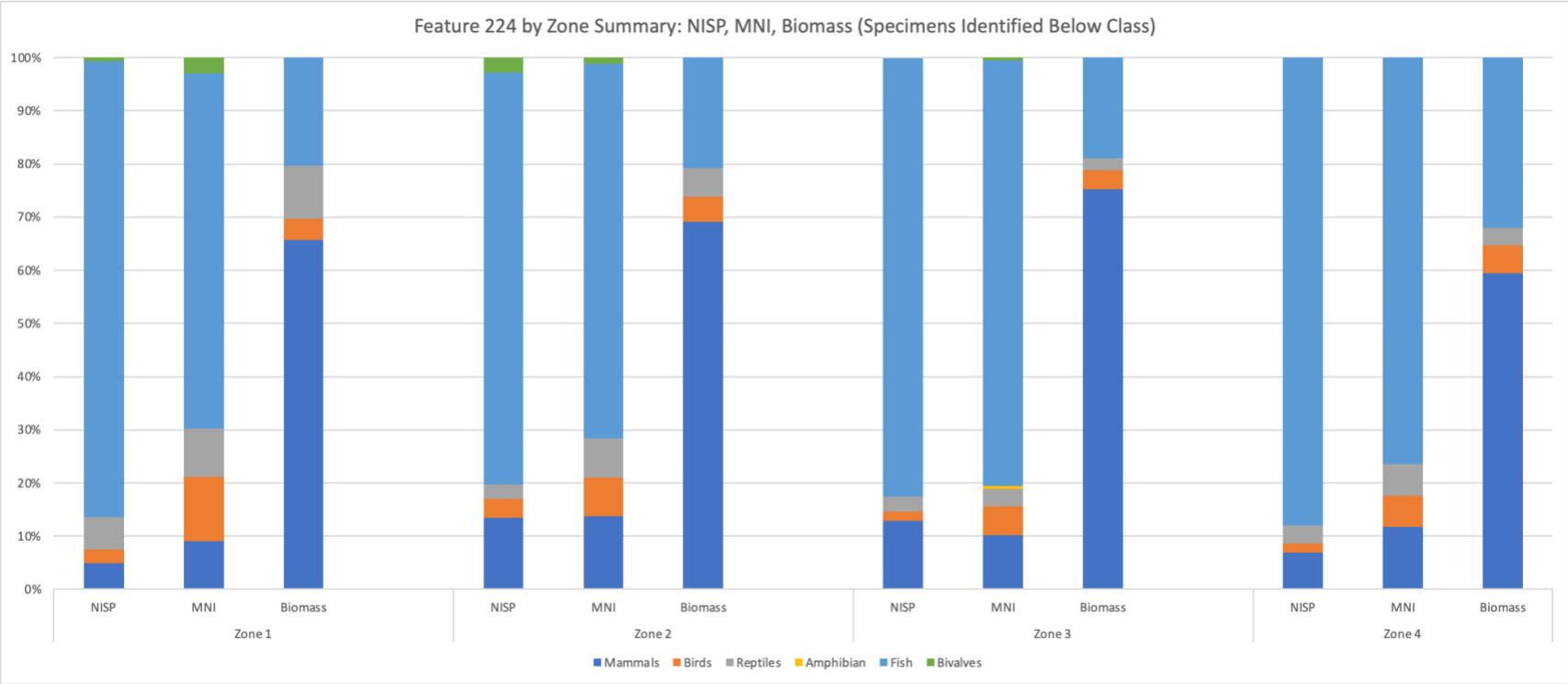

Figure 3.9. Composition of Feature 224 by percentage of NISP, MNI, and biomass of specimens identified below animal class

As expected, based on the stratigraphy and material culture, Zone 3 and its capping Zone 2 are similar. These two zones contained the widest variety and largest total quantities of faunal remains recovered. Zone 3, containing 12,373 faunal specimens, is dominated by fish in both NISP and MNI, with 3,012 specimens identified to family, genus, and/or species and a minimum number of 165 individual fish across 18 genus/species. The most prominent species are bowfin and sunfishes (*Lepomis* spp., and Centrarchidae). Most common mammals are white-tailed deer, beaver, and wapiti. Birds are dominated by semi-aquatic species including double-crested cormorant and ducks, followed by wild turkey, bald eagle, and American coot. Reptiles consist of turtles and are dominated by pond turtles (Family Emydidae) including painted turtle and common slider, plus snapping turtle. The least common animal classes are amphibian and bivalves, represented by two frog bones and two identified freshwater mussel shells (both spike or lady finger, *Elliptio dilatata*).

Zone 1 contained 578 faunal specimens and is dominated by reptile and fish specimens, 144 NISP (3 MNI) and 138 NISP (22 MNI) respectively. Unsurprisingly, when compared to Zone 3, Zone 1 has fewer species present in all animal classes. This is different than the result from the floral remains identified by Nordine (2020), in that the botanical assemblage from Zone 1 is more diverse and has a higher density than Zone 3. All animal species identified in Zone 1 were also found in Zone 3, except for the bivalves; Zone 1 included hickorynut mussel (*Obovaria olivaria)* while Zone 3 contained spike (*Elliptio dilatata)*. The hickorynut mussel is found in large rivers and lakes in sand or sand/gravel substrates (Michigan State University Features Inventory, n.d), while spike mussels are found in small to large streams with moderate to strong currents in stable sand/gravel (Cummings and Mayer 1992; Missouri Department of

Conservation, n.d.). Interestingly, an unusual bird species, bald eagle, was identified in both Zones 1 and 3.

Lastly, several bones that were modified by humans into tools were found in Feature 224: a white-tailed deer ulna modified into an awl, a deer antler with an embedded beaver incisor, and a trimmed, possible pallet made from a cut pond turtle plastron, all recovered from Zone 3, and two carved deer antlers (possible handle blanks, recovered in Zone 2 and 3). The most unique faunal artifact recovered from this feature is the deer antler with the embedded beaver incisor (3D model can be viewed at https://skfb.ly/6uVPT). While the exact purpose of this tool is not clear, it is possible it was used in the pottery making process during the decoration stage, as a woodworking tool, or as part of a ritual/ceremonial practice. In addition to modification, several species show sign of use (polished or abrasions present) and knife-cut marks including white-tailed deer (2 specimens), wapiti (2 specimens), raccoon (1 specimen). There are also three bowfin (*Amia calva*) elements that appear to have red ochre applied to the surface (recovered from Zone 3 and the wall profile).

In sum, Feature 224 contains the remains of a large, community-level feasting event that was ritual or ceremonial in nature, the only deposit representing this activity identified at the village. The floral remains analysis indicates that the food items were processed and prepared at a different location in the village and deposited into the feature following the event (Nordine 2020). Interestingly, the faunal and floral remains quantity and diversity ratios do not match between Zones 1 and 3, with floral remains being present in higher densities in Zone 1 and fauna in Zone 3. The presence of both Mississippian and Oneota ceramics in the feature suggests that both groups participated in the event. Feature 224 also contains the only evidence of the presence and use of double-crested cormorants at Morton Village. This unique species is a diving bird,

meaning they not only live on earth and in the air, but also underwater, giving them liminal properties that can transcend cosmic/spiritual boundaries (Fortier 2008; Hall 1997). The other unique bird species found within this feature was bald eagle. Zone 1 contained a juvenile bald eagle quadrate (a skull element), while Zone 3 contained portions of an adult eagle humerus and rib, indicating that at least two individual eagles were included in the deposit. Ethnographic accounts have shown that eagle feathers were highly sought after by many Plains groups, which may have been one use of the eagles deposited in this feature. Eagles and other raptors are also commonly used to symbolize the warrior class, warfare, and the upperworld (Fishel 1997). The presence and use of two different bald eagles in both Zone 1 and 3 indicates that this species could have played an important role in integrating the community together as a use of a shared symbol in a community ritual event, especially as there was likely a threat of violence in the region during this time. It might be that Upperworld symbolism was one common trait that the two groups emphasized in order to build common symbolic themes.

Comparisons between Ceremonial Contexts

When these contexts are compared against one another, we can see that these ceremonial contexts served different purposes for the Morton Village community, while utilizing similar animal species available in the surrounding area.

Structure 34, the large circular wall trench enclosure contained little fauna, with all specimens identified to class or below being mammalian (beaver, wapiti, and white-tailed deer). As all the faunal remains were recovered from a central thermal feature that appeared to have been carefully cleaned out, it is likely that the material present does not fully represent the use of animals in ritual/ceremonial activities in this space.

Structure 16, the semi-subterranean facility with a prepared outer bench, showed the use of animals in a variety of contexts. Twenty-two unique species were identified within the structure, with the NISP counts dominated by mammals (77%). Fifty-one MNI animals were identified for this structure via a maximum distinction approach (feature-by-feature). Two of the main features located in the eastern and southern corners would have been inaccessible during the use of the building but would have been used prior to and during the construction of the structure. One example of animal symbol was found in this structure, an anthropomorphic owl clay figurine. Birdman symbols (e.g., anthropomorphic bird representations) are found in both Mississippian and Oneota cultures (Benn 1989; Emerson and Boles 2011). Additionally, Mississippian period art includes many representations of owls (Emerson and Boles 2011). The presence of this type of symbol at archaeological sites from both groups indicates that the use of avian symbols is a similar practice shared by both Mississippian and Oneota peoples. In sum, Structure 16 likely served as an integrative ceremonial space in which animals in both the form of food and symbolic representation served an important role in the rituals that took place, both in the construction of the building, but also in the activities that took place during the use of the structure.

Structure 20, a small circular single post structure interpreted as a sweat lodge or household level restructured use building, with all the fauna recovered from the floor in association with charcoal near the center of the structure. The faunal remains were highly fragmented, only being identifiable to class level: 1 fish and 59 mammals. The lack of remains makes it difficult to interpret the role that animals may have played in ritual or ceremonial practices that took place. It is possible that the nature of the rituals or ceremonies that took place within this structure did not emphasize the use of animals, indicating that the ritual/ceremonial

activities in this structure were vastly different than those that took place in the other ceremonial contexts within the village.

Feature 224 contained the largest quantity of faunal remains from all ceremonial contexts, as well as the highest diversity of species present. This, in combination with a large amount of ceramic material and a number of unique artifacts including a celt and quartz crystal indicate that this feature represents the remains of a large, community-level feasting event that was ritually charged.

Of these four contexts, one provenience stands out against the rest, Feature 224. This feature included the greatest NISP, MNI, biomass, and number of unique taxa, despite it being from a single feature rather than an entire structure. The remaining three contexts, Structures 16, 20, and 34, in terms of faunal use are relatively similar, all dominated by the presence of mammal remains, in terms of both NISP, bone weight, and biomass, with more limited variety of species than Feature 224 (Figure 9). However, unlike Structures 20 (sweat lodge) and 34 (circular enclosure), fish represent a greater percentage of the total context MNI than mammals in Structure 16 (which is more similar to Feature 224). The wider species diversity present in Feature 224 is likely the result of a much larger volume of faunal remains (Grayson 1984). The lack of faunal remains within Structure 20 is indicative of a difference in the nature of the ritual/ceremonial greater percentage of the total context MNI than mammals in Structure 16 (which is more similar to Feature 224). No unusual or unique species are present within Structures 16, 20, or 34, while Feature 224 contained 22 species that were not present in the other ceremonial structure contexts (Table 9).

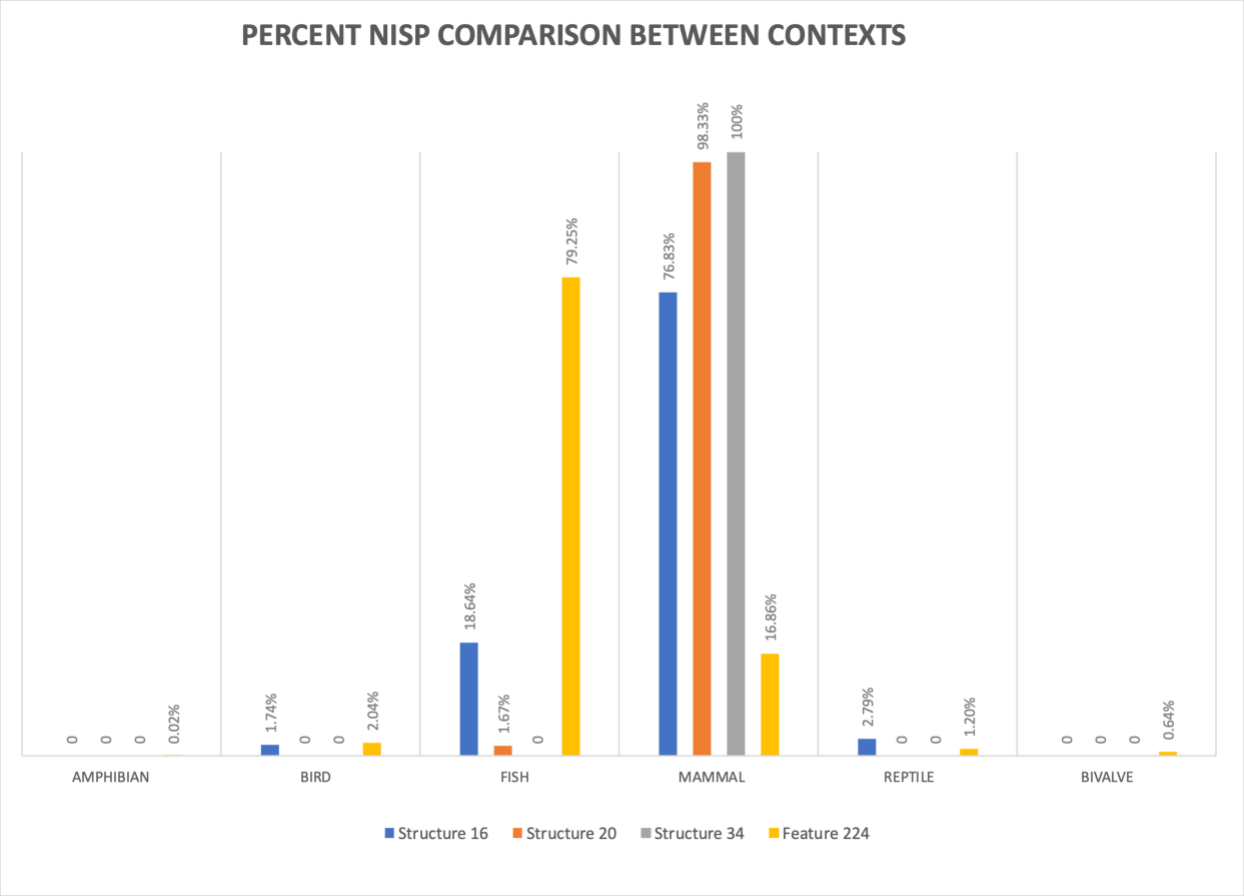

Figure 3.10. Percent NISP comparison between ceremonial contexts in Morton Village.

Table 3.8. Species recovered in Feature 224 not found in ceremonial structures	
Common Name	Scientific Name
Eastern cottontail	*Sylvilagus floridanus*
Eastern gray squirrel	*Sciurus carolinensis*
Eastern fox squirrel	*Sciurus niger*
Double-crested cormorant	*Phalacrocorax auratus*
Great blue heron	*Ardea herodias*
Canada goose	*Branta canadensis*
Bald eagle	*Haliaeetus leucocephalus*
American coot	*Fulica americana*
Common slider	*Trachemys scripta*
Common map turtle	*Graptemys geographica*
Frog sp.	*Lithobates* sp.
Stoneroller sp	*Campostoma* sp.
Carpsucker sp.	*Carpoides* sp.
Black bullhead	*Ameiurus melas*
Yellow bullhead	*Ameiurus natalis*
Channel catfish	*Ictalurus punctatus*
Green sunfish	*Lepomis* cf. *cyanellus*
Bluegill	*Lepomis macrochirus*
Rock bass	*Ambloplites rupestris*
Black crappie	*Pomoxis nigromaculatus*
Spike	*Elliptio dilatata*
Hickorynut	*Obovaria olivaria*

Overall, the choice and use of animals/animal species in ritual practices at Morton Village appears to have been similar, despite architectural and material culture evidence indicating that the ceremonial contexts investigated likely served a variety of purposes for the community. Only small, nuanced differences in fauna were visible between the contexts. The exception to this is Feature 224, which contained a wider variety and larger quantity of species, in addition to the substantial and unusual amount of material culture activities between this context and the others present within the village. Feature 224, represented the remains from a unique community-level feasting event, possibly used to bring the migrant Oneota and local Mississippian members together. The large amount of food refuse could indicate that the ritual activities associated with this deposit likely required the animal resources to be obtained over a

short period of time and probably included a group hunt, due to the inclusion of at least 5 wapiti and 13 white-tailed deer. Furthermore, as Feature 224 contained unique and ritually charged artifacts, both Mississippian- and Oneota-style ceramics, and bald eagle and double-crested cormorant (not identified elsewhere in the village), this context may indicate the creation of shared Morton Village practices. In sum, the comparisons between ceremonial contexts within Morton Village suggests that there are no simple ritual faunal signatures. Sometimes, faunal composition and frequency within ceremonial contexts may largely mimic mundane deposits, while in other instances the makeup may be clearly different and unlike any other context.

Morton Village Domestic Refuse vs. Ceremonial Contexts

A previous study on the general use of animal remains was conducted by the author using a random sample of 66 features (containing 23,325 vertebrate specimens) from across the village site, representing 38% of all excavated features that contained fauna and 23% of all total excavated features (Painter 2022, Chapter 2). Overall, the village occupants utilized a diverse animal use strategy focused on species that were difficult to over exploit and readily available. Combined, mammals and fish comprised over 95% of all identified specimens within the domestic village contexts (42% fish and 55% mammal NISP). Of that, Cervidae accounted for the majority of the NISP, MNI, bone weight, and biomass from the site (37% of total biomass; 68 MNI). Interestingly, the cervid skeletal portions from the ceremonial contexts is similar to those found in domestic village contexts (Painter 2022, Chapter 4). In both of these settings, there is an emphasis on lower leg bones, instead of the more meat-bearing portions from the upper limbs. It is possible that there was an emphasis on marrow processing practices from lower limb elements, specifically the metacarpals and metatarsals, or that cervids were more commonly

acquired close to the village allowing for easier transport of whole carcasses. The low amount of carnivore gnawing on these remains indicate that the presence of the lower limb elements were not the result of dogs bringing the remains into the village from nearby kill sites (Painter 2022, Chapter 2).

When the village ceremonial contexts are compared against the general domestic faunal refuse, there are several clear differences. The first is that the emphasis on mammals within two of the ceremonial structure contexts is unlike the ratio within the general Morton Village debris, which was more evenly distributed between fish and mammal NISP. More so, there is a higher presence of fish in terms of MNI than mammals within the domestic refuse similar to Structure 16, unlike the faunal remains from ceremonial Structure 20 and 34 contexts. This could represent an emphasis on the use of mammals in village ceremonial structure practices and events, as many mammal species are generally larger than other animal classes and can provide larger portions of meat. The emphasis on the use of mammals in ceremonial contexts could have been a purposeful choice as it would have allowed the villagers to provide greater quantities of food by obtaining a smaller number of individual species, allowing for greater participation in events that were used to bring the community together as a whole. It is also possible that this variation could not represent an emphasis on the use of mammals, but the use of practices that included the deposition of animal remains outside of, or not in association with, the ceremonial structure themselves. It is important to note that as Structure 16 is similar to the overall domestic refuse pattern of fish representing a greater percentage of the total context MNI than mammals, there is not a distinct ceremonial structure faunal use pattern, likely due to the fact that the different ceremonial contexts are related to different kinds of ritual activity.

However, Feature 224 still stands out from both the ceremonial structure contexts and the domestic village refuse. The first distinction to note is the overall quantity of faunal materials recovered from a single context (16,063 specimens) as compared to the other analyzed features in the village. Second, while there are a few species unique to this feature as compared to the other ceremonial contexts and the domestic refuse, they are not present in vast quantities, indicating that the overall quantity of food resources was emphasized over uniqueness or rarity in the event (or events) that created this feature. As noted previously, Feature 224 contained 22 species not present within the other ceremonial contexts. Furthermore, several of those species were also not found in any other analyzed context within the domestic village refuse including eastern fox squirrel, double-crested cormorant, great blue heron, bald eagle, stoneroller, bluegill, black crappie, and hickorynut mussel. The eastern fox squirrel, double-crested cormorant, and bald eagle remains included elements from throughout the body, while the great blue heron was a singular leg element. While several of these species may have been included for non-consumption or symbolic purposes (such as the double-crested cormorant, great blue heron, and bald eagle), they were not modified by humans in any way. The remainder of the species unique within the ceremonial contexts could have been prey selected for regular subsistence needs, as they would have been readily available in the region and could have been obtained through normal hunting and fishing practices.

In both Middle Mississippian and Oneota culture there are many references to raptors in the forms of motifs on pottery and red pipestone tables (Hollinger 2005:222), in addition to their association to burials in mortuary settings (Fishel 1997), commonly symbolizing Upperworld spirit beings associated with warfare and magical abilities. The use and deposition of at least two

eagles in this context may link the inclusion of both the local Mississippian and migrant Oneota peoples in activities associated with the creation of Feature 224.

Based on the large quantity of fauna in this feature compared to domestic contexts in the village, it appears that Feature 224 was most likely a refuse deposit associated with a community-level feast, likely involving both Mississippian and Oneota individuals (based on ceramic evidence). Additionally, the unique artifacts recovered within this context indicate that the event was ritual or ceremonial in nature (O'Gorman and Conner in prep). Likewise, this feature does not fit the trend identified in Chapter 2, with external features generally containing more faunal refuse material than internal features. The sharing of food may have built relationships between the local Mississippian and members of the migrant Oneota peoples, as each group could contribute some of their own consumables and labor for the welfare of the greater community. Faunal analysis of Feature 224 indicated that there was a minimum of 346 individual animals present within the pit. To obtain this high number of individual animals for this event, it is likely that the community would have had to work together, using all surrounding environmental areas near the village to hunt, trap, and fish, likely within a short period of time. The large number of fish found in this feature (262 MNI) could have been obtained by only a few individuals through the use of nets or traps, however, the minimum of 5 wapiti and 13 white-tailed deer supports the interpretation of a community-wide effort to obtain the animals for this event.

While specific species used in both domestic and ceremonial contexts are generally similar, there are a few distinct differences between the animal remains found in ceremonial contexts versus general domestic refuse at the village. From this comparison, it appears that there were several choices being made about the use of animals in ritual activities versus domestic

contexts, including 1) the emphasis on the use of mammals in Structures 20 and 34, which could indicate the shared used of animals that aided in the development of shared practices, and 2) the large scale and types of unique species deposited in Feature 224, which may have served as a shared activities/ceremony that joined people together through the pursuit of a common goal, requiring advanced planning to amass the food and supplies required for the event. These choices indicate that there was purposeful use of animals, both in quantity and types of species, in ceremonial activities at Morton Village that would have been used to build and maintain community relationships.

Comparisons against Norris Farms 36 Cemetery

Norris Farms 36 is the cemetery associated with the Morton Village site, containing individuals associated with the Oneota Tradition (Santure et al. 1990). This determination was based on the material culture, biodistance, and burial positions (Santure et al. 1990; Steadman 1998). In total, 264 individuals make up the burial population, with 43 individuals (34.2% of the adult population) whose deaths were the direct result of traumatic injury (Milner 1999; Milner and Smith 1990; Milner et al. 1991; Santure et al. 1990). Additionally, many other individuals showed signs of surviving violent encounters, as determined through skeletal analysis (Bengston and O'Gorman 106:232; Milner and Smith 1990; Santure 1990b). Radiocarbon analysis from the village and cemetery indicate that both were used during the 1300s. Faunal analysis was conducted by Styles (1990) on the grave goods recovered from the burials (Table 10) *(Note: Table 10 was adapted from Styles and King (1990) table 12.4 of grave good materials from Bold Counselor Oneota burials at Norris Farms 36 Cemetery, pp. 150).*

Table 3.9. Norris Farms 36 Cemetery Class Summary: NISP and MNI				
Identification	NISP	Proportion	MNI	Proportion
Identified	724	99.59%	136	100.00%
Unidentified	3	0.41%	N/A	N/A
TOTAL	727	100.00%	136	100.00%
Taxonomic Class	NISP	Proportion	MNI	Proportion
Mammal	242	33.43%	26	19.12%
Bird	104	14.36%	25	18.38%
Reptile	5	0.69%	4	2.94%
Amphibian	N/A	N/A	N/A	N/A
Fish	48	6.63%	6	4.41%
Shell	325	44.89%	75	55.15%
TOTAL	724	100.00%	136.00	100.00%

Interestingly, there were several unique or unusual items that have a religious or spiritual meaning that were interred within the cemetery as reported by Santure et al. (1990). A complete skeleton of a four-month-old male dog was found interred at the foot of an adolescent male in association with a pottery vessel and spoon. The interpretation suggested by Santure et al. (1990) is that the dog was either a food offering or that it was a pet of the young individual. Several ornamental artifacts are of interest because of the animal symbology that they represent. A single puma canine was recovered in the burial of an adolescent male, the only association of a large predatory mammal within the cemetery. Pumas are commonly related to power and warfare (Brown 2007), and if it was used as a representation of the water panther, can also represent the underworld (Benn 1989). Also associated with males are two copper serpent pendants, common in Oneota contexts; that may also be indicative of the underworld (Benn 1989; Brown 2007; Emerson 1989; Emerson et al. 2000). The presence of the puma canine and serpent pendants in these burials suggest a strong symbolic relationship between these individuals and underworld power.

Unlike the canine and serpent pendants, marine and freshwater shell gorgets were found only with children and females. The single decorated gorget, engraved with a spider, was found with an adult female. This style of gorget has been interpreted as representing life as a primordial principle, Middle Earth, Earthmother, and the eternal or sacred fire (Brown 2011; Lankford 2011; McAllister 1972). This association of the adult female individual with the spider gorget may symbolize this individual's significant position within the community.

Ceremonial items that contain faunal material recovered from the cemetery are important to note as they represent artifacts that could have served a ritual purpose in life as well as in death. These items include a mink medicine bag, shell and pebble rattles, bird effigy bowl, pipes, and bird bundles, all of which occur with individuals of various ages. The bird bundles within the cemetery are typically associated with children and infants. Examples of these bundles include beak and wing bones from a common crow, five duck bills, and two pied-billed grebes (Santure et al. 1990). A bald eagle was buried beside an individual, but it could not be definitely associated with the Bold Counselor phase. An infant burial had the leg and foot bones of a northern goshawk attached to the right leg (Santure et al. 1990), a symbol of the upper world or powers related to warfare (Fishel 1997). The association of unique burial goods, especially avian specimens, with infants and children would seem to have symbolic significance. One explanation is offered by Bengston and O'Gorman (2016), who suggest that children in multicultural contexts may act as cultural bridges, serving as mediators who help communicate ideas between their families and their new neighbors. As such, these children live in-between lives, taking on aspects of both groups that are interacting with one another while generating innovative and new cultural perceptions. This integration and innovation of cultural traits may be reflected in death, which helps to explain some of the unique child burial expressions in the Norris Farms 36

cemetery. As the dead do not bury themselves, mortuary rituals, including the purposeful use of animal symbols, brought people together to mourn the dead, linking kinship groups and others who knew the deceased.

As discussed previously, the practices and use of animals and animal symbols that took place within the ceremonial contexts in the village and associated cemetery are most likely very different, impacting the selection and use of animal species in each of these settings. The differential use of animals/animal symbols in the various ritual spaces may also impact the visibility of shared animal symbols at the site. This expectation aligns well with the results of the faunal analysis comparison, as when they are compared against one another, there is a distinction in the use of the animals in ceremonial contexts within the village and mortuary traditions. Certain species were selected and used in only mortuary contexts, in addition to a wider range of bivalve/mussel taxa, while the village ceremonial contexts contained a broader variety of reptile and fish species. However, the use of unusual/unique avian species in both contexts may signal the importance of their symbolic representation in both life and death to the Morton Village community.

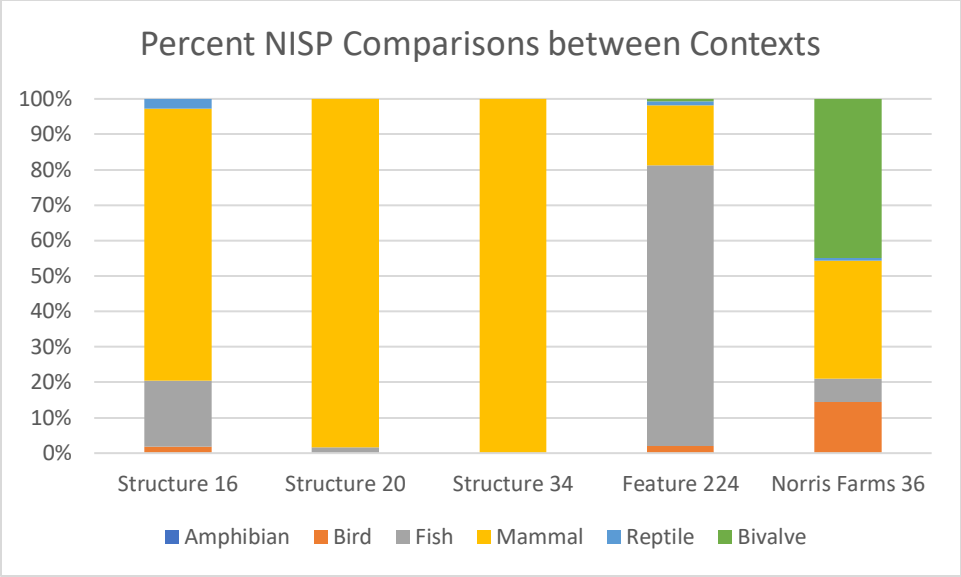

Figure 3.11. Percent NISP comparisons between the village ritual contexts and Norris Farms 36 fauna.

There are several interesting results to note when fauna from Norris Farms 36 Cemetery is compared with those recovered from ceremonial components of the village site (Appendix C). First, the animal class NISP ratios are not similar to the Norris Farms 36 results, as there are relatively fewer bivalve and bird specimens recovered from the village ceremonial structure contexts while they were recovered in higher proportions from Norris Farms 36. Additionally, two of the ceremonial contexts, Structures 20 and 34, were dominated by mammal remains (87% and 100% NISP respectively), unlike the Norris Farms 36 cemetery's 33% mammalian NISP ratio. This could indicate that there was little overlap in the choice and use of animals in ritual practices that were used to bring the community together and burial traditions. Second, there is a link via the use or presence of unusual avian species, including bald eagle, between Feature 224 and Norris Farms 36 (avian regalia and a bald eagle burial), as well as avian symbols present within Structure 16. This shared use of special avian species/symbols in these two contexts may represent one of the few commonalities in the use of animals in both community ceremonial

practices and mortuary traditions at Morton Village. Third, when specific species are compared between Morton Village ceremonial contexts and the cemetery, there are several unique species present only within mortuary contexts including bobcat, cougar, American crow, and northern goshawk, in addition to a wider variety of freshwater mussel species present. However, the Morton Village ceremonial contexts contained a wider variety of both reptile and fish species including many that are not present within the cemetery. Interestingly, faunal research regarding domestic refuse at the village site by the author has identified the presence of both bobcat (proximal humerus fragment, portion of a mandible, three metacarpals, and three isolated teeth) and cougar (proximal femur fragment), suggesting that the use of these unique species was not limited solely to mortuary traditions at the site (Painter 2021). This may indicate that these species may have also been used in household/domestic ritual practices or as trophies.

DISCUSSION AND CONLCUSION

When results of the three different methods of comparing the ceremonial context faunal are examined together, it allows for multifaceted interpretation how people used animals and animal symbols in ritual and ceremonial practices at Morton Village. In sum, there is no simple or single ritual signature, as each ceremonial context was unique and served a different purpose for the Morton Village community. However, there were three main patterns that reveal how animals were used in practices that may have played a role in bringing the community together during the coalescence process.

First, while the ceremonial structure contexts served different purposes within the Morton Village community for ritual and ceremonial practices, the types of animal classes/species deposited in these different contexts were similar. There were a higher ratio of mammal remains

than any other animal class present within Structures, 16, 20, and 34. This contrasts with Feature 224. One reason that mammals may have been preferred for use in the ceremonial structure practices is because individuals are typically larger than those of other animal classes and therefore can provide more meat per individual at events in which more people need to be provided a food portion. It is also possible that mammals were selected more frequently for use in these spaces for another reason not clear in the archaeological record, such as an unknown symbolic meaning important to the community ideology or cuisine preference within the community.

Second, based on the large scale of the feature, and faunal, floral, and material culture evidence, Feature 224 is unique, unlike any other deposit identified at the site. It appears to contain the remains of a large, community-level feasting event that was ritually or ceremonially charged. The presence of both Mississippian and Oneota style ceramics within the feature suggests that both groups were participants in the event that created this deposit. It is likely that entire feature was created through a sequence of related behaviors surrounding a single feasting event (O'Gorman and Conner in prep), which is supported by the similar ratios of animal classes present within each zone. Importantly, this feature included the use of bald eagle and double-crested cormorant in multiple zones, both of which are unusual, commonly symbolically charged species not identified elsewhere within the Morton Village faunal assemblage. As Feature 224 contains the material culture indicative of both Oneota and Mississippian people, the shared use of bald eagle and double-crested cormorant (not present elsewhere in the Morton Village analyzed assemblage), could represent an emphasis on avian symbols, which may have been a shared trait between Oneota and Mississippian peoples that could act as a common ground. Furthermore, the large number of faunal remains present within the feature, a total of 16,063

NISP (346 MNI) made it likely that the community would have worked together in a short period of time to obtain the animal resources needed. Overall, the faunal signature of this feature is similar to other domestic refuse found at the site, with an emphasis on white-tailed deer, wapiti, beaver, and bowfin. Interestingly, skeletal portion analysis from deer and wapiti revealed an abundance of lower leg bones more than meat-bearing portions from the upper limbs, similar to the trend of body portion ratios found throughout the village domestic refuse (Painter 2022; Chapter 4). The large amount of the lower limb cervid remains may indicate that the quantity instead of the quality of remains was more important for this feasting event. The sharing of the task of obtaining faunal resources (and resultant food), the use of bald eagle and double-crested cormorant, and associated ceremonies could have joined the coalescing community together through the contribution to a common goal, building new relationships and strengthening existing ties.

Third, the use of animals in village ceremonial contexts is unlike the pattern found at the associated Norris Farms 36 cemetery with one exception, the use or presence of bald eagle, an unusual avian species. This indicates that the use of animals in the practices that took place within these two contexts were distinct and had very little overlap in the use of animals. This was not unexpected as the ceremonial practices within the village are most likely very different than those that took place in the cemetery. The shared use of bald eagle may represent the symbolic importance of this species for both the living and the dead, as they were used as part of creating and maintaining community relationships as well as in traditional burial practices. It is possible that the use of bald eagle in both contexts occurred because warfare/violence was a common symbol invoked in both everyday life and the afterlife. The comparison between the village and cemetery's use of animals has demonstrated the importance of recognizing the importance of

context, not just the inclusion of special or unique species, as common animals can take on special meaning in some contexts.

In sum, it appears that Morton Village community members were using similar animal species as ritually charged food items, offerings and symbols. Furthermore, the inclusion of avian symbols in multiple village contexts (present within STR 16, Feature 224) and the cemetery (Norris Farms 36) suggests that the Morton Village occupants were using similar symbols in a variety of ceremonial contexts. As archaeological sites have documented that both Oneota and Mississippian groups used avian symbols in a variety of ways (Benn 1989, Emerson citations), the choices surrounding these ceremonial activities, including the inclusion of avian symbols, may have aided in creating common ground for the village residents through the development of similar practices.

This study has shown that certain symbols, especially those that are already similar between groups (like Upperworld and avian symbolism between Oneota and Mississippian communities), may serve as a locus of interaction during the coalescence process. The commonality of symbols could have served as a starting point to adapt or create shared ceremonial practices that were more easily understood by the community as a whole. Potentially, a shared symbolic vocabulary could be used to bridge ideological divides and create shared traditions, assisting in bringing a coalescing community together through shared practices and ideas. Further, this study has demonstrated the critical importance of including multiple and varied ritual and ceremonial contexts in the analysis of animal/animal symbols use within a site of coalescence, as it would not have been possible to identify the presence of similar animal and animal symbol use through the analysis of fewer contexts.

APPENDIX

APPENDIX: Species Lists for Norris Farms 36 and Morton Village Ceremonial Contexts

Table A3. Species Lists for Norris Farms 36 and Morton Village Ceremonial Contexts

Species	Norris Farms 36		Structure 16		Structure 20		Structure 34		Feature 224	
	NISP	MNI	NISP	MNI	NISP	MNI	NISP	MNI	NISP	MNI
CLASS: MAMMALS										
Eastern Mole, *Scalopus aquaticus*	-	-	1	1	-	-	-	-	5	2
Eastern Cottontail, *Sylvilagus floridanus*	-	-	-	-	-	-	-	-	11	1
Franklin's Ground Squirrel, *Poliocitellus franklinii*	-	-	-	-	-	-	-	-	1	1
Eastern Gray Squirrel, *Sciurus carolinensis*	-	-	-	-	-	-	-	-	2	2
Eastern Fox Squirrel, *Sciurus niger*	-	-	-	-	-	-	-	-	3	1
Tree Squirrel, *Sciurus* sp.	-	-	-	-	-	-	-	-	2	1
Beaver, *Castor canadensis*	4	4	10	1	-	-	4	2	130	5
cf. Beaver, cf. *Castor canadensis*			1	-		-	-	-	-	-
Muskrat, *Ondatra zibethicus*	1	1	4	1	-	-	-	-	14	3
Unidentified Medium Rodent			1	1	-	-	-	-	-	-
Dog, *Canis* sp. *familiaris*	178	1	-	-	-	-	-	-	-	-
Dog/Wolf/Coyote, *Canis* sp.	-	-	1	1	-	-	-	-	-	-
cf. Dog/Wolf/Coyote, cf. *Canis* sp.	-	-	1	-	-	-	-	-	-	-
Raccoon, *Procyon lotor*	1	1	14	1	-	-	-	-	30	4
American Mink, *Neovison vison*	9	1	1	1	-	-	-	-	-	-
Bobcat, *Lynx rufus*	3	1	-	-	-	-	-	-	-	-
Mountain Lion, *Felis concolor*	1	1	-	-	-	-	-	-	-	-
Wapiti, *Cervus elaphus canadensis*	6	4	5	1	-	-	36	1	45	5
cf. Wapiti, fetal, *Cervus elaphus canadensis*			1	1	-	-	-	-	-	-
White-tailed Deer, *Odocoileus virginianus*	21	6	128	1	-	-	1	1	369	13
cf. White-tailed Deer, *Odocoileus virginianus*			1	-	-	-	-	-	-	-
Wapiti/deer, Family Cervidae	-	-	36	-	-	-	-	-	1	-

Table A3 (cont'd)										
Subtotals, Identified Mammals	*224*	*20*	*205*	*10*	-	-	*41*	*4*	*613*	*38*
Unidentified large mammal	2	1	208	-	4	-	9	-	577	-
Unidentified medium/large mammal	3	3	562	-	53	-	62	-	754	-
Unidentified medium mammal	4	-	32	-	-	-	-	-	79	-
Unidentified small/medium mammal	-	-	7	-	-	-	-	-	2	-
Unidentified small mammal	9	2	4	-	-	-	-	-	4	-
Unidentified Mammal	-	-	-	-	2	-	5	-	-	-
Subtotals, Unidentified Mammals	*18*	*6*	*813*	-	*59*	-	*76*	-	*1416*	-
CLASS: BIRDS										
Double-crested Cormorant, *Phalacrocorax auritus*	-	-	-	-	-	-	-	-	28	5
Great Blue Heron, *Ardea herodias*	-	-	-	-	-	-	-	-	1	1
Cranes, *Grus* sp.	1	1	-	-	-	-	-	-	-	-
Pied-billed Grebe, *Podilymbus podiceps*	4	2	1	1	-	-	-	-	-	-
Trumpeter Swan, *Cygnus buccinator*	6	4	-	-	-	-	-	-	-	-
Canada Goose, *Branta canadensis*	-	-	-	-	-	-	-	-	1	1
Dabbling Duck, *Anas* sp.	1	1	-	-	-	-	-	-	-	-
Large duck spp., Subfamily Anatinae	-	-	3	1	-	-	-	-	19	4
Medium-sized duck spp., Subfamily Anatinae	8	4	3	1	-	-	-	-	16	4
Small duck spp., Subfamily Anatinae	-	-	1	1	-	-	-	-	6	2
Bald Eagle, *Haliaeetus leucocephalus*	-	-	-	-	-	-	-	-	3	2
Wild Turkey, *Meleagris gallopavo*	30	5	4	1	-	-	-	-	28	3
American Coot, *Fulica americana*	-	-	-	-	-	-	-	-	3	1
Northern Goshawk, *Accipiter gentilis*	20	1	-	-	-	-	-	-	-	-
American Crow, *Corvus brachyrhynchos*	16	2	-	-	-	-	-	-	-	-
cf. American Crow, cf. *Corvus brachyrhynchos*	1	1	-	-	-	-	-	-	-	-
Subtotals, Identified Birds	*87*	*21*	*12*	*5*	-	-	-	-	*105*	*23*

Table A3 (cont'd)										
Unidentified large bird	1	1	-	-	-	-	-	-	62	-
Unidentified medium/large bird	-	-	-	-	-	-	-	-	49	-
Unidentified medium bird	14	1	8	1	-	-	-	-	28	-
Unidentified small/medium bird	-	-	2	-	-	-	-	-	2	-
Unidentified small bird	2	2	-	-	-	-	-	-	-	-
Unidentified bird	-	-	1	-	-	-	-	-	-	-
Subtotals, Unidentified Birds	*17*	*4*	11	1	-	-	-	-	141	-
CLASS: REPTILES										
Snapping Turtle, *Chelydra serpentina*	3	2	-	-	-	-	-	-	30	5
Spiny Softshell Turtle, *Apalone spinifera*	-	-	1	1	-	-	-	-	1	1
Softshell Turtle, *Trionyx* sp.	2	2	-	-	-	-	-	-	0	3
Painted Turtle, *Chrysemys picta*	-	-	22	1	-	-	-	-	22	
Common Slider, *Trachemys scripta*	-	-	-	-	-		-	-	24	4
cf. Common Slider, *Trachemys scripta*	-	-	-	-	-	-	-	-	4	1
Common Map Turtle, *Graptemys geographica*	-	-	-	-	-	-	-	-	1	1
Slider/Map Turtle, *Trachemys/Graptemys*	-	-	-	-	-	-	-	-	1	-
Pond Turtles, Family Emydidae	-	-	8	-	-	-	-	-	51	2
Unidentified Turtle	-	-	6	-	-	-	-	-	10	-
Subtotals, Identified Reptiles	*5*	*4*	*37*	*2*	-	-	-	-	*144*	*17*
CLASS: AMPHIBIANS										
Frog sp., *Lithobates* sp.	-	-	-	-	-	-	-	-	2	1
CLASS: FISH										
Gar sp., *Lepisosteus* sp.	-	-	44	2	-	-	-	-	159	16
cf. Gar sp., *Lepisosteus* sp.	-	-	3	-	-	-	-	-	-	-
Bowfin, *Amia calva*	12	1	60	6	-	-	-	-	2676	85

Table A3 (cont'd)										
Pike/Pickerel, *Esox* spp.	-	-	4	3	-	-	-	-	214	18
Stoneroller sp., *Campostoma* sp.	-	-	-	-	-	-	-	-	1	1
Smallmouth/Black Buffalo, *Ictiobus bubalus/niger*	-	-	-	-	-	-	-	-	18	[7]
Buffalo sp., *Ictiobus* sp.	-	-	-	-	-	-	-	-	66	17
cf. Buffalo sp., *Ictiobus* sp.	-	-	1	-	-	-	-	-	-	-
Carpsucker sp., *Carpoides* sp.	-	-	-	-	-	-	-	-	3	1
Buffalo/Carpsucker, *Ictiobus/Carpoides*	-	-	-	-	-	-	-	-	3	[2]
Sucker spp., Family Catostomidae	-	-	-	-	-	-	-	-	20	1
Black Bullhead, *Ameiurus melas*	-	-	-	-	-	-	-	-	12	5
Yellow Bullhead, *Ameiurus natalis*	-	-	-	-	-	-	-	-	20	4
Brown Bullhead, *Ameiurus nebulosus*	-	-	1	1	-	-	-	-	75	15
Black/Brown Bullhead, *Ameiurus melas/nebulosus*	-	-	-	-	-	-	-	-	1	1
Bullhead spp., *Ameiurus* spp.	-	-	5	2	-	-	-	-	113	11 [26]
Channel Catfish, *Ictalurus punctatus*	5	4	-	-	-	-	-	-	39	15
Blue/Channel Catfish, *Ictalurus* sp.	-	-	-	-	-	-	-	-	2	1
Flathead Catfish, *Pylodictis olivaris*	-	-	1	1	-	-	-	-	1	1
Bullhead/Catfishes, Family Ictaluridae	-	-	3	-	-	-	-	-	25	1
Black Bass, *Micropterus* spp.	-	-	1	1	-	-	-	-	190	21
cf. Green Sunfish, *Lepomis* cf. *cyanellus*	-		-	-	-	-	-	-	3	3
Bluegill, *Lepomis macrochirus*	-	-	-	-	-	-	-	-	19	8
Sunfish spp., *Lepomis* spp.	-	-	-	-	-	-	-	-	136	21 [24]
Rock Bass, *Ambloplites rupestris*	-	-	-	-	-	-	-	-	5	4
Black Crappie, *Pomoxis nigromaculatus*	-	-	-	-	-	-	-	-	1	1
Crappie spp., *Pomoxis* spp.	-	-	-	-	-	-	-		16	3
Sunfish spp., Family Centrarchidae	-	-	-	-	-	-	-	-	149	1 [38]
Walleye/Sauger, Sander sp.	-	-	1	1	-	-	-	-	2	2
Freshwater Drum, *Aplodinotus grunniens*	22	1	27	2	-	-	-	-	9	5
Subtotals, Identified Fish	*39*	*6*	*151*	*19*	-	-	-	-	*3978*	*262*

Table A3 (cont'd)										
Unidentified Fish	9	-	96	-	1	-	-	-	5560	-
UNIDENTIFIED VERTEBRATA	3	-	471	-	8	-	19	-	4027	-
CLASS: BIVALVES										
Mucket, *Ortmanniana ligamentina*	1	1	-	-	-	-	-	-	-	-
cf. Mucket, *Ortmanniana ligamentina*	1	1	-	-	-	-	-	-	-	-
Three-ridge, *Amblema plicata*	2	2	-	-	-	-	-	-	-	-
Giant Floater, *Pyganodon grandis (cf. corpulenta)*	12	12	-	-	-	-	-	-	-	-
Giant Floater, *Pyganodon grandis*	2	2	-	-	-	-	-	-	-	-
cf. Floater, *Pyganodon* sp.	1	1	-	-	-	-	-	-	-	-
Spike, *Elliptio dilatata*	2	2	-	-	-	-	-	-	2	1
Hickorynut, *Obovaria olivaria*	-	-	-	-	-	-	-	-	1	1
Plain Pocketbook, *Lampsilis cardium*	3	3	-	-	-	-	-	-	-	-
cf. Plain Pocketbook, *Lampsilis cardium*	4	4	-	-	-	-	-	-	-	-
cf. Plain Pocketbook, *Lampsilis* cf. *cardium*	2	2	-	-	-	-	-	-	-	-
Fluted Shell, *Lasmigona costata*	1	1	-	-	-	-	-	-	-	-
Pink Heelsplitter, *Potamilus alatus*	1	1	-	-	-	-	-	-	-	-
Freshwater pelecypod	39	11	-	-	-	-	-	-	-	-
Gilled Freshwater Snail, *Campeloma* sp.	5	5	-	-	-	-	-	-	-	-
Common Atlantic Marginella, *Marginella apicina*	1	1	-	-	-	-	-	-	-	-
Whelk, cf. *Busycon* sp.	1	1	-	-	-	-	-	-	-	-
Subtotals, Identified Mussels	78	50	-	-	-	-	-	-	3	*2*
Marine Gastropod	247	25	-	-	-	-	-	-	-	-
Unidentified Mussels	-	-	-	-	-	-	-	-	74	3
Grand Totals	727	136	1796	37	68	-	136	4	16063	346

REFERENCES

REFERENCES

Allison, Penelope M.
1999 Introduction. In *The Archaeology of Household Activities*, edited by Penelope Allison, pp. 1-19. Routledge, New York.

Alt, Susan M.
2006 The Power of Diversity: The Roles of Migration and Hybridity in Culture Change. In *Leadership and Polity in Mississippian Society*, edited by Brian M. Butler and Paul Dr. Welch, pp. 289-308. Occasional Paper No. 33, Center for Archaeological Investigations, Southern Illinois University Carbondale.

2018 *Cahokia's Complexities: Ceremonies and Politics of the First Mississippian Farmers.* University of Alabama Press, Tuscaloosa AL.

Arkush, Elizabeth
2017 Coalescence and Defensive Communities: Insights from an Andean Hillfort Town. *Cambridge Archaeological Journal* 28(1):1-22.

Bengtson, Jennifer D., and Jodie A. O'Gorman
2016 Children, Migration and Mortuary Representation in the Late Prehistoric Central Illinois River Valley. *Childhood in the Past* 9(1):19-43.

Bell, C.
1997 *Ritual: Perspectives and Dimensions*. Oxford University Press, Oxford.

Benn, David W.
1989 Hawks, Serpents, and Bird-Men: Emergence of the Oneota Mode of Production. *Plains Anthropologist* 34:125:233-260.

Beyer, Autumn M, and Terrance J. Martin
2016 Food and Public Ritual at Morton Village: Faunal Remains from Structure 16. Poster Presented at the 60th Annual Meeting of the Midwest Archaeological Conference, Iowa City, Iowa.

Bhabha, Homi K.
1990 The Third Space. In *Identity: Community Culture, Difference*, edited by Jonathan Rutherford, pp. 207-221. Lawrence and Wishart, London.

Birch, Jennifer
2012 Coalescent Communities: Settlement Aggregation and Social Integration in Iroquoian Ontario. *American Antiquity* 77(4):646-670.

Brown, James

1997 The Archaeology of Ancient Religion in the Eastern Woodlands. *Annual Review of Anthropology* 46:465-485.

2007 On the Identity of the Birdman within Mississippian Period Art and Iconography. In *Ancient Objects and Sacred Realms: Interpretations of Mississippian Iconography,* edited by F. Kent Reilly, James F. Garber, and Vincas P. Steponaitis, pp. 56-106. University of Texas Press, Austin.

2011 The Regional Culture Signature of the Braden Art Style. In *In Visualizing the Sacred: Cosmic Visions, Regionalism, and the Art of the Mississippian World*, edited by George E. Lankford, F. Kent Reilly, and James F. Garber, pp. 35-96. University of Texas Press, Austin.

Clark, Jeffrey J., Jennifer A. Birch, Michelle Hegmon, Barbara J. Mills, Donna M. Glowacki, Scott G. Ortman, Jeffrey S. Dean, Rory Gauthier, Patrick D. Lyons, Matthew A. Peeples, Lewis Borck, and John A. Ware

2019 Resolving the Migrant Paradox: Two Pathways to Coalescence in the Late Precontact U.S. Southwest. *Journal of Anthropological Archaeology* 53:262-287.

Conner, Michael D. and Jodie A. O'Gorman

2012a Spatial Distribution of Cultural Components and House Types at Morton Village. Paper presented at 58th Annual Midwest Archaeological Conference, East Lansing, Michigan.

2012b An Unusual Pit Feature at the Morton Village Site. Poster presented at 58th Annual Midwest Archaeological Conference, East Lansing MI.

2011 Unique Oneota Public Structure in the Central Illinois River Valley. Poster presented at 57th Annual Midwest Archaeological Conference, La Crosse WI.

Conrad, L. A.

1991 The Middle Mississippian Cultures of the Central Illinois Valley. In *Cahokia and the Hinterland: Middle Mississippian Cultures of the Midwest*, edited by T. E. Emerson and R. B. Lewis, pp. 119-163. University of Illinois Press, Urbana-Champaign.

Cummings, Keven S., and Christine A. Mayer

1992 *Field Guide to Freshwater Mussels of the Midwest*. Manual 5. Illinois Natural History Survey, Champaign.

DeMarrais, Elizabeith, Luis Jaime Castillo, and Timothy Earle

1996 Ideology, Materialization, and Power Strategies. *Current Anthropology* 37(1):15-31.

Emerson, Thomas E.

1989 Water, Serpents, and the Underworld: An Exploration into Cahokia Symbolism. In *The Southeastern Ceremonial Complex: Artifacts and Analysis*, edited by Patricia

Galloway, pp. 45-92. University of Nebraska Press, Lincoln.

Emerson, Thomas E., and Steven L. Boles
2011 Sourcing and Interpreting the St. Francois Raptor Figurine. *Illinois Archaeology* 23:158-172.

Emerson, Thomas E., Brad Koldehoff, and Timothy R. Pauketat
2000 Serpents, Female Deities, and Fertility Symbolism in the Early Cahokian Countryside. In *Mounds, Modoc, and Mesoamerica: papers in honor of Melvin L. Fowler*, edited by S. R. Ahler, pp. 511-522. Illinois State Museum Scientific Papers, Vol. XXVIII. Springfield.

Esarey, Duane and Lawrence A. Conrad
1998 The Bold Counselor Phase of the Central Illinois River Valley: Oneota's Middle Mississippian Margin. *The Wisconsin Archeologist* 79(2):38-61.

Fishel, Richard, L.
1997 Medicine Birds and Mill Creek - Middle Mississippian Interaction: The Contents of Feature 8 at the Phipps Site (13CK21). *American Antiquity* 62(3).

Fogelin, Lars
2007 The Archaeology of Religious Ritual. *Annual Review of Anthropology* 36:55-71.

Fortier, Andrew C.
2008 The Archaeological Contexts and Themes of Middle Woodland Symbolic Representation in the American Bottom. *Illinois Archaeology* 40:1-47.

Grayson, D. K.
1984 *Quantitative Zooarchaeology*. Academic Press, New York.

Hall, Robert L.
1997 *An Archaeology of the Soul: North American Indian Belief and Ritual*. University of Illinois Press.

Hayden, B.
1996 Feasting in Prehistoric and Traditional Societies. In *Food and the Status Quest: An Interdisciplinary Perspective*, edited by P. Wiessner and W. Schiefenhovel, pp. 127-148. Beerghahn Books, Oxford.

Hollinger, R. Eric
2005 Conflict and Culture Change in the Late Prehistoric and Early Historic American Midcontinent. Unpublished Ph.D. dissertation, Department of Anthropology, University of Illinois at Urbana-Champaign, Urbana.

Hudson, Charles
1976 *The Southeastern Indians*. The University of Tennessee Press, Knoxville.

Jackson, H. E., and S. L. Scott
1995 The Faunal Record of the Southeastern Elite: The Implications of Economy, Social Relations, and Ideology. *Southeastern Archaeology* 14:103-119.

Kassabaum, Megan C.
2019 A Method for Conceptualizing and Classifying Feasting: Interpreting Communal Consumption in the Archaeological Record. *American Antiquity* 84(4):610-631.

Kelly, Lucretia
2000 Social Implications of Faunal Provisioning for the Cahokia Site: Initial Mississippian, Lohmann Phase. PhD dissertation, Department of Anthropology, Washington University, St. Louis, Missouri.

2010 A Case of Ritual Feasting at the Cahokia Site. In *Feasts: Archaeological and Ethnographic Perspectives on Food, Politics, and Powe*r. Edited by M. Dietler and B. Hayden, pp. 334-367. University of Alabama Press, Tuscaloosa.

Kowalewski, Stephen A.
2006 Coalescent Societies. In *Light on the Path: The Anthropology and History of the Southeastern Indians*, edited Robbie R. Ethridge, Thomas J. Pluckhahn, and Thomas J. Hudson, pp. 68-84. University of Alabama Press, Tuscaloosa.

Laneri, Nicola, Mark Schwartz, Jason Ur, Ancleto d'Agostino, Remi Berthon, Mette Marie Hald, and Anke Marsh
2015 Ritual and Identity in Rural Mesopotamia: Hirbemerdon Tepe and the Upper Tigris River Valley in the Middle Bronze Age. *American Journal of Archaeology* 119(4):533-564.

Lankford, George E.
2007 Some Cosmological Motifs in the Southeastern Ceremonial Complex. In *Ancient Objects and Sacred Realms: Interpretations of Mississippian Iconography*, edited by F. Kent Reilly, James F. Garber, and Vincas P. Steponaitis, pp. 8-38. University of Texas Press, Austin.

2011 Regional Approaches to Iconographic Art. In *Visualizing the Sacred: Cosmic Visions, Regionalism, and the Art of the Mississippian World*, edited by George E. Lankford, F. Kent Reilly, and James F. Garber, pp. 1-34. University of Texas Press, Austin.

Martin, Terrance J.
2021 Late Precontact Culinary Practices in the Central Illinois River Valley as Revealed by Animal Remains from Feature 224 at the Morton Village Site (11F2). Paper presented at Annual Meeting of the Midwest Archaeological Conference, East Lansing, MI.

Martin, Terrance J., and Kathryn E. Parker

2017 Ritual Feasting at Cahokia?: Animal and Plant Remains from an Early Eighteenth-Century Illinois Occupation on the First Terrace of Monks Mound. *Illinois Archaeology* 29:301-354.

McAllister, Evelyn M.
1972 The Southeastern Ceremonial Complex: A War-Fertility Cult. MA. Thesis. College of Social Science Florida Atlantic University, Boca Raton, FL.

Michigan State University Features Inventory
https://mnfi.anr.msu.edu/species/description/12378/Obovaria-olivaria, accessed September 22, 2021.

Missouri Department of Conservation
https://mdc.mo.gov/discover-nature/field-guide/spike-ladyfinger, accessed September 22, 2021.

Milner, George R.
1999 Warfare in Prehistoric and Early Historic Eastern North America. *Journal of Archaeological Research* 7:105-151.

Milner, George R. and Virginia G. Smith
1990 Oneota Human Skeletal Remains. In *Archaeological Investigations at the Morton Village and Norris Farms #36 Cemetery,* edited by S. Santure, A. Harn, D. Esarey, pp. 111-148. Illinois State Museum Report of Investigations, No. 45, Illinois State Museum, Springfield.

Milner, George R., Eve Anderson, and Virginia G. Smith
1991 Warfare in Late Prehistoric West-Central Illinois. *American Antiquity* 56(4):581-603.

Muller, J.
1997 *Mississippian Political Economy*. Plenum, New York.

Nordine, Kelsey
2020 Building Communities: Interpreting Oneota and Mississippian Interaction Through Paleoethnobotanical Analysis at the Morton Village Site (11F2), West-Central Illinois. PhD dissertation, Department of Anthropology, Washington University, St. Louis, Missouri.

O'Gorman, Jodie
2016 Original unpublished field notes from the Morton Village Archaeological Project. Manuscript on file, Michigan State University, East Lansing.

O'Gorman, Jodie and Michael Conner
2013 Piecing together Ritual at the Intersection of Oneota and Mississippian Worlds. Paper presented at the 57th Annual Meeting of the Midwest Archaeology Conference,

Columbus, OH.

2015 An Unusual Pit Feature at the Morton Village Site. Poster Presented at the 80th Society for American Archaeology Meeting, San Francisco, CA.

2016 Variability in Ritual at the Intersection of Oneota and Mississippian Worlds. Poster Presented at the 60th Annual Meeting of the Midwest Archaeological Conference, Iowa City, Iowa.

O'Gorman, Jodie A., Jennifer D. Bengston, and Amy R. Michael
2020 Ancient History and New Beginnings: Necrogeography and Migration in the Northern Midcontinent. *World Archaeology* 52(1):16-34.

Painter, Autumn M.
2022. Chapter 2: Intersection of Coalescence and Diet: Animal Utilization Practices at Morton Village. PhD dissertation, Department of Anthropology, Michigan State University, East Lansing, Michigan.

Painter, Autumn M.
2022. Chapter 4: Strategies of Post-Migration Access to Faunal Resources During Coalescence. PhD dissertation, Department of Anthropology, Michigan State University, East Lansing, Michigan.

Painter, Jeffrey M.
2021 Cooking and Coalescence: Exploring the Construction of Community and Cuisine at Morton Village. PhD dissertation, Department of Anthropology, Michigan State University, East Lansing, Michigan.

Painter, Jeffery M. and Jodie O'Gorman
2017 Foodways Variability in the Oneota Tradition: A Pilot Study of Cooking Pots. Paper presented at the 82nd Annual Meeting of the Society of American Archaeology, Vancouver, B.C.

2019 Cooking and Community: An Exploration of Oneota Group Variability. *Midcontinental Journal of Archaeology* 44(3):231-258.

Pauketat, Timothy R., T. E. Emerson
1991 The Ideology of Authority and the Power of the Pot. *American Anthropologist* 93:919-941.

Pauketat, Timothy R., Lucretia S. Kelly, Gayle J. Fritz, Neal H. Lopinot, Scott Elias, and Eve Hargrave
2002 The Residues of Feasting and Public Ritual at Early Cahokia. *American Antiquity* 67(2):257-279.

Pedersen, Marianne Holm, and Mikkel Rytter

2018 Rituals of Migration: An Introduction. *Journal of Ethnic and Migration Studies* 44(16):2603-2616.

Pluckhahn, Thomas J.
2010 Household Archaeology in the Southeastern United States: History, Trends, and Challenges. *Journal of Archaeological Research* 18:331-385.

Potter, James
1997 Communal Ritual and Faunal Remains: An Example of Dolores Anasazi. *Journal of Field Archaeology* 24(3):353-364.

Raslich, Frank J., Jodie A. O'Gorman, and Michael Conner
2015 Coming Together: Evidence of Ritual and Public Space as Mechanisms of Social Integration. Poster Presented at the 80th Society for American Archaeology Meeting, San Francisco, CA.

Rautman, Alison E.
2013 Social Integration and the Built Environment of Aggregated Communities in the North American Puebloan Southwest. In *From Prehistoric Villages to Cities: Settlement Aggregation and Community Transformation*, edited by Jennifer Birch, pp. 111-133. Taylor & Francis, New York.

Rees, M. A.
1997 Coercion, Tribute and Chiefly Authority: The Regional Development of Mississippian Political Culture. *Southeastern Archaeology* 16:113-133.

Robin, Cynthia
2003 New Directions in Classic Maya Household Archaeology. *Journal of Archaeological Research* 11(4):307-356.

Russel, Nerissa
2012 *Social Zooarchaeology: Humans and Animals in Prehistory*. University Press, Cambridge.

Santure, Sharron K.
1990a Summary of Excavation and Analyses. In *Archaeological Investigations at the Morton Village and Norris Farms 36 Cemetery*, edited by Sharron K. Santure, Alan D. Harn, and Duane Esarey, pp. 160-161. Illinois State Museum Reports of Investigations, No. 45. Springfield.

1990b Norris Farms 36: A Bold Counselor Phase Oneota Cemetery. In *Archaeological Investigations at the Morton Village and Norris Farms 36 Cemetery*, edited by Sharron K. Santure, Alan D. Harn, and Duane Esarey, pp. 66-74. Illinois State Museum Reports of Investigations, No. 45. Springfield.

Santure, Sharron K., and Duane Esarey

1990 Analysis of Artifacts from the Oneota Mortuary Component. In *Archaeological Investigations at the Morton Village and Norris Farms 36 Cemetery*, edited by Sharron K. Santure, Alan D. Harn, and Duane Esarey, pp. 75-110. Illinois State Museum Reports of Investigations, No. 45. Springfield.

Santure, Sharron K., Alan D. Harn, and Duane Esarey (editors)
1990 *Archaeological Investigations at the Morton Village and Norris Farms 36 Cemetery*. Illinois State Museum Reports of Investigations, No. 45. Springfield.

Silva, Nikki, Jodie O'Gorman, and Michael Conner
2014 Implications of Recent Radiocarbon Dating at Norris Farms 36 Cemetery and Morton Village. Paper presented at the 58th Annual Meeting of the Midwest Archaeological Conference, Champaign, Illinois.

Steadman, D. W.
1998 The Population Shuffle in the Central Illinois Valley: A Diachronic Model of Mississippian Biocultural Interactions. *World Archaeology* 30 (2): 306–326.

Styles, Bonnie W., and Frances B. King
1990 Faunal and Floral Remains from the Bold Counselor Phase Village. In *Archaeological Investigations at the Morton Village and Norris Farms 36 Cemetery*, edited by Sharron K. Santure, Alan D. Harn, and Duane Esarey, pp. 57-65. Illinois State Museum Reports of Investigations, No. 45. Springfield.

Swenson, Edward
2015 The Archaeology of Ritual. *Annual Review of Anthropology* 44:329-345.

Twiss, Katherine C.
2007 We Are What We Eat. In *The Archaeology of Food and Identity*, edited by Katheryn C. Twiss, pp. 1–15. Occasional Paper No. 34. Center for Archaeological Investigations Southern Illinois University, Carbondale.

Welch, P.D., and C. M. Scarry
1995 Status-Related Variation in Foodways in the Moundville Chiefdom. *American Antiquity* 60:397-419.

Yann, Jessica, Jeffrey Painter, and Michael Conner
2015 The Spatial Distribution of Domestic Facilities in the Multiethnic Morton Village Site. Poster Presented at the 80th Society for American Archaeology Meeting, San Francisco, CA.

CHAPTER 4: STRATEGIES OF POST-MIGRATION ACCESS TO LARGE GAME ANIMALS DURING COALESCENCE

INTRODUCTION

Coalescence, the process of groups from different backgrounds coming together and negotiating new social, political, and ideological systems, has been of recent interest to archaeologists (Arkush 2017; Birch 2012; Cameron 2013; Clark et al. 2019; Kowalewski 2006). During this process, population size for a given community may grow due to an influx of migrants, requiring an increased amount of food to sustain the population (Cameron 2013; Clark et al. 2019). This need for increased food production may necessitate new or altered strategies for access to faunal resources. Additionally, migrants are commonly impacted by conflict, periods of adjustment, and stress with their new local neighbors and communities. This tension can result in both food insecurity and circumscription within a coalescing group, impacting the communities' strategies for obtaining food (Clark et al. 2019; Kowalewski 2006). Possible strategies for increasing or maintaining access to animal resources include optimal site location, equitable land tenure/use, and the distribution/sharing of animals as they confer two major advantages, diet efficiency and food security (Winterhalder 1986). However, as Speth (1990) discusses, even if meat is distributed equitably, the shared portions are unlikely to be of equivalent nutritional value, and the presence of taboos (*e.g.*, women not consuming certain foods while pregnant) could block certain members of a society from receiving an equal share.

One of these mechanisms that may have played an important role in both creating and maintaining community relationships and offsetting food insecurity/circumscription is cooperative hunting. This strategy may have been employed when large prey was the target, as group labor may have been required not only for the killing of the animal, but also for the

processing and transport of the meat, resulting in the sharing/distribution of meat portions within different parts of the community (Enloe 2003). Foodsharing and the distribution of animals within a community offers the benefits of risk reduction through the formation of reciprocal relationships, enhancing social relationships within a coalescing society. These practices allow group members the ability to count on others to provide a share of food on days that they were unable to acquire food themselves (Enloe 2003), which may have been critical to a coalescing society impacted by circumscription and/or food insecurity. As the sharing of food, especially larger animals, has been documented ethnographically (Speth 1990; Winterhalder 1986), it should be considered a human behavior that could have served an important role in the social negotiations during community building and the coalescence process. Furthermore, the purposeful restriction of access and/or not sharing of food may also be very important in evaluating the social negotiation that took place during coalescence and should also be considered.

While documenting access strategies to faunal resources, specifically large game animals, within the archaeological record may be difficult (Enloe 2003), it is an important aspect of the community building process during coalescence that should be studied as it provides insight into the presence and extent of social relationships within a society. Furthermore, it is an aspect of animal use and consumption within the coalescence process that has not been considered yet within the field of archaeology.

In this paper, I explore this understudied facet of community formation during the coalescence process by using the Morton Village site as a case study. Located in the central Illinois River valley (CIRV), Morton Village was occupied simultaneously by migrant Oneota and local Mississippian peoples from A.D. 1300-1400 (Esarey and Conrad 1998; Santure et al.

1990; Silva et al. 2014), who were in the process of coalescing. During the fourteenth century AD, Oneota group(s) migrated into the CIRV from the upper Midwest and began interacting with local Mississippian groups living in the area, a time period known as the Bold Counselor Phase. Morton Village is one of five sites known in the CIRV that are the result of this migration, and it is the most extensively investigated so far. A variety of evidence indicates that the occupants of the village were undergoing the process of coalescence. According to Kowalewski (2006), several traits are common to groups undergoing the coalescence process, including universalizing ideologies, the development of collective leadership, domestic architecture and organization designed to promote community integration, and intensification of production. Evidence for practices in support of these developments at Morton Village include: (i) the presence of integrative foodways practices (Painter 2021; Painter and O'Gorman 2019, 2021), (ii) use of material culture indicative of both groups identified in a single context (burned and encapsulated structure) (Conner and O'Gorman 2012), (iii) architectural styles of four structures that appear to combine both Oneota single post and Mississippian wall trench construction (Yann et al. 2015), and (iv) special-use structures that have been interpreted as integrative facilities for the entire community, in which new rituals emerged (O'Gorman and Conner 2013, 2016; Raslich et al. 2015). These examples indicate the blending of traits and practices, which suggests that social negotiations and change consistent with expectations of a society undergoing the coalescence process were occurring within the village.

Excellent preservation of faunal material from across the site offers an opportunity to explore foodsharing practices within a coalescing community. To evaluate the presence and extent of strategies used for access to large game resources in the village, two large mammal species that are well represented in the Morton Village archaeological record (Painter 2022,

Chapter 2) were selected as the focus of this study. However, uncovering evidence of foodsharing and faunal access strategies in the past can be difficult, as variations in practices may result in non-uniform indicators of these behaviors. To address this difficulty, several analytic methods were used in tandem, including specimen refitting, pair matching, body portion ratios, and household distribution. A fifth method is discussed in the study designs and methods, that of aDNA analysis to identify the presence of foodsharing was developed, but ultimately had to be abandoned due to limited time and funds. The inclusion of multiple methodologies will increase the likelihood that these practices may be identified, how widespread the practices were, and provide an opportunity to cross-evaluate and compare the utility of these analytical methods.

COALESCENCE AND FOODWAYS

Overall, this paper will examine strategies for access to large game faunal resources, with a focus on foodsharing in the process of coalescence and community formation. For this project, the process of coalescence is defined as the "coming together of groups from different cultural backgrounds due to various push and pull factors, and the inclusive ideologies and regional economies that develop in the aftermath" (Clark et al. 2019:263). The long-term process of coalescence involves a "suite of transformations" (Clark et al. 2019:263), including the creation and maintenance of new social and political practices and ideological shifts (Arkush 2017; Birch 2012; Kowalewski 2006). As mentioned previously, coalescing communities most likely have a larger number of people in the same place than before, so new or expanded strategies for access to faunal resources may be one of the social practices employed to assist the formation and maintenance of the new community.

Foodsharing as an access strategy is a powerful social action that would have been crucial for forming and maintaining relationships within and between communities (Salisbury and Engelbrecht 2018; Speth 1990; Zeder and Arter 2008). Foodsharing relationships can extend beyond familial ties, linking a broader community together. The practice of sharing food within a community can also create reciprocal relationships, forming a bond and obligation to others within their community that may not be otherwise created (Enloe 2003). If there were more formalized foodsharing traditions (Enloe 2003) that included various persons within a coalescing community, the development of those rules could involve negotiations with both the migrant and local populations, serving as an important mechanism in the creation and maintenance of new social and community ties.

There are many ethnographic accounts of foodsharing among foraging societies that provide information about social relationships and community building practices. Increasing access to faunal resources via sharing can assist in preventing food insecurity as well as create and maintain social ties within a society (Enloe 2003; Winterhalder 1986). While Morton Village is not strictly a foraging society, as both foraging and horticultural practices were a key component of the food base, these ethnographic accounts can provide insight into food sharing and how it may be recognized archaeologically.

Ethnographic literature shows that there is a wide range of variation in foodsharing practices, resulting in a lack of universal or uniform indicators of this behavior (Enloe 2003). For example, a single animal may be divided differently according to different sets of rules, such as following kinship rules or by normative portions to recipients based on their role in the hunt; or a whole animal could be kept by a single individual/family and only distributed in instances of need (Enloe 2003). Notably, ethnographic accounts indicate that the exchange of meat from large

mammals is the most common form of foodsharing (Speth 1990; Winterhalder 1986). Research on the different stages of foodsharing, such as where (*e.g.*, at the kill site or occupation site), how, and to whom the food is distributed, has shown that these choices significantly impact the visibility of foodsharing within the archaeological record (Enloe 2003). Furthermore, in past archaeological research, the varied distribution of skeletal elements from a single animal within an archaeological site has been interpreted as a pattern of differential bone transport because of energetic factors (*e.g.*, only transporting high-utility portions of animals) rather than as a sharing pattern (Marshall 1994). These examples, among many others, have demonstrated that foodsharing is an expected part of human behavior throughout history, but also indicate that the variation may be difficult to identify archaeologically.

STUDY DESIGN AND METHODS

In a previous study conducted by the author, the distribution and use of faunal resources at Morton Village was examined through the analysis of faunal remains from a 32% sample of exterior pit features (35 features) and a 100% sample of interior pit features (31 features). Pit features include non-structural basins and pits, such as hearths and storage/trash pits. This strategy not only provided information on the overall subsistence strategy at the site, but also allowed for comparisons of faunal data between Oneota and Mississippian architectural styles (Painter 2022, Chapter 2). This paper builds on that study by focusing on large mammal species as they are the most likely to be shared between households and will be used as indicators for access within the village (Speth 1990; Waguespack 2002). The two species that will be the focus of this analysis are white-tailed deer (*Odocoileus virginianus*) and wapiti (*Cervus elaphus*), the two largest mammal species that have been identified in the faunal assemblage at this time

(Painter 2022, Chapter 2). All faunal material collected from excavations conducted by Michigan State University and the Dickson Mounds Museum from 2008 through 2017 were reviewed to analyze skeletal material large enough to be identified as white-tailed deer and wapiti remains. Identification of the white-tailed deer and wapiti remains were made following standard zooarchaeological methodologies using the author's personal comparative collection and the Illinois State Museum Research and Collection Center's comparative skeletal collection.

Due to the difficulty in determining access strategies and foodsharing practices within the archaeological record, initially a methodology that employed both traditional refitting and pair matching techniques with aDNA analysis was developed. The preliminary methodology developed for this included identifying a sample of skeletal elements based on pair matching and refitting. The first round of aDNA analysis would be to look for the presence of variation within the mitochondrial DNA, which can either show similarity or difference in familial groups. If similar, the results would indicate that species from the same familial group or herd were being hunted and could potentially include skeletal portions from the same individual that were distributed among multiple households, which could indicate foodsharing. Dissimilar results would indicate that foodsharing either was not taking place or is not visible in this sample of faunal remains. Following this analysis, any results that indicated similar mitochondrial DNA will be selected for testing for nuclear DNA. If possible, this analysis would allow for individual animal comparison between samples and would be used for a second line of evidence for the verification of foodsharing. A pilot study conducted on 10 specimens by a Michigan State University Forensic Biology Laboratory graduate student class successfully confirmed the identifications of two white-tailed deer specimens (humerus and astragalus) and one wapiti specimen (scaphoid) through mtDNA. This pilot study demonstrates the ability to extract

mtDNA from Morton Village faunal material allowing for differentiation of maternal lines (Barbanera et al. 2012; Caniglia et al. 2010; Harper et al. 2018). However, the time and cost of the aDNA technique made it unfeasible to attempt at this time.

Instead, several other analytic methodologies were employed. First, all identified white-tailed deer and wapiti specimen fragments were examined for refitting. Second, those specimens were then compared for pair matching based on size and unique features. Third, body portions were tabulated for each individual context yielding white-tailed deer and wapiti remains to look for distribution patterns.

Accelerator mass spectrometry (AMS) radiocarbon determinations from the site and Norris Farms 36 Cemetery intercept the calibration curve at multiple points, limiting the precision of these dates without further analysis and denoting the occupation of the village from A.D. 1300 – 1400. Because of this, the Morton Village faunal assemblage was analyzed as a synchronic dataset. The time of occupation in the village spanned more than one generation and rebuilding is evident, and the excavated sample is small as compared to the overall village size. These issues could obscure the visibility of access strategies including foodsharing, and the patterns observed here may represent multiple generations' worth of activity.

RESULTS

Site Location

A previous study conducted by the author on a random sample of faunal remains from Morton Village determined that the site was optimally located for access to faunal resources within the CIRV (Painter 2022, Chapter 2). Assuming no social limitations, all species identified within the sample could have been obtained within a 10-kilometer radius of the village. This

radius comprised a wide variety of environmental zones including forest, forest-edge, barrens, prairie, wet prairie, marsh, swamp, other wetlands, and water (creeks, small rivers, backwater and floodplain lakes, and larger rivers). This analysis concluded that there were no obvious exclusions of any species or the use of taxa found only in specific environmental zones, indicating that the Morton Village inhabitants were not impacted by long-term or habitual circumscription. It is possible that the residents of Morton Village experienced occasional or short-term circumscription that is obscured in the archaeological record. A comparison of faunal remains associated with architectural construction types present within the village was also conducted, as Mississippian and Oneota groups have been associated with specific styles (wall trench Mississippian and single post Oneota). Results indicate similar access to faunal resources between households/architectural types within the village (Painter 2022, Chapter 2).

Faunal Analysis

In total, 1587 white-tailed deer and 165 wapiti specimens were identified in the Morton Village assemblage. They were recovered from 87 unique contexts, including features and excavation units from across the village site (Figure 13; Appendix B).

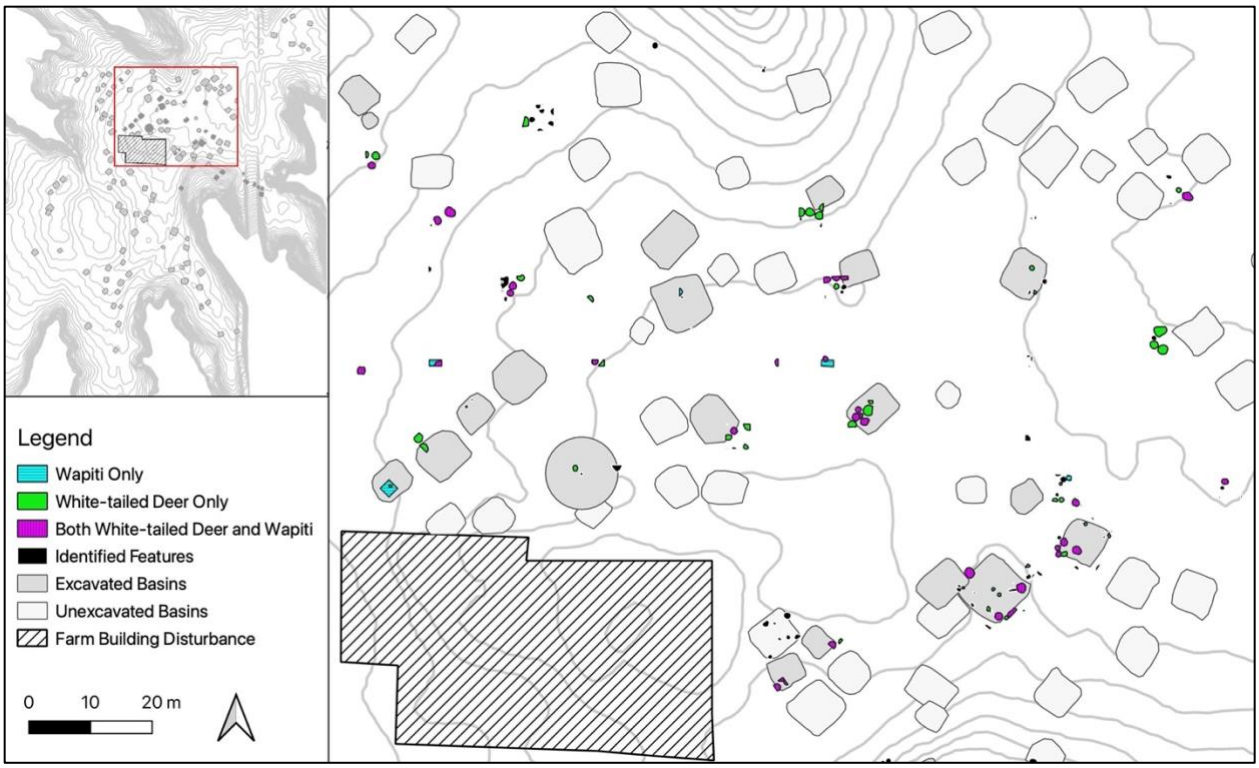

Figure 4.1. Map of white-tailed deer and wapiti contexts at the Morton Village site.

Refitting and Pair Matching

Following the identification of the specimens, they were compared by element for possible refitting and pair matching. Of the 1752 identified white-tailed deer and wapiti specimens, none were found that could be refitted from different spatial contexts. Furthermore, pair matching identified one set of wapiti astragali (Figure 14) out of the 165 wapiti specimens. Pair matching results were determined based on two factors: size and matching distinctive features. Matching distinctive morphological features was attempted by referring to whole deer and wapiti skeletons from the Illinois State Museum Research and Collection Center. These details included size, characteristics of tuberosities, tendon attachments, articular condyle shapes, fossae, facets, and tubercles (Lyman 2006).

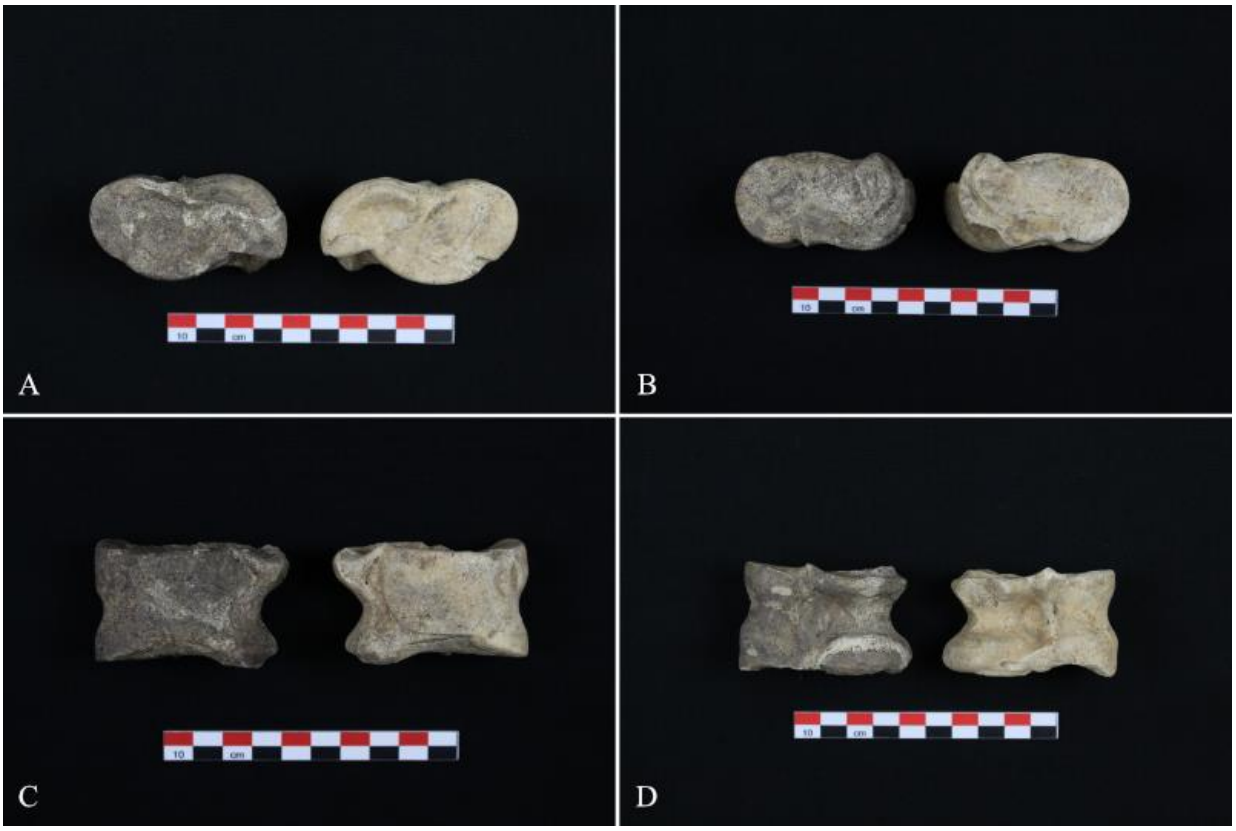

Figure 4.2. Pair matched wapiti astragali. A: lateral view. B: medial view. C: posterior view. D: anterior view.

Both astragali were recovered from excavation unit contexts (not features), however they were located in very different contexts (Figure 15). The right astragalus was recovered in 2009 from Square 26, located away from structure basins. The left astragalus was found in 2011 within Square 69, a unit located within structure basin 22, approximately 20 meters away from Square 26. Displacement by modern equipment was ruled out as both specimens were recovered from below the plow zone. As the right astragalus was recovered from an open location near several other structure basins, it could have been associated with several households, indicating possible foodsharing between the occupants of these structures. Another possibility could be their use in games. Ethnographic records and archaeological reports from around the globe have

documented the common use of use of astragali as gaming pieces, in addition to their use in a variety of ritual practices (Dandoy 1996; Gilmour 1997; Lewis 1988; Watson 1979).

While only one indicator of foodsharing was uncovered through the refitting and pair matching methodologies, it did show that the possibility of foodsharing is visible in the Morton Village archaeological record.

Figure 4.3. Wapiti astragalus pair match contexts.

Meat Portion Distribution

Following the identification of white-tailed deer and wapiti elements, each context was quantified by body portion NISP counts and NISP percent (cranium, axial, upper forelimb, upper hindlimb, and lower leg/foot). This analysis allows for the archaeological data to be compared against the percent ratios of a *standard cervid* (the number of elements that are present in an entire white-tailed deer or wapiti) to assess for any differences or patterns in the portions present

at Morton Village. First, each feature %NISP was plotted into a box and whisker chart to determine the distribution and average of each body portion. Figures 16 and 17 show that the overall distribution of the %NISP by feature varies between white-tailed deer and wapiti, but that the averages for body portions between the two species (indicated by 'X' in the figures) are generally similar. The individual-colored dots in the figures represent outlier contexts and the whiskers (extended lines) represent scores outside the middle 50%.

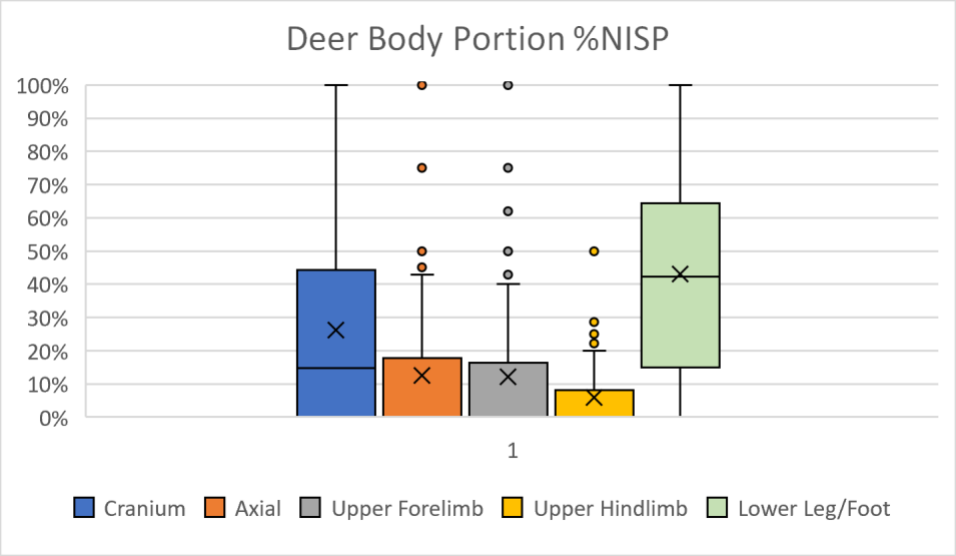

Figure 4.4. White-tailed deer body portion %NISP box and whisker plot.

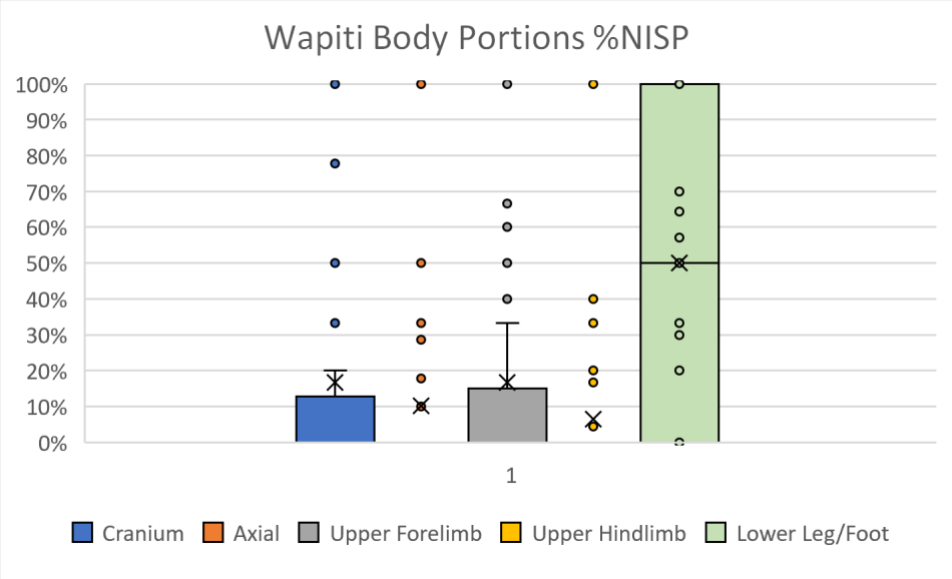

Figure 4.5. Wapiti body portion %NISP box and whisker plot.

When the average %NISP for each body portion for white-tailed deer and wapiti are plotted with the %NISP ratio of a standard cervid, there are several clear distinctions. First, both the white-tailed deer and wapiti have lower average %NISP axial portions than a standard cervid. Second, both white-tailed deer and wapiti have much higher average %NISP for both upper forelimb and lower leg/foot body portions, and slightly higher upper hindlimb %NISP than a standard cervid (Figure 18).

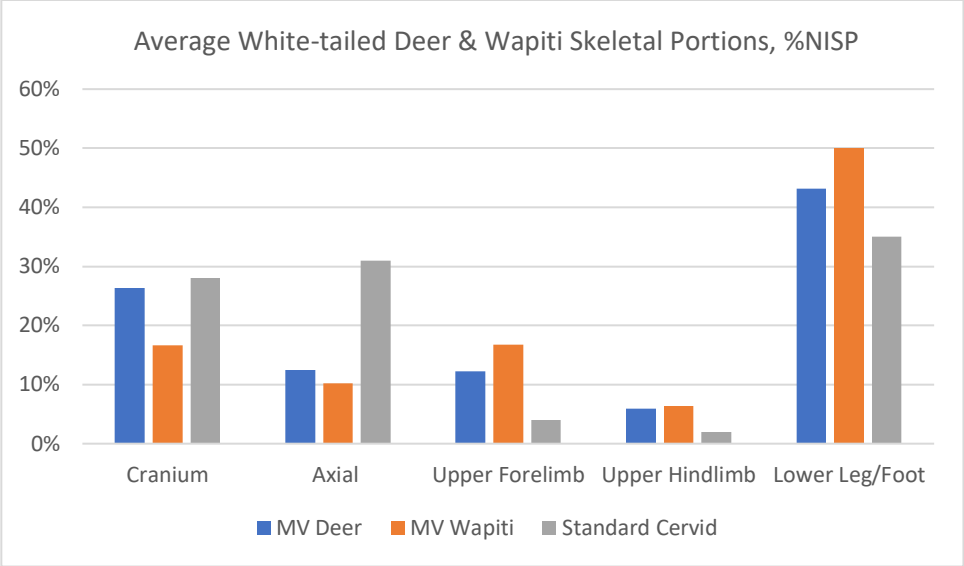

Figure 4.6. Average white-tailed deer and wapiti skeletal portions by %NISP as compared to a standard cervid.

The distinctions in the white-tailed deer and wapiti body portions could be due to several factors including social differences, butchery practices, taphonomic and other factors impacting identification, and different cooking, refuse disposal, and structure cleaning practices. The lack of axial elements from wapiti could indicate a difference in butchery practices, *e.g.*, leaving that portion of the carcass at the kill site by removing and only transporting the meat. Several different taphonomic factors could be at play which are impacted by the size, shape, and density (structural/bone mineral) of each element. If carnivores can access faunal refuse, carnivore gnawing damage on vertebrae can range from some processes gnawed, to almost all processes removed (Lyman 1994), thus reducing the number of identifiable fragments that can survive within the archaeological record. Trampling is another taphonomic factor that greatly impacts the durability of skeletal elements that are 'plate-shaped' and 'cylinder-like' as they are more prone to breakage than those which are more 'spherical' in shape, in addition to density-mediated attrition factors. Specifically for axial skeletal elements, it is common that vertebral and rib

fragments cannot be identified to taxon, which may impact the accuracy of body portion ratios (Lyman 1994).

At Morton Village, the high prevalence of lower leg/foot elements for both white-tailed deer and wapiti vs the upper fore- and hindlimb elements may be from cooking practices, such as breaking upper forelimb and hindlimb bones for marrow extraction. While not included in this study, there are thousands of large mammal long bone fragments categorized as unidentifiable large mammal, likely white-tailed deer and wapiti remains that were broken for marrow processing. This is unlike an ethnographic study of Nunamiut caribou hunters by Binford (1978 1984) which showed that metacarpal and metatarsals were the preferred bones for marrow procurement. It appears that the residents of Morton Village brought the legs of both white-tailed deer and wapiti back to the site and could have distributed them between households or family groups. Detached legs of deer and wapiti would be the most convenient way to transport venison if the whole carcass could not be transported back to the village site. If the interpretation of the upper limb elements being used for marrow is correct, this may be another factor of why there were no examples of refitting between contexts and only one pair match found.

Third, a previous analysis on a random sample of faunal remains from Morton Village identified 124 fragments (231.8 g) of antler that could only be classified to the family level (Cervidae), as they could be either white-tailed deer or wapiti (Painter 2022, Chapter 2). The presence of the antler fragments, belonging to either white-tailed deer or wapiti, from throughout the site indicates that not just meat or meat-bearing portions of the skeleton were transported back to the village site. As these elements, and all other antler fragments that could not be identified to the species level, were not included in this study, this could be impacting the ratio distinctions between white-tailed deer and wapiti body portions.

White-tailed Deer and Wapiti Household Distribution

To look for patterns of cervid body portion distribution, all features and excavation units that contained white-tailed deer and wapiti remains were grouped by their proximity to structures. Ethnographic evidence from the Eastern Woodlands and Prairie Peninsula has shown that while cooking and consumption practices differed seasonally, generally domestic food practices took place near structures year-round (Densmore 1979; Fletcher and LaFlesche 1911; Swanton 1946; Trigger 1969). Following Painter's (2021:82) spatial analysis methodology on cooking practices at Morton Village, features located within 4 meters of a structure were grouped as a household. Based on this methodology, 15 households were identified for white-tailed deer and 11 households for wapiti.

Research throughout the midcontinent has documented the common use of white-tailed deer by both Mississippian and Oneota peoples, in addition to revealing differences in how these groups treated white-tailed deer. Faunal analysis conducted on white-tailed deer remains from Mississippian mound centers have noted differential access within communities by the presence of high-utility meat cuts in elite contexts and high proportions of low-utility elements in non-elite contexts (Buchanan 2018; Jackson and Scott 2003; Kelly 1997, 2001). These differences indicate that social hierarchy directly impacted Mississippian peoples access to deer body portions at mound centers. This pattern is not seen at Oneota sites, where stratified social organization is lacking, and little evidence has been found to suggest that social hierarchy impacted access to certain cuts of meat and therefore deer body portion distribution (Henning 1998; Overstreet 1997; McTavish 2020). Unlike deer, the treatment of wapiti by Mississippian and Oneota groups are not as extensively studied, so possible patterns of differential access are unknown.

Analysis of white-tailed deer household body portions revealed several patterns (Figure 19; Table 11). A higher ratio of lower leg/foot body portion than a standard cervid was present in

7 of 15 households, however it should be noted that 4 of these households contained fewer than 10 total specimens. Additionally, 7 out of 15 households with deer have at least one specimen from each body portion, and all have higher ratios of upper fore- and hindlimbs than a standard cervid. These results indicate that there are no clear patterns of fore vs. hindlimb distribution between households. For white-tailed deer cranial fragments, 8 out of 15 households contained higher ratios than present in a standard cervid. The higher ratios for lower leg/foot, upper fore- and hindlimb, and cranium could be due to fragmentation as body portions are based on NISP counts. Overall, over half the households have similar ratios of body portions which indicates similar access to food resources, *i.e.*, cuts of meat, and there are no clear indicators of foodsharing. Two of the households have a higher ratio of upper forelimb portions (STR 28 and STR 24) indicating access to certain cuts of meat including shoulder/chuck and shank, however, the other body portions present within those structures do not include any upper hindlimb elements. Furthermore, the presence of axial portion in 9 of the 15 households may be suggestive of the whole deer being brought back to Morton Village, rather than only leg portions. When the households are examined based on architectural style there are no clear patterns of white-tailed deer body portion distribution. This indicates that there were no visible differences in how the occupants of the different architectural structures shared white-tailed deer.

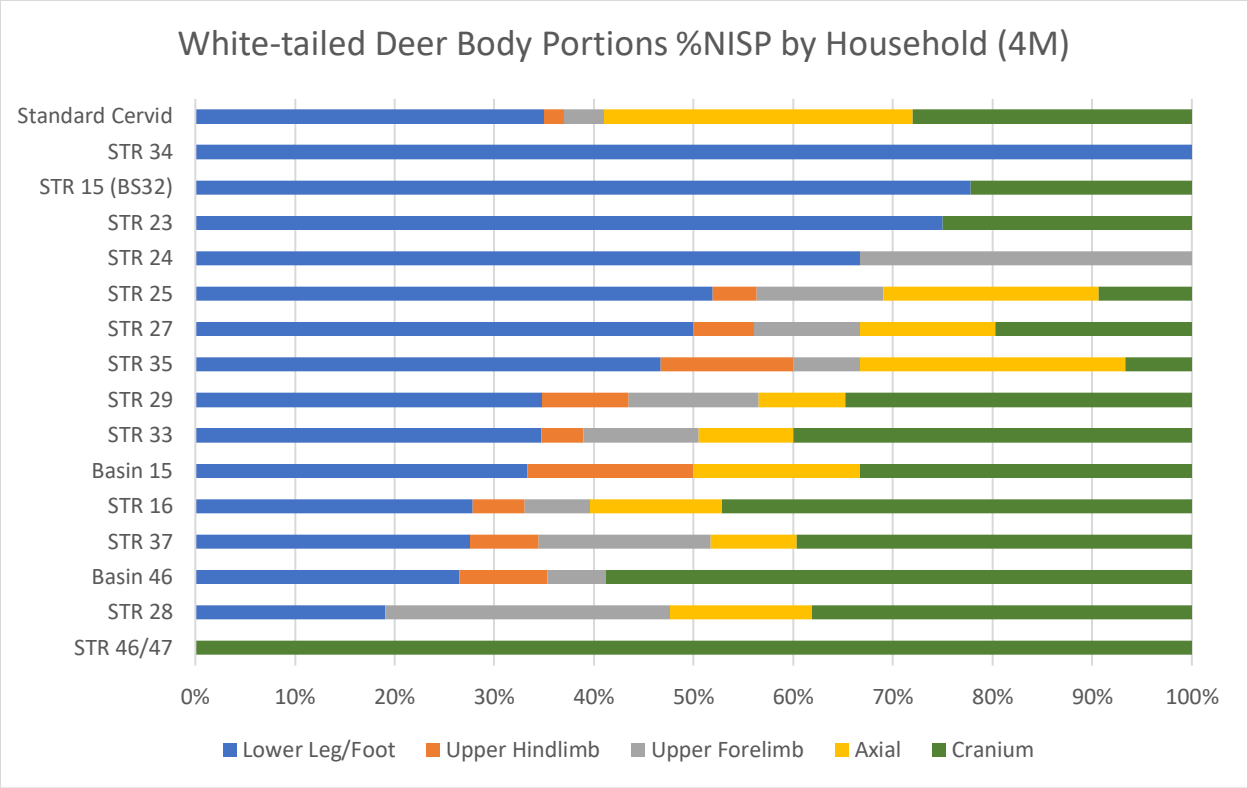

Figure 4.7. Bar chart of white-tailed deer body parts by household at Morton Village, %NISP.

Table 4.1. White-tailed Deer Household NISP Totals

Structure	Lower Leg/Foot	Upper Hindlimb	Upper Forelimb	Axial	Cranium	*Total*
STR 34	1	0	0	0	0	*1*
STR 15 (BS 32)	7	0	0	0	2	*9*
STR 23	3	0	0	0	1	*4*
STR 24	2	0	1	0	0	*3*
STR 25	233	20	57	97	42	*449*
STR 27	33	4	7	9	13	*66*
STR 35	7	2	1	4	1	*15*
STR 29	8	2	3	2	8	*23*
STR 33	33	4	11	9	38	*95*
Basin 15	2	1	0	1	2	*6*
STR 16	59	11	14	28	100	*212*
STR 37	16	4	10	5	23	*58*
Basin 46	9	3	2	0	20	*34*
STR 28	4	0	6	3	8	*21*
STR 46/47	0	0	0	0	15	*15*

Wapiti were recovered from 11 households and revealed different body portion patterns than white-tailed deer (Figure 20; Table 12). Only one household with wapiti contained at least one element from each body portion section. Three out of 11 households contained only lower leg/foot elements and 7 out of 11 contained higher ratios of lower leg/foot portions than a standard cervid. One household only contained axial elements and two households contained only cranial fragments. Overall, body portions ratio household distributions revealed differential presence of wapiti, also indicating that differential access and foodsharing could have been taking place. Four out of 11 households contained higher ratios of upper limb elements than a standard cervid, one of which, STR 33, had high ratios for both fore- and hindlimb portions indicating that this household may have had better access to better cuts of meat than those with only lower leg/foot portions. Small sample sizes present within 7 of these households should be noted, as these contexts contained fewer than 10 total specimens each. When the households are examined based on architectural style, there are no clear patterns of wapiti body portion distribution between styles, indicating no clear differences in how the occupants of these architectural styles shared wapiti.

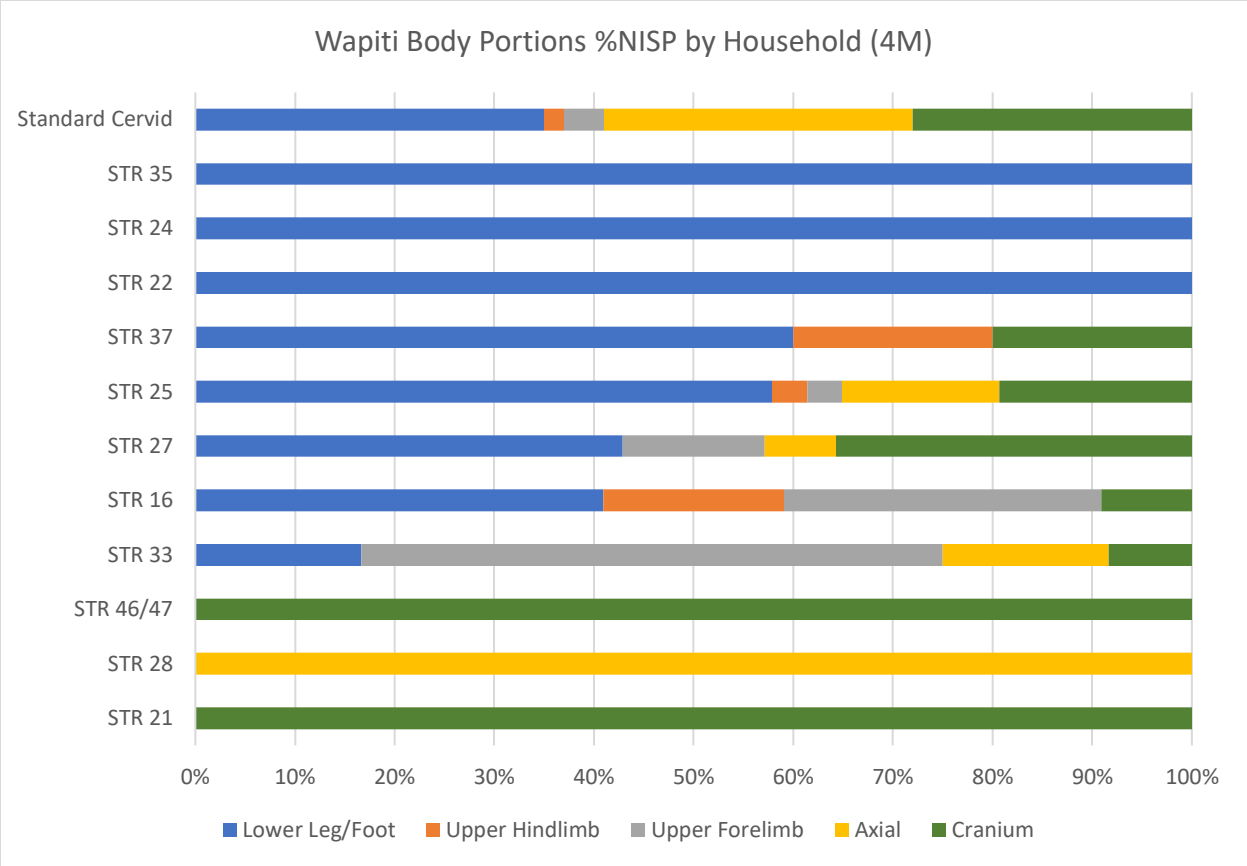

Figure 4.8. Bar chart of wapiti body portion by household at Morton Village, %NISP.

Table 4.2. Wapiti Household NISP Totals

Structure	Lower Leg/Foot	Upper Hindlimb	Upper Forelimb	Axial	Cranium	*Total*
STR 35	1	0	0	0	0	*1*
STR 24	2	0	0	0	0	*2*
STR 22	1	0	0	0	0	*1*
STR 37	3	1	0	0	1	*5*
STR 25	33	2	2	9	11	*57*
STR 27	6	0	2	1	5	*14*
STR 16	9	4	7	0	2	*22*
STR 33	2	0	7	2	1	*12*
STR 46/47	0	0	0	0	1	*1*
STR 28	0	0	0	1	0	*1*
STR 21	0	0	0	0	4	*4*

From the differences in body portion household distributions, the wapiti remains strongly suggest that there was foodsharing practices but also differential access occurring at the village, as the skeletal evidence indicates that all body portions are present in varying quantities throughout the village assemblage. As axial fragments from wapiti are present within five households, it suggests that whole wapiti carcasses were transported to Morton Village. However, the white-tailed deer households showed similar access to food portions and did not show any clear indicators of foodsharing. One household stands out from the rest, STR 46/47, as it only contained cranial fragments of white-tailed deer and wapiti. It is possible that this structure documents the occurrence of specific practices within a household setting such as flintknapping and hide working which requires the use of cranial elements such as antler, or the organs (eyes and brain), or another unknown purpose. Further analysis on the material culture of this structure is needed to make this determination.

DISCUSSION AND CONCLUSION

The purpose of this study was to evaluate the presence and extent of faunal access strategies to large game animals during the coalescence process at Morton Village using four different methods: refitting, pair matching, body portions, and household distribution. Both pair matching and household distribution analyses revealed evidence of the sharing of wapiti, as well as differential access to wapiti body portions at Morton Village. No visible indicators of foodsharing of white-tailed deer at Morton Village were found, however the household distribution analysis suggests similar access to this species within the community. Individual hunters may have had access to certain body portions, and multiple individual hunters from the same household having prescribed sharing practices would make household refuse difficult to

comprehend such prescriptions for family sharing. Additionally, previous analysis on Morton Village faunal remains revealed that the site was placed at an optimal location on the CIRV landscape which provided access to and use of a wide variety of faunal resources (Painter 2022, Chapter 2).

Overall, the faunal analysis results indicate that negotiations over access to faunal resources were taking place and could have played an important role in the coalescence process at Morton Village, possibly serving as one of the mechanisms for creating and maintaining relationships within the community. The pair matched wapiti astragali suggests that there was a social relationship possibly based on foodsharing, potentially a reciprocal one, between at least two different households in the village, which would have formed as part of the hunting and processing activities. It is possible that the Morton Villagers used cooperative hunting strategies to obtain the wapiti (as it is the largest mammal species identified to date within the Morton Village assemblage), involving both Mississippian and Oneota members, potentially as a risk reduction strategy. As indicated by ethnographic records and previous foodsharing research, the sharing of surplus food resources, such as meat from a large mammal like wapiti, can also be leveed to create and/or enhance social ties within the coalescing community, while also building social prestige or obligation (Enloe 2003; Grimstead 2012; McGuire and Hildebrandt 2005; Wood 2006). Another possible explanation for the presence of the wapiti astragali could be there use as gaming pieces or in ritual practices (Dandoy 1996; Gilmour 1997; Lewis 1988; Watson 1979).

The foodsharing and differential access between households to portions of wapiti may be the result of formalized distribution/access practices, that were discussed and formed on a community level, including both the migrant Oneota and local Mississippian peoples. The

differences between the distribution of white-tailed deer and wapiti may be due to depositional or cooking practices. It is also possible that as white-tailed deer are smaller mammals than wapiti they were not as commonly shared between households, meaning they were not part of negotiations surrounding access to faunal resources via sharing, and as such would not be visible within the archaeological record.

There are several reasons why food access strategies were not as visible as expected within the archaeological record. First, as the Morton Village site is not fully excavated, it is possible that more evidence for animal access strategies such as foodsharing may be visible in the archaeological record that is unexcavated.

Second, Morton Village is treated as one singular occupation (a synchronic dataset) from A.D. 1300-1400. As the village occupation spans approximately 100 years, this impacts the interpretation of household body portion distribution, as it is possible that not all household determined in this study were occupied simultaneously.

Third, some of the access strategies and foodsharing practices at Morton Village may be hidden by the fragmentation of large animal long bones for marrow processing. While the total number of large mammal shaft fragments was not calculated for the entire site as only identifiable cervid elements were pulled for study, future studies could include this calculation to expand our understanding of food and resource sharing practices.

Fourth, some biases that may impact the household analysis method include hunting, butchering, and deposition/disposal practices as they each influence the presence, distribution, and visibility of skeletal elements in the archaeological record. It is possible that if it was a common practice to remove the majority of the meat from the animal at the kill site before transport to the village, that very little skeletal evidence related to access to, and distribution of

large mammals would be present in the archaeological record. However, the presence of leg bones in almost all the deer and wapiti households suggests that meat from those portions of the animals was still attached to the bone when it was brought back to Morton Village, likely for ease of transport and use in marrow processing (Binford 1978, 1984).

For these analysis methods to be leveed more effectively to examine the presence and extent of faunal access strategies, further application on archaeological sites that are well-preserved, fully excavated, and with short-term occupations would be optimal. Additionally, archaeologists may also attempt to follow the aDNA methodology initially developed for this project to test its feasibility in identifying foodsharing practices within the archaeological record.

Though results may be subtle, the broad-based approach using four analytical methods used in tandem did provide archaeological evidence of foodsharing and distribution practices during the coalescence process. While each of these methods can be useful by themselves in revealing a facet of access strategies to faunal resources within a coalescing community, the results of this study indicate that using the four methodologies together provides a more comprehensive representation of which practices were taking place. Without the implementation of the household distribution analysis, the differences in the levels/types of access to white-tailed deer and wapiti at Morton Village would have not been discovered. It should be noted that even though there was not abundant evidence for foodsharing practices uncovered via the white-tailed deer and wapiti remains, it does not necessarily mean that social relationships within community members did not form based on the practice of sharing food or other animal access strategies not visible in this study.

In sum, this study has shown that the distribution and sharing of large game animals, such as wapiti, may play an important role in the creation and maintenance of social relationships

during the coalescence process. Furthermore, the analysis of faunal access strategies using these four methodologies at sites of coalescence can reveal social ties within communities and contribute to the overall understanding of the important roles that the use of animals can play within the coalescence process.

APPENDIX

APPENDIX: White-tailed Deer and Wapiti NISP Context Totals

Table A4. White-tailed Deer and Wapiti NISP Context Totals		
Context	White-tailed Deer NISP	Wapiti NISP
Feature 135	7	-
Feature 137	2	-
Feature 143	1	-
Feature 151	7	-
Feature 152	27	4
Feature 154	151	14
Feature 155	61	1
Feature 158	-	4
Feature 159	32	3
Feature 160	2	1
Feature 161	1	-
Feature 164	5	-
Feature 166	1	-
Feature 168	3	-
Feature 171	26	3
Feature 173	18	1
Feature 174	20	2
Feature 179	1	-
Feature 181	1	-
Feature 182	28	5
Feature 183	1	-
Feature 186	33	1
Feature 187	2	-
Feature 188	-	1
Feature 190	1	1
Feature 191	3	-
Feature 193	1	-
Feature 195	3	-
Feature 197	-	2
Feature 198	1	-
Feature 202	18	-
Feature 203	98	5
Feature 205	5	-
Feature 206	24	-

Table A4 (cont'd)		
Feature 208	1	1
Feature 210	1	-
Feature 211	6	2
Feature 212	5	-
Feature 213	9	1
Feature 219	8	1
Feature 223	13	9
Feature 224	369	45
Feature 225	16	-
Feature 229	21	2
Feature 230	31	2
Feature 231	3	-
Feature 232	139	10
Feature 233	21	-
Feature 235	2	-
Feature 236	5	-
Feature 237	28	10
Feature 238	11	-
Feature 239	1	-
Feature 241	4	-
Feature 242	11	-
Feature 243	30	5
Feature 245	4	-
Feature 246	4	1
Feature 253	-	1
Feature 256	2	-
Feature 257	2	-
Feature 258	2	-
Feature 260	53	2
Feature 269	1	-
Feature 273	1	-
Feature 279	6	1
Feature 280	4	-
Feature 284	2	1
Feature 287	7	-
Feature 304	25	3
Feature 306	6	1
Feature 307	4	4

Table A4 (cont'd)		
Feature 308	2	2
Feature 311	3	-
Feature 315	4	1
Feature 318	8	1
Feature 319	14	-
Feature 320	4	-
Feature 321	1	-
Feature 323	32	3
Feature 324	11	1
Feature 328	19	1
Feature 329	7	1
Structure 16	13	6
Square 12	-	1
Square 26	-	1
Square 69	-	1

REFERENCES

REFERENCES

Arkush, Elizabeth

2017 Coalescence and Defensive Communities: Insights from an Andean Hillfort Town. *Cambridge Archaeological Journal* 28(1):1-22.

Barbanera, Filippo, Monica Guerrini, Caterina Beccani, Giovanni Forcina, Petrois Anayiotos, and Panicos Panayides.

2012 Conservation of endemic and threatened wildlife: Molecular forensic DNA against poaching of the Cypriot mouflon (*Ovis orientalis ophion*, Bovidae). *Forensic Science International: Genetics* 6(5):671-675.

Binford, Lewis

1984 Butchering, Sharing, and the Archaeological Record. *Journal of Anthropological Archaeology* 3(3):235-257.

1978 *Nunamiut Ethnoarchaeology*. Academic Press, New York and London.

Birch, Jennifer

2012 Coalescent Communities: Settlement Aggregation and Social Integration in Iroquoian Ontario. *American Antiquity* 77(4):646-670.

Buchanan, M. E.

2018 Patterns of Faunal Utilization and Sociopolitical Organization at the Mississippian Period Kincaid Mound Site. *Midcontinental Journal of Archaeology, 43*(2):151-179. https://doi.org/10.1080/01461109.2018.1439354

Caniglia, Romolo, Elena Fabbri, Claudia Greco, Marco Galaverni and Ettore Randi

2010 Forensic DNA against wildlife poaching: Identification of a serial wolf killing in Italy. *Forensic Science International: Genetics* 4(5):334-338.

Cameron, Catherine M.

2013 How People Moved among Ancient Societies: Broadening the View. *American Anthropologist* 115(2):218-231.

Clark, Jeffrey J., Jennifer A. Birch, Michelle Hegmon, Barbara J. Mills, Donna M. Glowacki, Scott G. Ortman, Jeffrey S. Dean, Rory Gauthier, Patrick D. Lyons, Matthew A. Peeples, Lewis Borck, and John A. Ware

2019 Resolving the Migrant Paradox: Two Pathways to Coalescence in the Late P recontact U.S. Southwest. *Journal of Anthropological Archaeology* 53:262-287.

Conner, Michael D., and Jodie A. O'Gorman

2012a *Spatial Distribution of Cultural Components and House Types at Morton Village*. Paper presented at 58th Annual Midwest Archaeological Conference, East Lansing, Michigan.

Dandoy, Jeremiah
1996 Astragali, The Ubiquitous Gaming Pieces, Reviews and Reports. *Expedition* 38(1):51-58.

Densmore, Frances
1979 *Chippewa Customs*. Minnesota Historical Society Press, St. Paul.

Enloe, James G.
2003 Food sharing past and present: archaeological evidence for economic and social Interactions. *Farming: The Archaeology and Anthropology of Hunter Gatherers*, 1:1-23.

Esarey, Duane and Lawrence A. Conrad
1998 The Bold Counselor Phase of the Central Illinois River Valley: Oneota's Middle Mississippian Margin. *The Wisconsin Archaeologist* 79(2):38-61.

Fletcher, Alice C., and Francis La Flesche
1911 *The Omaha Tribe.* Twenty-Seventh Annual Report of the Bureau of American Ethnology, 1905-1906. Government Printing Office, Washington D.C.

Gilmour, G. H.
1997 The Nature and Function of Astragalus Bones from Archaeological Contexts in the Levant and Eastern Mediterranean. *Oxford Journal of Archaeology* 16(2):167-175.

Grimstead, Deanna N.
2012 Prestige and Prejudice: The Role of Long Distance Big Game Hunting as an Optimal Foraging Decision. *American Antiquity* 77(1):168-178.

Harper, Cindy, Anette Ludwig, Amy Clarke, Kagiso Makgopela, Audrey Yurchenko, Alan Guthrie, Pavel Dobrynin, Gaik Tamazian, Richard Emslie, Marile van Heerden, Markus Hofmeyr, Roderick Potter, Johannes Roets, Piet Beytell, Moses Otiende, Linus Kariuki, Raoul du Toit, Natasha Anderson, Joseph Okori, Alexey Antonik, Klaus-Peter Koepfli, Peter Thompson, and Stephen J. O'Brien
2018 Robust forensic matching of confiscated horns to individual poached African rhinoceros. *Current Biology* 28(1):R13-R14.

Henning, D. R.
1998 The Oneota Tradition. In W. R. Wood (Ed.) *Archaeology on the Great Plains* (pp. 345-414). University Press of Kansas.

Jackson, H. E., & Scott, S. L.
2003 Patterns of Elite Faunal Utilization at Moundville, Alabama. *American Antiquity, 68*(3):552-572. https://doi.org/10.2307/3557108

Kelly, L. S.
1997 Patterns of Faunal Exploitation at Cahokia. In T. R. Pauketat, & T. E. Emerson (Eds.), *Cahokia: Domination and Ideology in the Mississippian World* (pp. 69-88).

University of Nebraska Press.

2001 Case of Ritual Feasting at the Cahokia Site. In M. Dietler, & B. Hayden (Eds.), *Feasts: Archaeological and Ethnographic Perspectives* (pp. 334-367). Smithsonian Institution Press.

Kowalewski, Stephen A.
2006 Coalescent Societies. In *Light on the Path: The Anthropology and History of the Southeastern Indians*, edited Robbie R. Ethridge, Thomas J. Pluckhahn, and Thomas J. Hudson, pp. 68-84. University of Alabama Press, Tuscaloosa.

Lyman, R. Lee.
2006 Identifying bilateral pairs of deer (*Odocoileus* sp.) bones: how symmetrical is symmetrical enough. *Journal of Archaeological Science* 33(9):1256-1265.

1994 *Vertebrate Taphonomy*. Cambridge Manuals in Archaeology, Cambridge University Press, Cambridge.

Marshall, Fiona
1994 Food Sharing and Body Part Representation in Okiek Faunal Assemblages. *Journal of Archaeological Science* 21(1):65-77.

McGuire, Kelly R., and William R. Hildebrandt
2005 Re-Thinking Great Basin Foragers: Prestige Hunting and Costly Signaling During the Middle Archaic Period. *American Antiquity* 70(4):695-712.

McTavish, R. C.
2020 Archaeofauna as Evidence for a Specialized Oneota Economy. *Midwest Archaeological Conference Occasional Papers 4*:83-102.

Milner, George R.
1999 Warfare in Prehistoric and Early Historic Eastern North America. *Journal of Archaeological Research* 7:105-151.

Milner, George R., and Virginia G. Smith
1990 Oneota Human Skeletal Remains. In *Archaeological Investigations at the Morton Village and Norris Farms #36 Cemetery,* edited by S. Santure, A. Harn, D. Esarey, pp. 111-148. Illinois State Museum Report of Investigations, No. 45, Illinois State Museum, Springfield.

Milner, George R., Eve Anderson, and Virginia G. Smith
1991 Warfare in Late Prehistoric West-Central Illinois. *American Antiquity* 56(4):581-603.

O'Gorman, Jodie and Michael Conner
2013 Piecing together Ritual at the Intersection of Oneota and Mississippian Worlds.

Paper presented at the 57th Annual Meeting of the Midwest Archaeology Conference, Columbus, OH.

2016 Variability in Ritual at the Intersection of Oneota and Mississippian Worlds. Poster Presented at the 60th Annual Meeting of the Midwest Archaeological Conference, Iowa City, Iowa.

Painter, Autumn M.
2022 Chapter 2: Intersection of Coalescence and Diet: Animal Use Practices at Morton Village. PhD dissertation, Department of Anthropology, Michigan State University, East Lansing, Michigan.

Painter, Autumn M., Jeffrey M. Painter, Jodie O'Gorman, and Terrance J. Martin
2021 *Surviving or Thriving? Re-assessing Social Interaction and Warfare Related Food Insecurity at Morton Village*. Paper presented at the Society for American Archaeology Conference, San Francisco.

Painter, Jeffrey M.
2021 Cooking and Coalescence: Exploring the Construction of Community and Cuisine at Morton Village. PhD dissertation, Department of Anthropology, Michigan State University, East Lansing, Michigan.

Painter, Jeffery M., and Jodie O'Gorman
2019 Cooking and Community: An Exploration of Oneota Group Variability through Foodways. *Midcontinental Journal of Archaeology* 44(3):231-258.

2021 You are How You Eat: Towards an Understanding of Cuisine and Community Integration at Morton Village. Paper presented at the Annual Meeting of the Midwest Archaeological Conference, East Lansing, Michigan.

Raslich, Frank J., Jodie A. O'Gorman, and Michael Conner
2015 Coming Together: Evidence of Ritual and Public Space as Mechanisms of Social Integration. Poster Presented at the 80th Society for American Archaeology Meeting, San Francisco, CA.

Salisbury, Roderick B., and William Engelbrecht
2018 Broken points and social cohesion in Iroquoian villages: A point refit study. *Journal of Anthropological Archaeology* 51:104-112.

Santure, Sharron K., Alan D. Harn, and Duane Esarey (editors)
1990 *Archaeological Investigations at the Morton Village and Norris Farms 36 Cemetery.* Illinois State Museum Reports of Investigations, No. 45. Springfield.

Silva, Nikki, Jodie O'Gorman, and Michael Conner

2014 Implications of Recent Radiocarbon Dating at Norris Farms 36 Cemetery and Morton Village. Paper presented at the 58th Annual Meeting of the Midwest Archaeological Conference, Champaign, Illinois.

Speth, John D.
1990 Seasonality, Resource Stress, and Food Sharing in So-Called "Egalitarian" Foraging Societies. *Journal of Archaeological Archaeology* 9(2):148-188.

Swanton, John R.
1946 *The Indians of the Southeastern United States*. Bureau of American Ethnology Bulletin 137, Smithsonian Institution. Government Printing Office, Washington D.C.

Trigger, Bruce G.
1969 *The Huron: Farmers of the North*. Holt, Reinhart, and Winston, Inc., New York City.

Yann, Jessica, Jeffrey Painter, and Michael Conner
2015 The Spatial Distribution of Domestic Facilities in the Multiethnic Morton Village Site. Poster Presented at the 80th Society for American Archaeology Meeting, San Francisco, CA.

Waguespack, N. M.
2002 Caribou sharing and storage: refitting the Palangana site. *Journal of Anthropological Archaeology*, 21(3), 396-417. https://doi.org /10.1016/s0278-4165(02)00006-5

Watson, Patty Jo
1979 *Archaeological Ethnography in Western Iran*. University of Arizona Press, Tucson.

Winterhalder, Bruce
1986 Diet Choice, Risk, and Food Sharing in a Stochastic Environment. *Journal of Archaeological Archaeology* 5(4):369-392.

Wood, Brian M.
2006 Prestige of Provisioning? A Test of Foraging Goals Among the Hadza. *Current Anthropology* 47(2):383-387.

Zeder, Melinda A., and Susan R. Arter
2008 Meat Consumption and Bone Use in a Mississippian Village. In *Case Studies in Environmental Archaeology,* edited by Elizabeth Reitz, Sylvia J. Scudder, and C. Margaret Scarry, pp. 337-355. Springer, New York City.

CHAPTER 5: DISCUSSION AND CONCLUSION

INTRODUCTION

In this dissertation, I have sought to expand anthropological understandings of how animal use intersects with social interactions and community building practices that are part of the coalescence process. Archaeological research on coalescent societies has focused two different scales: large-scale and micro-scale changes. The large-scale changes include the development of new institutions and ideologies (Birch 2012; Clark et al. 2019; Kowalewski 2006), while the micro-scale research focuses on the daily choices and interactions that take place within a coalescing society (Birch 2012, 2013; O'Gorman and Conner in prep; Painter 2021; Pauketat and Alt 2005; Yaeger and Canuto 2000). It is these smaller daily practices that are essential to consider in coalescence research, as they are integral to the formation and maintenance of new relationships, traditions, and ideologies that are used to bring a community together (Cameron 2013; Painter 2021; Yaeger 2000).

Coalescence is the formation of new communities through the coming together of different groups of people who negotiated their differences by creating new traditions and ideologies (Birch 2012; Clark et al. 2019; Kowalewski 2006). These negotiations commonly involve several mechanisms including universalizing ideologies, the development of collective leadership, elaborate community integration, and intensification of production (Kowalewski 2006). One aspect of these mechanisms that have been under-explored is the role of food and animal use within the coalescence process. Population increase during the coalescence process would likely require an increase in animal resources, both for food and additional animal byproducts (Kowalewski 2006). In addition to an increase in intensification of animal use, migrants can also find themselves undergoing stress, conflict, and/or periods of adjustment with

the local population, which in turn can result in food insecurity/circumscription affecting a community's animal use and cuisine practices (Clark et al. 2019; Kowalewski 2006). Beyond the need for animals for subsistence, practices surrounding the use of fauna may have been critical in the formation and maintenance of relationships within a new community (Birch 2012; Clark et al. 2019; Kowalewski 2006). These can include the use of animals in different ceremonial practices that could have assisted in the creation of a shared community ideology and the sharing of food which can work towards establishing and maintaining bonds between community members.

The case study for this research is Morton Village, a habitation site located in the central Illinois River valley that was contemporaneously occupied by local Mississippian and migrant Oneota groups who appear to have been engaged in the coalescence process (Bengston and O'Gorman 2016; O'Gorman and Conner in prep; Santure et al. 1990). Excellent faunal preservation and excavations from across the village that included sampling both domestic and ritual/ceremonial spaces allowed for three distinct but overlapping aspects of animal use in the coalescence process to be examined. These include 1) studying the overall diet as it intersects with the negotiation of everyday life, 2) the use of animals and animal symbols in ritual activities as a part of the long-term process of coalescence, and 3) animal access strategies including foodsharing practices.

RESULTS

This section will discuss the results of the three research projects individually, focusing on how the faunal data can be used to understand day-to-day activities that contribute to the

broad changes occurring within a community undergoing coalescence. Interpretations combining the findings from these projects will be presented in the following section.

Chapter 2 Results

The purpose of this study was to look at the intersection of animal use and coalescence, specifically focusing on how people used and interacted with animals in everyday activities, including hunting and fishing patterns and species choice, to negotiate the challenges presented during the coalescence process. To accomplish this, a stratified random sampling strategy was employed, including features from both within and outside of domestic structures resulting in a total of 23,325 faunal vertebrate specimens analyzed. To determine if there were any changes in foodways practices and if there were any indicators of food insecurity or circumscription, a baseline of diet trends was created based on previously published faunal materials from 34 Oneota and Mississippian communities.

Overall, fish and mammal species comprise over 95% of all identified specimens within the sample. Cervidae accounts for the majority of NISP, MNI, bone weight, and biomass for the entire site, with white-tailed deer comprising the majority of the Cervidae specimens. When the contexts of the features are separated by location, internal vs. external to structures, the external features contained a wider variety of species, larger MNI counts, and a higher quantity of faunal remains per feature than internal features.

As architectural style is one of the major dimensions of variability at Morton Village, the internal features were sub-divided and examined against each other (wall-trench, single-post, and mixed architecture). While the features associated with each architectural style are overall similar, there are three main distinctions: 1) a lack of bird remains in mixed architectural

features, 2) bivalves are more abundant in wall-trench than single-post and mixed architectural features, and 3) notable differences in the number of faunal remains recovered between architectural type, possibly the result of different disposal practices used between the occupants of these structure types (Mississippian-style wall trench structures contained nearly double the amount of material than Oneota-style single post structures).

When species lists and the diversity and evenness statistical results (1-Simpson, Simpson 1-D, and Shannon indices) from Morton Village are compared against other Mississippian and Oneota sites in the midcontinent, two patterns emerged. First, based on species lists, the Mississippian and Oneota foodways patterns appear to be similar, likely as both communities took advantage of their local animal resources. Second, the diversity and evenness results from Morton Village are similar to both the Oneota and Mississippian communities, indicating that there were not any significant deviations from traditional animal use patterns taking place at Morton Village. However, while not statistically significant, there was a slight variation in the Oneota comparative sites diet trends indicating a wider variety of species utilized than at Mississippian sites. The Morton Village diversity results align more with the Oneota pattern, indicating that the residents of the village followed more of an Oneota traditional animal use pattern.

In total, the Morton Village occupants used a diverse range of animal species that were readily available and renewable, all of which would have been available in the surrounding landscape. This indicates that the village occupants were not significantly impacted in resource options by long-term circumscription due to stress or warfare in the region. This use of diverse animal species may be an elaboration of production strategies, as it allows for a wider array of resources to be obtained, but it cannot be definitively associated with the coalescence process.

Lastly, as the statistical results from the comparative Oneota and Mississippian sites were not statistically significant, there were no visible indicators of hybrid foodways practices occurring at Morton Village within the faunal record.

Within the study of coalescent societies, this project indicates that it is critical to consider several factors when studying the roles of animal use. First, including the relative abundance and types of species selected, where those species could be obtained from within the local environment, and the context from which they were recovered is important to gain a broad picture of the use of animals within a coalescing community. Second, the population sizes for both the migrant and local groups should be acknowledged, as a dramatic increase in population could impact the amount of food resources needed to successfully sustain a new community. Lastly, as the threat of violence and circumscription is common to coalescing societies, analysis that focuses on determining if foodways patterns or access to certain resources was restricted is essential. There is no one clear pattern to look for to identify the presence of circumscription. Recognizing the possibility that differences that the migrant's original food base and preferences may differ from local ideas is key to this. Further, if there are restrictions to food resources, it would likely impact a coalescing community's ability to adapt their traditional foodways practices more easily.

Chapter 3 Results

The goal of this study was to provide a more nuanced understanding of how people used animals and animal symbols in ritual and ceremonial practices that were part of negotiating social and community relationships during the coalescence process. Specifically, this project used Morton Village as a case study, looking for the visible, shared use of animals and animal

symbols in ritual and ceremonial contexts that could indicate the development of similar practices. Four ceremonial contexts identified within the village were used to achieve this, three structures and an individual feature, from which the faunal remains were analyzed in their entirety. The results of the faunal analysis were compared in three different ways to allow for a better understanding of the role in which the use of animals and animal symbols can play in the formation and maintenance of community identity. First, each ritual context was compared against the other to look for patterns between ceremonial practices. Second, the ceremonial contexts were then compared against the overall Morton Village animal use patterns determined in Chapter 2 to look for variations in the species, portions, and quantities of the species used. Third, each ritual context was compared against previously analyzed faunal remains recovered from Norris Farms 36, the associated cemetery site, to look for commonalities or differences in the use of animals and animal symbols in community ritual and mortuary practices.

Three main patterns were determined that reveal information about how animals and animal symbols were used in ritual practices that may have played a role in bringing certain facets of the Morton Village community together during the coalescence process. First, the choice of animal classes/species used in the ceremonial structure contexts were relatively similar, with a higher ratio of mammals present compared to other animal classes, even though based on material culture evidence, the ceremonial structures likely served different purposes within the Morton Village community. The use of mammals in these spaces could be because of several reasons. These include the fact that mammals are typically larger than other animal classes and can provide more meat per individual, a cuisine preference within Morton Village, or as an unknown symbolic meaning important to the community. Second, the individual feature contains the remains of a large, community-level feasting event that was ritually charged. Based on the

material culture, it is likely that the entire feature was created through a sequence of related behaviors surrounding a single event that involved both Mississippian and Oneota community members (O'Gorman and Conner in prep). The large number of faunal remains recovered from this single context indicates that the Morton Village community would have had to work together, contributing towards the common goal for this event, over a short period of time. Additionally, the presence and use of bald eagle and double-crested cormorant (not present elsewhere in the Morton Village assemblage), could represent an emphasis on the use of avian symbols, which may have been a shared trait that acted as common ground between the Oneota and Mississippian people. The practices surrounding this event would have joined the coalescing community together, building new relationships and strengthening existing ties while also aiding in the creation of shared community practices. Third, the only similarity found between village ceremonial contexts and Norris Farms 36 Cemetery was the use/presence of a ritually charged avian species, the bald eagle, indicating that the use of animals and animal symbols within these two spaces was generally different and had very little overlap. However, the shared use of bald eagle may denote the symbolic importance of this species to the Morton Village community, as it was used as part of creating and maintaining community relationships and in traditional burial practices.

In total, similar animal species were used by Morton Village community members as ritually charged food items and offerings. Furthermore, the inclusion of shared symbols, specifically those related to avian species (present within Structure 16 [owl symbol], Feature 224 [bald eagle and double-crested cormorant], and Norris Farms 36 [avian regalia and bald eagle burial]), suggests that the occupants of Morton Village were using similar animal symbols in a variety of ceremonial contexts. The choices surrounding the ceremonial activities may have

aided in creating common ground through the development of similar practices. Alternatively, past research has shown that both Oneota and Mississippian groups used a variety of avian symbols, and this commonality could have served the Morton Village residents as a starting point to adapt or create shared ceremonial practices that were more easily understood by the community as a whole.

This study has demonstrated the importance of investigating multiple and varied ritual/ceremonial contexts in the analysis of animal and animal symbolism use within a site of coalescence. There are no simple ritual faunal signatures, as both unique and common species can take on special meaning in some contexts. Furthermore, this project demonstrated that certain symbols, especially those that are already similar between groups, could serve as a locus of interaction during the coalescence process. If these similar symbols are used and emphasized within a coalescing community, they can be used to create a shared symbolic vocabulary that is more easily understood by the community as a whole. Potentially, a shared symbolic vocabulary could be used as a starting point to the development of a unified community ideology that would bring a coalescing community together through shared practices and ideas.

Chapter 4 Results

The purpose of this study was to evaluate the presence and extent of access strategies to large game animals during the coalescence process at Morton Village. To address this, this study builds on the results of chapter 2 and examines the sharing and distribution of white-tailed deer and wapiti. These species were selected for analysis because they are the most likely to be shared between households as they are the largest mammal species (Speth 1990; Winterhalder 1986) identified within the Morton Village faunal assemblage at this time. To uncover the presence of

faunal access strategies, four different analysis methods were used in tandem 1) refitting, 2) pair matching, 3) body portions, and 4) household distribution.

Faunal analysis was conducted on 1,587 white-tailed deer and 165 wapiti specimens. Of those, none were identified that could be refitted from different spatial contexts (87 total unique contexts were included in this study). For wapiti, one indicator of pair matching was uncovered, astragali recovered from two contexts located approximately 20 meters apart, one within a structure, the other in an open location near several other structure basins (possibly associated with several households). Household distribution analysis also revealed different ratios and portion distribution of wapiti between the 11 households identified at the site. White-tailed deer analysis, on the other hand, revealed different patterns. No pair matches were identified between contexts, and similar ratios of deer body portions were identified between households. Furthermore, analysis conducted for Chapter 2 revealed that the site was placed at an optimal location on the central Illinois River valley landscape which provided access to a wide variety of resources, and that the occupants of the village were not impacted by circumscription.

These results indicate that negotiations over faunal access were taking place during the coalescence process at Morton Village, possibly serving as one of the mechanisms for creating and maintaining relationships within the community. The wapiti pair match could indicate that foodsharing was occurring between the occupants of the associated structures. The presence of foodsharing indicates that there was a social relationship between the occupants of these households, potentially a reciprocal one that formed as part of hunting and processing activities. Additionally, the differential access to wapiti body portions between households may be the result of formalized distribution practices. These distribution/sharing practices could have resulted from a community-wide negotiation involving both the Mississippian and Oneota

community members. Furthermore, cooperative hunting strategies for wapiti including both groups may have served as both a risk reduction strategy, but also as a way to create and maintain social ties within the community. Lastly, the differences between white-tailed deer and wapiti access strategies and distribution patterns may be due to the size differences between these two species. As white-tailed deer are smaller than wapiti, it is possible that they were not shared between households and therefore were not involved in the negotiations surrounding access to faunal resources.

The results of this study indicate that to determine more accurate representations of food access and distribution practices during the coalescence process, multiple analytical methods should be used in tandem. While pair matching, refitting, body portions, and household distribution can be effective in revealing one aspect of faunal access strategies within a coalescing society, the use of these four methods together provide a more comprehensive representation of what practices were occurring. Specifically for this case study, without the inclusion of household distribution, the differences in the types of access to white-tailed deer and wapiti would not have been uncovered.

IMPLICATIONS OF RESULTS AND CONTRIBUTIONS OF STUDY

When these three research projects are examined together, the evidence presented above indicates that while there is not a distinct Morton Village pattern of animal use, animals were being used in multiple aspects of social interactions and practices that contribute towards building community during coalescence. First, the diverse number of species used by Morton Villagers potentially allowed for an easier transition of incorporating new members into the community who came with their own inherent food biases. Second, the presence of avian

symbols, a type of symbol used in both Oneota and Mississippian communities, suggests that the Morton Village occupants were using similar symbols in a variety of ceremonial contexts. The choices surrounding these ceremonial activities may have aided in creating common ground through the development of similar practices. This use of shared practices and ideas may have assisted the Morton Village residents in forming and maintaining community ties. Lastly, the sharing and distribution of wapiti throughout the village indicate that negotiations over access to faunal resources were taking place, potentially including both the migrant Oneota and local Mississippian peoples, creating social bonds between members of the community. Overall, the use of animals appears to have been an important mechanism leveed by Morton Village residents in forming and maintaining social bonds within the coalescing community.

While there is evidence for warfare and violence during this period of time in the Late Precontact midcontinent and for the Morton Villagers specifically, evidence from Morton Village also provides another perspective – one of social negotiation and cooperation in the face of intermittent violence. The co-habitation and coalescing of the Mississippian and Oneota groups within Morton Village has shown that not all interactions during this time resulted in conflict or circumscription. Instead, commonalities in the type of animals used, both for food and as symbolic importance was likely one of many mechanisms that assisted with bridging social, political, and religious differences between these two cultural groups. Further, generating a better understanding of which resource zones were used by inhabitants can also be used as a method for testing hypotheses regarding the presence of circumscription. Understanding traditional food choice and procurement practices for each group is also critical for determining if circumscription was taking place, as circumscription's archaeological signature can vary for different groups.

At a more general level, this research demonstrates the importance of studying animal use in community building during the coalescence process. Not only can it confirm if intensification of production was a mechanism used, but it also can provide a deeper understanding of the wide variety of roles that the use of animals could play in the daily activities that contribute to forming a coalesced society. Lastly, it also indicates that it is important to look at faunal evidence, alongside other lines of evidence, such as spatial organization, and ceramic, lithic, and floral material, to get a better understanding of the many mechanisms that can be used to build or hinder relationships during coalescence.

FUTURE RESEARCH

This study could be enhanced in several ways. First, a more concerted collaborative analysis of different lines of evidence from Morton Village archaeological materials could expand our understanding of the mechanisms that could have been used to bring the migrant Oneota and local Mississippian peoples together into a coalescing community. Additional lines of evidence could include data from floral remains (Nordine 2020), ceramics (Painter 2021), and spatial analyses (Klarmann in prep). Second, archaeological sampling of additional sites in the central Illinois River valley that were the result of the same migration into the region could be conducted to look for indicators of coalescence and their use of animals, as well as how these patterns changed over time. Third, the creation of a formalized list of distinctive morphological features, including characteristics of tuberosities, tendon attachments, articular condyle shapes, fossae, facets, and tubercles, that are useful in the identification of pair matches in commonly shared species would assist in the identification of foodsharing practices in the past. And fourth, additional faunal analysis conducted at Mississippian sites that were occupied before the

migration of Oneota peoples could provide a more nuanced understanding of foodways patterns before the influx of people into the region.

CONCLUSION

The goal of this dissertation was to explore the roles of animal use within the coalescence process, focusing specifically on the Morton Village site. To investigate this gap in the literature, I conducted three research projects using faunal analyses from Morton Village focusing on 1) overall diet within the village, 2) the use of animal and animal symbols in ritual activities, and 3) animal access strategies including foodsharing practices. These analyses found that the occupants of Morton Village used a diverse range of animal species, avian symbols, and foodsharing/distribution practices within a variety of social interactions and practices. From these data, I argue that the use of animals played an important role in the coalescence process at Morton Village by assisting in building social relationships that were critical to community formation and maintenance. Through the sharing of critical resources, residents would have built reciprocal relationships that linked families and individuals together, creating bonds between different facets of the community. Furthermore, subsistence patterns suggest that the community as a whole was resilient in the face of violence and was not impacted by long-term circumscription. It appears that all community members were able to access the varied environments surrounding Morton Village to obtain a wide variety of animal resources and no restriction on certain facets of the community were in place. This wide access to resources may have assisted in facilitating the coalescence process, as inherent food biases from each community could more easily be accommodated. Beyond subsistence, the emphasis of certain animal symbols, especially those that are similar between the two coalescing groups at Morton

Village, would have helped to bridge ideological divides and create shared traditions. However, subtle differences identified in patterns of refuse disposal (Mississippian-style wall trench structures containing nearly double the amount of faunal remains than Oneota-style single post structures) indicates a retention of some traditional practices within households.

Based on these results, this study demonstrates that the study of animal use is a fruitful avenue of research that can reveal several mechanisms for how social relationships are formed and community building processes occurred during coalescence. Two main uses of animals were identified as important components of day-to-day interactions that contributed to the coalescence process. First, the use of similar or shared animal symbols may be an indicator of the creation of new practices that could help establish shared ritual traditions. Second, the existence of faunal access and sharing strategies/patterns can indicate the formation of social ties through community-wide negotiations involving both groups within the coalescing society, bringing different facets of the community together. In addition, while I did not find clear evidence for the intensification of production at Morton Village, it should be possible given the presence of detailed comparative information from sites associated with the coalescing groups prior to their integration. One strategy that may have been used to increase production is diversification, as this would enable a community to produce more food and animal biproducts. Importantly, the methods employed in this dissertation can be applied to other instances of coalescence to reveal the role of animal use in diverse interactions and practices critical to community development, as well as how these practices varied over time and space.

REFERENCES

REFERENCES

Bengtson, Jennifer D., and Jodie A. O'Gorman
2016 Children, Migration and Mortuary Representation in the Late Prehistoric Central Illinois River Valley. *Childhood in the Past* 9(1):19-43.

Birch, Jennifer
2012 Coalescent Communities: Settlement Aggregation and Social Integration in Iroquoian Ontario. *American Antiquity* 77(4):646-670.

2013 Between Villages and Cities: Settlement Aggregation in Cross-Cultural Perspective. In *From Prehistoric Villages to Cities: Settlement Aggregation and Community Transformation*, edited by Jennifer Birch, pp. 1-22. Routledge, New York.

Cameron, Catherine M.
2013 How People Moved among Ancient Societies: Broadening the View. *American Anthropologist* 115(2):218-231.

Clark, Jeffrey J., Jennifer A. Birch, Michelle Hegmon, Barbara J. Mills, Donna M. Glowacki, Scott G. Ortman, Jeffrey S. Dean, Rory Gauthier, Patrick D. Lyons, Matthew A. Peeples, Lewis Borck, and John A. Ware
2019 Resolving the Migrant Paradox: Two Pathways to Coalescence in the Late Precontact U.S. Southwest. *Journal of Anthropological Archaeology* 53:262-287.

Klarmann, Nicole
In Prep PhD dissertation, Department of Anthropology, Michigan State University, East Lansing, Michigan.

Kowalewski, Stephen A.
2006 Coalescent Societies. In *Light on the Path: The Anthropology and History of the Southeastern Indians*, edited Robbie R. Ethridge, Thomas J. Pluckhahn, and Thomas J. Hudson, pp. 68-84. University of Alabama Press, Tuscaloosa.

Nordine, Kelsey
2020 Building Communities: Interpreting Oneota and Mississippian Interaction Through Paleoethnobotanical Analysis at the Morton Village Site (11F2), West-Central Illinois. PhD dissertation, Department of Anthropology, Washington University, St. Louis, Missouri.

O'Gorman, Jodie and Michael Conner
In prep Considering Hybridity and Coalescence at Morton Village.

Painter, Jeffrey M.

2021 Cooking and Coalescence: Exploring the Construction of Community and Cuisine at Morton Village. PhD dissertation, Department of Anthropology, Michigan State University, East Lansing, Michigan.

Pauketat, Timothy R. and Susan Alt
2005 Agency in a Postmold? Physicality and the Agency of Culture-Making. *Journal of Archaeological Method and Theory* 12:213-236.

Santure, Sharron K., Alan D. Harn, and Duane Esarey (editors)
1990 *Archaeological Investigations at the Morton Village and Norris Farms 36 Cemetery.* Illinois State Museum Reports of Investigations, No. 45. Springfield.

Speth, John D.
1990 Seasonality, Resource Stress, and Food Sharing in So-Called "Egalitarian" Foraging Societies. *Journal of Anthropological Archaeology* 9(2):148-188.

Winterhalder, Bruce
1986 Diet Choice, Risk, and Food Sharing in a Stochastic Environment. *Journal of Anthropological Archaeology* 5(4):369-392.

Yaeger, Jason, and Marcello A. Canuto
2000 Introducing an Archaeology of Communities. In *The Archaeology of Communities: A New World Perspective*, edited by Marcello A. Canuto and Jason Yaeger, pp. 1-15. Routledge, New York.